UNIVERSIDADE DE TRÁS-OS-MONTES E ALTO DOURO

Projet INTERREG IIIb - COREA

“The NTIC to support Council and Agricultural Services of Atlantic Arc - The precision agriculture and the online offer services”

“Les NTIC au service du conseil et des Réseaux Agricoles de l’ Arc Atlantique - Agriculture de précision et offre de services en ligne”

Fernando A. Santos

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Final report of project INTERREG III – B

“The NTIC to support Council and Agricultural Services of Atlantic Arc”

(“*Les NTIC au service du Conseil et des Réseaux Agricoles de l’Arc Atlantique*”(

Fernando A. Santos

Project INTERREG IIIb - COREA

Avec la participation de l'Union Européenne
Projet cofinancé par le FEDER

INTERREG IIIB

ESPAÑA ESPACIO ATLÁNTICO
FRANCE ESPACE ATLANTIQUE
IRELAND ATLANTIC AREA
PORTUGAL ESPAÇO ATLÂNTICO
U.K. ATLANTIC AREA

Annex

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Abreviation list

Am	Amendoal (plot)
AT	Exchangeable acidity
Ba	Bateiras (plot)
BAP	Berries probable alcohol
BAT	Berries total acidity
BC	Bico dos Casais (plot)
BcAcTt	Frozen berries total acidity
BcAcucar	Frozen berries sugar content
BcAnt	Frozen berries antocian content
BcFen	Frozen berries phenol content
BcpH	Frozen berries pH
BP	Berries weight, in grams
BpH	Berries pH
Ca	Cardanhas (plot)
ChINDI	Indicator of chlorophyll content
ClHm	Air humidity, in %
ClTp	Air temperature, in ºC
CTCe	Cation exchangeable capacity
E1, ...E9	Estates stations (constituted by three geo referenced points)
F	Relation between sample variation and inside variation
FlAr	Leaf area, in cm^2
FlB	Leaf boron content, in g kg^{-1}
FlCa	Leaf calcium content, in g kg^{-1}
FlCu	Leaf copper content, in g kg^{-1}
FlFe	Leaf iron content, in g kg^{-1}
FlK	Leaf potassium content, in g kg^{-1}
FlMg	Leaf magnesium content, in g kg^{-1}
FlMn	Leaf manganese content, in g kg^{-1}
FlN	Leaf nitrogen content, in g kg^{-1}
FlP	Leaf phosphorous content, in g kg^{-1}
FlPS	Leaf dry weight, in grams
FlZn	Leaf zinc content, in g kg^{-1}
G1, G2 and G3	Stations groups (each group formed by three stations)
GSBe	Bases saturation
MAP	Must probable alcohol
MAT	Must total acidity
MO	Soil organic matter, in %
MpH	Must pH
NDVI	Normalized difference vegetation index

PlPd	Pruning wood weight, in grams
PlTp	Plant temperature, in ºC
PrAcTt	Value given to wine total acidity
PrAdst	Value given to wine astringency
PrAroma	Value given to wine aroma
PrCorpo	Value given to wine body
PrFinal	Final value given to wine
PrFrVer	Value given to wine red fruits aroma
PRI	Photochemical reflectance index
PrInCor	Value given to wine colour
ProPla	Plants yield, in grams
Pt	Terraces
PWD	Plant water concentration
S	Significance
SBT	Sum of exchangeable bases
SIPI	Structural independent pigment index
Sl20	Soil superficial layer (< 20 cm deep)
Sl20(40)AT	Soil exchange acidity < 20 cm deep (20 - 40 cm), in cmol+ /Kg
Sl20(40)B	Soil boron content at < 20 cm (20 - 40 cm), in mg /Kg
Sl20(40)Ca	Soil calcium content at < 20 cm (20 - 40 cm), in cmol+ /Kg
Sl20(40)CTCe	Soil cation exchangeable at < 20 cm (20 - 40 cm), in cmol+ /Kg
Sl20(40)GSBe	Soil base saturation at < 20 cm (20 - 40 cm), in %
Sl20(40)K	Soil potassium content at < 20 cm (20 - 40 cm), in cmol+ /Kg
Sl20(40)K_2O	Soil assimilable potassium content at < 20 cm (20 – 40 cm), in mg /Kg
Sl20(40)Mg	Soil magnesium content at < 20 cm (20 - 40 cm), in cmol+ /Kg
Sl20(40)MO	Soil organic matter content at < 20 cm (20 - 40 cm), in %
Sl20(40)Na	Soil nitrogen content at < 20 cm (20 - 40 cm), in cmol+ /Kg
Sl20(40)P_2O_5	Soil assimilable phosphorous content at < 20 cm (20 - 40 cm), in mg /Kg
Sl20(40)pHH_2O	Soil pH, in water at < 20 cm (20 - 40 cm)
Sl20(40)pHKCl	Soil pH, in chlorine at < 20 cm (20 - 40 cm)
Sl20(40)SBT	Soil sum of exchangeable bases at < 20 cm (20 - 40 cm), in cmol+ /Kg
Sl40	Soil layer between 20 - 40 cm
SlTp	Soil temperature, in ºC
SPAD	Leaf chlorophyll content
VA	slope vineyard
VAcFx	Wine fix acidity
VAcRe	Wine reducers sugars, in g/L
VAcTt	Wine total acidity, in g/L
VAcVl	Wine volatile acidity
VAlc	Wine ash alkalinity

VAlcool	Wine alcohol content, in g/L (% vol)
VAnt	Wine antocian, in g/L
VCinza	Wine ash content
VCor	Wine colour intensity
VExSeP	Wine non reducer dry extract, in g/L
VExSeT	Wine total dry extract, in g/L
VFen	Wine total phenols, in g/L
VFenTt	Wine phenol content, in g/L
VMVol	Wine volume mass, in g/L
VpH	Wine pH
VPO_4	Wine ash inorganic phosphates
VSO_2L	Partial SO_2 quantity
VSO_2T	Total SO_2 quantity
VTon	Wine character
WI	Water index

Introduction

The present work is a part of the project INTERREG - COREA, named "*Les NTIC au service du Conseil et des Réseaux Agricoles de l'Arc Atlantique*" whose head of the line is the "*Chambre d'Agriculture de la Sarthe"*, having as partners the following institutions:

- FDGEDA 72 - Fédération Départementale des Groupes de Développement Agricole de la Sarthe (FR);
- Chambre d'Agriculture de la Charente (FR);
- Chambre d'Agriculture des Deux-Sèvres (FR);
- Chambre d'Agriculture de la Dordogne (FR);
- Association des irrigants de la Dordogne (FR);
- Chambre d'Agriculture des Landes (FR);
- FDGEDA 40 - Fédération Départementale des Groupes de Développement Agricole des Landes (FR);
- Chambre d'Agriculture de Lot-et-Garonne (FR);
- Chambre d'Agriculture des Pyrénées-Atlantique (FR);
- NEIKER (ESP - País Basco);
- UAGA - Union de Agricultores y Ganaderos de Alava (ESP);
- ITGA - Instituto Tecnico y de Gestion Agricola, SA - Navarra (ESP);
- ITGG - Instituto Tecnico y de Gestion Ganadero, SA - Navarra (ESP);
- UTAD - Universidade de Trás-os-Montes e Alto Douro (PT).

Of the several presented institutions, only three (Chambre d'Agriculture de la Charente, Neiker and UTAD) have developed works in the ambit of viticulture, serving this report to present the results of the investigation worked out by the Universidade de Trás-os-Montes and Alto Douro, in the Douro Region, Quinta of Santa Bárbara, property of the Agriculture State Department.

Beyond UTAD, the participation of the Centro de Estudos Vitivinícolas do Douro (CEVD) was indispensable, seeing that they have made a substantial part of the experiments, namely the oenological ones, and followed the rest of the field works.

It was also made a research work about the use of new technologies in the Douro viticulture, whose results were grouped with those of french and spanish institutions, allowing to evaluate the present situation of the use of this tools by the farmers of the Atlantic Arc Region.

All of the studies made in the ambit of this Project are available at the website:

http://corea.pa.chambagr.fr

that was co financed by the European Union (FEDER).

Purposes

The project INTERREG - COREA, named "*Les NTIC au service du Conseil et des Réseaux Agricoles de l'Arc Atlantique"* was structured in two purposes, indicated by axle, that in the case of the Universidade de Trás-os-Montes and Alto Douro, were named by:

Axle I- Portuguese websites with agriculture information;
Axle II- Application of precision agriculture to Douro Region (RDD) viticulture.

The Axle II work began with the selection of several plots in the Quinta of Santa Bárbara, in different environment conditions, installation forms, etc, to study the influence of variability between plots in the wines they produce; we may say that the purpose of this experiment is to apply the Precision Agriculture techniques to the viticulture in the RDD.

Beyond the variability inherent to the selection of the four plots, two of them with terraces vineyard and the other two with slope vineyard, it was studied the variability intra plot of which one of them, not considering them as homogenous units, as they are in traditional agriculture (viticulture), but as presenting a heterogeneity that reflects itself in the wines proceeding from the several regions in its interior. To study the variability intra plot, 27 points were geo referenced in the interior of each plot, grouped in nine stations (three points each) and these in three blocs (three stations each).

Relative to the measurements, some of them were made in all of the geo referenced points, like the ones to characterized the environment, others only to the stations, like the ones to characterize the soil and others yet considering as units the blocs, like the ones of yield and vinification.

With the methodology followed in the vineyard characterization, it was possible to compare the four plots, as well as the stations (nine in each plot), the blocs (units of three stations) and the installation forms (terraces and slope vineyards), allowing to make twelve different qualities of wines (twelve "lots").

In the end of those measurements, the twelve "lots" proceeding from the twelve considered blocs were presented to a panel of wine tasters that gave them a classification. The comparison between this classifications and the variables determined along the vegetative cycle of plants and during the making of the wine, will allow determining which and how many are the factors responsible by the differentiation of the wines characteristics and thus raise to power the conditions that favour its quality.

Considering the differences between yield and wine making, it was given special relief to separate analysis of viticultural data (until the vintage), oenological data (starting from the musts), because it is necessary to have good quality raw material to make a good wine, in spite of the technology used in wine making can confer them specific characteristics.

Characterization of the property and plots

The Quinta of Santa Bárbara, with a total area of 32 ha, was acquired by Portuguese State in 1914 to create an Agriculture Experimental Station, destined to promote the development of viticulture and the instruction of technician and vine growers of the Douro Region.

Only after 1936, with the formation of the Posto Vitivinícola da Régua, dependent of the Direcção Geral de Serviços Agrícolas, this experimental unit was given an actual utility. The replanting of the Quinta allowed the installation of several essays, with the purpose of studying the compressing problems with which the vine growers were faced with.

From then on, the Quinta of Santa Bárbara carried out a pertinent part in the region, assuming itself as a pioneer dynamic vehicle in all of the evolution process in the Douro Region. Among others, they are of this example the works that ended in the introduction of oenological techniques destined to simplify the improved vinification of Porto wine, the studies of oenological value of lineage to use in the plantation of Douro Region, the technical solutions to convert and mechanize the slope vineyard and the affinity studies between lineage and graft carrier.

At present days, the Quinta of Santa Bárbara, integrated in the Centro de Estudos Vitivinícolas do Douro with head-office in Peso da Régua, depends of Direcção Regional de Agricultura de Trás-os-Montes.

It has about 22 ha of vineyards (essays and yield), being the rest of the area occupied by constructions, roads and uncultivated soil. It is still, nowadays, in the Douro Region, the only experimental unit effectively managed and with capacity to proceed the experimental development of the vast and complex range of issues that encloses the Douro Region vitiviniculture. On the other hand, it is a place of studies, made in collaboration with other institutions linked with experiment and investigation in the vitivinicultural domain, as well as a privileged site were demonstrations to the vine growers can take place.

1- Used material and equipment

The used material and equipment include the vegetal material (plants), the measurement equipment in the field and in the laboratory.

1.1- Vegetal material

Relatively to the vegetal material, the plots were selected so that the lineage could be the same in all of them - Tinta Roriz (Aragonês). Latter on, and to confirm if the clone was the same in all of the plots, morphological and molecular analysis were made and they confirmed this supposition. The molecular analysis by SSRs markers that provide high polymorphism traducing, in identification terms, in a great power of discrimination.

As main characteristics of this lineage we stand out:

- colour: dye;
- characteristics: vigorous lineage, with irregular yielding up. Mean size bunch, with small berries, slightly flatted, bluish-black coloured, tending to ripe prematurely. The result wines are rich in dyes matters and tannins and highly graduated, good to stage in oak barrels;
- aromas: wild berries (strawberries and blackberries) in young wines, becoming more complex (fruit preserve, leader and spices) as the wine ages.

1.2- Used field equipment

1.2.1- Global Positioning System

The Global Positioning System - GPS TRIMBLE GeoExplorer CEXT is a land mobile receiver, to assemble positions or attributes and characteristics of geo referenced attributes, which main characteristics are:

- Sub-metric precision;
- Windows CE atmosphere;
- 512 MB of storage and 64 MB of RAM memory;
- Coloured screen, in TFT, touchscreen;
- Internally rechargeable battery, mean lasting 19 h;
- Possibility of uploading cartography to screen.

This equipment has incorporated data software (TerraSync Prof) and processing software (GPS Path Finder Office); as an accessory it has an external antenna.

To learn more about this equipment go to:

www.trimble.com

Possible doubts can be clarified thru:

trimble_support@trmble.com.

Figure 1- GeoExplorer CE

1.2.2- Chlorophyll Meter SPAD-502

“The SPAD 502 is a compact meter designed to help users improve crop quality and increase crop yield by providing an indication of the amount of chlorophyll present in plant leaves. The chlorophyll content of plant leaves is related to the conditions of the plant, and thus can be used to determine when additional fertilizer is necessary. By optimizing nutrient conditions, healthier plants can be grown, resulting in a larger crop yield of higher quality.” Spectrum technologies Inc.

Figure 2- SPAD-502

For knowing more about features and how it works consult: http://www.geneq.com/catalog/en/spad-502.html.

1.2.3- Spectroradiometer

The CI-700LP Leaf Probe designed to measure leaf reflection, transmission and absorbance. Before we start measuring with the probe, we need to do a dark and light calibration.

For knowing more about this equipment consult http://www.cid-inc.com.

Figure 3- CID Leaf Probe 700 LP

1.2.4- Infrared Thermometer

The HI-99551 thermometer (http://www.hannainst.co.uk/acatalog/HI-99551-10_Infrared_Thermometer.html)

Employ infrared technology to measure the surface temperature. Infrared measurements are extremely practical with a fast response time, typically around 1 second. Another main advantage is the non-intrusive nature of the measurement. This latter feature is particularly attractive in the food industry since it translates itself into substantial savings by leaving products intact, especially those sealed or pre-wrapped.

Figure 4- Hanna HI 99551

1.2.5- Thermo hygrometer

The temperature and humidity measurer Hygropalm 0 (http://www.rotronic-humidity.com/), is an integrated probe indicator, in which the module sensor measures the temperature and humidity, being all other indicated values calculated from this.

Figure 5- Hygropalm Rotronic

1.2.6- Anemometer

The Lambrecht straw anemometer, model 1416 K50 with digital indicator, Meteo Digit 916 allows to measure air speed between 0.7 and $50 m.s^{-1}$ (http://www.lambrecht.net/eng). Measurements can be instantaneous or 10 to 60 s period media. The inexistence of an automatic system of record deprives the remark of instantaneous readings, as the rhythm shown on the digital screen is too high (3 measurements per second), so the velocity is given by the mean values obtained in those intervals.

Figure 6- Anemometer

2- Methodology

2.1- Selection and characterization of the plots

The selection of the plots was made in order that they could have the same lineage (Aragonês - Tinta Roriz), implanted in different installation forms, vineyards in terraces with one and two row vineyards and slope vineyard, in different heights and exposures. The purpose of this "diversity" was to promote different conditions of vegetative development in plants.

The selected plots and their summary characterization are as it follows:

Table 1- General characterization of the selected plots

Name of the plot	Nº of the plot	Area (ha)	Type of installation	Row direction	Coordinates (1)	Altitude(1) (m)
Amendoal (Am)	42	0.397	1 row terraces	E - W	41º 10' 07.66'' N 7º 32' 42.28 O	94 - 116
Bateiras (Ba)	1	1.130	2 row terraces	N - S	41º 10' 28.45'' N 7º 32' 59.33'' O	98 - 119
Bico dos Casais (BC)	25	0.353	Slope vineyard	NW - SE	41º 10'13.98'' N 7º 32' 44.81'' O	125 - 139
Cardanhas (Ca)	23	0.353	Slope vineyard	NE - SW	41º 10' 05.07'' N 7º 32' 47.27'' O	119 - 124

(1) Google Earth

Related to the exposure it was determined the angle that the rows make with North, clockwise; Bateiras present the terraces in a slope with an accentuated curve, sensibly at the middle.

After selected and characterized the plots were "divided" in nine stations uniformly distributed through its area. In the vineyards in terraces, the stations equal to terraces, except in the case of Amendoal, in which two terraces, too long, have two stations each. In slope vineyards, each station includes 3 - 4 rows, consonant its length; the supports that identify the beginning and the end of the stations were marked with black and red ink, respectively.

In each one of the stations, were selected three geo referenced points, uniformly distributed, adjacently to which all the measurements were made; these points (inner supports) were marked with white ink, so that they could easily be identified.

The vines adjacent to the geo referenced points (one at each side of the supports) will be equally treated, having the same type of pruning, with the same mean load of sprouts, allowing the conditions of measurement at plants level to be steady.

At the Annex - General, Figure 1, are presented the aerial photographs of each plot and, in Figures 2 and 3, their representation, with the limits of each station and the selected points.

The agricultural works that were done at each plot are presented at the Annex - General, Table 1.

2.2- Data record

The data to environment characterization include the record of climate, soil and plant data.

2.2.1- Climate data

The collected data to monitor the environment conditions (atmosphere, plants and soil), to fulfil several times during the plants cycle, in all of the geo referenced points, refer to air temperature and humidity and to plants and soil temperature. Initially the wind speed was also determined but its values were, in most of the cases, practically nulls, and so this measurement stopped; the selected dates for this characterization included the ones correspondent to the main phenological states of plants (blossom, flowering and "painter" - colour changing).

These data were obtained through the 108 geo referenced points (4 plots x 9 stations x 3 points), resulting in that the variation of its values, at the beginning and at the end of measurements, may present some differences inherent to the time needed to determine them and not to the environment variations in a certain moment; to mitigate these differences, the measurements sequence was altered – we didn't always began and ended in the same plots and stations. This methodology allow the mean values to draw near the real conditions, and to result of the environment characteristics, namely exposure, altitude, etc, and not to time gap in which the measurements were made.

Related to the operator location to make the measurements, he was always near the geo referenced points; in the terraces these measurements were made in the space between rows next to the outer row and, in slope vineyard, in the opposite side to the Sun, so that the plant and soil temperature were measured in shady areas.

The use of data from the only meteorological station existing in the Quinta of Santa Bárbara does not allow a differentiation of the environment conditions in each one of the plots, but the values considered correspond to the several development phases, namely blossom, flowering and painter.

2.2.2- Plants data

The plant characterization, made after the correction of its mean load of sprouts, so that it would be the same in all of the plants, consists of:

- photosynthetic activity (SPAD) through plant life cycle;
- leaf dry weight and area;
- concentration of macronutrients (nitrogen, phosphorous and potassium) and micronutrients (calcium, magnesium, boron, iron, copper, zinc and manganese) in leaves, in the phase of painter;
- determination of pruning wood mass.

2.2.2.1- Photosynthetic activity, leaf area and dry weight

The photosynthetic activity of leaves was made at laboratory, with previously collected leaves. The leaf gathering took place at the first hours of the day, with leaves being put in reservoirs with ice until its deposition in refrigerated reservoirs, at the Biology Laboratory at UTAD.

To determine the SPAD, in each one of the vine berries next to the geo referenced points, two leaves are collected at the fructification level area; the final value is the mean of the two leaves, being made a total of 216 measurements.

The determination of, at least, three SPAD measurements along the plants life cycle indicates the evolution of plants photosynthetic activity and allows a diagnosis of the nutritional state of plants, in order to nitrogen contents, because these two variables are positively correlated.

Leaves used in SPAD determination are also used to determine leaf area and dry weight. The methodology is the same used in SPAD measurements, and the value of leaf area and dry weight result of the mean of the two leaves.

To determine the weight, leaves were previously dried, and the samples were taken to the Soil Laboratory to determine their chemical composition. The quotient between dry weight and leaf area, named as LMA- Leaf Mass Area, allows the quantification of leaf thickness.

2.2.2.2- Nutrients concentration

After determine the photosynthetic activity, leaf area and dry weight, the leaves of each station are gathered, grinded and analysed in Soil Laboratory to determine their chemical composition; with this methodology 36 samples are analysed.

The analysis made in 2005, during the phase of painter, are relative to the determination of nitrogen, phosphorous and potassium concentration but, in 2006 two determinations were made, one of them in the phase of painter and another one lather, both of them including the determination of micronutrients (calcium, magnesium, boron, iron, copper, zinc and manganese).

The data shown as reference in bibliography to the concentration of macronutrients in leaves are as followed (Quelhas dos Santos):

- nitrogen - 21.5 g kg^{-1}
- phosphorous - 1.7 g kg^{-1}
- potassium - 10.2 g kg^{-1}

Comparing the determined data with the ones as reference it is possible to appreciate the nutritional state of plants.

2.2.2.3- Leaf reflectance

The use of the spectroradiometer (CID Leaf Probe 700 LP) allowed to determine the leaf reflectance detached from plants in several wave length of the visible spectre (visible spectral regions) and near to infrared (near-infrared spectral regions). Vegetation has, usually, low reflectance in the area of visible band (VIS) and high reflectance in the near infrared (IVP); in the first case is the chlorophyll that absorbs the solar radiation that allows the photosynthesis, while the leaf tissue has low absorption in IVP. The vegetal covering, when in water stress, tends to absorb less solar radiation, increasing its reflectance in the visible spectre, and to absorb more in the near infrared.

The measured reflectance (wave lengths) were R445, R531, R570, R680, R705, R750, R800, R900 and R970 allowing to determine the following parameters (*):

- PRI, photochemical reflectance index = (R531-R570) / (R531+R570);
- NDVI1, normalized difference vegetation index = (R800-R680) / (R800+R680);
- WI, water index =R900 / R970;
- NDVI2, normalized difference vegetation index = (R900-R680) / (R900+R680));
- SIPI, structural independent pigment index = (R800-R445) / (R800-R680);
- ChlNDI, indicator of chlorophyll content = (R750-R705) / (R750+R705);

- PWC, plant water concentration, that estimates leaf water concentration, is obtained from WI and WI / NDVI; traditionally this parameter is determined by leaf dryness but due to its slowness has being substituted for reflectance.

(*) The R indicates the reflectance and the numbers the wave length, in nanometres.

The PRI is used to evaluate the vegetation vigour, monitor the vegetal covering, predict the agricultural productiveness, etc.

The NDVI is an indicator of the vegetation vigour, because it allows the quantification of its green biomass; the more moist and developed the vegetation is the higher is the NDVI. It varies with the structural alterations and the colour of the leaf result of its dehydration, and so it is indirectly related with PWC. Its values vary between - 1 and + 1, corresponding to a situation of water stress or a exuberate vegetation; the water has a higher reflectance in R680, and so its NDVI values are negatives. In recapitulation, it is possible to say that the clouds reflect in similar way in the VIS and in NIR, and so the values of NDVI are next to zero; bare soil presents positive values, but not too high, and the dense vegetation, moist and well developed, presents the highest values of NDVI.

The WI is used to estimate the plant PWC relate to soil (ground-based). Its value is as higher as the higher is the leaf water content. Its value, due to the relation between green colour and humidity, is correlated with NDVI.

The SIPI allows the quantification of the relation between carotenoids and chlorophyll, making possible to evaluate alterations in these pigments.

The PWC is correlated with WI, as well as with WI / NDVI and SIPI. Its determination allows to know plants water situation (water stress), fundamental to define the irrigation endowment; quantify the risk of fires, etc. At present days, the determination of PWC is made through the absorption, through water, of the electromagnetic radiation in the infrared band or by the high resolution reflectance in this band; the reflectance in infrared band, between 950 - 970 nm that equals to a zone of week absorption through water is interesting for this determination.

The quotient WI / NDVI allows patterning the WI by the different structural parameters and by leaf dissection, allowing that leaves of different species are comparable; this reason is a good indicator of PWC and of biomass green colour.

2.2.2.4- Pruning wood weight

To determine the pruning wood, this procedure was made in the two vine berries adjacent to each point, being the pruning wood of each station gathered and weighted (9 x 4 measurements); this procedure is made along the pruning using a suspended scale with a precision of a gram.

2.2.3- Soil data

To characterize the soil, beyond determine its temperature, samples were taken next to the geo referenced points, at 0 - 20 cm and 20 - 40 cm deep, mixing the samples of the three points of each station; this methodology results in the analysis of 72 samples (4 plots x 9 stations x 2 levels of depth).

The data determine at the Soil Laboratory of UTAD for each sample, refer to:

- soil texture;
- pH in H_2O and KCl
- organic matter (OM);
- assimilable phosphorous (P_2O_5);
- assimilable potassium (K_2O)
- calcium (Ca)
- magnesium (Mg);
- potassium (K);
- nitrogen (Na);
- extracted boron in boiling water (B);
- exchangeable acidity (AT);
- sum of exchangeable bases (SBT);
- cation exchangeable capacity (CTCe);
- base saturation (GSBe).

In order to make this analysis, the Egner-Riehm method of extraction was followed, that uses as an extraction agent a solution of lactic acid, ammonium acetate and acetic acid, tampon at pH of ± 3.5.
Related to the selection of the referred parameters, it was considered that:
- soil texture is fundamental to plants root development and to capacity to storage water in the soil;
- the pH, that translate the concentration of H^+ in the soil, is fundamental in determination of its reaction to the cultures there installed, and it should be corrected to allow their better development;
- organic matter (OM), expressed in %, especially in soils with low content of limo and clay, is fundamental to retain water. Soils high macro porosity, as well as slopes southern exposure, leads to high rates of OM mineralization, traducing in important annual lost. The schist derived soils, by presenting a high micro porosity due to the presence of high content of thin sand and ooze and a low degree of aggregation, due essentially to low content of OM, become after intense rain waterproof in the surface, reducing the infiltration rate, with all the problems implied;
- the assimilable phosphorous (P), expressed in mg P_2O_5/kg, is the element quantity that could, in theory, be assimilable by the plants. Low values of this element and of calcium are related to acid soils;
- the assimilable potassium (K), expressed in mg K_2O/kg, is the element quantity that could, in theory, be assimilable by the plants;
- the assimilable calcium (Ca), expressed in cmol+/kg, is the element quantity that could, in theory, be assimilable by the plants;
- the assimilable magnesium (Mg), expressed in cmol+/kg, is the element quantity that could, in theory, be assimilable by the plants;
- the potassium (K), expressed in cmol+/kg, determined from the assimilable potassium, will be used to determine the exchangeable bases;
- the assimilable nitrogen (Na), expressed in cmol+/kg, is the element quantity that could, in theory, be assimilable by the plants;

- the boiling water extractable boron (B ext H_2O), is expressed in mg / kg.
- the exchangeable acidity (AT=H+Al), expressed in cmol+/kg, is identical to the quantity of Aluminium (Al) present in the soil, being associated to that element toxicity;
- the sum of exchangeable bases (SBT), expressed in cmol+/kg, is the sum of Ca + Mg + K + Na;
- the cation exchangeable capacity (CTCe), expressed in cmol+/kg, determines the cations quantity that the soil is able to absorb and can be obtained by the sum of SBT + AT. It allows determining soils calcium state and the consequent necessity of its application;
- the bases saturation (GSBe), expressed in %, is obtained by (SBT / CTCe) *100. When result values are < 100, is necessary to apply calcium.

The data used as a reference to some of the indicated parameters are as it follows:

Table 2- Soil classification towards OM content.

% of Mo		Classification
Light soils	**Mean and heavy soils**	
< 0.5	< 1.0	Very low
0.6 – 1.5	1.1 – 2.0	Low
1.6 – 5.0	2.1 – 7.0	Mean
5.1 – 10.0	7.1 – 15.0	High
> 10	> 15	Very high

Source: Quelhas dos Santos

Table 3- Soil classification towards the content of assimilable P_2O_5 (mg/kg).

P_2O_5 (mg/kg)	Classification
< 20	Very poor
20 – 40	Poor
40 – 80	Sufficient
80 – 120	Rich
> 120	Very rich

Source: João Coutinho

Table 4- Soil classification towards the content of assimilable K_2O (mg/kg).

K_2O (mg/kg)	Classification
< 60	Very poor
60 – 120	Poor
120 – 200	Sufficient
200 – 300	Rich
> 300	Very rich

Source: João Coutinho

Table 5- Soil classification towards the content of assimilable Ca (cmol+/kg).

Ca (cmol+/kg)	Classification
< 10	Very poor
10 - 20	Poor
20 - 200	Sufficient
200 - 300	Rich
> 300	Very rich

Source: João Coutinho

Table 6- Soil classification towards the content of assimilable Mg (cmol+/kg).

Mg (cmol+/kg)	Classification
< 0.75	Very poor
0.75 - 1.5	Poor
1.5 - 3.0	Sufficient
3.0 - 4.5	Rich
> 4.5	Very rich

Source: João Coutinho

Table 7- Soil classification towards the content of assimilable Bo (mg/kg).

B (mg/kg)	Classification
< 0.4	Low
0.4 – 1.0	Mean
> 1.0	High

Source: Quelhas dos Santos

Beyond these laboratorial data, in each one of the geo referenced points it was determined, before the plough, its rocky cover, adapting the methodology used in the american classification (USDA) - using a net of 1x1 m, with a mesh of 0.2m, being the given percentage the mean of the determined small squares.

2.2.4- Yield data (berries, must and wine)

The yield characterization includes the determination of data relative to the berries weight and composition, *per* plant and *per* hectare yield and characterization of the musts and wines. These data are obtained from samples, resulting of the union of three stations (E1 - E3, E4 - E6, E7 - E9), being the number of samples of 12 (4 plots x 3 groups). The vintage date is decided based on the evolution of berries ripening. The data related with the berries development (weight and composition) were measured only in 2005.

2.2.4.1- Berries weight and composition

To determine the berries weight, about 30-40 berries/station will be collected along fruit ripening (from middle July until the vintage - September). These will be mixed with the ones of the two adjacent stations, forming three groups (G1, G2 and G3); group1 (G1) will include the berries of stations E1, E2 and E3 (a total of almost 100 berries), group 2 (G2) will include the berries of stations E4, E5 and E6 and group 3 (G3) will include the berries of stations E7, E8 and E9. This “simplification”, resulting in 12 samples (4 plots x 3 groups), allows doing the necessary analysis to must and wines characterization in a period of useful time.
The determinations made to the berries characterization, in its several states of development are as it follows:

- weight;
- probable alcohol;
- sugar content;
- total acidity;
- pH.

Relative to weight, its value allows the evaluation of the pellicle/pulp relation, translated by the composition in phenolic compounds and antocians, that is a proportional relation - the bigger the weight, the bigger the content of phenolic compounds and antocians (and vice-versa).

Probable alcohol is determined from the sugar content, which will be converted in probable alcohol appealing to proper tables.

Sugar content is determined by refractometry, from the berries sugar content and measured in Brix degree - content of saccharose in 100 g of solution. For this measurement were used the squeezed juice of berries as well as a refract meter.

Total acidity corresponds to acid content present in berries, which interferes in wine conservation and in its organoleptics characteristics.

pH corresponds to the berries acid concentration and its degree of dissociation. Just like total acidity, it is also associated to wine conservation and its organoleptics characteristics. This parameter was measured with a potentiometer.

The berries of last vintage and the rest of the yield were converted in must and then in wine.

Beyond these analyses, part of the berries was frozen so that latter they can be characterized, with the following analysis:

- sugar content;
- pH;
- total acidity;
- total phenols;
- total antocians;

2.2.4.2- Must characterization

Relatively to the musts obtained from the last berries picking, these are constituted by the berries of three adjacent stations, resulting in three groups to each plot (G1, G2 and G3); the mean yield to each one of these group should be superior to 30 Kg of berries, so that the microvinifications can be done.

To characterize the musts, the following parameters are determined:

- probable alcohol;
- total acidity;
- pH;

2.2.4.3- Wine characterization

The most important process of vinification is the alcoholic fermentation that consists, basically, in the transformation of the must sugars in ethylic alcohol (ethanol) and carbonic acid (CO_2) with the release of energy in heat form.

Wine characterization is made from the microvinification of the musts proceeding of the three groups of each plot; microvinifications will take place accordingly to the usual techniques of red wines vinifications with long maceration, to the extraction of aroma and phenols.

Once the alcoholic fermentation as ended, controlled malolactic fermentation will start with the addition of lactic bacteria (bought). Once it's ended, the wine will be microbiologically stabled by drawing off and addiction of sulphurous. The wines will then be headed to refrigerator chamber (at about 4ºC) for a period of nearly 20 days, so that the tartaric stabilization occurs, after what they will be bottled.

Determinations made along microvinifications are as it follows:

- alcohol content;
- volume mass;
- non reducer dry extract;
- reducer sugar;
- total dry extract (non reducer dry extract + reducer sugar)
- pH;
- volatile acidity;
- fix acidity;
- total acidity (volatile acidity + fix acidity);
- total phenols (MDO280);
- colour intensity;
- character;
- ashes;
- ash alkalinity;
- ash inorganic phosphates (PO_4);
- antocians.

Alcoholic degree (% in vol.) - The used method bases on distillation, because it is a more rigorous method. In the distil we evaluate the alcoholic richness by the GAY- LUSSAC alcoholmeter at 20º/20º. The Reg (CEE) nº 2676/90 was followed.

By volumetric alcoholic content we mean the number of ethanol litres in 100l of wine, both measured at a temperature of 20ºC.

Volumetric mass (g/cm^3) - Volumetric mass was determined by aerometry, according to the Reg (CEE) nº 2676/90 of October the 3rd, 1990.

By volumetric mass of a wine we mean the quotient between the mass of a certain volume of liquid (in this case, the wine) and that volume, both measured at a temperature of 20ºC.

Volatile acidity (g/dm^3 in acetic acid) - The volatile acidity is defined as the whole of acids belonging to the acetic series, found in wine, in free or salified state - method of Reg (CEE) nº 2676/90.

The method is based on a distillation, where the volatile acids separation is done by water vapour dragging, in a distillation appliance. The distil is titrated by sodium hydroxide, using phenolphthalein as an indicator.

Total acidity (g/dm^3 in tartaric acid) - According to Reg (CEE) nº 2676/90, the wine or must total acidity is the sum of all the titrable acids, when wine or must pH is 7.0, by adding an alkaline solution. From total acidity, carbon dioxide is excluded.

Fix acidity (g/dm^3 in tartaric acid) - According to Reg (CEE) nº 2676/90, fix acidity is determined by the difference between total acidity and volatile acidity, both expressed in grams *per* litre of tartaric acid.

Real or ionic acidity (pH) - It was used the pothenthiometric method referred in Reg (CEE) nº 2676/90, defined as the potential difference between two electrodes inserted in the wine or must, in which one of them is at a potential characterized by the liquid's pH and the other by a fix and known potential, that constitutes the reference electrode.

Total dry extract (g/dm^3) - To dose the total dry extract, an indirect calculus method was used - Reg (CEE) nº 2676/90. This method is done based in the alcoholic content, volumetric mass and volatile acidity, by applying the TABARIÉ formula, and with the help of tables.

By dry extract we mean the residue of a wine that stays after it has been evaporated at 100º, and that encloses all the fix substances, mineral and organic, like glycerine, dye matter, alts, tannins, tartaric acid, etc.

Ashes (g/dm^3) - Is the assemblage resulting from incinerating the residue of wine evaporation, lead to obtain the entire cations (all but ammonium), in the form of carbonates and other anhydride mineral salts - Reg (CEE) nº 2676/90. It consists in incinerating the wine sample extract, at a temperature between 500 and 550º, until the complete combustion of carbon.

ASHES ALCALINITY (meq/dm^3) - Is the sum of cations, except ammonium, combined with wine organic acids. It consists in titration, in the presence of methyl orange-colour, of the ashes, hot render soluble, by a excess of a known titrable acid.

Phosphoric acid (PO_4 g/dm^3) - To determine the phosphate anion (PO_4), we use the PFYL method.

Tartaric acid (g/dm^3) - We use the REBELEIN method, modified by BLOUIN-VIDAL (1976), which consisted in the reaction of tartaric acid with vanadic acid, originating a yellowish-orange colour, measured at 500 nm. We used the sequential automatic analysis, using the FALCOR 160 equipment.

Total polyphenols (DO280) - We determined the total polyphenol index, by reading the UV absorbance at 280nm, using the Jasco V-530 Spectrophotometer.

Antocians (mg/dm^3) - To its determination, we used the RIBÉREAU GAYON and STONESTREET (1965) method. It consists in the antocians discolouration by bisulphite and the reading of absorbance at 520 nm, comparing to the test essay. It is to refer that we have used the author's data, to do the reference curve.

Colour intensity and tonality - We followed the REG (CEE) nº 2676/90 method. It consists in the absorbance's determination, over 1 cm of optic distance, to wave lengths of 420, 520 and 620 nm. According to the obtained values, we determined the colour Intensity (I) and the Tonality (T), with the following formulas:

$$I = D.O._{420} + D.O._{520} + D.O._{620} \qquad T = D.O._{420} / D.O._{520}$$

Free and total sulphur (mg/dm^3) - Determined by the RIPPER method, based in the sulphur oxidation by iodometric titration, in acid expedient.

Reducer sugars (g/dm^3) - Calculated by LANE EYNON method. It consists in the reducer action of sugars on a cupric-alkaline solution, under the action of heat.

2.2.4.4- Wine tasting

The wines resulting of the microvinifications of three groups of each plot were subjected to visual and tasting essays, concerned with colour intensity, aroma - including red fruits and floral aroma - body, astringency and total acidity.

The characteristics appreciated by the taster's panel are as it follows:

- colour intensity;
- aroma;
- red fruits aroma;
- floral aroma;
- body;
- astringency;
- total acidity;

In the end, a classification was given to the several characteristic. The scale of characteristics evaluation varies from 0 to 5 and the final classification from 0 to 20. This classification will be the main reference element to the identification of viticultural and oenological environment conditions that rise to power the production of quality wines.

3- Results, analysis of the results and discussion

The data of the measurements are introduced in a calculi sheet in which columns represent the several variants and the rows the cases, latter imported by different programmes to its analysis and interpretation. After the introduction of the geo referenced points data, the calculi sheet calculates the mean to the stations and to the plots. Each plot has nine stations (E1 to E9), with three geo referenced points each, grouped in three groups (G1 to G3); group G1 includes stations E1 to E3, group G2 include stations E4 to E6 and group G3 includes stations E7 to E9.

Some of the measurements were made at the whole of the points, as air, soil and plants temperature, and others refer to the stations, like the soil and leaves analysis, in which the collected samples next the three points of each station are gathered before its analysis, and a third group, as the yield data, in which the material of three stations (groups) is gathered before the measurements; each plot has 27 geo referenced points, nine stations and three groups.

In order to analyse the results, and beyond calculi sheet, was used statistical software, of geographical and cartographic interpretation. The first allows the analysis of data, using the analysis of means, variance, regression and factorial; the second allows knowing its spatial distribution and the third allows doing the maps of that distribution.

Data analysis is made taking under consideration the variance between plots, in their interior and the different installation forms. When all of the values of the geo referenced points, three *per* station, the mean is determined and its variability. When a value to each station is available, they are gathered in groups of three, in order to determine the mean of these groups and its variability.

To represent the spatial and cartographic distribution of the means, the stations were gathered in three groups with equal interval. The plots and its data are always presented in alphabetic order - Amendoal, Bateiras, Bico dos Casais and Cardanhas.

3.1- Air temperature and humidity results, soil and plants temperature results

The mean values of air temperature and humidity and soil and plants temperature refer to the means of each one of the two years of studies and the measurements were made during the morning period accordingly to different sequences, to mitigate the influence of the variation resulting of the period of time during which they were made; it is possible to see situations with differences of 4 - 5ºC of temperature, from the beginning to the end of the measurements. These data are determined in the three points of each station, allowing determining the variation between the several stations.

3.1.1- Air temperature

Mean air temperature (ClTp) and its variance analysis to the plots, installation forms and stations of each plot are presented in Annex - Environment, Tables 1, 2 and 3 and the results of the regression analysis in Tables 10 and 11. The spatial and cartographic representations of these data are presented in Figures 1, 2 and the graphic representations of the regression in the Graphic 1 and 2.

Analysing the data of the plots forms of installation and stations of each plot it is possible to see that:

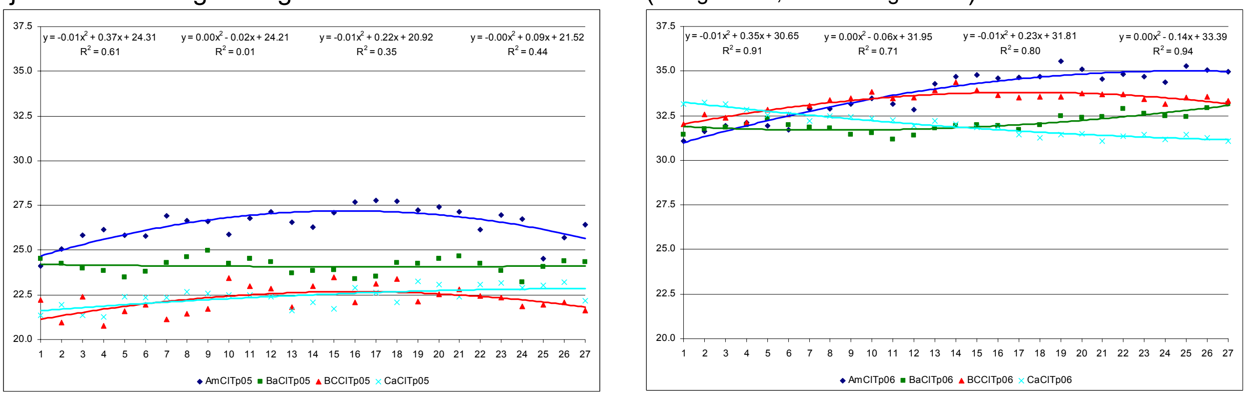
- in 2005 (Annex - Environment, Table 2, Figure 1) the mean air temperature in the plots was higher in Amendoal (± 26.45 ºC) and lower in Bico dos Casais (± 22.23 ºC). The mean to terraces and slope vineyard was ± 25.28 ºC and ± 22.32 ºC. The station with the highest value was AmE6 (± 27.73 ºC) and with the lowest value was BCE3 (± 21.44 ºC). The differences between plots temperatures (F=216.16, P=0.000), installation forms (F=201.40, P=0.000) and in the interior of the plots (F=7.67, P=0.000; F=4.02, P=0.007; F=3.83, P=0.009; F=5.23, P=0.001) are significant;

- in 2006 (Annex - Environment, Table 3, Figure 2) the mean air temperature in the plots was higher in Amendoal (± 33.74 ºC) and lower in Cardanhas (± 31.99 ºC). The mean to terraces and slope vineyard was ± 32.90 ºC and ± 32.66 ºC. The station with the highest value was AmE9 (± 35.09 ºC) and with the lowest value was CaE9 (± 31.26 ºC). Comparing the plots temperatures, they are significantly different F=30.35, P=0.000) but not when compared the installation forms (F=1.22, P=0.272). In the interior of the plots, the temperatures vary significantly (F=67.15, P=0.000; F=16.93, P=0.007; F=17.76, P=0.000; F=37.34, P=0.000).

To analyse the variation intra plot, it was needed to adjust a 2nd degree regression equation and its respective analysis. Now it is possible to say that:

- in the year of 2005 (Annex - Environment, Table 10, Graphic 1), in Amendoal, it is visible a tendency to the intermediate stations to present higher values (R^2=0.613, F=19.01, P=0.000), in Bateiras, it is not possible to see any tendency in the evolution of temperatures between the several stations (R^2=0.007, F=0.082, P=0.921), in Bico dos Casais the values of the intermediate stations are higher (R^2=0.348, F=6.408, P=0.006) but in Cardanhas, it is visible a significant tendency to the raise of temperature to the stations located northwest (R^2=0.443, F=9.533, P=0.000);
- in the year of 2006 (Annex - Environment, Table 11, Graphic 2), in Amendoal, it is visible a tendency to upper terraces to present higher values (R^2=0.910, F=121.45, P=0.000), in Bateiras, it is visible a tendency to an increase in the higher terraces (R^2=0.706, F=28.83, P=0.000), in Bico dos Casais the intermediate stations present higher values (R^2=0.799, F=47.80, P=0.000) and to Cardanhas, it is visible a significant tendency to an increase in the southeast stations (R^2=0.938, F=182.82, P=0.000).

Graphic 1- Means of air temperature in the geo referenced points of whole plots in 2005 and 2006 and adjust of a 2nd degree regression curve to those values (S- significant; NS- non significant)



CITp05 - S, NS, S, S **CITp06 - S, S, S, S**

Comparing the two year data, it is visible that the temperature means determined in 2006 were quite superior to those of 2005. This values were of + 28, + 33, + 50 and + 43 %, to Amendoal, Bateiras, Bico dos Casais and Cardanhas, indicating that in slope vineyards the raise of temperatures is more felt than in terraces.

As it is shown in Table 1, the variation of mean temperature in both years leads to different variations of temperature distribution in the interior of the plots; as in Cardanhas, in the year of 2005, it is visible a temperature raise from station 1 to 9, and the contrary in the year of 2006.

3.1.2- Air humidity

Mean air humidity (ClHm) and its variance analysis to the plots, installation forms and stations of each plot are presented in Annex - Environment, Tables 1, 4 and 5 and the results of the regression analysis in the Tables 12 and 13. The spatial and cartographic representation of these data is presented in Figures 3 and 4 and their graphic representations in Graphic 3 and 4.

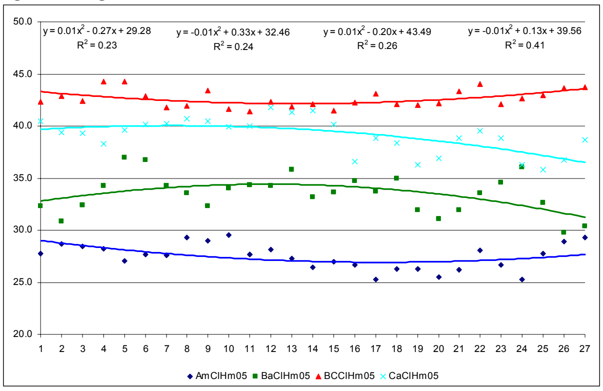
Analysing the plots data, installation forms and stations of each plot we see that:

- in 2005 (Annex - Environment, Table 4, Figure 3) the mean of the humidity level in the plots was higher in Bico dos Casais (± 42.62 %) and lower in Amendoal (± 27.49 %). The mean value in terraces and slope vineyard, was ± 30.50 % and ± 40.85 %. The station with the highest value was BCE2 (± 43.8 %) and with the lowest value AmE7 (± 26.00 %). Comparing the plots (F=553.95, P=0.000), installation forms (F=348.43, P=0.000) and the stations of each plot, the values are significantly different (F=5.49, P=0.001; F=7.30, P=0.000; F=3.10, P=0.022; F=5.24, P=0.002).
- in 2006 (Annex - Environment, Table 5, Figure 4) the mean of the humidity level in the plots was higher in Bateiras (± 31.53 %) and lower in Amendoal (± 27.19 %.). The mean value to terraces and slope vineyard, was ± 29.36 and ± 29.22 %. The station with the highest value was CaE9 (± 32.65 %) and with the lowest value AmE7 (± 24.79 %). The variations between plots are significant (F=84.65, P=0.000) but not when compared the installation forms (F=0.09, P=0.764). Between the stations of each plot the differences are significant (F=29.04 P=0.000, F=5.48 P=0.001, F=3.72 P=0.009, F=8.50 P=0.000).

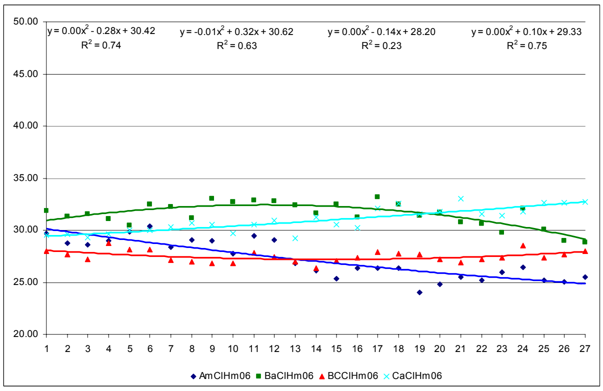
The variation intra plot translated by the 2nd degree regression equation and its analysis, allows saying that:

- in the year of 2005 (Annex - Environment, Table 12, Graphic 3), in Amendoal, the values are significantly different between all stations, lower in the intermediate terraces (R^2=0.233, F=3.64, P=0.042), the same happening in Bateiras, where the intermediate terraces have higher values (R^2=0.238, F=3.78, P=0.038), and Bico dos Casais, with lower values to the intermediate stations (R^2=0.256, F=4.12, P=0.029) but , in Cardanhas, we see a significant tendency to a decrease in the stations of northwest (R^2=0.414, F=8.48, P=0.002);
- in the year of 2006 (Annex - Environment, Table 13, Graphic 4), in Amendoal, it is visible a tendency of the upper terraces to present lower values (R^2=0.743, F=34.71, P=0.000), in Bateiras it is visible a significant tendency to an increase in the intermediate terraces (R^2=0.629, F=20.40, P=0.000), in Bico dos Casais the intermediate stations have lower values (R^2=0.225, F=3.49, P=0.047) and, to Cardanhas, it is visible a significant tendency to an increase of humidity in stations with northwest exposure (R^2=0.746, F=35.16, P=0.000).

Graphic 2- Means of humidity of the geo referenced points of the plots in 2005 and 2006 and adjust of a 2nd degree regression curve to those values.



ClHm05 - S, S, S, S



ClHm06 - S, S, S, S

Comparing the two year data it is visible that the levels of humidity determined in 2006 were inferior to those of 2005. This values were of -1, - 6, - 36 and - 28 %, to Amendoal, Bateiras, Bico dos Casais and Cardanhas, showing that in slope vineyards, the decrease is more significant, accordingly with higher increases of temperature values found there.

Comparing, in absolute terms, the humidity values with the temperature values are visible, in 2005, differences of + 4, +39, + 92 and + 74 %, to the referred plots, and differences of - 19, - 2, - 17 and - 3 %, in 2006, allowing to say that the absolute values of humidity levels approach the temperature values when these are higher.

3.1.3- Plants temperature

Plants mean temperature (PlTp) and its variance analysis to the plots, installation forms and stations of each plot are presented in Annex - Environment, Tables 1, 6 and 7 and the analysis of the results of regression in Tables 14 and 15. The spatial and cartographic representation of the geo referenced data is presented in Figures 5 and 6 and the graphic representation of the regression analysis results in Graphic 5 and 6.

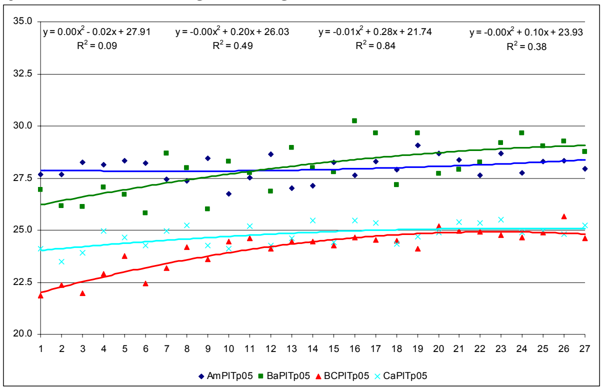
Analysing the data of the plots, installation forms and stations of each plot it is visible that:

- in 2005 (Annex - Environment, Table 6, Figure 5) the highest value of plants mean temperature was obtained in Amendoal and Bateiras (± 27.99 ºC) and the lowest in Bico dos Casais (± 24.08 ºC). The mean value to terraces and slope vineyard was ± 27.99 ºC and ± 24.43 ºC. The station with the highest value was BaE8 (± 29.05 ºC) and with the lowest was BCE1 (± 22.06 ºC). The differences are significant when we compare the plots (F=145.34, P=0.000), installation forms (F=404.69, P=0.000) and the stations, except for Amendoal (F=1.48 P=0.233, F=3.60 P=0.011, F=11.76 P=0.000, F=2.54 P=0.048);
- in 2006 (Annex - Environment, Table 7, Figure 6), the highest mean was obtained in Bateiras (± 27.58 ºC) and the lowest in Cardanhas (± 26.89 ºC). The mean value to terraces and slope vineyard was ± 27.46 ºC and ± 27.09 ºC. The station with the highest value was AmE7 (± 28.95 ºC) and with the lowest was BaE2 (± 25.83 ºC). The differences are not significant between plots (F=2.50, P=0.064), but are significant between installation forms (F=4.24, P=0.042). The intra plot variability is significant in all of the plots (F=8.20 P=0.000, F=9.50 P=0.000, F=9.68 P=0.000, F=4.32 P=0.005).

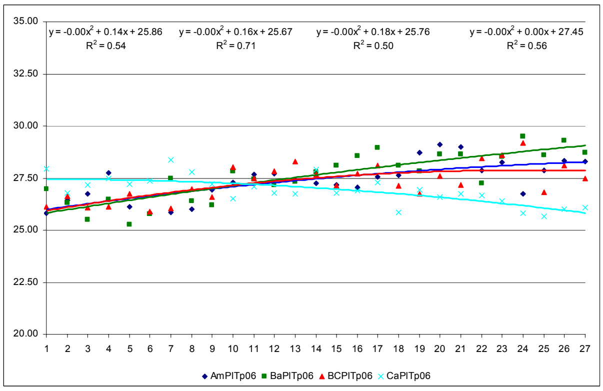
Analysing the intra plot variation with a 2nd degree regression equation and its analysis we can say that:

- in the year of 2005 (Annex - Environment, Table 14, Graphic 5), in Amendoal, it is not possible to define a tendency to this values evolution (R^2=0.086, F=1.14, P=0.337), in Bateiras there is a tendency to obtain higher values in upper terraces (R^2=0.494, F=11.74, P=0.000), in Bico dos Casais it is visible a significant evolution, with the stations exposed southwest presenting higher values (R^2=0.841, F=63.31, P=0.000) and, to Cardanhas, it is also visible a significant tendency to an increase in the stations with northwest exposure (R^2=0.376, F=7.22, P=0.004);
- in the year of 2006 (Annex - Environment, Table 15, Graphic 6), in Amendoal, it is visible a tendency to increase in upper terraces (R^2=0.538, F=14.00, P=0.030), in Bateiras there is also a tendency to obtain higher values in upper terraces (R^2=0.714, F=29.98, P=0.000), in Bico dos Casais the evolution is significant, with the stations from southwest presenting higher values (R^2=0.504, F=12.20, P=0.000) and, to Cardanhas, there is also a significant tendency to a decrease in the stations of northwest (R^2=0.562, F=15.43, P=0.000).

Graphic 3- Means of plants temperature in geo referenced points to all the plots in 2005 and 2006 and adjust of a 2nd degree regression curve to those values.



PITp05 - NS, S, S, S



PITp06 - S, S, S, S

Comparing the data of the two years we can see that plants temperature measured in 2006 were slightly inferior to those of 2005 to the vineyards in terraces (- 2%) and superior to slope vineyards (+11 %). These values were - 2, - 2, + 13 and +9 %, to Amendoal, Bateiras, Bico dos Casais and Cardanhas, indicating that in terraces the plants temperature increases less than in slope vineyards when the air temperature rises.

Comparing the 2005 data of plants temperature with air temperature it is visible percent difference of + 6, + 16, + 8 and + 11, to plots Amendoal, Bateiras, Bico dos Casais and Cardanhas; in 2006 these differences were of - 19, - 14, - 18 and - 16. These data allow us to say that when the environment temperature is lower, the plants present temperatures slightly superior to those of the air, but when those are high, the plants temperature are inferior; from certain air temperatures on, plants temperature tends to maintain unalterable.

3.1.4- Soil temperature

Mean soil temperature (SITp) and its variance analysis to the plots, installation forms and stations of each plot are presented in Annex - Environment, Tables 1, 8 and 9 and the results of the regression analysis in the Tables 16 and 17. The spatial and cartographic representation of this data is presented in Figures 7 and 8 and the regressions graphic representation in Graphic 7 and 8.

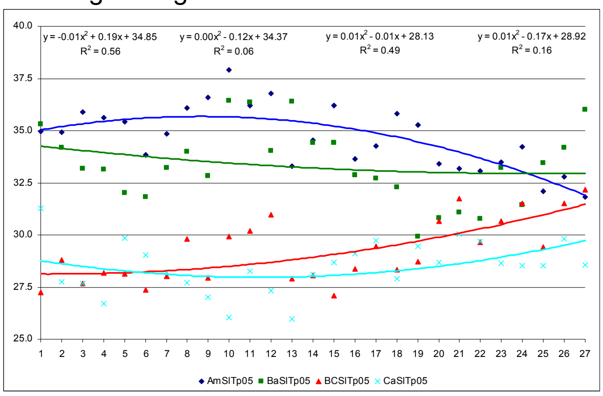
Analysing the data of the plots, installation forms and stations of each plot we can say that:

- in 2005 (Annex - Environment, Table 8, Figure 7), the plot with the highest mean value of soil temperature was Amendoal (± 34.68 ºC) and with the lowest was Cardanhas (± 28.48 ºC). The mean value to terraces and slope vineyard was ± 34.01 ºC and ± 28.85 ºC. The station with the highest value was AmE4 (± 36.97 ºC) and with the lowest was CaE4 (± 27.20 ºC). The differences between plots (F=107.40, P=0.000) and installation forms (F=277.78, P=0.000) were significant, except in the interior of Cardanhas (F=6.07, P=0.000, F=8.20 P=0.000, F=5.86 P=0.000, F=1.27, P=0.317);
- in 2006 (Annex - Environment, Table 9, Figure 8) the highest mean was obtained in Bico dos Casais (± 32.43 ºC) and the lowest in Cardanhas (± 29.79 ºC). The mean value to terraces and slope vineyard was ± 31.63 ºC and ± 31.11 ºC. The station with the highest value was BCE4 (± 33.26 ºC) and with the lowest was CaE9 (± 28.27 ºC). The difference between plots (F=16.96, P=0.000) is significant but not when comparing installation forms (F=2.26, P=0.136) and, inside the plots, only in no Amendoal the differences are significant (F=3.08, P=0.022; F=0.62, P=0.752; F=0.68, P=0.704; F=1.78, P=0.147).

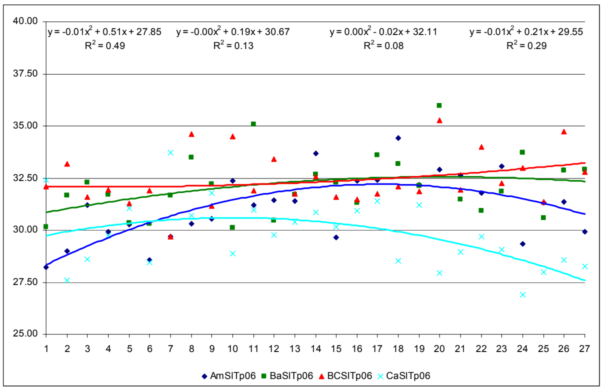
Analysing the intra plot variation, the 2nd degree regression equation and its analysis, we can say that:

- in the year of 2005 (Annex - Environment, Table 16, Graphic 7), in Amendoal, it is visible a tendency to a decrease of the values in terraces of highest coat (R^2=0.558, F=15.17, P=0.000), in Bateiras it is not possible to define a tendency to these values evolution (R^2=0.055, F=0.70, P=0.505), in Bico dos Casais the values of stations with the highest number are higher (R^2=0.490, F=11.52, P=0.000) but, in Cardanhas the temperatures are not significantly different (R^2=0.160, F=2.29, P=0.123);
- in the year of 2006 (Annex - Environment, Table 17, Graphic 8), in Amendoal, it is visible a tendency to an increase of the values in intermediate terraces (R^2=0.490, F=11.53, P=0.000), in Bateiras it is not possible to define a tendency to the values evolution (R^2=0.128, F=1.76, P=0.194), and the same in Bico dos Casais (R^2=0.079, F=1.03, P=0.371); in Cardanhas, it is visible a tendency to an increase in the intermediate stations (R^2=0.293, F=4.97, P=0.016).

Graphic 4- Soil mean temperatures to geo referenced points of all the plots in 2005 and 2006 and adjust of a 2nd degree regression curve to those values.



SITp0505 - S, NS, S, NS



SITp06 - S, NS, NS, S

Comparing the data we can see that soil temperatures were, in 2005, superior to those in 2006 in vineyards in terraces (34.0 and 31.6 ºC) and inferior in slope vineyards (28.8 and 31.1 ºC). These differences were of - 10, - 4, + 11 and +5 %, to o Amendoal, Bateiras, Bico dos Casais and Cardanhas.

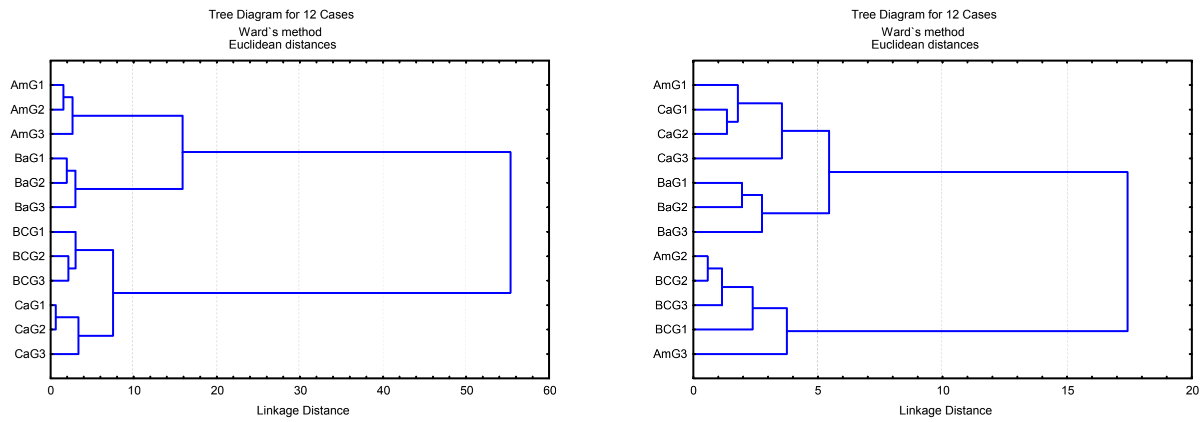
Comparing the data of 2005 of soil temperature with air temperature it is visible a percent difference of +31, + 38, + 32 and + 27, to the plots Amendoal, Bateiras, Bico dos Casais and Cardanhas. In 2006 these percent differences were of - 8, 0, - 3 and -7. These values allow saying that to lower mean soil temperatures the soil presents higher temperatures but when those are higher the temperatures are identical - the increase in soil temperature is not proportional to the increase of air temperature. Soil temperatures were always determined during the morning period and, like in other measurements, in the shady zone of plants.

From the analysis of all this data, we can see significant correlations in several situations (Annex - Final results, Table 1), especially to the values of the same plot and year, were values were measured at the same time, as well as significant differences in the interior of the plots in many of the analysed situations. Part of the variation in determinations could be attributed to the methodology that was followed, with only one team collecting all the data, resulting in an important lapse of time; the variation of the plots sequence plots allows to mitigate these differences, but it would be important that the measurements would be done simultaneously in the four plots, by four different teams. The correlations between all of the measured data are presented in Annex - Final results, Table 1.

Calculating the 2nd degree regression equations of the humidity, plants and air temperature data related to air it is visible a significant correlation between these values, allowing to estimate those from these; see Annex - Final results, Table 4.

Defining two “clusters” in each one of the years, having as a reference the stations blocs, we have:
- in 2005, “cluster 1” is constituted by stations groups of slope vineyard and “cluster 2” by terraces vineyard groups. In “cluster 1”, values of air temperature and humidity, soil and plants temperature are, 22.32, 40.85, 28.85 and 24.42 ºC and, to “cluster 2”, 25.28, 30.50, 34.01 and 27.98 ºC;
- in 2006, “cluster 1” is constituted by groups AmG1, BaG1, BaG2, BaG3, CaG1, CaG2 and CaG3 and “cluster 2” by groups AmG2, AmG3, BCG1, BCG2 and BCG3. In “cluster 1”, the values for air temperature and humidity and soil and plants temperature are 32.04, 30.95, 30.78 and 27.11 ºC and, to “cluster 2”, 33.81, 26.97, 32.20 and 27.51 ºC.

Graphic 5- Group Analysis representation of the environment data in 2005 and 2006



The group analysis allows seeing that, when air mean temperatures are lower, there is a difference between mean values measured in terraces and slope vineyards; in 2006, when air mean temperatures were higher, Bico dos Casais and the two groups of Amendoal further apart of the river were the ones with higher values. Comparing mean data, it is possible to see that, when air temperature is lower (2005), plants temperature tends to approach its value but, to higher air temperatures (2006), it is soil temperature that tends to approach.

To 2005, differences between “clusters” variants are significant (F=25.70, S=0.000; F=40.29, S=0.000; F=61.94, S=0.000; F=70.62, S=0.000) but, to 2006, only the differences between temperature and humidity are significant (F=21.65, S=0.001; F=38.52, S=0.000; F=4.70, S=0.055; F=0.65, S=0.438). These results allow concluding that higher air mean temperatures lead to lower soil and plants temperature variability.

Group analysis, by grouping data accordingly to its approach, indicates that the first groups present a higher approach that will progressively diminish as long as the variants will be regrouped in a more comprised way.

3.2- Plants measurements results

In order to characterize the plants at leaf level, the following measurements were made:

- SPAD;
- leaf area and leaf mean weight;
- reflectance leaves data;
- chemical composition
- weight of pruning wood

3.2.1- SPAD

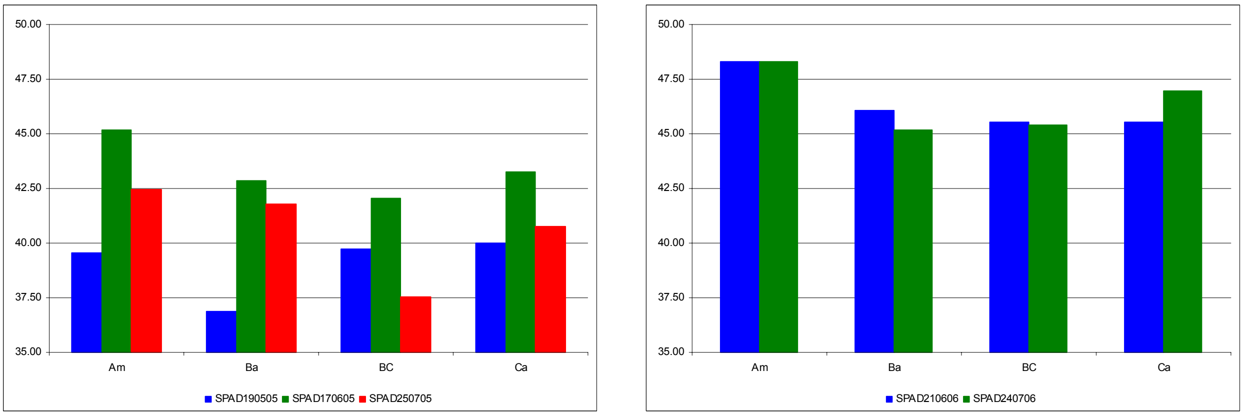
SPAD mean data and its variance analysis to the plots, installation forms and stations of each plot are presented in Annex - Plants, Tables 1 to 6, and the results of the regression analysis in Tables 53 to 57; the graphic representation of these regressions is as indicated in Graphic 1 and 2. The spatial and cartographic representation of these data in the geo-referenced points is presented in Figures 1 to 5.

Analysing the plots data, installation forms and stations of each plot we can say that:

- in 190505 (Annex - Plants, Table 2, Figure 1), the higher mean value was obtained in Cardanhas (± 40.00) and the lower in Bateiras (± 36.89). To terraces and slope vineyard the values were ± 38.22 and ± 39.88. The station with the highest value was CaE4 (± 41.93) and with the lowest BaE1 (± 32.23). The variation between plots (F=10.10, P=0.000) and installation forms (F=11.53, P=0.001) is significant, but comparing the stations of each plot, only in Cardanhas (F=3.07, P=0.023), those differences are significant;
- in 170605 (Annex - Plants, Table 3, Figure 2), the higher mean value was obtained in Cardanhas (± 43.27) and the lower in Bico dos Casais (± 42.05). To terraces and slope vineyard the values were of ± 44.01 and ± 42.66. The station with the highest value was AmE1 (± 46.63) and with the lowest BCE4 (± 37.97). The variation between plots (F=6.67, P=0.000) and installation forms (F=6.32, P=0.013) is significant, but

comparing the stations of each plot, only in Bico dos Casais (F=3.41, P=0.015) and Cardanhas (F=2.56 P=0.046), those differences are significant;
- in 250705 (Annex - Plants, Table 4, Figure 3), the higher mean value was obtained in Amendoal (± 42.45) and the lower in Bico dos Casais (± 37.55). To the terraces and slope vineyard the values were of ± 42.11 and ± 39.15. The station with the highest value was CaE4 (± 45.20) and with the lowest BCE5 (± 34.13). The variation between plots (F=16.24, P=0.000) and installation forms (F=26.34, P=0.000) is significant, but comparing the stations of each plot, only in Cardanhas (F=5.73, P=0.001) those differences are significant;
- in 210606 (Annex - Plants, Table 5, Figure 4), the highest mean value was obtained in Amendoal (± 48.30) and the lowest in Cardanhas (± 45.52). The mean value to terraces and slope vineyard was of ± 47.20 and ± 45.53. The station with the highest value was AmE3 (± 50.73) and with the lowest BCE4 (± 42.57). The variation between the plots (F=9.99, P=0.000) and installation forms (F=14.32, P=0.000) are significant and, relating to the stations, only in Cardanhas (F=1.32, P=0.29) the differences were not significant;
- in 240706 (Annex - Plants, Table 6, Figure 5), o the highest mean value was also obtained in Amendoal (± 48.28) and the lowest in Bateiras (± 45.17). The mean value to terraces and slope vineyard was of ± 46.73 and ± 46.20. The station with the highest value was AmE3 (± 50.97) and with the lowest BCE7 (± 42.38). The variation between the plots (F=10.94, P=0.000) is significant but not to the installation forms (F=1.14, P=0.288) and, related to the stations, only the Bateiras (F=2.35, P=0.06) did not present significant differences.

Graphic 6- Graphic representation of SPAD mean of the plots in different dates, in 2005 and 2006



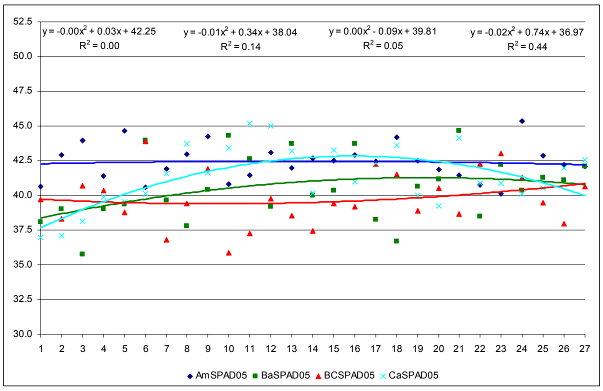
The analysis of the 2nd degree regression equation to the mean values of each station, in each one of the plots, allows saying that:
- to data of 190505 (Annex - Plants, Table 53, Graphic 1), in Amendoal, it is not visible a significant tendency to this parameter variation (R^2=0.073, F=0.238, P=0.795), the same happening in Bateiras (R^2=0.538, F=3.50, P=0.098), Bico dos Casais (R^2=0.240, F=0.948, P=0.439) and Cardanhas (R^2=0.330, F=1.478, P=0.300);
- to data of 170605 (Annex - Plants, Table 54, Graphic 1), in Amendoal, it is not visible a significant tendency to this parameter variation (R^2=0.313, F=1.369, P=0.323), the same happening in Bateiras (R^2=0.179, F=0.657, P=0.552), Bico dos Casais (R^2=0.264, F=1.074, P=0.399) and Cardanhas (R^2=0.546, F=3.605, P=0.093);

- to data of 250705 (Annex - Plants, Table 55, Graphic 1), no Amendoal, it is not visible a significant tendency to this parameter variation (R^2=0.081, F=0.266, P=0.775), the same happening in Bateiras (R^2=0.443, F=2.394, P=0.172), Bico dos Casais (R^2=0.055, F=0.177, P=0.842) and Cardanhas (R^2=0.593, F=4.385, P=0.067);
- to data of 210606 (Annex - Plants, Table 56, Graphic 2), in Amendoal, it is not visible a significant tendency to this parameter variation (R^2=0.415, F=2.127, P=0.200), the same happening in Bateiras (R^2=0.527, F=3.343, P=0.106), Bico dos Casais (R^2=0.562, F=3.844, P=0.084) and Cardanhas (R^2=0.478, F=2.745, P=0.142);
- to data of 240706 (Annex - Plants, Table 57, Graphic 2), in Amendoal, it is not visible a significant tendency to this parameter variation (R^2=0.139, F=0.484, P=0.638), the same happening in Bateiras (R^2=0.099, F=0.330, P=0.731), Bico dos Casais (R^2=0.390, F=1.921, P=0.226) and Cardanhas (R^2=0.288, F=1.214, P=0.361).

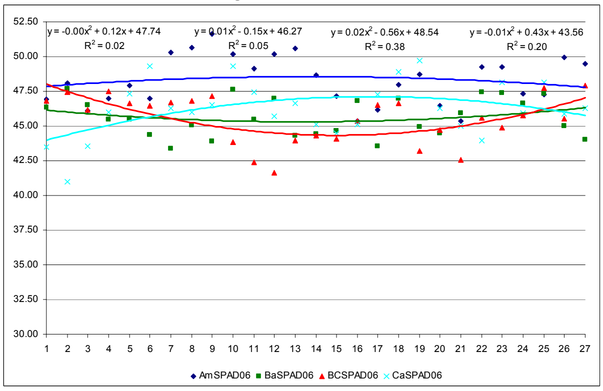
Considering the results of regression analysis and its graphic representation to the stations, it is visible that it is not possible to define a significant tendency to this data variation in any situation.

In 2005 it is visible a variation of SPAD values in the three presented data (May, June and July) but in 2006 (June and July), the lines (regression curves) intercept except in Cardanhas traducing a non differentiation between the determined values. In this last year the SPAD values do SPAD are higher, accordingly to the measured temperatures.

Graphic 7- Graphic representation of SPAD, in 2005 and 2006, in all of the geo referenced points



SPAD05 - NS, NS, NS, NS



SPAD06 - NS, NS, NS, NS

Considering the SPAD mean values, in 2005, there is a significant correlation (1) with air temperature (0.331**) and humidity (-0.311**) and with plants temperature (0.279**) and soil temperature (0.208*); in 2006 the correlations are significant only towards soil temperature (-0.184**) and leaf area (0.220*) measured in 240706; see Annex - Final results, Table 1.

(1) * Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed).

Defining two “clusters” with the environment mean values and SPAD, we can see that its values are, in 2005, significantly different (F=4.112, S=0.045) but not in 2006 (F=0.384, S=0.537); in 2005 air temperature mean values of each “cluster” were 22.4 and 25.3 ºC and, in 2006, of 32.0 and 33.8 ºC.

3.2.2- Leaf area and mean weight

The mean values of leaf area (FlAr) and leaf dry weight (FlPS) and its variance analysis relative to the plots, installation forms and stations of each plot, are presented in Annex - Plants, Table 7 to 13. The results of regression analysis are present in Annex - Plants, Table 58 to 63; the graphic representation of this analysis is presented in graphics 3 to 6. The spatial and cartographic representation of these values are in Figures 6 to 11.

Analysing the data of the plots, installation forms and stations of each plot it is possible to say that:

- in 170605 (Annex - Plants, Table 8, Figure 6), the plot in which the higher value was obtained was Cardanhas (± 343.26 cm^2) and the lowest was Bateiras (± 284.03 cm^2). To terraces and slope vineyard these values were of (± 291.95 cm^2) and (± 325.58 cm^2). The station with the highest value was BCE8 (± 434.67 cm^2) and with the lowest was BaE6 (± 248.74 cm^2). The variation between plots (F=2.59, P=0.070) is significantly different but not to installation forms (F=4.52, P=0.041) and, to the stations inside of the plots only in Bateiras these values vary significantly (F=0.44, P=0.878, F=4.50, P=0.004, F=2.04, P=0.099, F=1.35, P=0.283);
- in 210606 (Annex - Plants, Table 9, Figure 7), the plot in which the highest value was obtained was Cardanhas (± 312.65 cm^2) and the lowest was Bateiras (± 266.06 cm^2). In terraces and slope vineyards these values were of ± 272.93 cm^2 and of ± 306.00 cm^2. The station with the highest value was BaE7 (± 318.63 cm^2) and with the lowest was AmE2 (± 216.65 cm^2). The variation between plots (F=0.63, P=0.595), indicates that the differences are not significant, the same happening to the installation forms (F=1.66, P=0.201). Comparing the stations, inside of each plot, it is possible to see that there are no significant differences between them (F=1.57, P=0.203, F=1.77, P=0.149, F=0.82, P=0.595, F=1.11, P=0.403);
- in 240706 (Annex - Plants, Table 10, Figure 8), the plot with the highest value was Bico dos Casais (± 247.31 cm^2) and with lowest was Cardanhas (± 221.98 cm^2) The mean value in terraces and slope vineyard was of ± 241.34 and 234.65 cm^2. The station with the highest value was BaE8 (± 275.12 cm^2) and with the lowest value was CaE1 (± 203.31 cm^2). The variation between plots are significant (F=5.12, P=0.002) but not when compared with installation forms (F=1.67, P=0.199). Analysing the means of the values measured at the stations it is possible to see that the intra plot variation is not significant (F=1.53, P=0.216, F=1.64, P=0.183, F=2.32, P=0.066, F=0.57, P=0.791).

The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- to the mean values of the stations, measured in 170605 (Annex - Plants, Table 58, Graphic 3), in Amendoal, there is no significant tendency to its variation (R^2=0.172, F=0.623 P=0.568), the same applying to Bateiras (R^2=0.389, F=1.911, P=0.228); in Bico dos Casais (R^2=0.157, F=2.238, P=0.129) and Cardanhas, (R^2=0.039, F=0.122, P=0.887) the equation doesn't translate in a significant way the relation between values;
- to the values measured in 210606 (Annex - Plants, Table 59, Graphic 4), in Amendoal, it is visible a significant tendency to this parameter increase as long as we climb up the slope (R^2=0.699, F=6.981

P=0.027), in Bateiras there is no significant tendency to its variation (R^2=0.444, F=2.391, P=0.172), thus as in Bico dos Casais (R^2=0.568, F=3.941, P=0.081) and Cardanhas (R^2=0.016, F=0.048, P=0.953);
- to the values measured in 240706 (Annex - Plants, Table 60, Graphic 4), in Amendoal, it is not possible to define a significant tendency in the variation (R^2=0.380, F=1.841 P=0.238), thus as in Bateiras (R^2=0.167, F=0.603, P=0.578), Bico dos Casais (R^2=0.053, F=0.168, P=0.849) and Cardanhas, (R^2=0.116, F=0.395, P=0.689).

Comparing the leaf dry weight mean values it is possible to see that:
- in 170605 (Annex - Plants, Table 11, Figure 9) the plot in which dry weight was higher was Bico dos Casais (± 2.39 g) and where it was lower was Bateiras (± 1.71 g). To terraces and slope vineyards the mean weight was (± 1.76 g) and (± 2.13 g). The station with the highest value was BCE5 (± 2.84 g) and with the lowest was BaE5 (±1.51 g). The variation of the mean of the plots (F=47.87, P=0.000) and installation forms (F=42.56, P=0.000) are significantly different. Comparing the stations of each one of the plots, only in Bico dos Casais these values vary significantly (F=5.25, P=0.002);
- in 210606 (Annex - Plants, Table 12, Figure 10) the plot in which the value was higher was Cardanhas (± 2.11 g) and the lowest was Bateiras (± 2.01 g). In terraces and slope vineyards these values were ± 2.04 g and ± 2.09 g. The station with the highest value was BaE7 (± 2.58 g) and with the lowest was AmE1 (±1.58 g). The variation between plots (F=0.29, P=0.834) and installation forms (F=0.68, P=0.411), indicates that the differences are not significant. Comparing the stations, inside of each plot, only in Bateiras (F=5.58, P=0.001) these differences are significant;
- in 240706 (Annex - Plants, Table 13, Figure 11) the plot with the highest value was Bico dos Casais (± 1.95 g) and with lowest was Cardanhas (± 1.69 g). The mean value in terraces and slope vineyard was of ± 1.91 and 1.82 g. The station with the highest value was AmE9 (± 2.19 g) and with the lowest was CaE4 (±1.60 g). The variation between plots (F=8.80, P=0.000) and installation forms (F=4.06, P=0.046) are significant. Analysing the means of the values measured in the stations, we can see that only in Bico dos Casais (F=3.00, P=0.025) there is a significant intra plot variation.

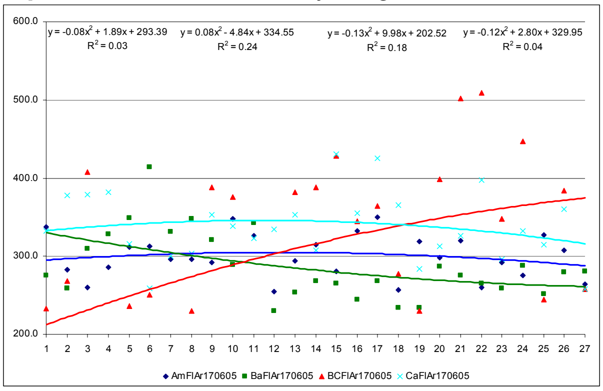
The definition of a 2nd degree regression equation and its analysis to each one of the plots, allows saying that:
- to the mean values of stations measured in 170605 (Annex - Plants, Table 61, Graphic 5), no Amendoal, it is not possible to see any significant tendency to its variation (R^2=0.765, F=9.767, P=0.013), as in Bateiras (R^2=0.229, F=0.892, P=0.458), Bico dos Casais (R^2=0.500, F=3.011, P=0.124) and Cardanhas (R^2=0.343, F=1.564, P=0.284);
- to the values measured in 210606 (Annex - Plants, Table 62, Graphic 6), in Amendoal, it is not possible to see any tendency to these values variation (R^2=0.585, F=4.237, P=0.071), as in Bateiras (R^2=0.099, F=0.330, P=0.731), Bico dos Casais (R^2=0.019, F=0.060, P=0.942) and Cardanhas, (R^2=0.417, F=2.142, P=0.198);
- to the mean values of stations measured in 240706 (Annex - Plants, Table 63, Graphic 6), in Amendoal, it is not possible to see any significant tendency to its variation (R^2=0.231, F=0.902, P=0.454), as in Bateiras

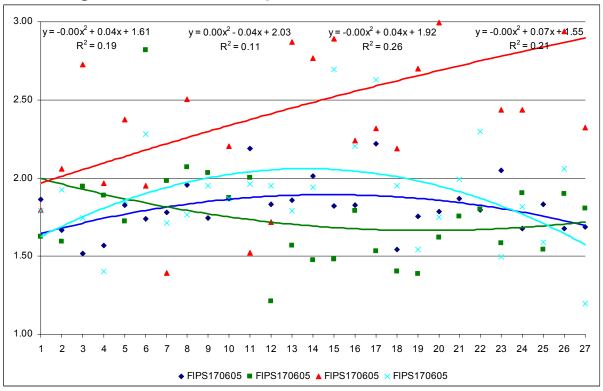
(R^2=0.164, F=0.587, P=0.584), Bico dos Casais (R^2=0.024, F=0.074, P=0.929) and Cardanhas (R^2=0.089, F=0.295, P=0.754);

Analysing the mean values of leaf dry weight and its spatial and cartographic representation, inside the plots, we can see a similar behaviour to that of leaf area.

Graphically representing the intra plot variation of leaf area and dry weight, we have:

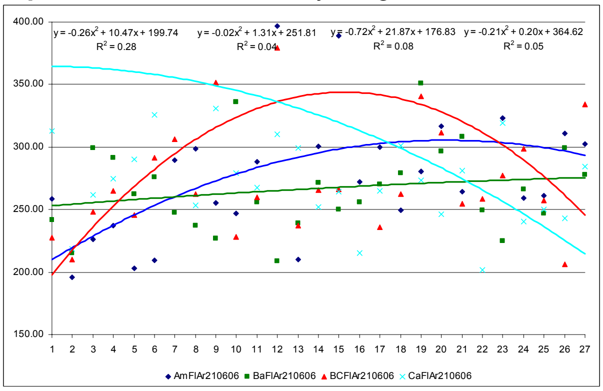
Graphic 8- Leaf area and dry weight of collected leaves in the geo referenced points, in 170605

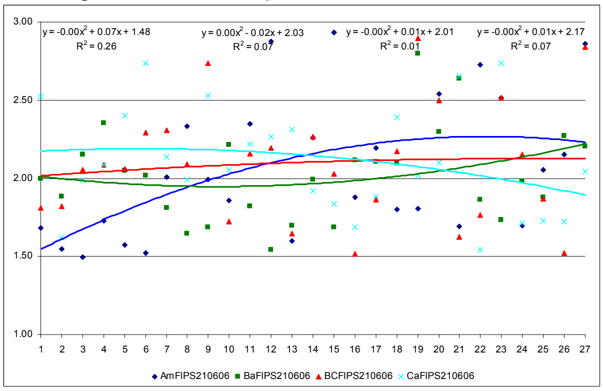




FlAr170605 - NS, NS, NS, NS **FlPs170605- S, NS, NS, NS**

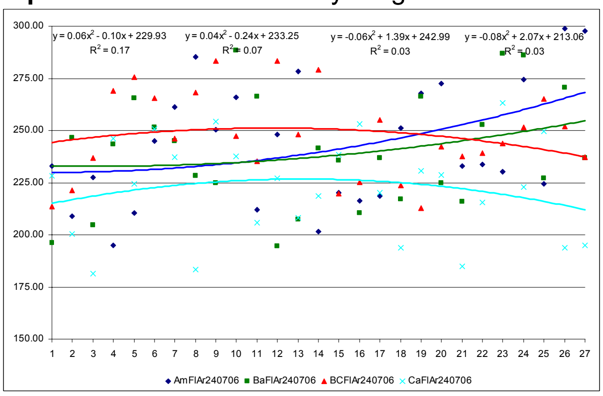
Graphic 9- Leaf area and dry weight of collected leaves in the geo referenced points, in 210606

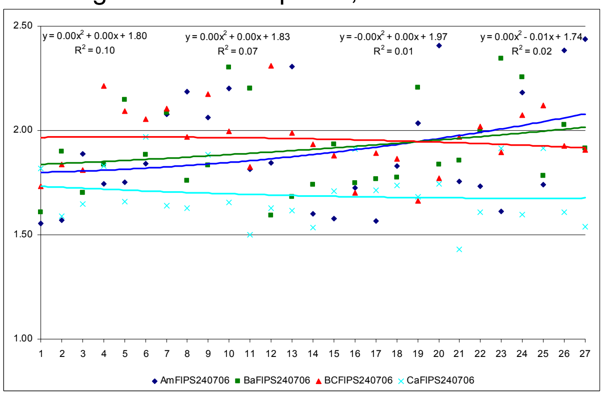




FlAr210606 - S, NS, NS, NS **FlPs210606- NS, NS, NS, NS**

Graphic 10- Leaf area and dry weight of collected leaves in the geo referenced points, in 240706





FlAr240706 - S, NS, NS, NS **FlPs240706- NS, NS, NS, NS**

The data obtained in relative to leaf area draw some doubts and ADN analysis were made to the leaves of the four plots, in order to confirm if the plots had the same clone of the lineage Tinta Roriz.

Comparing the data measured in June and July of 2006 it is possible to see that there is an accentuated increase of leaf area, 81 % to terraces and 76 % to slope vineyards, and a decrease of leaf dry weight of 6% to terraces and 13 % to slope vineyards. In relation to leaf area in Amendoal, Bateiras, Bico dos Casais and Cardanhas the increase of area is of 80, 83, 88 and 64 % and to dry weight, the decrease is of 8, 5, 7 and 20 %.

These elements correlations with the environment (Annex - Final results, Table 1), indicate that:
- to data of 170605 the leaf area presents significant correlations with its dry weight (0.311**) and the dry weight with temperature (-0.360**) air humidity (0.546**), soil temperature (-0.354**) and plants temperature (-0.499**);
- to data of 210606 the leaf area presents significant correlations with its dry weight (0.205*) and this with air temperature (0.220*);
- to data of 240706 the leaf area presents significant correlations with air temperature (0.323**) and humidity (-0.308**), soil temperature (0.244**) and plants temperature (0.190**) and the dry weight with air temperature (0.314**) and humidity (-0.274**), soil temperature (0.255**) and plants temperature (0.233*).

(1) * Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed).

The existence of significant correlations between leaf area and dry weight allows adjusting an equation (linear regression) between them; this analysis results are presented in Annex - Final results, Table 5.

3.2.3- Leaf chemical composition

To characterize leaves chemical composition, was made in 2005, the determination of macronutrients and in 2006 two determinations that included macronutrients and main micronutrients. To do this characterization the samples of each one of the geo referenced points of each station were gathered, resulting in nine samples to each plot. To determine the intra plot variation, the stations were grouped in groups of three (E1+E2+E3, E4+E5+E6, E7+E8+E9), that were called G1, G2 and G3.

3.2.3.1- Leaves macronutrients

3.2.3.1.1- Nitrogen

The mean values of nitrogen in the leaves (FIN) and its variance analysis to each one of the plots, installation forms and stations, are presented in Annex - Plants, Tables 14 and 15 to 17. The results of the determination of regression curves are present in Annex - Plants, Tables 64 to 66; its graphic representation is presented in Annex - Plants, Graphic 7 and 8. The spatial and cartographic representation is presented in Annex - Plants, Figures 12 to 14.

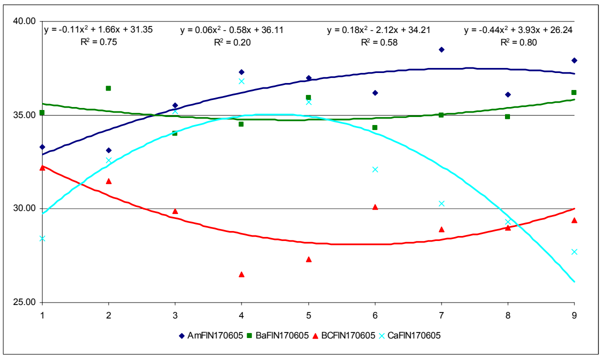
Analysing the data of the plots, installation forms and stations of each plot we can see that:

- in 170605 (Annex - Plants, Table 15, Figure 12) the plot with the highest value was Amendoal (± 36.10 g kg^{-1}) and the lowest was Bico dos Casais (± 29.42 g kg^{-1}). To terraces and slope vineyards the values were (± 35.62 g kg^{-1}) and de (± 30.72 g kg^{-1}). The group of stations with the highest value was AmG3 (± 37.5 g kg^{-1}) and the lowest was BCG2 (± 27.98 g kg^{-1}). The plots and installation forms present values significantly different (F=17.91, P=0.000 and F=40.09, P=0.000) but, relatively to intra plot variation, only in Amendoal these values are significantly different (F=8.67, P=0.017);
- in 210606 (Annex - Plants, Table 16, Figure 13) the plot with the highest value was Amendoal (± 26.72 g kg^{-1}) and the lowest was Bico dos Casais (± 22.67 g kg^{-1}). To terraces and slope vineyards the values were ± 25.42 g kg^{-1} and ± 22.95 g kg^{-1}. The station groups with the highest and lowest value were AmG2 (± 27.62 g kg^{-1}) and BCG3 (± 22.19 g kg^{-1}). The plots and installation forms present significantly different values (F=13.64, P=0.000 and F=18.95, P=0.000) but, in the interior of plots, only in Bateiras the values are significantly different (F=5.24, P=0.048);
- in 240706 (Annex - Plants, Table 17, Figure 14) the plot with the highest value was Amendoal (± 22.79 g kg^{-1}) and the lowest was Bico dos Casais (± 21.04 g kg^{-1}). To terraces and slope vineyards the values were ± 22.69 g kg^{-1} and ± 21.24 g kg^{-1}. The station groups with the highest and lowest value were AmG2 (± 23.40 g kg^{-1}) and CaG2 (± 20.67 g kg^{-1}). The plots and installation forms present significantly different values (F=4.68, P=0.008 and F=13.70, P=0.000) but, relating to intra plot variation, none of the plots present significantly different values.

Defining a 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- to values measured in 170605 (Annex - Plants, Table 64, Graphic 7), in Amendoal it is visible a significant tendency to the increase of the values in upper terraces (R^2=0.747, F=8.846, P=0.016), in Bateiras it is not visible a significant tendency to its variation (R^2=0.203, F=0.765, P=0.505), the same happening in Bico dos Casais (R^2=0.582, F=4.180, P=0.072) but, to Cardanhas, we can see a significant tendency to these values increase in central rows (R^2=0.804, F=12.332, P=0.007);
- to values measured in 210606 (Annex - Plants, Table 65, Graphic 8), in Amendoal it is not visible a tendency values variation (R^2=0.582, F=4.188, P=0.0726), neither in Bateiras (R^2=0.605, F=4.610, P=0.061), or in Bico dos Casais (R^2=0.026, F=0.081, P=0.922) and Cardanhas (R^2=0.191, F=0.712, P=0.527);
- to values measured in 240706 (Annex - Plants, Table 66, Graphic 8), in Amendoal it is not visible a tendency in values variation (R^2=0.166, F=0.598, P=0.579), neither in Bateiras (R^2=0.390, F=1.919, P=0.226), or in Bico dos Casais (R^2=0.093, F=0.310, P=0.744) and Cardanhas (R^2=0.177, F=0.645, P=0.557).

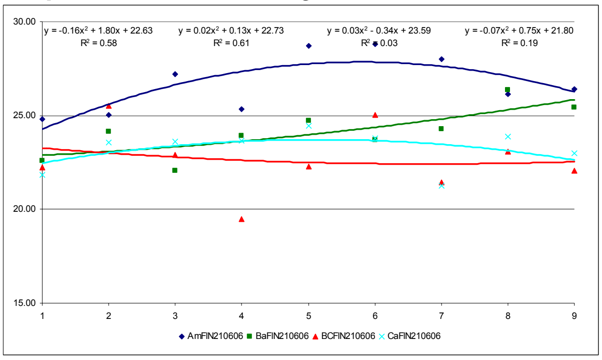
Graphic 11- Leaves nitrogen measured in stations in 170605



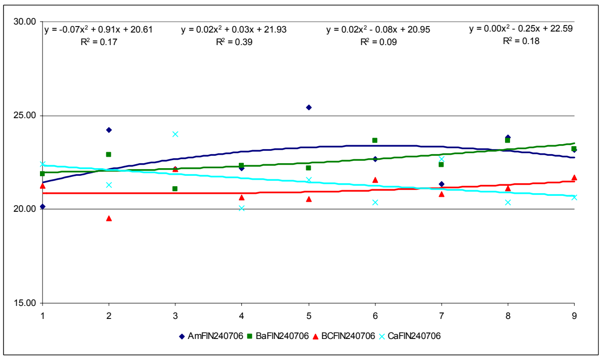
Comparing nitrogen leaves content, measured in 210606, with the ones measured in 240706 it is visible a variation of - 15, - 6, - 7 and - 8 % to Amendoal, Bateiras, Bico dos Casais and Cardanhas, allowing to say that the content of leaves nitrogen diminishes along ripening. The values measured in 2005 were quite superior to those of 2006, but we do not have another date to compare them.

N170605 - S, NS, NS, S

Graphic 12- Leaves nitrogen measured in stations in 210606 and 240706



N210606 - NS, NS, NS, NS



N240706 - NS, NS, NS, NS

3.2.3.1.2- Phosphorous

The mean values of phosphorous in leaves (FIP) and its variance analysis to each of the plots, installation forms and stations, are present in Annex - Plants, Tables 14 and 18 to 20. The results of regression curves are present in Annex - Plants, Tables 67 to 69; its graphic representation is presented in Annex - Plants, Graphic 9 and 10. The spatial and cartographic representation is in Annex - Plants, Figures 15 to 17.

Analysing the plots, installation forms and stations data to each plot it is visible that:

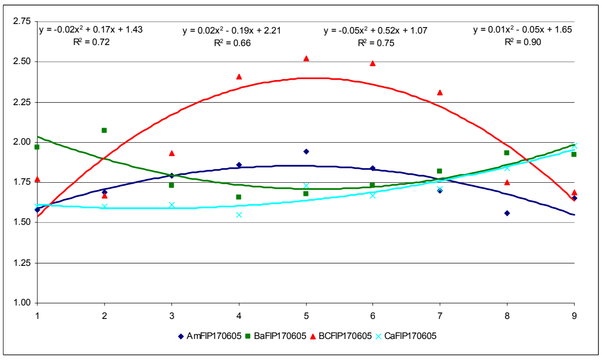
- in 170605 (Annex - Plants, Table 18, Figure 15) the plot with the highest value was Bico dos Casais (± 2.06 g kg^{-1}) and the lowest was Cardanhas (± 1.70 g kg^{-1}). To terraces and slope vineyards the values were (± 1.78 g kg^{-1}) and (± 1.88 g kg^{-1}). To stations groups the highest value was measured in BCG2 (± 2.47 g kg^{-1}) and the lowest in CaG1 (± 1.60 g kg^{-1}). The plots present significantly different values (F=5.00 and P=0.006) but the installation forms don't (F=1.28 and P=0.265). Relating to the plots variation only in Bateiras the values aren't significantly different (F=4.03 and P=0.078);
- in 210606 (Annex - Plants, Table 19, Figure 16) the plot with the highest value was Amendoal (± 1.81 g kg^{-1}) and the lowest was Cardanhas (± 1.63 g kg^{-1}). To terraces and slope vineyards the values were ± 1.73 g kg^{-1} and ± 1.70 g kg^{-1}. In the interior of the plots the highest value was obtained in BCG2 (± 1.97 g kg^{-1}) and the lowest in CaG3 (± 1.54 g kg^{-1}). Comparing the data of the plots, we can see that they have significantly different values (F=3.11 and P=0.004) but the installation forms do not (F=0.29 and P=0.592). Relating to intra plot variability, only in Bico dos Casais there is a significant variation (F=6.04 and P=0.037);
- in 240706 (Annex - Plants, Table 20, Figure 17) the plot with the highest value was Bico dos Casais (± 1.61 g kg^{-1}) and the lowest were Amendoal and Bateiras (± 1.45 g kg^{-1}). To terraces and slope vineyards

the values were ± 1.46 g kg^{-1} and ± 1.56 g kg^{-1}. In the interior of the plots the highest value was obtained in BCG2 (± 1.75 g kg^{-1}) and the lowest in AmG1 (± 1.34 g kg^{-1}). Comparing the data of the plots they are not significantly different but the installation forms are (F=4.51 and P=0.041). Relating to intra plot variability there are no significant differences.

Defining a 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- to values measured in170605 (Annex - Plants, Table 67, Table 9), in Amendoal there is a tendency to increased values in intermediate terraces (R^2=0.723, F=7.848, P=0.021), in Bateiras there is a decrease in central terraces (R^2=0.660, F=5.847, P=0.039), in Bico dos Casais the highest values are in central rows (R^2=0.749, F=8.957, P=0.015) and, to Cardanhas, it is visible an increase in northwest rows (R^2=0.895, F=25.780, P=0.001);
- to values measured in 210606 (Annex - Plants, Table 68, Table 10), in Amendoal it is not visible any tendency in values variation (R^2=0.133, F=0.462, P=0.650), in Bateiras the situation is similar (R^2=0.134, F=0.465, P=0.648), as in Bico dos Casais (R^2=0.611, F=4.719, P=0.058), the same happening to Cardanhas (R^2=0.241, F=0.956, P=0.436);
- to values measured in 240706 (Annex - Plants, Table 69, Table 10), in Amendoal it is not visible any tendency values variation (R^2=0.405, F=2.044, P=0.210), in Bateiras the situation is similar (R^2=0.457, F=2.524, P=0.160), as in Bico dos Casais (R^2=0.550, F=3.668, P=0.091) and in Cardanhas (R^2=0.163, F=0.585, P=0.585).

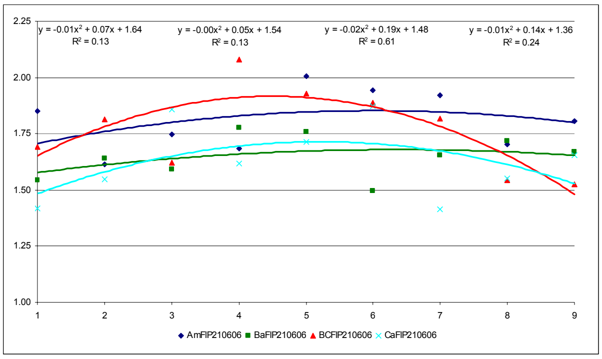
Graphic 13- Leaves phosphorous measured in stations in 170605



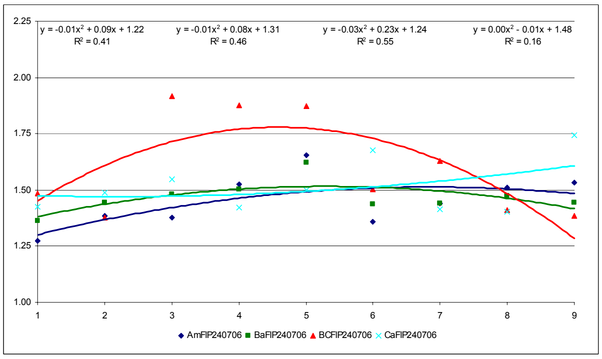
P170605 - S, S, S, S

Comparing the phosphorous leaves content measured in 210606 with those of 240706, it is visible a variation of - 20, - 11, - 9 and - 6 %, to Amendoal, Bateiras, Bico dos Casais and Cardanhas, allowing to say that the content of phosphorous diminishes along berries ripening. The values measured in 2005 were superior to those of 2006.

Graphic 14- Leaves phosphorous measured in stations in 210606 and 240706



P210606 - NS, NS, NS, NS



P240706 - NS, NS, NS, NS

3.2.3.1.3- Potassium

The mean values of leaves potassium (FIK) and its variance analysis to each of the plots, installation forms and stations, are presented in Annex - Plants, Tables 14 and 21 to 23. The results of regression curves are present in Annex - Plants, Tables 70 to 72; its graphic representation is present in Annex - Plants, Graphic 11 and 12. The spatial and cartographic representation is in Annex - Plants, Figures 18 to 20.

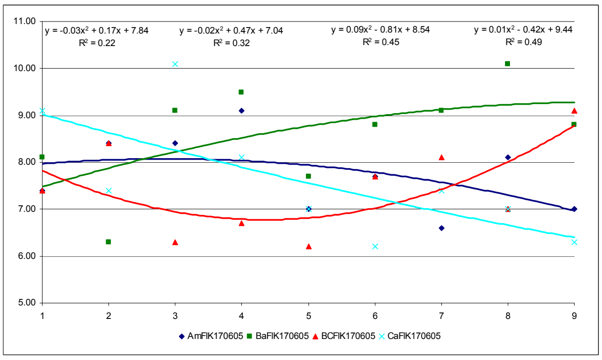
Analysing the plots, installation forms and stations data to each one of the plot we can say that:

- in 170605 (Annex - Plants, Table 21, Figure 18) the plot with the highest value was Bateiras (± 8.61 g kg^{-1}) and the lowest was Bico dos Casais (± 7.43 g kg^{-1}). To terraces and slope vineyards the values were ± 8.18 g kg^{-1} and ± 7.53 g kg^{-1}. To stations groups, the highest value was measured in BaG3 (± 9.33 g kg^{-1}) and the lowest in BCG2 (± 6.87 g kg^{-1}). Between plots the values are not significantly different (F=2.16 and P=0.112), the same happening when comparing installation forms (F=3.24 and P=0.081). Relating to the interior of the plots, there is no significant variability in none of them;
- in 210606 (Annex - Plants, Table 22, Figure 19) the plot with the highest value was Bico dos Casais (± 5.27 g kg^{-1}) and the lowest was Cardanhas (± 4.41 g kg^{-1}). To terraces and slope vineyards the values were ± 5.08 g kg^{-1} and ± 4.84 g kg^{-1}. To stations groups, the highest value was measured in BaG1 (± 4.22 g kg^{-1}) and the lowest in CaG3 (± 3.62 g kg^{-1}). Between plots the values are not significantly different (F=0.93 and P=0.437), the same happening when comparing installation forms (F=0.39 and P=0.539). Into the interior of the plots only in Cardanhas these values are significantly different (F=8.60, P=0.017);
- to the samples collected in 240706 (Annex - Plants, Table 23, Figure 20) the plot with the highest value was Bateiras (± 5.37 g kg^{-1}) and the lowest was Bico dos Casais (± 2.10 g kg^{-1}). To terraces and slope vineyards the values were ± 5.07 g kg^{-1} and ± 2.31 g kg^{-1}. To stations groups, the highest value was measured in BaG2 (± 7.00 g kg^{-1}) and the lowest in BCG2 (± 1.75 g kg^{-1}). Between plots the values are significantly different (F=11.94 and P=0.000), the same happening when comparing the installation forms (F=35.48 and P=0.000). Into the interior of the plots, there are no significant differences.

Defining a 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- to values measured in170605 (Annex - Plants, Table 70, Graphic 11), in Amendoal there is no tendency values variation (R^2=0.223, F=0.863, P=0.468), in Bateiras the situation is similar (R^2=0.322, F=1.429, P=0.310), as in Bico dos Casais (R^2=0.453, F=2.490, P=0.163) and Cardanhas (R^2=0.492, F=2.909, P=0.130);
- to values measured in 210606 (Annex - Plants, Table 71, Graphic 12), in Amendoal there is no tendency to values variation (R^2=0.082, F=0.271, P=0.771), in Bateiras the situation is similar (R^2=0.334, F=1.510, P=0.294), in Bico dos Casais the values are highest in central rows (R^2=0.774, F=10.292, P=0.011) and in Cardanhas a decrease occurs in northwest rows (R^2=0.964, F=82.511, P=0.000);
- to values measured in 240706 (Annex - Plants, Table 72, Table 12), in Amendoal there is no tendency to values variation (R^2=0.394, F=1.950, P=0.222), in Bateiras the situation is similar (R^2=0.388, F=1.907, P=0.228), as in Bico dos Casais (R^2=0.499, F=2.993, P=0.125) and in Cardanhas a decrease occurs in northwest rows (R^2=0.772, F=10.209, P=0.011).

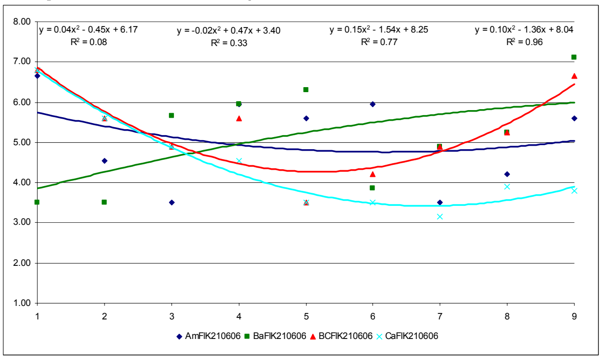
Graphic 15- Leaves potassium measured in stations in 170605



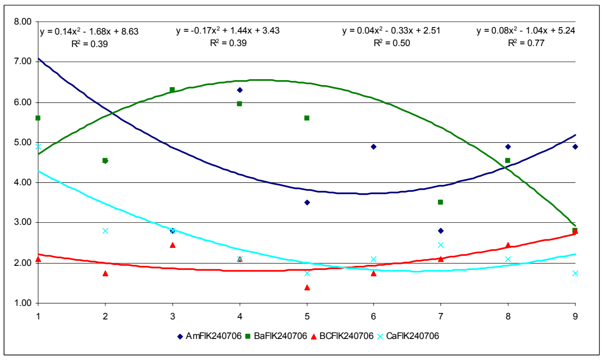
K170605 - NS, NS, NS, NS

Comparing the potassium leaves content measured in 210606 with those of 240706, we can see a variation of - 5, + 5, - 60 and - 43 % to Amendoal, Bateiras, Bico dos Casais and Cardanhas. The differences between vineyards in terraces and slope vineyard must be enhanced. Like in early situations, values measured in 2005 were superior to those of 2006, possibly in result to different environment conditions occurred in those two years.

Graphic 16- Leaves potassium measured in stations in 210606 and 240706



K210606 - NS, NS, NS, S



K240706 - NS, NS, NS, S

The correlations between these elements with the environment, leaves area and its dry weight (Annex - Final results, Table 2), indicate that:

- to 170605 data, the nitrogen presents a significant correlation with air temperature (0.646**) (1) and humidity (-0.700**), soil (0.549**) and plants temperature (0.667**), with SPAD (0.566**) and leaves dry weight (-0.608**). The phosphorous is significantly correlated with SPAD (-0.429**), leaves dry weight (0.508**) and its nitrogen content (-0.441**). The potassium does not present significant correlations with none of these variants;
- to 210606 data, the nitrogen presents a significant correlation with air temperature (0.410*) and humidity (-0.336*), leaf area (-0.343*), SPAD (0.627**) and phosphorous content (0.362*). Phosphorous significantly correlates with air temperature (0.463**) and humidity (-0.486**), soil temperature (0.335*) and leaves nitrogen content (0.362*). Potassium has no significant correlations with none of these factors;
- to 240706 data, nitrogen does not presents significant correlations with environment data; it is correlated with nitrogen content measured in 210606 (0.421*). Phosphorous and potassium don't present significant correlations with environment data.

(1) * Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed).

3.2.3.2- Leaves micronutrients

Leaves micronutrients mean values were measured only in the year of 2006, in two different dates, in 210606 and 240706.

3.2.3.2.1- Calcium

The leaves calcium mean values (FlCa) and its variance analysis to each of the plots, installation forms and stations, are presented in Annex - Plants, Tables 24 and 25 and 26 to 27; a spatial and cartographic representation is in Annex - Plants, Figures 21 and 22. The results of regression curves are present in Annex - Plants, Table 73 and 74; its graphic representation is present in Graphic 13.

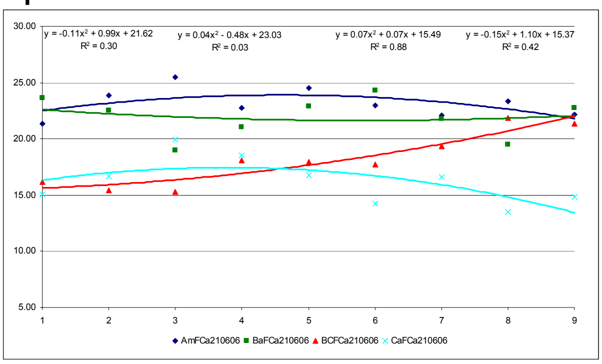
Analysing plots, installation forms and stations data to each plot it is visible that:

- in 210606 (Annex - Plants, Table 26, Figure 21) the plot with the highest value was Amendoal (± 23.17 g kg^{-1}) and the lowest was Cardanhas (± 16.25 g kg^{-1}). To terraces and slope vineyards, values were ± 22.55 g kg^{-1} and ± 17.20 g kg^{-1}. To stations groups the highest value was measured in AmG1 (± 23.58 g kg^{-1}) and the lowest in CaG3 (± 14.99 g kg^{-1}). Relating to data variation, plots and installation forms present significantly different values (F=25.08, P=0.000 and F=61.59, P=0.000). To stations only in Bicos dos Casais, significant differences of this element were found (F=30.96, P=0.000);
- in 240706 (Annex - Plants, Table 27, Figure 22) the plot with the highest value was Amendoal (± 18.60 g kg^{-1}) and the lowest was Cardanhas (± 12.81 g kg^{-1}). To terraces and slope vineyards, the values were ± 17.81 g kg^{-1} and ± 13.91 g kg^{-1}. To stations groups the highest value was measured in AmG1 (± 20.69 g kg^{-1}) and the lowest in CaG1 (± 11.37 g kg^{-1}). Relating to variation of plots and installation forms data, significantly different values are present (F=7.03, P=0.000 and F=16.00, P=0.000). To stations there are no intra plot differences.

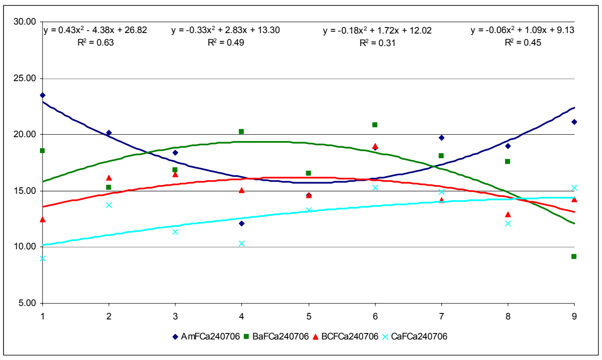
The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- to values measured in 210606 (Annex - Plants, Table 73, Graphic 13), in Amendoal it is not visible any tendency to values variation (R^2=0.302, F=1.298, P=0.339), in Bateiras the situation is similar (R^2=0.030, F=0.093, P=0.911), in Bico dos Casais the tendency is to an increase in southwest rows (R^2=0.876, F=21.373, P=0.001) and in Cardanhas there is no significant variation of values (R^2=0.415, F=2.131, P=0.199);
- to values measured in 240706 (Annex - Plants, Table 74, Graphic 13), in Amendoal it is not visible any tendency to values variation (R^2=0.625, F=5.012, P=0.052), in Bateiras the situation is similar (R^2=0.490, F=2.892, P=0.131), as in Bico dos Casais (R^2=0.310, F=1.348, P=0.328) and Cardanhas (R^2=0.445, F=2.411, P=0.170).

Graphic 17- Leaves calcium measured in stations in 210606 and 240706



Ca210606 - NS, NS, S, NS



Ca240706 - NS, NS, NS, NS

Comparing calcium leaves contents measured in 210606 with the ones of 240706, we can see a variation of - 20, - 22, - 17 and - 21 % in Amendoal, Bateiras, Bico dos Casais and Cardanhas allowing to say that calcium content diminishes along berries ripening.

3.2.3.2.2- Magnesium

The leaves magnesium mean values (FlMg) and its variance analysis to each plot, installation forms and stations, are present in Annex - Plants, Tables 24 and 25, 28 and 29; a spatial and cartographic representation is in Annex - Plants, Figures 23 and 24. The results of regression curves are present in Annex - Plants, Table 75 and 76; its graphic representation is present in Graphic 14.

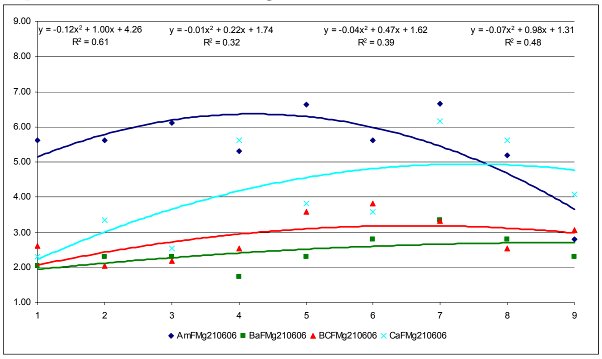
Analysing the plot, installation forms and stations data to each plot it is visible that:

- in 21060 (Annex - Plants, Table 28, Figure 23) the plot with the highest value was Amendoal (± 5.50 g kg^{-1}) and the lowest was Bateiras (± 2.43 g kg^{-1}). To terraces and slope vineyards, values were ± 3.97 g kg^{-1} and ± 3.49 g kg^{-1}. To stations groups the highest value was measured in AmG2 (± 5.85 g kg^{-1}) and the lowest in BaG1 (± 2.21 g kg^{-1}). Relating to data variation, the plots present significant differences (F=17.92, P=0.000) but that does not happen when comparing installation forms (F=0.89, P=0.352). To stations inside Cardanhas, significant differences of this element were found (F=5.58, P=0.043)
- in 240706 (Annex - Plants, Table 29, Figure 24) the plot with the highest value was Amendoal (± 5.78 g kg^{-1}) and the lowest was Bateiras (± 3.52 g kg^{-1}). To terraces and slope vineyards, values were ± 4.65 g kg^{-1} and ± 4.90 g kg^{-1}. To stations groups the highest value was measured in AmG3 (± 7.99 g kg^{-1}) and the lowest in BaG3 (± 3.23 g kg^{-1}). Relating to data variation, plots present significant differences (F=3.42, P=0.029) but the same does not happen when comparing installation forms (F=0.17, P=0.682). To stations Amendoal and Cardanhas the values are significantly different (F=6.42, P=0.032 and F=6.36, P=0.033).

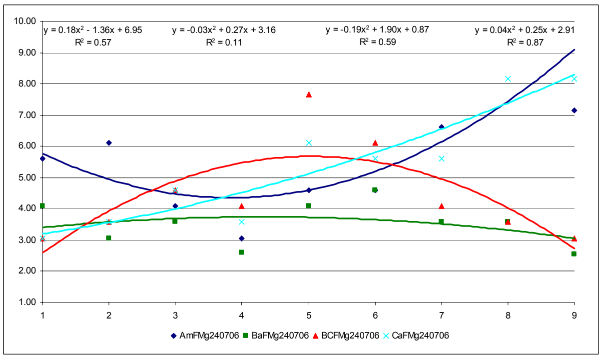
The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- to values measured in 210606 (Annex - Plants, Table 75, Graphic 14), in Amendoal there is no tendency variation values (R^2=0.612, F=4.750, P=0.058), in Bateiras the situation is similar (R^2=0.322, F=1.424, P=0.311), as in Bico dos Casais (R^2=0.388, F=1.904, P=0.228) and Cardanhas (R^2=0.484, F=2.814, P=0.137);
- to values measured in 240706 (Annex - Plants, Table 76, Graphic 14), in Amendoal there is no tendency to variation values (R^2=0.567, F=3.937, P=0.080), in Bateiras the situation is similar (R^2=0.109, F=0.369, P=0.705), as in Bico dos Casais (R^2=0.586, F=4.263, P=0.070) but in Cardanhas the tendency is to an increase of magnesium in the northwest rows (R^2=0.867, F=19.565, P=0.002).

Graphic 18- Leaves magnesium measured in stations in 210606 and 240706



Mg210606 - NS, NS, NS, NS



Mg240706 - NS, NS, NS, S

Comparing the magnesium leaves content measured in 210606 with the ones of 240706, it is visible that there is a variation of + 5, + 45, + 55 and + 31 % to Amendoal, Bateiras, Bico dos Casais and Cardanhas, allowing saying that the magnesium content rises in leaves during berries ripening.

3.2.3.2.3- Boron

The leaves born mean values (FIB) and its variance analysis to each one of the plots, installation forms and stations, are present in Annex - Plants, Tables 24 and 25 and 30 to 31; its spatial and cartographic representation is in Annex - Plants, Figures 25 and 26. The results of regression curves are present in Annex - Plants, Table 77 and 78; its graphic representation is present in Graphic 15.

Analysing the plots, installation forms and stations data to each one of the plot it is visible that:

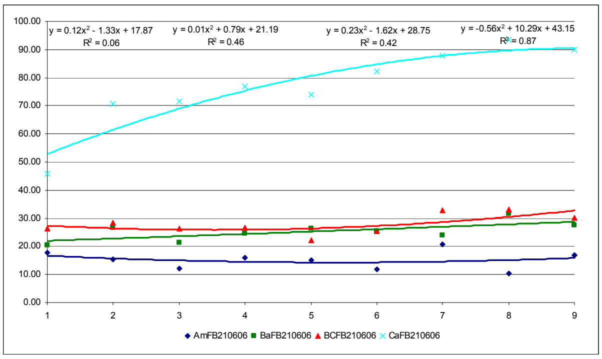
- in 210606 (Annex - Plants, Table 30, Figure 25) the plot with the highest value was Cardanhas (± 76.91 g kg^{-1}) and the lowest was Amendoal (± 15.14 g kg^{-1}). To terraces and slope vineyards, the values were ± 20.22 g kg^{-1} and ± 52.42 g kg^{-1}. To stations groups the highest value was measured in CaG3 (± 90.36 g kg^{-1}) and the lowest in AmG2 (± 14.26 g kg^{-1}). Relating to data variation, plots present significant differences (F=114.86, P=0.000) and installation forms too (F=24.07, P=0.000). The stations groups data in the interior of Bicos dos Casais and Cardanhas are significantly different (F=12.92, P=0.007 and F=7.26, P=0.025)
- in 240706, (Annex - Plants, Table 31, Figure 26) the plot with the highest value was Cardanhas (± 57.75 g kg^{-1}) and the lowest was Amendoal (± 24.75 g kg^{-1}). To terraces and slope vineyards, values were ± 25.10 g kg^{-1} and ± 44.35 g kg^{-1}. To stations groups the highest value was measured in CaG3 (±66.0 g kg^{-1}) and the lowest in AmG3 (± 21.51 g kg^{-1}). Relating to data variation the plots present significant differences (F=54.40, P=0.000), and installation forms too (F=25.07, P=0.000). The stations groups' data in the interior of the plots are not significantly different.

The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

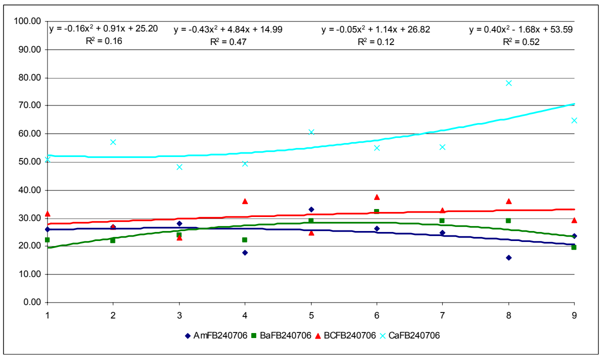
- to values measured in 210606 (Annex - Plants, Table 77, Graphic 15), in Amendoal it is not visible any tendency to variation values (R^2=0.062, F=0.199, P=0.824), in Bateiras the situation is similar (R^2=0.460, F=2.560, P=0.157), as in Bico dos Casais (R^2=0.423, F=2.200, P=0.191) but in Cardanhas, the tendency is to an increase of these values in the northwest rows (R^2=0.872, F=20.494, P=0.002);

- to values measured in 240706 (Annex - Plants, Table 78, Graphic 15), in Amendoal there is no tendency to variation values (R^2=0.156, F=0.557, P=0.599), in Bateiras the situation is similar (R^2=0.467, F=2.629, P=0.151), as in Bico dos Casais (R^2=0.117, F=0.398, P=0.6881) and Cardanhas (R^2=0.524, F=3.305, P=0.107).

Graphic 19- Leaves boron measured in stations in 210606 and 240706



B210606 - NS, NS, NS, S



B240706 - NS, NS, NS, NS

Comparing the content of leaves boron measured in 210606 with those of 240706 we can see that there is a variation of + 64, + 1, + 11 % and - 25 to Amendoal, Bateiras, Bico dos Casais and Cardanhas.

3.2.3.2.4- Iron

The leaves iron mean value (FIFe) and its variance analysis to each one of the plots, installation forms and stations, are present in Annex - Plants, Tables 24 and 25 and 32 to 33; its spatial and cartographic representation is in Annex - Plants, Figures 27 and 28. The results of regression curves are present in Annex - Plants, Table 79 and 80; its graphic representation is present in Graphic 16.

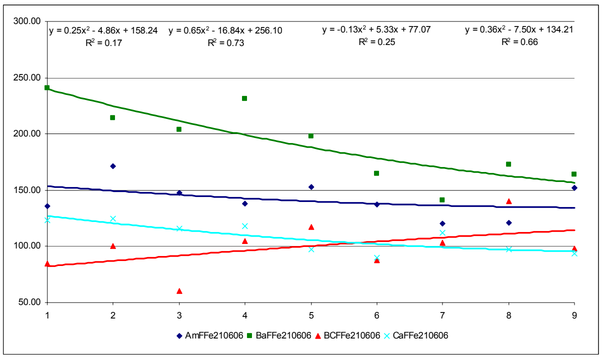
Analysing plots, installation forms and stations data to each one of the plot, we can see that:

- in 210606 (Annex - Plants, Table 32, Figure 27) the plot with the highest value was Bateiras (± 192.33 g kg^{-1}) and the lowest was Bico dos Casais (± 99.56 g kg^{-1}). To terraces and slope vineyards the values were ± 167.06 g kg^{-1} and ± 103.78 g kg^{-1}. To stations groups the highest value was measured in BaG1 (± 219.67 g kg^{-1}) and the lowest in BCG1 (± 81.67 g kg^{-1}). Relating to data variation, plots and installation forms have significant differences (F=30.92, P=0.000 and F=43.25, P=0.000). To plots stations groups, there are no significant differences of this element;
- in 240706 (Annex - Plants, Table 33, Figure 28) the plot with the highest value was Bateiras (± 272.00 g kg^{-1}) and the lowest was Amendoal (± 190.56 g kg^{-1}). To terraces and slope vineyards the values were ± 231.28 g kg^{-1} and ± 214.50 g kg^{-1}. To stations groups the highest value was measured in BaG1 (± 288.00 g kg^{-1}) and the lowest in AmG2 (± 156.67 g kg^{-1}). Relating to data variation, the plots have significant differences (F=8.51, P=0.000) but as installation forms do not (F=1.12, P=0.297). To plots stations groups there were no significant differences of this element.

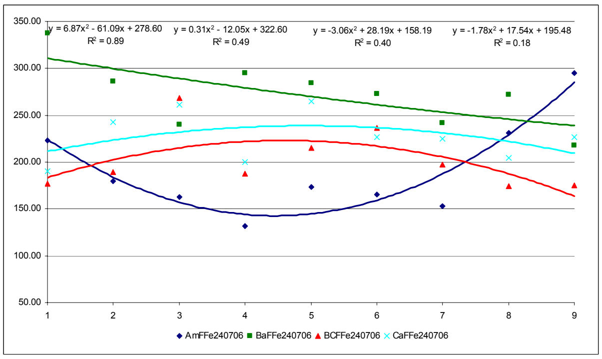
The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- To values measured in 210606 (Annex - Plants, Table 79, Graphic 16), in Amendoal there is no tendency to values variation (R^2=0.171, F=0.620, P=0.569), in Bateiras there is a tendency to a decrease of these values in upper terraces (R^2=0.728, F=8.037, P=0.020), in Bico dos Casais there is no tendency to that variation (R^2=0.249, F=0.999, P=0.422) and in Cardanhas, the tendency is to the decrease of these values in the northwest rows (R^2=0.664, F=5.942, P=0.037);
- To values measured in 240706 (Annex - Plants, Table 80, Graphic 16), in Amendoal the values of intermediate terraces are inferior (R^2=0.885, F=23.276, P=0.001), in Bateiras there is no tendency to that variation (R^2=0.485, F=2.832, P=0.136), in Bico dos Casais the situation is similar (R^2=0.396, F=1.967, P=0.220) as in Cardanhas, (R^2=0.177, F=0.649, P=0.555);

Graphic 20- Leaves iron measured in stations in 210606 and 240706



Fe210606 - NS, S, NS, S



Fe240706 - S, NS, NS, NS

Comparing the content of iron on leaves measured in 210606 with the ones of 240706, we can see that there is a variation of + 34, + 41, + 103 and + 110 % in Amendoal, Bateiras, Bico dos Casais and Cardanhas, allowing to say that the iron content increases during berries ripening. It must be enhanced the difference between vineyards in terraces and slope vineyard (38 and 107 %).

3.2.3.2.5- Copper

The leaves copper mean values (FlCu) and its variance analysis to each one of the plots, installation forms and stations, are present in Annex - Plants, Tables 24 and 25, and 34 to 35; the spatial and cartographic representation is in Annex - Plants, Figures 29 and 30. The results of regression curves are present in Annex - Plants, Table 81 and 82; its graphic representation is present in Graphic 17.

Analysing plots, installation forms and stations data to each one of the plot, it is visible that:

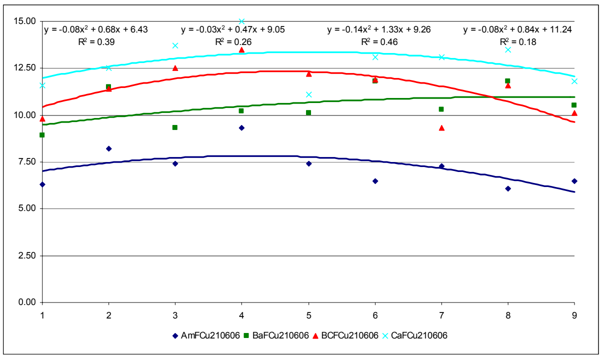
- in 210606 (Annex - Plants, Table 34, Figure 29) the plot with the highest value was Cardanhas (± 12.82 g kg^{-1}) and the lowest was Amendoal (± 7.22 g kg^{-1}). To terraces and slope vineyards the values were ± 8.86 g kg^{-1} and ± 12.09 g kg^{-1}. To stations groups the highest value was measured in CaG2 (± 13.07 g kg^{-1}) and the lowest in AmG3 (± 6.63 g kg^{-1}). Relating to data variation, plots and installation forms present significant differences (F=36.76, P=0.000 and F=31.58, P=0.000). In the interior of the plots, there are no significant differences of this element;
- in 240706 (Annex - Plants, Table 35, Figure 30) the plot with the highest value was Bateiras (± 5.69 g kg^{-1}) and o lowest was Cardanhas (± 4.51 g kg^{-1}). To terraces and slope vineyards the values were

± 5.33 g kg^{-1} and ± 4.53 g kg^{-1}. To stations groups the highest value was measured in BaG1 (± 6.70 g kg^{-1}) and the lowest in BCG2 (± 4.00 g kg^{-1}). Relating to data variation, the plots and installation forms do not present significant differences. In the interior of the plots, there are no significant differences of this element.

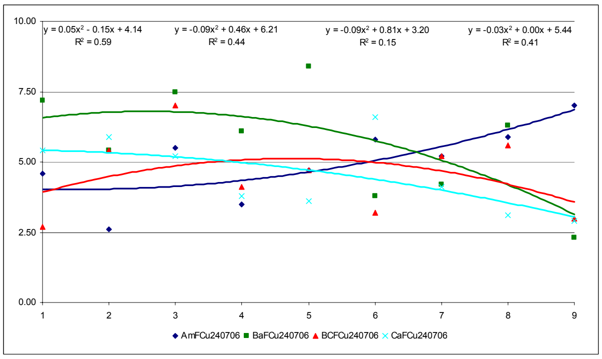
The 2nd degree regression equation and its analysis to each one of plots, allows saying that:

- to values measured in 210606 (Annex - Plants, Table 81, Graphic 17), in Amendoal there is no tendency to values variation (R^2=0.385, F=1.878, P=0.232), the same happening in Bateiras (R^2=0.257, F=1.041, P=0.409), Bico dos Casais (R^2=0.455, F=2.511, P=0.161) and Cardanhas (R^2=0.182, F=0.669, P=0.546);
- to values measured in 240706 (Annex - Plants, Table 82, Table 17), in Amendoal there is no tendency to values variation (R^2=0.591, F=4.338, P=0.068), the same happening in Bateiras (R^2=0.438, F=2.345, P=0.176), Bico dos Casais (R^2=0.147, F=0.519, P=0.619) and Cardanhas (R^2=0.407, F=2.061, P=0.208).

Graphic 21- Leaves copper measured in stations in 210606 and 240706



Cu210606 - NS, NS, NS, NS



Cu240706 - NS, NS, NS, NS

Comparing leaves copper content measured in 210606 with the ones of 240706, it is visible that there is a variation of - 31, - 46, - 60 and - 65 % to Amendoal, Bateiras, Bico dos Casais and Cardanhas, allowing to assume that copper content decreases during berries ripening; these decrease can come from the type of pesticides applied in diseases control. It must be enhanced the difference between vineyards in terraces and slope vineyard.

3.2.3.2.6- Zinc

The mean values of leaves zinc (FlZn) and its variance analysis to each one of the plots, installation forms and stations, are present in Annex - Plants, Tables 24 and 25, and 36 to 37; its spatial and cartographic representation is in Annex - Plants, Figures 31 and 32. The results of regression curves are present in Annex - Plants, Table 83 and 84; its graphic representation is present in Graphic 18.

Analysing plots, installation forms and stations data to each one of the plots, it is visible that:

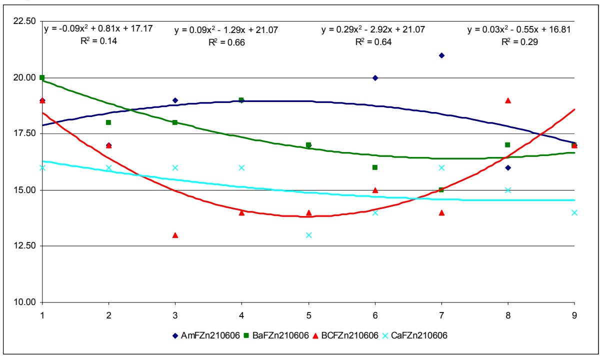
- in 210606 (Annex - Plants, Table 36, Figure 31) the plot with the highest value was Amendoal (± 18.33 g kg^{-1})and the lowest was Cardanhas (± 15.11 g kg^{-1}). To terraces and slope vineyards the values were ± 17.89 g kg^{-1} and ± 15.44 g kg^{-1}. To stations groups the highest value was measured in AmG1 and BaG1 (± 18.67 g kg^{-1}) and the lowest in BCG2 and CaG2 (± 14.33 g kg^{-1}). Relating to data variation, in the plots and installation forms there are significant differences between them (F=6.83, P=0.001 and F=18.62, P=0.000). Inside the plots, there were no significant differences of this element;

- in 240706 (Annex - Plants, Table 37, Figure 32) the plot with the highest value was Cardanhas (± 23.11 g kg^{-1}) and the lowest was Amendoal (± 12.00 g kg^{-1}). To terraces and slope vineyards, the values were ± 14.39 g kg^{-1} and ± 20.78 g kg^{-1}. To stations groups the highest value was measured in CaG2 (± 24.67 g kg^{-1}) and the lowest in AmG2 (± 11.33 g kg^{-1}). Relating to data variation, the plots and installation forms there are significant differences between them (F=29.04, P=0.000 and F=30.51, P=0.000). Inside the plots there were no significant differences of this element.

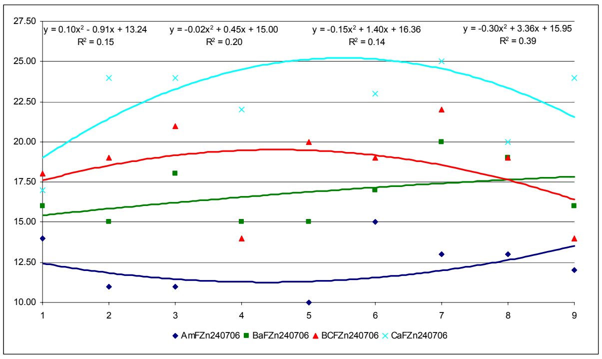
The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- to values measured in 210606 (Annex - Plants, Table 83, Graphic 18), in Amendoal there is no tendency to values variation (R^2=0.142, F=0.500, P=0.629), in Bateiras the tendency is to a decrease in the upper terraces (R^2=0.659, F=5.822, P=0.039), in Bico dos Casais the interior of the plot presents lower values (R^2=0.637, F=5.286, P=0.047) and in Cardanhas, there is no significant tendency in variation (R^2=0.290, F=1.228, P=0.357);
- to values measured in 240706 (Annex - Plants, Table 84, Graphic 18), in Amendoal there is no tendency to values variation (R^2=0.146, F=0.514, P=0.622), the same happening in Bateiras (R^2=0.198, F=0.743, P=0.514), Bico dos Casais (R^2=0.140, F=0.489, P=0.635) and Cardanhas (R^2=0.388, F=1.903, P=0.229).

Graphic 22- Leaves zinc measured in stations in 210606 and 240706



Zn210606 - NS, S, S, NS



Zn240706 - NS, NS, NS, NS

Comparing leaves zinc content measured in 210606 with the ones of de 240706, we can see that there is a variation of - 35, - 4, + 17 and + 53 % to Amendoal, Bateiras, Bico dos Casais and Cardanhas, allowing to assume that vineyard in terraces and slope vineyard have different behaviour.

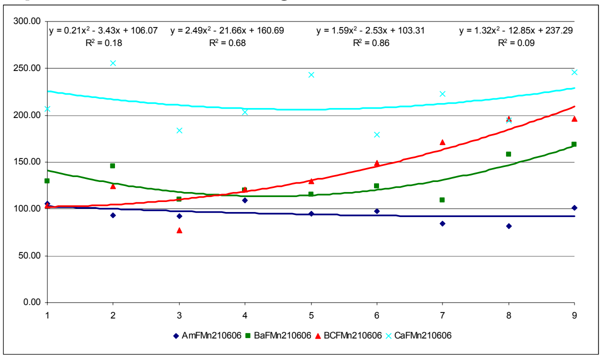
3.2.3.2.7- Manganese

The mean values of leaves manganese (FlMn) and its variance analysis to each one of the plots, installation forms and stations, are present in Annex - Plants, Tables 24 and 25, and 38 to 39; its spatial and cartographic representation is in Annex - Plants, Figures 33 and 34. The results of regression curves are present in Annex - Plants, Table 85 and 86; its graphic representation is present in Graphic 19.

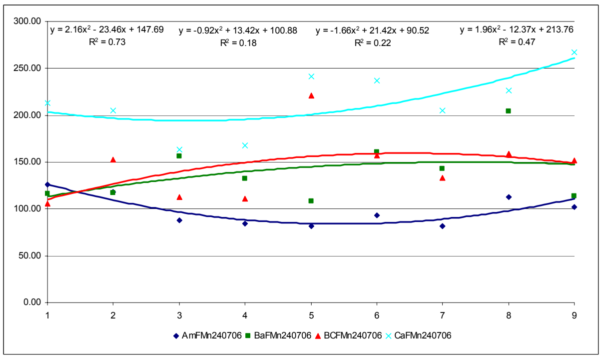
Analysing plots, installation forms and stations data to each one of the plots, it is visible that:
- in 210606 (Annex - Plants, Table 38, Figure 33) the plot with the highest value was Cardanhas (± 215.00 g kg^{-1}) and the lowest was Amendoal (± 95.56 g kg^{-1}). To terraces and slope vineyards the values were ± 113.39 g kg^{-1} and ± 177.94 g kg^{-1}. To stations groups the highest value was measured in CaG3 (± 221.00 g kg^{-1}) and the lowest in AmG3 (± 89.00 g kg^{-1}). Relating to data variation there were significant differences between plots and installation forms (F=30.08, P=0.000 and F=23.38, P=0.000). Inside the plots only in Bico de Casais the differences are significant (F=17.57, P=0.003);
- in 240706 (Annex - Plants, Table 39, Figure 34) the plot with the highest value was Cardanhas (± 213.89 g kg^{-1}) and the lowest was Amendoal (± 98.67 g kg^{-1}). To terraces and slope vineyards the values were ± 118.83 g kg^{-1} and ± 179.44 g kg^{-1}. To stations groups the highest value was measured in CaG3 (± 232.67 g kg^{-1}) and the lowest in AmG2 (± 86.33 g kg^{-1}). Relating to data variation there were significant differences between plots and installation forms (F=22.65, P=0.000 and F=19.46, P=0.000). Inside the plots, there were no significant differences.

The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:
- to values measured in 210606 (Annex - Plants, Table 85, Graphic 19), in Amendoal there is no tendency to values variation (R^2=0.181, F=0.665, P=0.548), in Bateiras the tendency is to intermediate terraces to present lower values (R^2=0.676, F=6.266, P=0.033), in Bico dos Casais the tendency is to an increase in southwest rows (R^2=0.861, F=18.585, P=0.002) and in Cardanhas, there is no significant tendency in variation (R^2=0.086, F=0.282, P=0.763);
- to values measured in 240706 (Annex - Plants, Table 86, Graphic 19), in Amendoal the intermediate terraces present lower values (R^2=0.731, F=8.159, P=0.019), in Bateiras there is no tendency in variation (R^2=0.176, F=0.641, P=0.559), in Bico dos Casais the situation is similar (R^2=0.221, F=0.854, P=0.471) the same happening in Cardanhas (R^2=0.471, F=2.680, P=0.147).

Graphic 23- Leaves manganese measured in stations in 210606 and 240706



Mn210606 - NS, S, S, NS



Mn240706 - S, NS, NS, NS

Comparing manganese zinc content measured in 210606 with the one of 240706, it is possible to see a variation of + 3, + 6, + 3 and - 1 % to Amendoal, Bateiras, Bico dos Casais and Cardanhas, allowing saying that the manganese content does not vary during a berries ripening.

Determining the correlations between leaves microelements and environment and plants data (Annex - Final results, Table 2), we can see, to data measured in 210606, we have the following significant correlations (1):

- calcium with soil mean temperature (0.376*), plants mean temperature (0.350*), with SPAD (0.377*), nitrogen (0.498**), boron -0.689**), iron (0.628**), copper (-0.646**), zinc (0.582**) and manganese (-0.535**);
- magnesium with soil mean temperature (0.377*), leaf area (0.702**), SPAD (0.343*) and copper (-0.330*);
- boron with air temperature (-0.511**) and humidity (0.496**), soil temperature (-0.589**), leaves nitrogen (-0.354*), potassium (-0.336*), calcium (-0.689**), iron (-0.404*), copper (0.695**), zinc (-0.493**) and manganese (0.833**);
- iron with air mean humidity (0.395*), leaves boron (-0.404*) and zinc (0.552**);
- copper with mean air temperature (-0.441**) and humidity (0.461**), leaf area (0.350*), SPAD (-0.421*), nitrogen -0.589**), calcium (-0.646**), magnesium (-0.330*), boron (0.695**), zinc (-0.569**) and manganese (0.625**);
- zinc with SPAD (0.389*), nitrogen (0.433**), calcium (0.582**), boron (-0.493**), iron (0.552**), copper (-0.569**) and manganese (-0.408*);
- manganese with mean air temperature (-0.382*) and humidity (0.416*), soil temperature (-0.429**), SPAD (-0.410*), nitrogen (-0.420*), phosphorous (-0.423*), calcium (-0.535**), boron (0.833**), copper (0.625**) and o zinc (-0.408*).

(1)* Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed)

To data measured in 240706, the significant correlations are the following:
- calcium with potassium (0.512**), boron (-0.442**), zinc (-0.374*) and manganese (-0.331*);
- magnesium with mean soil temperature (-0.387*);
- boron with air temperature (-0.409*) and humidity (0.388*), soil temperature do Soil ((-0.600**), leaf area (-0.470**), leaves dry weight (-0.561**), potassium (-0.433**), calcium (-0.442**), zinc (0.379**) and manganese (0.770**);
- iron with air temperature (-0.367*) and humidity (0.481**) and copper (0.466**);
- copper with iron(0.466**);
- zinc with mean air temperature (-0.416*) and humidity (0.393*), leaves dry weight (-0.414*), nitrogen (-0.375*), potassium (-0.484**), calcium (-0.374*), boron (0.679**) and manganese (0.778**);
- manganese with air temperature (-0.464**) and humidity (0.491**), soil temperature (-0.483**), leaf area (-0.343*), leaves dry weight (-0.381*), nitrogen (-0.356*), calcium (-0.331*), boron (0.770**) and zinc (0.778**).

(1)* Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed)

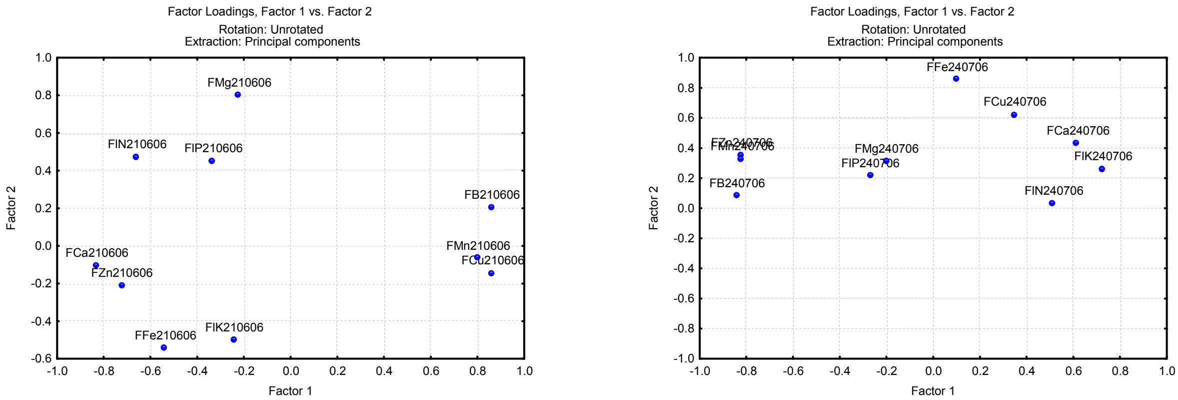
Considering the several elements determined in analysis of leaves composition, its factorial analysis was done in order to know, with the help of the first factor “interpreting”, which elements most interfere in composition variability; to easily interpret the results, and as long as the variation percentage be considered “sufficient”, only two factors were considered. This vectorial technique is particularly useful for its efficiency in variance analysis, as it able to better interpret the interrelations between variants.

The “loadings”, that measure the correlation between factors and original variants, when having the same signal, indicate that the correspondent variant are positively co relatable. If not, they are negatively. By observing these simple “affection” and “aversion” between variant, factors can be presented as parameters defined by equations that translate the whole variant in analysis variation.

Table 8- Factor Loadings (Unrotated) for micronutrients leaves composition. Extraction: Principal components. (Marked loadings are > .70)

210606 data			240706 data		
	Factor 1	Factor 2		Factor 1	Factor 2
FIN210606	-0.767	-0.423	**FIN240706**	0.725	-0.078
FIP210606	-0.404	-0.588	**FIP240706**	-0.458	0.246
FIK210606	-0.372	0.370	**FIK240706**	0.864	-0.314
FICa210606	-0.908	0.164	**FICa240706**	0.750	0.262
FIMg210606	-0.247	-0.829	**FIMg240706**	-0.192	0.503
FIB210606	0.881	-0.160	**FIB240706**	-0.851	-0.162
FIFe210606	-0.544	0.602	**FIFe240706**	0.140	-0.827
FICu210606	0.928	0.165	**FICu240706**	0.597	-0.591
FIZn210606	-0.878	0.255	**FIZn240706**	-0.895	-0.424
FIMn210606	0.866	0.068	**FIMn240706**	-0.887	-0.330
Expl.Var	5.229	1.860	**Expl.Var**	4.768	1.834
Prp.Tot (%)	52.3	18.6	**Prp.Tot (%)**	47.7	18.3

Graphic 24- Graphically representating the two first factors, for both analysis, we have:



As it can be seen by the extracted factors “loadings”, to 210606 data, these factors explain ± 70 % of the found variation and, to 240706 data, ± 66 %.

In absolute value, the original variant that more contribute to factor 1 variance, in the two samplings, are Boron, Calcium, Zinc and Manganese, in spite of only Zinc revels “affection” (same signal) in both situations. The value of copper “loading”, in first analysis, in factor 1 is probably due to cupric pesticides application shortly before leaves recollection.

With the values of leaves analysis made in 210606, a group’s analysis (“clusters”) was made, defining three groups. The “cluster 1” includes cases BaG1, BaG2, BaG3, “cluster 2” includes cases BCG3, CaG1, CaG2 and CaG3, and “cluster 3” includes cases AmG1, AmG2, AmG3, BCG1 and BCG2.

Table 9- Identification and representation of 210606 leaves data

Case	Cluster	Distance
AmG1	3	9.82
AmG2	3	6.96
AmG3	3	5.83
BaG1	1	8.74
BaG2	1	4.08
BaG3	1	11.39
BCG1	3	13.17
BCG2	3	11.21
BCG3	2	12.61
CaG1	2	4.59
CaG2	2	4.58
CaG3	2	9.24

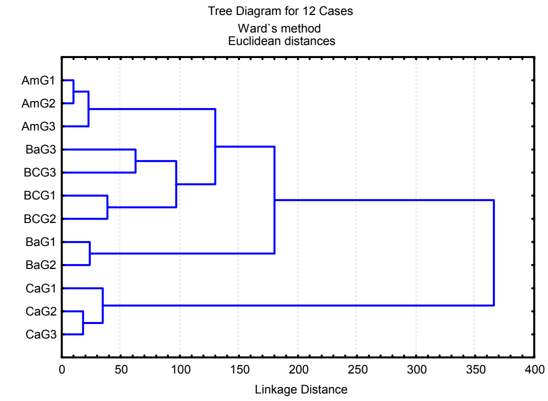


Table 10- Each "cluster" mean of variant values, of 210606 analysis.

	N	P	K	Ca	Mg	B	Fe	Cu	Zn	Mn
Cluster 1	24.14	1.65	5.11	21.94	2.44	25.30	192.33	10.49	17.44	131.22
Cluster 2	22.97	1.63	4.71	17.41	3.83	65.69	109.42	12.20	15.50	208.17
Cluster 3	25.19	1.82	5.07	20.61	4.42	19.43	122.07	9.09	17.13	104.33
F	1.996	6.551	0.247	2.492	2.320	11.493	10.848	2.953	1.979	52.359
S	0.192	0.018	0.786	0.138	0.154	0.003	0.004	0.103	0.194	0.000

As it can be seen in this table, only phosphorous, boron, iron and manganese content variation are significantly different, between the three "clusters".

To values of leaves analysis of 240706, the "cluster 1" includes cases CaG1, CaG2 and CaG3, "cluster 2" includes cases AmG1, AmG2, AmG3, BCG1, BCG2 and BCG3 and "cluster 3" includes cases BaG1, BaG2 and BaG3.

Table 11- Identification and representation of 240706 leaves data

Case	Cluster	Distance
AmG1	2	4.62
AmG2	2	16.92
AmG3	2	12.20
BaG1	3	5.93
BaG2	3	4.32
BaG3	3	10.06
BCG1	2	5.05
BCG2	2	14.17
BCG3	2	9.68
CaG1	1	6.85
CaG2	1	1.65
CaG3	1	7.04

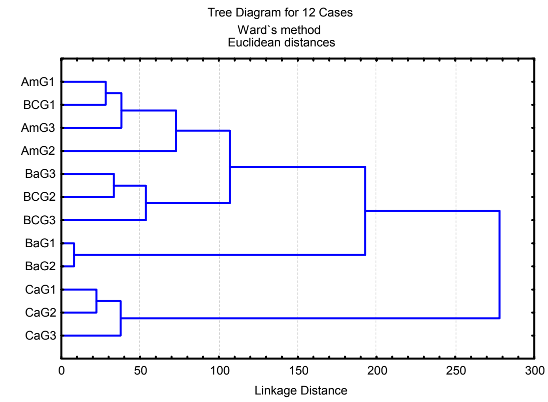


Table 12- Each "cluster" mean of variant values, of 240706 analysis.

	N	P	K	Ca	Mg	B	Fe	Cu	Zn	Mn
Cluster 1	21.49	1.51	2.53	12.81	5.39	57.76	226.89	4.51	23.11	213.89
Cluster 2	21.92	1.53	3.44	16.80	5.10	27.85	196.33	4.76	15.22	121.83
Cluster 3	22.58	1.47	5.37	17.02	3.52	25.46	272.00	5.69	16.78	139.00
F	2.277	1.373	4.075	2.720	0.726	12.345	11.496	3.231	4.939	11.937
S	0.158	0.302	0.055	0.119	0.510	0.003	0.003	0.088	0.036	0.003

As it can be seen in this table, only boron, iron, zinc and manganese content variation are significantly different, between the three "clusters".

3.2.3.3- Leaves reflectance data

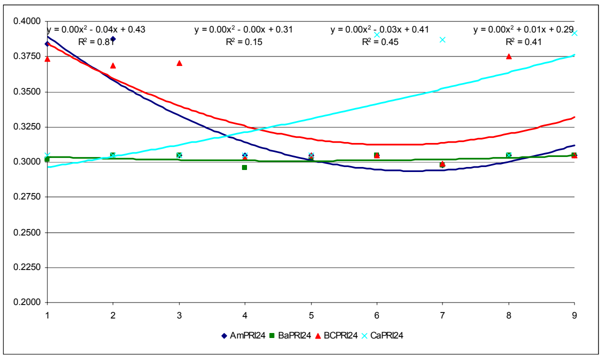
The mean values of leaves reflectance were determined only in the year of 2006, in 240706. These data spatial and cartographic representations are not presented, as the differences are very small.

3.2.3.3.1- Photochemical reflectance index

The mean values of leaves photochemical reflectance index (PRI) and its variance analysis to each one of the plots, installation forms and stations, are present in Annex - Plants, Tables 40 and 41. The results of regression curves are present in Annex - Plants, Table 87; its graphic representation is present in Graphic 20.

Analysing plots, installation forms and stations data to each on of the plots (Annex - Plants, Table 41) it is visible that the plot with the highest value was Bico dos Casais (± 0.3339) and the lowest was Amendoal (± 0.3222). To terraces and slope vineyards, the values were ± 0.3123 and ± 0.3336. To stations groups, the highest value was measured in AmE2 (± 0.3880) and the lowest in AmE7 (0.2977). Relating to data variation, we can see significant differences between plots and installation forms (F=5.60, P=0.001 and F=11.41, P=0.001). Inside the plots, only in Bateiras the different are not significant.

Graphic 25- Leaves photochemical reflectance to each plot several stations.



PRI - S, NS, NS, NS

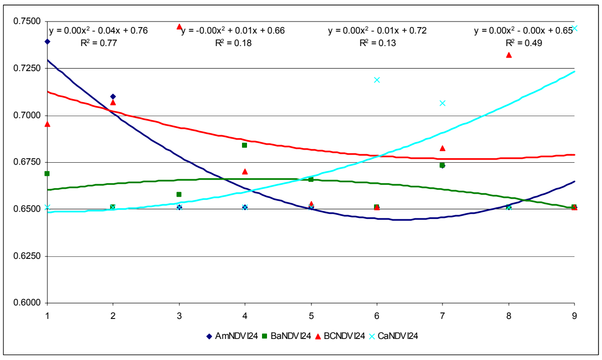
The 2nd degree regression equation and its variance analysis to each one of the plots (Annex - Plants, Table 87, Table 20), allows saying that in Amendoal, the curve adjusts to stations data (R^2=0.811, F=12.901, P=0.007) but in Bateiras the curve no longer adjusts to data (R^2=0.147, F=0.517, P=0.621), as in Bico dos Casais (R^2=0.447, F=2.421, P=0.169) and Cardanhas (R^2=0.414, F=2.122, P=0.201).

3.2.3.3.2- Normalized difference vegetation index

The first mean values of leaves normalized difference vegetation index (NDVI) and its variance analysis to each one of the plots, installation forms and stations, are present in Annex - Plants, Tables 40 and 42. The results of regression curves are present in Annex - Plants, Table 88; its graphic representation is present in Graphic 21.

Analysing plots, installation forms and stations data of each one of the plots (Annex - Plants, Table 42) it is possible to see that the plot with the highest value was Amendoal (± 0.6699) and the lowest was Bateiras (± 0.6615). To terraces and slope vineyards, the values were ± 0.6657 and ± 0.6815. To stations groups the highest value was measured in BCE3 (± 0.7470) and the lowest in several stations (0.6510). Relating to data variation there were significant differences between plots and installation forms (F=3.33, P=0.022 and F=6.83, P=0.010). Inside the plots the differences are significant (F=63.03, P=0.000; F=5.89, P=0.000; F=17.24, P=0.00; F=60.30, P=0.000).

Graphic 26- Leaves normalized difference vegetation index to several stations of each plot.



NDVI - NS, NS, NS, NS

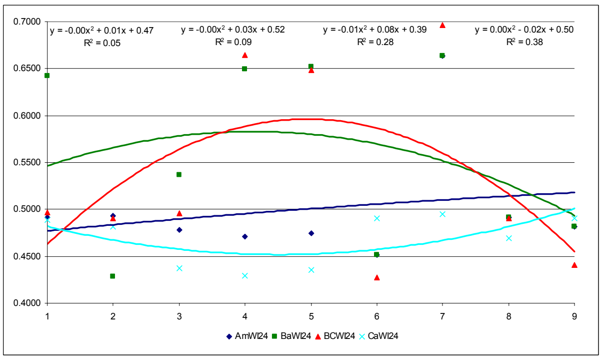
The 2nd degree regression equation and its variance analysis to each one of the plots (Annex - Plants, Table 88, Table 21); in Amendoal it is possible to adjust a to the stations (R^2=0.766, F=9.828, P=0.012) but in Bateiras the curve no longer adjusts to data (R^2=0.184, F=0.678, P=0.543), as in Bico dos Casais (R^2=0.126, F=0.432, P=0.668) and Cardanhas (R^2=0.492, F=2.906, P=0.131).

3.2.3.3.3- Water index

The leaves water index mean values (WI) and its variance analysis to each one of the plots, installation forms and stations of each plot, are present in Annex - Plants, Tables 40 and 43. The results of regression curves are present in Annex - Plants, Table 89; its graphic representation is present in Graphic 22.

Analysing the plots, installation forms and stations data to each one of the plots (Annex - Plants, Table 43) we can see that the plot with the highest value was Bateiras (± 0.5550) and the lowest was Cardanhas (± 0.4688). To terraces and slope vineyards, the values were ± 0.5273 and ± 0.5039. To stations groups the highest value was measured in BCE7 (± 0.6960) and the lowest in BCE6 (± 0.4277). Relating to data variation there were significant differences between plots but not to installation forms (F=6.93, P=0.000 and F=2.15, P=0.145). Inside of the plots the differences are significant (F=27.22, P=0.000; F=28.18, P=0.000; F=136.62, P=0.000; F=9.45, P=0.000).

Graphic 27- Leaves water index to several stations of each plot.



WI - NS, NS, NS, NS

The 2nd degree regression equation and its variance analysis to each one of the plots (Annex - Plants, Table 89, Table 22); in Amendoal it is not possible to adjust a curve to the stations (R^2=0.049, F=0.157, P=0.858), as in Bateiras (R^2=0.094, F=0.312, P=0.743), Bico dos Casais (R^2=0.275, F=1.142, P=0.380) and Cardanhas (R^2=0.375, F=1.802, P=0.244).

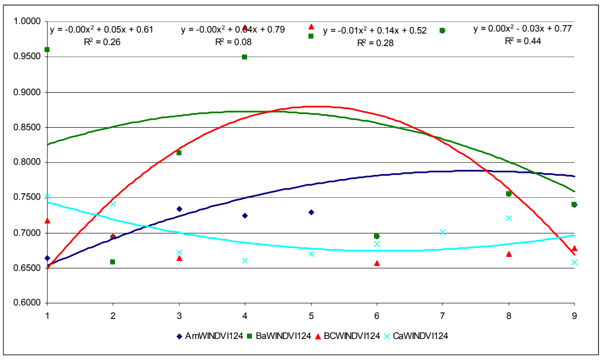
3.2.3.3.4- Water index / Normalized difference vegetation index 1

The mean values of leaves Water index/Normalized difference vegetation index relation 1(WI / NDVI1) and its variance analysis to each one of the plots, installation forms and stations, are present in Annex - Plants, Tables 40 and 44. The results of regression curves are present in Annex - Plants, Table 90; its graphic representation is present in Graphic 23.

Analysing plots, installation forms and stations to each one of the plot (Annex - Plants, Table 44), it is possible to see that the plot with the highest value was Bateiras (± 0.8371) and the lowest was Cardanhas

(± 0.6952). To terraces and slope vineyards, the values were ± 0.7920 and ± 0.7413. To stations groups the highest value was measured in BCE7 (± 1.020) and the lowest in CaE9 (± 0.6573). Relating to data variation there were significant differences between plots and installation forms (F=7.50, P=0.000 and F=4.64, P=0.033). Inside the plots the differences are significant (F=25.73, P=0.000; F=31.45, P=0.000; F=125.48, P=0.000; F=6.17, P=0.000).

Graphic 28- Leaves WI / NDVI1 to several stations of each plot.



WI / NDVI1 - NS, NS, NS, NS

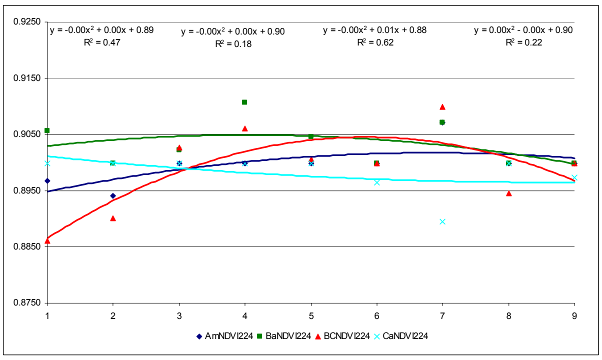
The 2nd degree regression equation and its variance analysis to each one of the plots (Annex - Plants, Table 90, Table 23); in Amendoal it is not possible to adjust a curve to the stations (R^2=0.259, F=1.051, P=0.406) as in Bateiras (R^2=0.081, F=0.264, P=0.776), Bico dos Casais (R^2=0.281, F=1.172, P=0.372) and Cardanhas (R^2=0.436, F=2.319, P=0.179).

3.2.3.3.5- Normalized difference vegetation index 2

The mean values of leaves normalized difference vegetation index 2 (NDVI2) and its variance analysis to each one of the plots, installation forms stations, are present in Annex - Plants, Tables 40 and 45. The results of regression curves are present in Annex - Plants, Table 91; its graphic representation is present in Graphic 24.

Analysing the plots, installation forms and stations data to each one of the plots (Annex - Plants, Table 45) it is visible that the plot with the highest value was Bateiras (± 0.9034) and the lowest was Cardanhas (± 0.8982). To terraces and slope vineyards the values were ± 0.9016 and ± 0.8985. To stations groups the highest value was measured in BaE4 (± 0.9117) and the lowest in BCE1 (± 0.8860). Relating to data variation there were significant differences between plots and installation forms (F=4.52, P=0.005 and F=7.59, P=0.006). Inside of the plots the differences are significant (F=3.38, P=0.015; F=5.52, P=0.001; F=7.47, P=0.000; F=2.36, P=0.062).

Graphic 29- Leaves normalized difference vegetation index 2 to several stations of each plot.



NDVI2- NS, NS, NS, NS

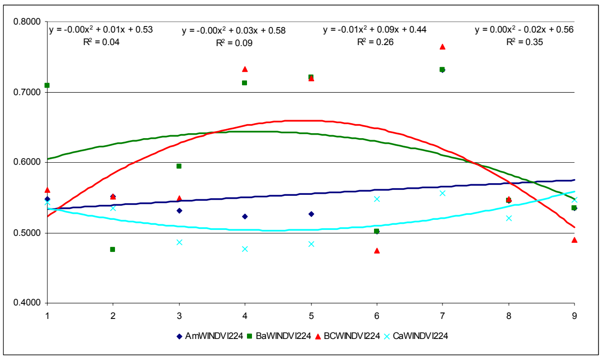
The 2nd degree regression equation and its variance analysis to each one of the plots (Annex - Plants, Table 91, Table 24); in Amendoal it is not possible to adjust a curve to the stations (R^2=0.473, F=2.693, P=0.146), as in Bateiras (R^2=0.184, F=0.678, P=0.542), Bico dos Casais (R^2=0.620, F=4.902, P=0.055) and Cardanhas (R^2=0.222, F=0.860, P=0.469).

3.2.3.3.6- Water index / Normalized difference vegetation index 2

The mean values of leaves Water index/Normalized difference vegetation index 2 (WI / NDVI2) relation and its variance analysis to each one of the plots, installation forms and stations, are present in Annex - Plants, Tables 40 and 46. The results of regression curves are present in Annex - Plants, Table 92; its graphic representation is present in Graphic 25.

Analysing the plots, installation forms and stations data to each one of the plots (Annex - Plants, Table 46), it is possible to see that the plot with the highest value was Bateiras (± 0.6139) and the lowest was Cardanhas (± 0.5221). To terraces and slope vineyards, the values were ± 0.5844 and ± 0.5606. To stations groups the highest value was measured in BCE7 (± 0.7647) and the lowest was CaE3 (± 0.0000). Relating to data variation there were significant differences between plots but not to installation forms (F=6.83, P=0.000 and F=1.91, P=0.169). Inside the plots the differences are significant (F=26.01, P=0.000; F=29.42, P=0.000; F=128.45, P=0.000; F=10.10, P=0.000).

Graphic 30- Leaves WI / NDVI2 to several stations of each plot.



WI / NDVI2 - NS, NS, NS, NS

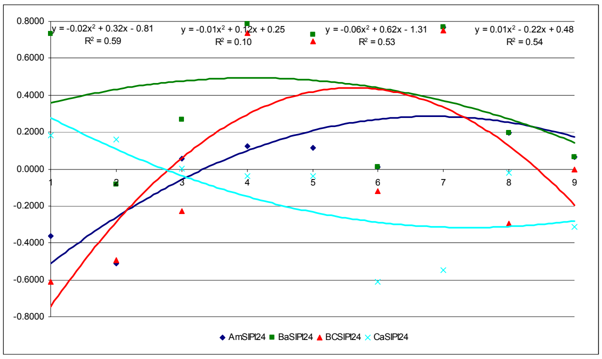
The 2nd degree regression equation and its variance analysis to each one of the plots (Annex - Plants, Table 92, Table 25); in Amendoal it is not possible to adjust a curve to the stations (R^2=0.043, F=0.136, P=0.875), as in Bateiras (R^2=0.091, F=0.301, P=0.751), Bico dos Casais (R^2=0.263, F=1.072, P=0.399) and Cardanhas (R^2=0.352, F=1.627, P=0.273).

3.2.3.3.7- Structural independent pigment index

The mean values of leaves structural independent pigment index (SIPI) and its variance analysis to each one of the plots, installation forms and stations, are present in Annex - Plants, Tables 40 and 47. The results of regression curves are present in Annex - Plants, Table 93; its graphic representation is present in Graphic 26.

Analysing plots, installation forms and stations of each plot (Annex - Plants, Table 47) we can see that the plot with the highest value was Bateiras (± 0.385) and the lowest was Cardanhas (- 0.136). To terraces and slope vineyards, the values were ± 0.2180 and -0.0439. To stations groups the highest value was measured in BaE4 (± 0.7867) and the lowest in CaE3 (± 0.0000). Relating to data variation it is possible to see significant differences between plots and installation forms (F=8.16, P=0.000 and F=10.80, P=0.001). Inside the plots the differences are significant (F=30.22, P=0.000; F=58.82, P=0.000; F=64.73, P=0.000; F=13.02, P=0.000).

Graphic 31- Leaves structural independent pigment index, to several stations of each plot.



SIPI- NS, NS, NS, NS

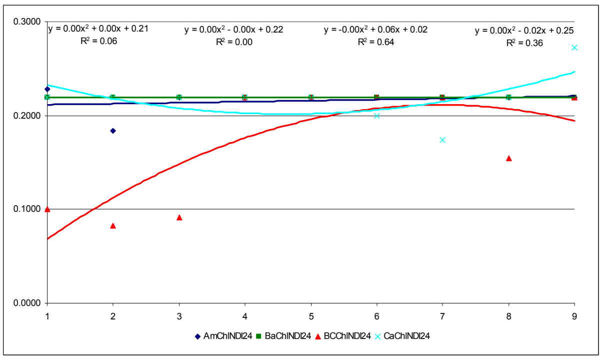
The 2nd degree regression equation and its variance analysis to each one of the plots (Annex - Plants, Table 93, Table 26); in Amendoal it is not possible to adjust a curve to the stations (R^2=0.591, F=4.337, P=0.068), as in Bateiras (R^2=0.100, F=0.336, P=0.727), Bico dos Casais (R^2=0.528, F=3.354, P=0.105) and Cardanhas (R^2=0.538, F=3.507, P=0.098).

3.2.3.3.8- Indicator of chlorophyll content

The mean values of leaves chlorophyll content indicator (ChINDI) and its variance analysis to each one of the plots, installation forms and stations of each plot, are present in Annex - Plants, Tables 40 and 48. The results of regression curves are present in Annex - Plants, Table 94; its graphic representation is present in Graphic 27.

Analysing the data of the plots, installation forms and stations of each plot (Annex - Plants, Table 48) it is possible to see that the plot with the highest value was Bateiras (± 0.2190) and the lowest was Bico dos Casais (± 0.1691). To terraces and slope vineyards, the values were ± 0.2175 and ± 0.1934. To stations groups the highest value was measured in AmE1 (± 0.2280) and the lowest in BCE2 (± 0.082). Relating to data variation it is possible to see significant differences between plots and installation forms (F=11.52, P=0.000 and F=9.51, P=0.003). Inside the plots the differences are significant in Bico dos Casais and Cardanhas (F=0.72, P=0.673; F=-, P=-; F=22.92, P=0.000; F=3.82, P=0.009).

Graphic 32- Indicator of leaves chlorophyll content to several stations of each plot.

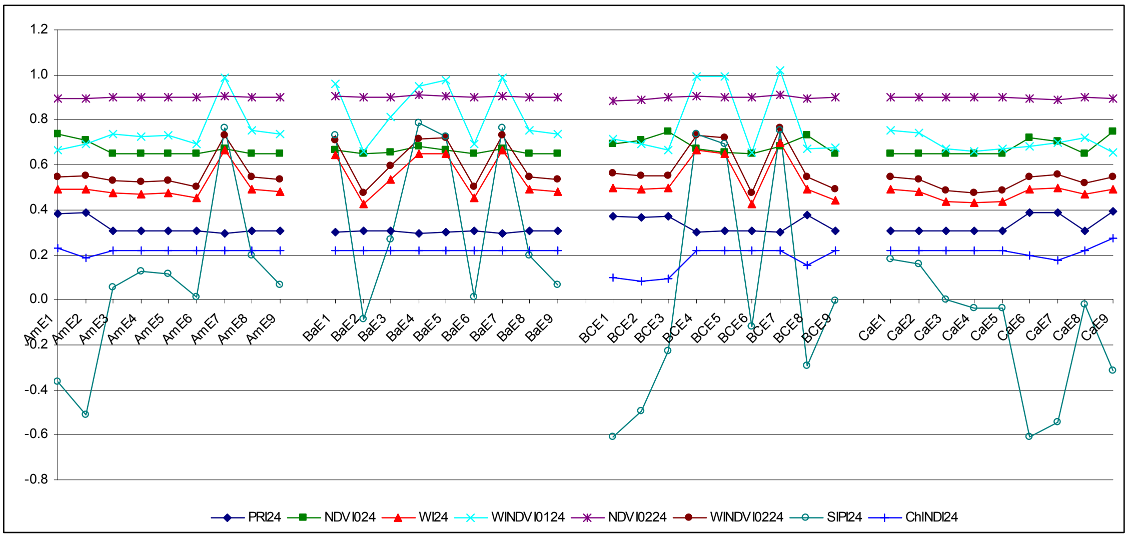


ChINDI- NS, NS, NS, NS

The 2nd degree regression equation and its variance analysis to each one of the plots (Annex - Plants, Table 94, Table 27); in Amendoal it is not possible to adjust a curve to the stations (R^2=0.062, F=0.198, P=0.825), as in Bateiras (R^2=0.013, F=0.042, P=0.959), in Bico dos Casais the curve adjusts to the values (R^2=0.641, F=5.356, P=0.046) but not in Cardanhas (R^2=0.361, F=1.698, P=0.260).

These data variation graphic representation would be:

Graphic 33- Spectrophotometry measured data variation



3.2.3.4- Pruning wood weight

The mean values of pruning wood weight (PlPd) and its variance analysis to each one of the plots, installation forms and stations of each plot, are present in Annex - Plants, Tables 49 to 52. The results of regression curves are present in Annex - Plants, Table 95 and 96; its graphic representation is present in Graphic 28 and 29 A spatial and cartographic representation is in Annex - Plants, Figure 35 and 36.

Analysing the plots, installation forms and stations data to each one of the plot we can see that:

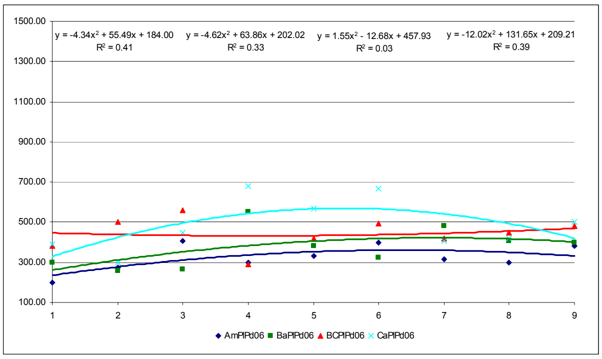
- in 080306 (Annex - Plants, Table 49, Figure 35) the plot with the highest mean was Cardanhas (± 486.78 g) and the lowest was Amendoal (± 324.00 g). To terraces and slope vineyards, the values were ± 349.44 g and ± 465.17 g. To stations groups the highest value was measured in CaG2 (± 638.00 g) and the lowest in BaG1 (± 275.00 g). It is possible to see significant differences between plots and installation forms (F=5.10, P=0.005 and F=13.05, P=0.001). Inside of the plots only in Cardanhas there were significant differences between three groups (F=0.40, P=0.688, F=4.17, P=0.073, F=0.76, P=0.507, F=13.43, P=0.006);
- in 150107 (Annex - Plants, Table 50, Figure 36) the plot with the highest mean was Amendoal (± 760.19 g) and the lowest was Bico dos Casais (± 553.71 g). To terraces and slope vineyards, the values were ± 684.27 g and ± 581.03 g. To stations groups the highest value was measured in AmG1 (± 827.77 g) and the lowest in BCG3 (± 477.80 g). There were no significant differences between plots and installation forms (F=1.54, P=0.222 and F=2.05, P=0.161). Inside of the plots there were no significant differences between the three groups (F=0.11, P=0.897, F=0.49, P=0.633, F=1.51, P=0.294, F=1.86, P=0.235).

The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

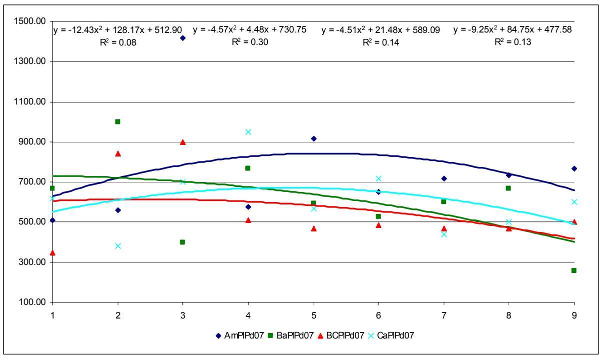
- to values measured in 080306 (Annex - Plants, Table 95, Graphic 28), in Amendoal there was no tendency to values variation (R^2=0.411, F=2.099, P=0.203), the same happening in Bateiras (R^2=0.325, F=1.444, P=0.307), Bico dos Casais (R^2=0.025, F=0.077, P=0.926) and Cardanhas (R^2=0.394, F=1.954, P=0.222);

- to values measured in 150107 (Annex - Plants, Table 96, Graphic 29), in Amendoal there was no tendency to values variation (R^2=079, F=0.259, P=0.779), the same happening in Bateiras (R^2=0.303, F=1.302, P=339), Bico dos Casais (R^2=0.143, F=0.502, P=0.628) and Cardanhas (R^2=0.131, F=0.452, P=0.656).

Graphic 34- Pruning wood weight measured at stations in 080306 and 150107



PIPd- NS, NS, NS, NS



PIPd- NS, NS, NS, NS

Comparing pruning wood weight in 2005 and 2006 there were variations of + 135, + 62, + 25 and + 25 % to Amendoal, Bateiras, Bico dos Casais and Cardanhas.

Relating to pruning wood weight correlations (Annex - Final results, Table 2) it is possible to see, in 2005, significant correlations with air temperature (-0.486**) and humidity (0.500**), soil temperature (-0.550**), soil pH (< 20 cm, -0.392* and 20 - 40 cm, -0.405*), assimilable phosphorous (< 20 cm, 0.392* and 20 - 40 cm, 0.422*), assimilable potassium (< 20 cm, 0.430** and 20 - 40 cm, 0.488**), magnesium (< 20 cm, -0.366* and 20 - 40 cm, -0.349*), sodium (< 20 cm, -0.380* and 20 - 40 cm, -0.445**) and plant yield (0.683*).
Relating to 2006 (Annex - Final results, Table 2), to data of 210606, we can see a correlation between pruning wood weight and SPAD (0.509**), nitrogen (0.441**) and, to data measured in 240706, the correlations are with leaf area (0.368*) and SPAD (0.340*).

3.2.4- Molecular analysis of lineage Tinta Roriz

The results of molecular analysis were obtained in six *loci* SSR (VVMD5, VVMD7, VVS2, VrZAG47, VrZAG62, VrZAG79). To most of the plots, the detected alleles in the six studied *loci* were lineage characteristic, homozygote to *loci* in VVMD5, VVS2 and VrZAG47 and heterozygote to *loci* VVMD7, VrZAG62 and VrZAG79. In plants installed in Bico dos Casais, it was possible to see the presence of two different alleles in *locus* VrZAG79.
The obtained data show some variability of this plot plants, although some extra studies to a higher number of plants should be done in order to confirm these results.

These determinations results are indicated in the following table.

Table 13- Lineage DNA analysis results

Samples	ZAG 79	VVS 2	ZAG 47	MD 5	ZAG 62	MD 7
AM1	245-249	143-145	159-159	232-232	195-199	237-251
AM3	245-249	245-249	143-145	159-159	232-232	195-199
BA1	245-249	143-145	159-159	232-232	195-199	237-251
BA2	245-249	143-145	159-159	232-232	195-199	237-251
BC1	245-249	143-145	159-159	232-232	195-199	237-251
BC3	245-249	143-145	159-159	232-232	185-195	237-251
CA1	245-249	143-145	159-159	232-232	195-199	237-251
CA2	245-249	143-145	159-159	232-232	195-199	237-251
(Pinto, Carnide et al.)	245-249	140-142	159-159	232-232	195-199	237-251

3.3- Soil measurements results

Beyond soil temperature measuring, simultaneously made with air and plants temperature, samples were collected, accordingly to the methodology used to other already made measurements, and analysed in UTAD's Soil Laboratory.

According to measured data, seasonings were made with the purpose of correcting elements whose content values were very low (Annex - Soils, Table 63). These seasonings were made manually and not modulated, because there was no equipment that could allow it. The applications were made in both plants located in each side of the geo-referenced points.

3.3.1- Soil texture

Every plot's soil texture was considered as mean.

3.3.2- pH

The results of soil pH variance analysis in the first 20 cm deep and between 20 - 40 cm, to each one of the plots, installation forms and stations of each one of the plots, are presented in Annex - Soil, Tables 1 to 5; a spatial and cartographic representation is present in Annex - Soil, Figures 1 to 4. The results of regression curves determination are present in Annex - Soils, Tables 35 to 38; its graphic representation is present in Annex - Soils, Graphic 1 and 2.

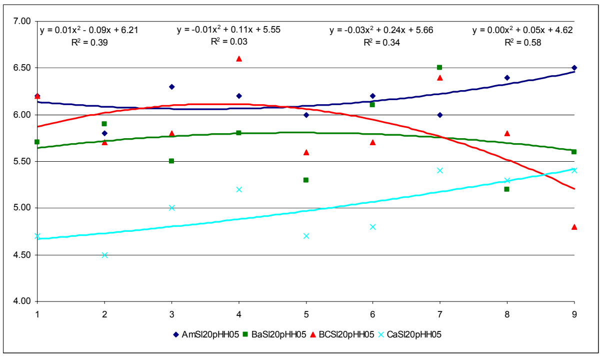
Considering the ANOVA results of pH measured in water data (SI20(40)pHH_2O), it is possible to see that:

- to pH, in H_2O, in the first 20 cm deep (Annex - Soil, Table 2, Figure 1), the plot with the highest value was Amendoal (± 6.18) and the lowest was Cardanhas (± 5.00). To terraces and slope vineyards, the values were ± 5.96 and ± 5.42. To stations groups the highest value was measured in AmG3 (± 6.30) and the lowest in CaG1 (± 4.73). The plots and installation forms have significantly different values (F=14.80, P=0.000 and F=9.78, P=0.004) but, only in Cardanhas the pH varies significantly (F=7.10, P=0.026);
- to pH, in H_2O, between 20 and 40 cm deep (Annex - Soil, Table 3, Figure 2), the plot with the highest value was Amendoal (± 6.42) and the lowest was Cardanhas (± 4.99). To terraces and slope vineyards, the values were ± 6.07 and ± 5.49. To stations groups the highest value was measured in AmG3 (6.63) and the lowest in CaG1 (± 4.57). To the plots and installation forms the differences are significant (F=25.40, P=0.000 and F=9.35, P=0.004) but only Cardanhas presents intra plot variability (F=12.11 and P=0.008).

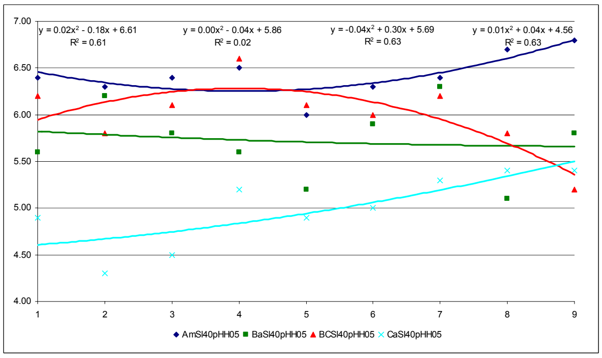
The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- To values measured between 0 - 20 cm deep (Annex - Soil, Tables 35, Graphic 1), in Amendoal there was no tendency to values variation (R^2=0.389, F=1.912, P=0.227), the same happening in Bateiras (R^2=0.029, F=0.090, P=0.914), Bico dos Casais (R^2=0.338, F=1.535, P=0.289) and Cardanhas (R^2=0.575, F=4.059, P=0.076);
- To values measured between 20 - 40 cm deep (Annex - Soil, Tables 36, Graphic 1), in Amendoal there was no tendency to values variation (R^2=0.610, F=4.695, P=0.059), the same happening in Bateiras (R^2=0.019, F=0.060, P=0.942), Bico dos Casais (R^2=0.631, F=5.130, P=0.050) and Cardanhas (R^2=0.631, F=5.141, P=0.050).

Graphic 35- Soil pH measured in the first 20 cm deep and between 20 and 40 cm, measured in water.



SI20pHH_2O- NS, NS, NS, NS



SI40pHH_2O- NS, NS, S, S

To results of ANOVA of pH data, measured in potassium chloride (SI20(40)pHKCl), it is possible to see that:

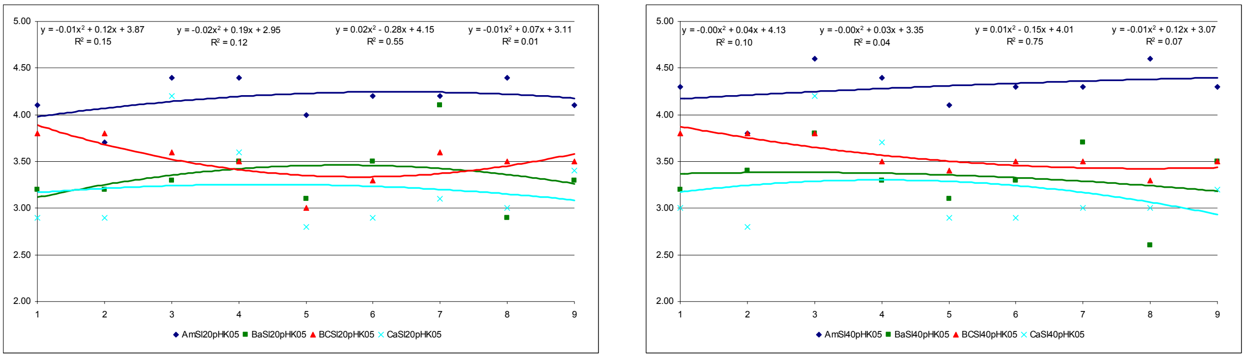
- to pH, in KCl, in the first 20 cm deep (Annex - Soil, Tables 4, Figure 3), the plot with the highest value was Amendoal (± 4.17) and the lowest was Cardanhas (± 3.20). To terraces and slope vineyards, the values were ± 3.76 and ± 3.36. To stations groups the highest value was measured in AmG3 (4.23) and the lowest in CaG2 (± 3.10). To plots and installation forms, these values are significantly different. (F=14.94, P=0.000 and F=7.01, P=0.012) but, inside of the plots, only in Bico dos Casais this value varies significantly (F=6.17, P=0.035);
- to pH, in KCl, between 20 and 40 cm deep (Annex - Soil, Tables 5, Figure 4), the plot with the highest value was Amendoal (± 4.30) and the lowest was Cardanhas (± 3.19). To terraces and slope vineyards, the values were ± 3.81 and ± 3.38. To stations groups the highest value was measured in AmG3 (4.40) and the lowest in CaG3 (± 3.07). To plots and installation forms, the values are significantly different. (F=20.43, P=0.000 and F=6.83, P=0.013) and, inside of the plots, only in Bico dos Casais there is significant variation (F=22.20, P=0.002).

The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- to values measured between 0 - 20 cm deep (Annex - Soil, Tables 37, Graphic 2), in Amendoal there is no tendency to values variation (R^2=0.154, F=0.547, P=0.604), the same happening in Bateiras (R^2=0.115, F=0.393, P=0.691), Bico dos Casais (R^2=0.547, F=3.626, P=0.092) and Cardanhas (R^2=0.014, F=0.044, P=0.956);

- to values measured between 20 - 40 cm deep (Annex - Soil, Tables 38, Graphic 2), in Amendoal there was no tendency to values variation (R^2=0.102, F=0.340, P=0.724), the same happening in Bateiras (R^2=0.040, F=0.126, P=0.883); in Bico dos Casais there was a tendency to these values decrease to southeast (R^2=0.745, F=8.798, P=0.016) and, in Cardanhas, there was no tendency (R^2=0.070, F=0.228, P=0.802).

Graphic 36- Soil pH measured in first 20 cm and between 20 and 40 cm, in water and potassium chloride



SI20pHKCl- NS, NS, NS, NS **SI40pHKCl- NS, NS, S, NS**

Considering the data indicated in bibliography, that indicate that to pH (H_2O) < 5.8 it is necessary to do a liming (Quelhas dos Santos) it were applied, in a homogenous way, 6 t/ha of limestone in Cardanhas, plot in which this value is very low (Annex - Soil, Table 63).

3.3.3- Organic matter

The results of soils organic matter variance analysis in the first 20 cm deep and between 20 and 40 cm (SI20(40)MO), to each one of the plots, installation forms and stations of each plot, are present in Annex - Soil, Tables 6 and 7 to 8. A spatial and cartographic representation of these data is present in Annex - Soil, Figures 5 and 6. The results of regression curves determination are present in Annex - Soils, Tables 39 to 40; its graphic representation is present in Annex - Soils, Graphic 3.

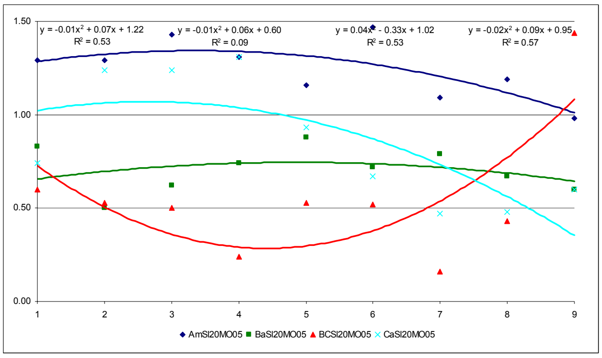
Considering the presented data, we can see that:

- the content of OM, in the first 20 cm deep (Annex - Soil, Table 7, Figure 5); the plot with the highest value was Amendoal (± 1.25) and the lowest was Bico dos Casais (± 0.55). To terraces and slope vineyards, the values were ± 0.98 and ± 0.70. To stations groups the highest value was measured in AmG1 (± 1.34) and the lowest in BCG2 (± 0.43). To the plots and installation forms these values are significantly different (F=11.21, P=0.000 and F=5.72, P=0.022) but, inside of the plots, there were no significant differences of OM content;
- to depth between 20 - 40 cm (Annex - Soil, Table 8, Figure 6) the plot with the highest value was Amendoal (± 0.99) and the lowest was Bico dos Casais (± 0.51). To terraces and slope vineyards, the values were ± 0.78 and ± 0.58. To stations groups the highest value was measured in AmG1 (± 1.11) and the lowest in BCG2 (± 0.32). The plots and installation forms present values significantly different. (F=7.48, P=0.000 and F=4.86, P=0.034) but, inside of the plots, only Cardanhas present significant variations (F=7.33; P=0.024).

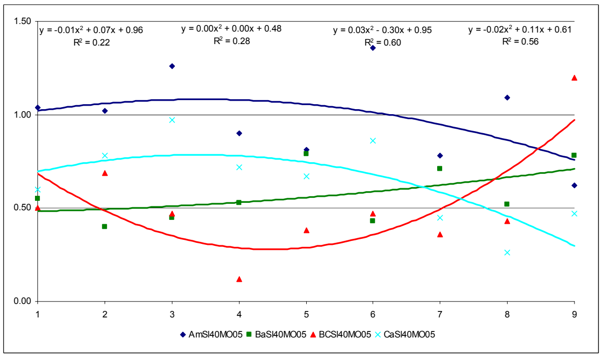
The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- To values measured between 0 - 20 cm deep (Annex - Soil, Table 39, Graphic 3), in Amendoal there was no tendency to values variation (R^2=0.529, F=3.378, P=0.104), the same happening in Bateiras (R^2=0.093, F=0.310, P=0.744), Bico dos Casais (R^2=0.528, F=3.361, P=0.104) and Cardanhas (R^2=0.567, F=3.938, P=0.080);
- To values measured between 20 - 40 cm deep (Annex - Soil, Table 40, Graphic 3), in Amendoal there was no tendency to values variation (R^2=0.221, F=0.854, P=0.471), the same happening in Bateiras (R^2=0.278, F=1.160, P=0.374), Bico dos Casais (R^2=0.602, F=4.547, P=0.062) and Cardanhas (R^2=0.563, F=3.870, P=0.083).

Graphic 37- Soil organic matter, measured in first 20 cm deep and between 20 and 40 cm deep.



SI20MO- NS, NS, NS, NS



SI40MO- NS, NS, NS, NS

Considering the referenced mean values, it is possible saying that OM contents are very low (< 0.5 %) or low (0.6 - 1.5 %), and so, considering the different situations, seasonings were made of 200 kg/ha of Nitro magnesium 20.5 in Amendoal and 250 kg/ha in the rest of the plots (Annex - Soil, Table 63).

3.3.4- Assimilable phosphorous

The results of soil assimilable phosphorous variance analysis in the first 20 cm deep and between 20 and 40 cm ($SI20(40)P_2O_5$), to each one of the plots, installation forms and stations, are present in Annex - Soil, Tables 9 to 11. A spatial and cartographic representation of these data is present in Annex - Soil, Figures 7 and 8. The results regression curves determinations are present in Annex - Soils, Tables 41 and 42; its graphic representation is present in Annex - Soils, Graphic 4.

Considering the presented data, it is possible saying that:

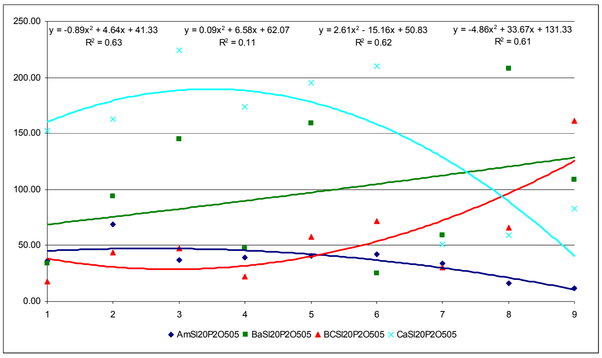
- to assimilable phosphorous content, in the first 20 cm deep (Annex - Soil, Table 10, Figure 7), the plot with the highest value was Cardanhas (± 145.67) and the lowest was Amendoal (± 36.22). To terraces and slope vineyards, the values were ± 67.00 and ± 101.61. To stations groups the highest value was measured in CaG2 (± 193.00) and the lowest in AmG3 (± 20.67). To the plots these values are significantly different (F=8.07, P=0.000) but not when installation forms are compared (F=2.72, P=0.109) and, inside of the plots, only in Cardanhas the phosphorous varies significantly (F=21.37, P=0.002);
- to 20 - 40 cm depth (Annex - Soil, Table 11, Figure 8) the plot with the highest value was Cardanhas (± 140.22) and the lowest was Amendoal (± 32.89). To terraces and slope vineyards, the values were ± 63.06 and ± 92.00. To stations groups the highest value was measured in CaG2 (± 204.00) and the lowest

in AmG3 (± 26.67). To plots and installation forms this element has a similar behaviour with the previous situation (F=6.57, P=0.001 and F=1.55, P=0.221) and, inside of the plots, there are no significant differences.

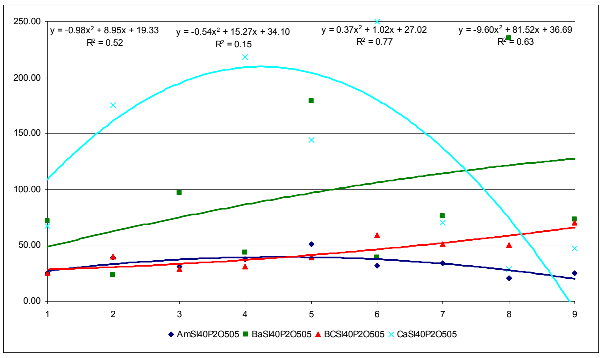
The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- To values measured between 0 - 20 cm deep (Annex - Soil, Table 41, Graphic 4), in Amendoal there is a slight decrease of the values in upper terraces (R^2=0.633, F=5.186, P=0.049), in Bateiras there is no tendency in variation (R^2=0.105, F=3.540, P=0.715), just like in Bico dos Casais (R^2=0.620, F=4.901, P=0.054) and Cardanhas (R^2=0.605, F=4.596, P=0.061);
- To values measured between 20 - 40 cm deep (Annex - Soil, Table 42, Graphic 4), in Amendoal there was no significant tendency to values variation (R^2=0.523, F=3.302, P=0.107), the same happening in Bateiras (R^2=0.151, F=0.537, P=0.609) but, in Bico dos Casais the southeast rows present the highest values (R^2=0.767, F=9.895, P=0.012) and in Cardanhas there is no tendency (R^2=0.626, F=5.022, P=0.052.

Graphic 38- Soil assimilable phosphorous measured in the first 20 cm deep and between 20 and 40 cm.



SI20P_2O_5- S, NS, NS, NS



SI40P_2O_5- NS, NS, S, NS

Considering the reference values, we could see that there was a big heterogeneity in the values of assimilable phosphorous, and so an application was made of 120 unities of P_2O_5 (600 kg/ha of Super 18) in Amendoal, 150 of P_2O_5 (750 kg/ha of Super 18) in Bateiras and 250 of P_2O_5 (1250 kg/ha of Super 18) in Bico dos Casais; in Cardanhas there was no seasoning (Annex - Soil, Table 63).

3.3.5- Assimilable potassium

The results of variance analysis in the first 20 cm deep and between 20 and 40 cm (SI20(40)K_2O), to each one of the plots, installation forms and stations, are present in Annex - Soil, Tables 12 to 14. A spatial and cartographic representation of these data is present in Annex - Soil, Figures 9 and 10. The results of regression curves determinations are present in Annex - Soils, Tables 43 and 44; its graphic representation is present in Annex - Soils, Graphic 5.

Considering the presented data, it is possible to see that:

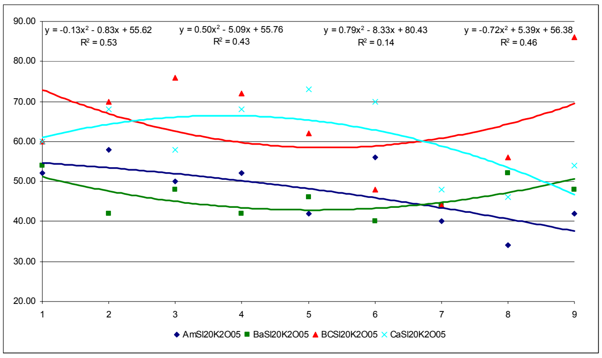
- the content of assimilable potassium in the first 20 cm deep (Annex - Soil, Table 13, Figure 9), is highest in Bico dos Casais (± 63.78) and lowest in Bateiras (± 46.22). To terraces and slope vineyards, the values were ± 46.78 and ± 62.17. To stations groups the highest value was measured in CaG2 (± 70.33) and the lowest in AmG3 (± 38.67). To plots and installation forms these values are significantly different (F=7.90, P=0.000 and F=24.14, P=0.000) and, inside the plots only Amendoal and Cardanhas vary significantly (F=6.14, P=0.035 and F=19.48, P=0.002);

- to 20 - 40 cm depth (Annex - Soil, Table 14, Figure 10), the plot with the highest value was Bico dos Casais (± 62.89) and the lowest was Bateiras (± 45.78). To terraces and slope vineyards, the values were ± 46.11 and ± 62.11. To stations groups the highest value was measured in CaG2 (± 70.67) and the lowest in AmG3 (± 36.00). The variation, to plots and installation forms, has a similar behaviour to previous situation (F=7.49, P=0.000 and F=23.66, P=0.000) and, inside of the plots, only in Amendoal the variation is significant (F=11.29, P=0.009).

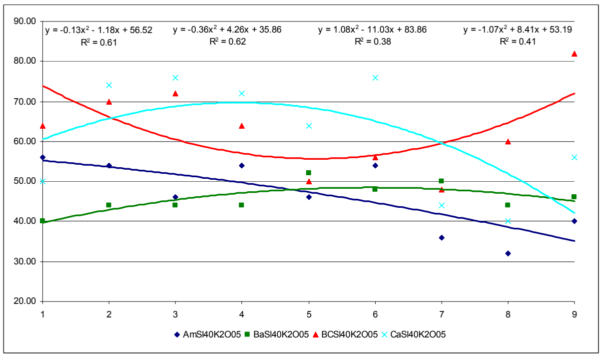
The 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- To values measured between 0 - 20 cm deep (Annex - Soil, Table 43, Graphic 5), in Amendoal there is no tendency to these values variation (R^2=0.527, F=3.342, P=0.105), the same happening in Bateiras (R^2=0.434, F=2.300, P=0.181), Bico dos Casais (R^2=0.138, F=0.483, P=0.639) and Cardanhas (R^2=0.456, F=2.520, P=0.160);
- To values measured between 20 - 40 cm deep (Annex - Soil, Table 44, Graphic 5), in Amendoal there is no tendency to these values variation (R^2=0.611, F=4.718, P=0.058), the same happening in Bateiras (R^2=0.617, F=4.845, P=0.055), Bico dos Casais (R^2=0.383, F=1.867, P=0.234) and Cardanhas (R^2=0.413, F=2.112, P=0.202).

Graphic 39- Soil assimilable potassium, measured in the first 20 cm deep and between 20 and 40 cm.



SI20K_2O- NS, NS, NS, NS



SI40K_2O- NS, NS, NS, NS

Considering the reference values, we can see that the soils are very poor or poor in assimilable potassium, and so an application was made of 350 kg/ha Potassium Chloride in Amendoal and Bateiras and 250 kg/ha in Bico dos Casais and Cardanhas (Annex - Soil, Table 63).

3.3.6- Calcium

The results of variance analysis in the first 20 cm deep and between 20 and 40 cm (SI20(40)Ca), to each one of the plots, installation forms and stations, are present in Annex - Soil, Tables 15 and 16 to 17. A spatial and cartographic representation of these data is present in Annex - Soil, Figures 11 and 12. The results of regression curves determination are present in Annex - Soils, Tables 45 and 46; its graphic representation is present in Annex - Soils, Graphic 6.

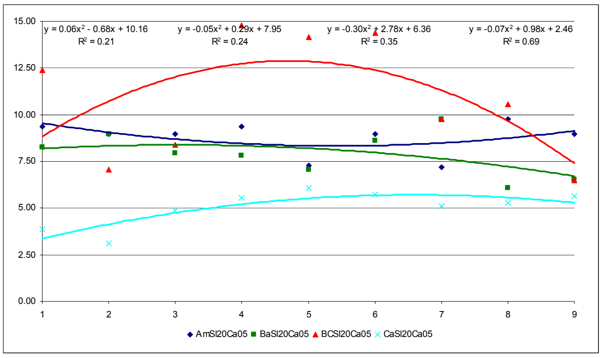
Considering the presented data, it is possible to say that:

- in the first 20 cm deep (Annex - Soil, Table 16, Figure 11), calcium is higher in Bico dos Casais (± 10.88) and lower in Cardanhas (± 5.02). To terraces and slope vineyards the values were ± 8.32 and ± 7.95. The stations group with the highest value was BCG2 (± 14.44) and the lowest was CaG1 (± 3.94). To the plots, these values are significantly different. (F=15.88, P=0.000) but not to installation forms (F=0.16, P=0.694). Inside of the plots, Bico dos Casais and Cardanhas present significant variations (F=6.93, P=0.027 and F=9.09, P=0.015);
- to depth between 20 - 40 cm (Annex - Soil, Table 17, Figure 12), the plot with the highest value was Bico dos Casais (± 10.70) and the lowest was Cardanhas (± 5.24). To terraces and slope vineyards, values were ± 8.24 and ± 7.97. The stations group with the highest value was BCG2 (± 13.20) and the lowest was CaG1 (± 4.32). Calcium content of the plots is significantly different (F=13.40, P=0.000) but not in installation forms (F=0.09, P=0.769). Inside the plots only Amendoal presents significant variations (F=9.55, P=0.014).

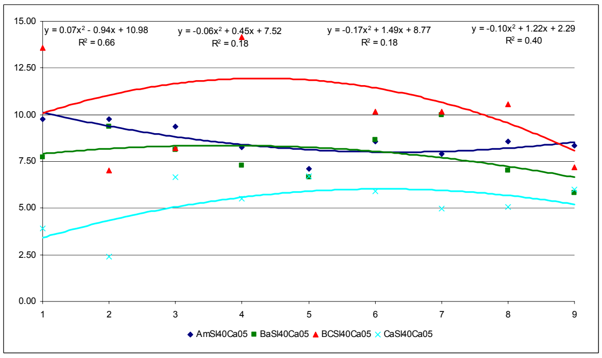
A 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- to values measured between 0 - 20 cm deep (Annex - Soil, Table 45, Graphic 6), in Amendoal there was no tendency to variation of these values (R^2=0.209, F=0.794, P=0.494), the same happening in Bateiras (R^2=0.244, F=0.971, P=0.430) and in Bico dos Casais (R^2=0.352, F=1.636, P=0.270) but in Cardanhas, there is a slight tendency to these values increase, towards northwest (R^2=0.692, F=6.770, P=0.028);
- to values measured between 20 - 40 cm deep (Annex - Soil, Table 46, Graphic 6), in Amendoal there is a tendency to the decrease of the values in central terraces (R^2=0.661, F=5.853, P=0.038), in Bateiras there is no significant tendency in variation (R^2=0.184, F=0.680, P=0.038), the same happening in Bico dos Casais (R^2=0.176, F=0.641, P=0.559) and Cardanhas (R^2=0.397, F=1.977, P=0.218).

Graphic 40- Soil calcium measured in the first 20 cm and between 20 and 40 cm.



SI20Ca- NS, NS, NS, S



SI40Ca- S, NS, NS, NS

Comparing these values with the reference ones, we can say that when soils are very poor (< 10) or poor (10 - 20) in calcium, and so 6000 kg/ha of limestone were applied in Cardanhas.

3.3.7- Magnesium

The results of variance analysis in the first 20 cm deep and between 20 and 40 cm (SI20(40)Mg), accordingly to the plots, installation forms and stations of each plot, are presented in Annex - Soil, Tables 15, and 18 to 19. Spatial and cartographic representation of these data is presented in Annex - Soil, Figures 13 and 14. The results of regression curves determination are presented no Annex - Soils, Tables 47 and 48; its graphic representation is presented Annex - Soils, Graphic 7.

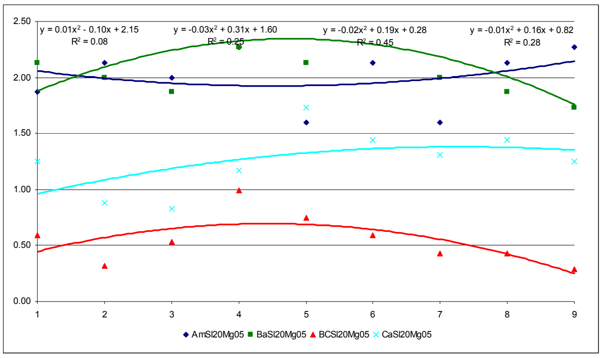
Considering the presented data, it is possible to say that:

- In the first 20 cm deep (Annex - Soil, Table 18, Figure 13) magnesium content is highest in Bateiras (± 2.13) and lowest in Bico dos Casais (± 0.55). To terraces and slope vineyards, values were of ± 2.06 and ± 0.90. The stations group with the highest value was BaG2 (± 2.51) and the lowest BCG3 (± 0.38). To plots and installation forms these values are significantly different. (F=53.36, P=0.000 and F=79.01, P=0.000) and, inside the plots, only in Bico dos Casais the variation is significant (F=5.63, P=0.042);
- to depth between 20 - 40 cm (Annex - Soil, Table 19, Figure 14) the plot with the highest value was Bateiras (± 2.06) and the lowest was Bico dos Casais (± 0.53). To terraces and slope vineyards, values were of ± 2.04 and ± 0.90. Stations group with the highest value was BaG2 (± 2.31) and the lowest BCG1 (± 0.42). Magnesium content between plots and installation forms is significantly different (F=58.13, P=0.000 and F=77.68, P=0.000) but, inside the plots, only in Bico dos Casais the differences are significant (F=8.35, P=0.019).

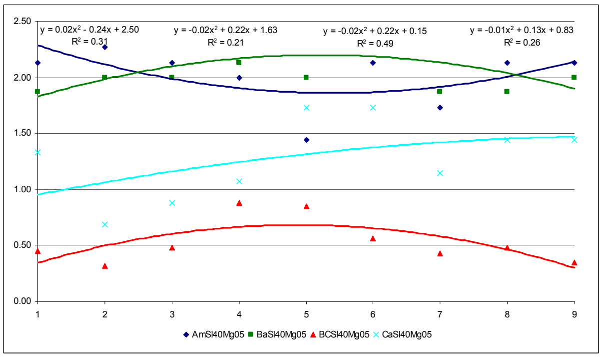
A 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- To values measured between 0 - 20 cm deep (Annex - Soil, Table 47, Graphic 7), in Amendoal there was no tendency to these values variation (R^2=0.083, F=0.272, P=0.770), the same happening in Bateiras (R^2=0.253, F=1.017, P=0.416), Bico dos Casais (R^2=0.453, F=2.491, P=0.163) and Cardanhas (R^2=0.281, F=1.175, P=0.370);
- To values measured between 20 - 40 cm deep (Annex - Soil, Table 48, Graphic 7), in Amendoal there was no tendency to these values variation (R^2=0.307, F=1.330, P=0.332), the same happening in Bateiras (R^2=0.206, F=0.781, P=0.499), Bico dos Casais (R^2=0.486, F=2.841, P=0.135) and Cardanhas (R^2=0.257, F=1.043, P=0.408).

Graphic 41- Soil magnesium measured the first 20 cm and between 20 and 40 cm.



SI20Mg- NS, NS, NS, NS



SI40Mg- NS, NS, NS, NS

Relating to magnesium, soils classification varies between very poor (< 0.75) and sufficient (1.5 - 3.0), and so 100 kg/ha of Magnesium Sulphate were applied in Bico dos Casais (Annex - Soil, Table 63).

3.3.8- Potassium

The results of variance analysis in the first 20 cm deep and between 20 and 40 cm (SI20(40)K), accordingly to the plots, installation forms and stations of each plot, are presented in Annex - Soil, Tables 15 and 20 to 21. Spatial and cartographic representation is presented in Annex - Soil, Figures 15 and 16. The results of regression curves determination are presented no Annex - Soils, Tables 49 and 50; its graphic representation is presented Annex - Soils, Graphic 8.

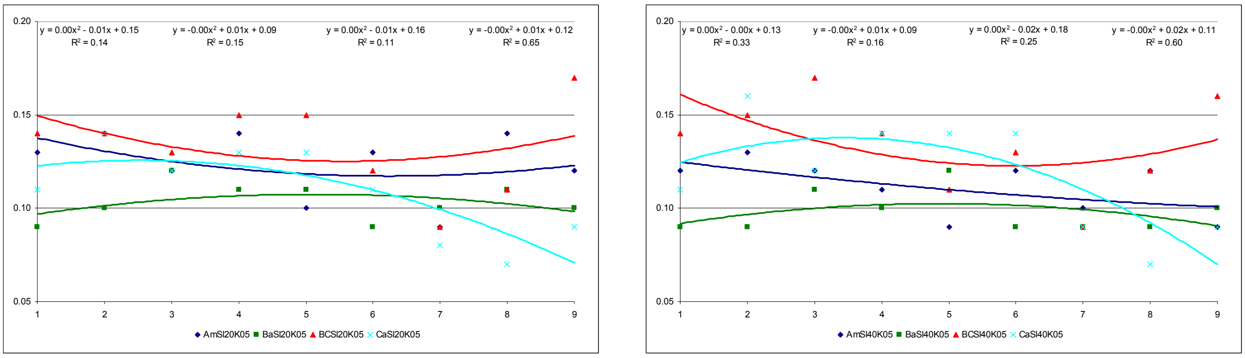
Considering the presented data, it is possible to say that:

- In the first 20 cm deep (Annex - Soil, Table 20, Figure 15) the plot with the highest value was Bico dos Casais (± 0.13) and the lowest was Bateiras (± 0.10). To terraces and slope vineyards, the values were ± 0.11 and ± 0.12. Stations group with the highest value was BCG2 (± 0.14) and the lowest was CaG3 (± 0.08). In the plots the values are significantly different (F=4.23, P=0.013) but not when comparing installation forms (F=1.08, P=0.307). Inside the plots only in Cardanhas there were significant variations (F=12.07, P=0.008);
- to depth between 20 - 40 cm (Annex - Soil, Table 21, Figure 16) the plot with the highest value was Bico dos Casais (± 0.13) and the lowest was Bateiras (± 0.10). To terraces and slope vineyards, values were of ± 0.10 and ± 0.13. Stations group with the highest value was BCG1 (± 0.15) and the lowest was CaG3 (± 0.08). Potassium content between plots and installation forms is significantly different (F=4.52, P=0.009 and F=8.51, P=0.006) but, inside of the plots, only in Cardanhas the difference is significant (F=9.88, P=0.013).

A 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- to values measured between 0 - 20 cm deep (Annex - Soil, Table 49, Graphic 8), in Amendoal there was no tendency to these values variation (R^2=0.143, F=0.503, P=0.628), the same happening in Bateiras (R^2=0.148, F=0.523, P=0.617) and Bico dos Casais (R^2=0.114, F=0.388, P=0.693) but, in Cardanhas there was a decrease of this element in the northwest rows (R^2=0.653, F=5.652, P=0.041);
- to values measured between 20 - 40 cm deep (Annex - Soil, Table 50, Graphic 8), in Amendoal there was no tendency to these values variation (R^2=0.325, F=1.445, P=0.307), the same happening in Bateiras (R^2=0.161, F=0.576, P=0.590), Bico dos Casais (R^2=0.252, F=1.012, P=0.417) and Cardanhas (R^2=0.599, F=4.486, P=0.064).

Graphic 42- Soil potassium measured in the first 20 cm and between 20 and 40 cm.



SI20K- NS, NS, NS, S **SI40K- NS, NS, NS, NS**

3.3.9- Sodium

The results of variance analysis in the first 20 cm deep and between 20 and 40 cm (SI20(40)Na), accordingly to the plots, installation forms and stations of each one of the plots, are presented in Annex - Soil, Tables 15 and 22 to 23. Spatial and cartographic representation of these data is presented in Annex - Soil, Figures 17 and 18.The results of regression curves determination are presented no Annex - Soils, Tables 51 and 52; its graphic representation is presented in Annex - Soils, Graphic 9.

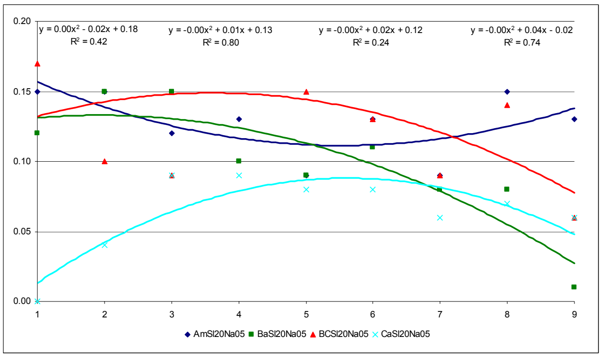
Considering the presented data, it is possible to say that:

- In the first 20 cm deep (Annex - Soil, Table 22, Figure 17) sodium content is highest in Bico dos Casais (± 0.13) and lowest in Cardanhas (± 0.06). To terraces and slope vineyards, values were of ± 0.11 and ± 0.10. Stations group with the highest value was BCG2 (± 0.17) and the lowest was CaG1 (± 0.04). To plots these values are significantly different (F=5.93, P=0.003) but not when comparing installation forms (F=1.36, P=0.252). Inside the plots only in Bateiras there was a significant variation (F=7.69, P=0.022);
- to depth between 20 - 40 cm (Annex - Soil, Table 23, Figure 18) the plots with highest values were Amendoal and Bico dos Casais (± 0.12) and the lowest was Cardanhas (± 0.07). To terraces and slope vineyards values were of ± 0.12 and ± 0.10. Stations group with the highest value was BCG2 (± 0.16) and the lowest was CaG1 (± 0.06). The sodium content between plots are significantly different (F=3.88, P=0.018) but not when comparing installation forms (F=2.04, P=0.163). Inside the plots there are no significant differences between values.

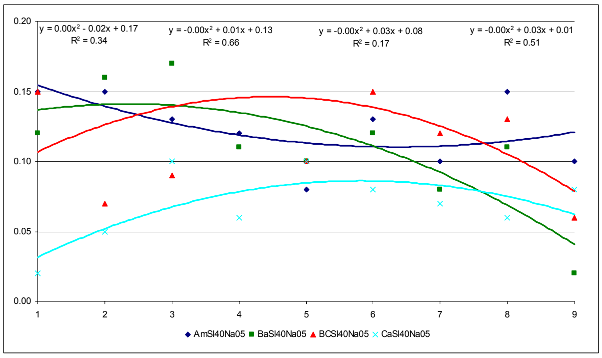
A 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- To values measured between 0 - 20 cm deep (Annex - Soil, Table 51, Graphic 9), in Amendoal there was no tendency to this element variation (R^2=0.415, F=2.132, P=0.199), at Bateiras, this element diminishes as we go up the hill (R^2=0.795, F=11.669, P=0.008), in Bico dos Casais there is no significant tendency of variation (R^2=0.243, F=0.964, P=0.433) but, at Cardanhas there is an increase of this element in central rows (R^2=0.744, F=8.741, P=0.016);
- To values measured between 20 - 40 cm deep (Annex - Soil, Table 52, Graphic 9), in Amendoal there was no tendency to this element variation (R^2=0.338, F=1.533, P=0.289), at Bateiras, this element diminishes as we go up the hill (R^2=0.664, F=5.937, P=0.037), in Bico do Casais there is no significant tendency of variation (R^2=0.171, F=0.620, P=0.568), the same happening at Cardanhas (R^2=0.507, F=3.086, P=0.119).

Graphic 43- Soil sodium measured in the first 20 cm and between 20 and 40 cm.



SI20Na- NS, S, NS, S



SI40Na- NS, S, NS, NS

3.3.10- Boron

The results of variance analysis in the first 20 cm deep and between 20 and 40 cm (SI20(40)BH_2O), accordingly to the plots, installation forms and stations of each plot, are presented in Annex - Soil, Tables 15 and 24 to 25. Spatial and cartographic representation of these data is presented no Annex - Soil, Figures 19 and 20. The results of regression curves determination are presented in Annex - Soils, Tables 53 and 54; its graphic representation is presented in Annex - Soils, Graphic 10.

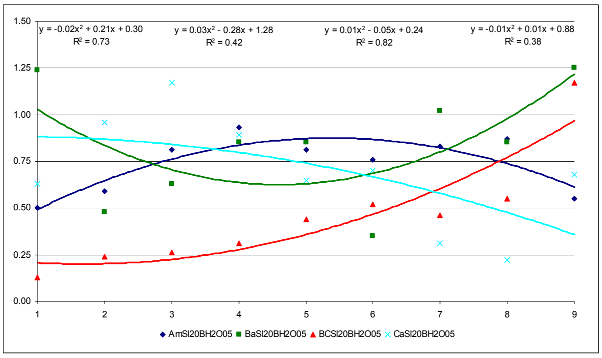
Considering the presented data, it is possible to say that:

- In the first 20 cm deep (Annex - Soil, Table 24, Figure 19) the plot with the highest value was Bateiras (± 0.84) and the lowest was Bico dos Casais (± 0.45). In terraces and slope vineyards, values were of ± 0.79 and ± 0.57. Stations group with the highest value was BaG3 (± 1.04) and the lowest was BCG1 (± 0.21). To plots and installation forms values are significantly different (F=3.15, P=0.038 and F=5.26, P=0.028) and, inside the plots, there are no significant differences between values;
- to depth between 20 - 40 cm (Annex - Soil, Table 25, Figure 20), the plot with the highest value was Bateiras (± 0.90) and the lowest was Bico dos Casais (± 0.50). In terraces and slope vineyards, values were of ± 0.73 and ± 0.56. Stations group with the highest value was BaG3 (± 1.08) and the lowest was BCG1 (± 0.43). The boron content between plots and installation forms are significantly different. (F=6.83, P=0.001 and F=5.15, P=0.030) but, inside the plots, there are no significant differences between values.

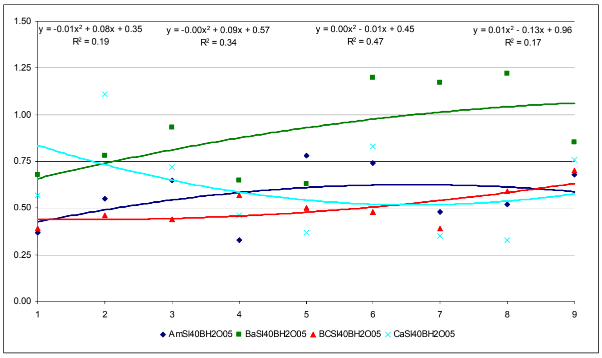
A 2nd degree regression equation and its analysis to each one of the plots, allows saying that:

- to values measured between 0 - 20 cm deep (Annex - Soil, Table 53, Graphic 10), in Amendoal there is a tendency to higher values in central terraces (R^2=0.727, F=7.995, P=0.020) but, at Bateiras, there is no significant variation (R^2=0.420, F=2.177, P=0.194), in Bico dos Casais the tendency is to obtain higher values in the southwest rows (R^2=0.822, F=13.888, P=0.005) but, at Cardanhas there are no significant variations (R^2=0.384, F=1.876, P=0.232);
- to values measured between 20 - 40 cm deep (Annex - Soil, Table 54, Graphic 10), in Amendoal there was no tendency in this element variation (R^2=0.187, F=0.693, P=0.536), the same happening in Bateiras, (R^2=0.340, F=1.546, P=0.287), Bico dos Casais (R^2=0.467, F=2.632, P=0.151) and Cardanhas (R^2=0.170, F=0.615, P=0.571).

Graphic 44- Soil boron, measured in the first 20 cm and between 20 and 40 cm.



SI20B- S, NS, S, NS



SI40B- NS, NS, NS, NS

In response to measured values, de 0.5 kg/ha of boron (5 kg/ha of Borax) were applied in Amendoal and Bateiras, 1.5 kg/ha (15 kg/ha of Borax) in Bico dos Casais and 1.0 kg/ha (10 kg/ha of Borax) in Cardanhas (Annex - Soil, Table 63).

Determining correlations between soil data and previous data, the following significant correlations were obtained:

- pH, in water (< 20 cm deep), is correlated with air temperature (0.561**) and humidity (-0.440**), soil temperature (0.461**), leaf area (-0.347*) and pruning wood (-0.392*);
- pH, in water (20 - 40 cm deep), is correlated with air temperature (0.590**) and humidity (-0.465**), soil temperature (0.473**), and pruning wood (-0.405*);
- OM (< 20 cm deep) is correlated with air temperature (0.532**) and humidity (-0.543**), soil temperature (0.407*), SPAD (0.515**), nitrogen (0.575**) and leaves phosphorous (-0.543**);
- OM (20 - 40 cm deep) is correlated with air temperature (0.507**) and humidity (-0.515**), soil temperature (0.425**), SPAD (0.541**), nitrogen content (0.483**) and leaves phosphorous (-0.502**);
- assimilable phosphorous (< 20 cm deep) is correlated with air temperature (-0.417*), soil temperature (-0.348*) and pruning wood weight (0.392*);
- assimilable phosphorous (20 - 40 cm deep) is correlated with pruning wood weight (0.422*);
- assimilable potassium (< 20 cm deep) is correlated with air temperature (-0.597**), and humidity (0.610**), soil temperature (-0.527**), plants temperature (-0.637**), leaves dry weight (0.494**), leaves nitrogen (0.435**), and pruning wood weight (0.430**);
- assimilable potassium (20 - 40 cm deep) is correlated with air humidity (0.621**), soil temperature (-0.543**), plants temperature (-0.609**), leaves dry weight (0.383*) and pruning wood weight (0.488**);
- limestone (< 20 cm deep) is correlated with leaves dry weight (0.450**) and leaves phosphorous (0.660**);
- limestone (20 - 40 cm deep) is correlated with leaves dry weight (0.483**) and leaves phosphorous (0.583**);
- magnesium (< 20 cm deep) is correlated with air temperature (0.674**) and humidity (-0.783**), soil temperature (0.695**) and plants (0.829**), leaves dry weight (-0.725**), leaves nitrogen (0.655**) and pruning wood weight (-0.366*);

- magnesium (20 - 40 cm deep) is correlated with air temperature (0.690**) and humidity (-0.808**), soil temperature (0.703**) and plants (0.850**), leaves dry weight (-0.698**), leaves nitrogen (0.629**) and pruning wood weight (-0.349*);
- potassium (< 20 cm deep) is correlated with leaves dry weight (0.425**);
- potassium (20 - 40 cm deep) is correlated with air temperature (-0.381*), and humidity (0.427**), soil temperature (-0.333*), plants temperature (-0.497**) and leaves dry weight (0.376*);
- sodium (< 20 cm deep) is correlated with pruning wood weight (-0.380*);
- sodium (20 - 40 cm deep) is correlated with leaves phosphorous (0.353*) and pruning wood weight (-0.445**);
- boron (< 20 cm deep) is positively correlated with air humidity (-0.363*), soil temperature (0.361*) and plants (0.435**), nitrogen (0.491**) and leaves potassium (0.482**);
- boron (20 - 40 cm deep) is correlated with plants temperature (0.445**), leaves dry weight (-0.367*) and leaves potassium (0.334*).

(1)* Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed)

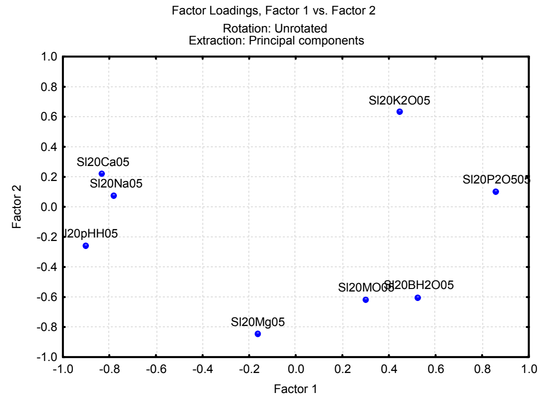
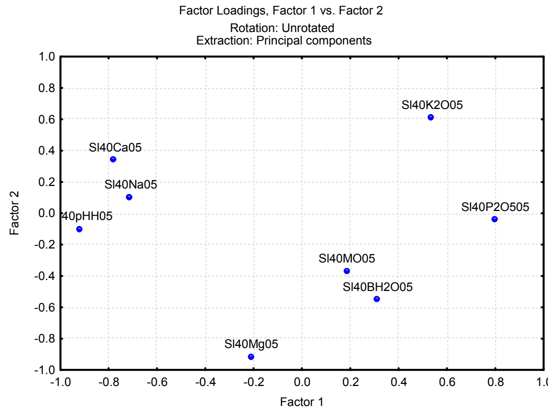
The results of factorial analysis of soil data, considering the two factors extraction method for the first 20 cm deep and depths between 20 - 40 cm, are indicated in Table 14; the variant relative to ph, in KCl, were not considered.

Table 14- Factors soil loadings. Extraction Method: Prime components. (Marked loadings are > 0.70)

Samples collected at < 20 cm			Samples collected at 20 - 40 cm		
	Factor 1	Factor 2		Factor1	Factor 2
SI20pH05	-0.842	-0.455	**SI40pH05**	-0.942	-0.004
SI20MO05	0.167	-0.452	**SI40MO05**	0.010	-0.180
SI20$P_2O_5$05	0.856	0.310	**SI40$P_2O_5$05**	0.882	-0.095
SI20K_2O05	0.112	0.935	**SI40K_2O05**	0.569	0.781
SI20Ca05	-0.908	0.128	**SI40Ca05**	-0.784	0.441
SI20Mg05	0.092	-0.909	**SI40Mg05**	-0.207	-0.840
SI20K05	-0.460	0.512	**SI40K05**	0.207	0.862
SI20Na05	-0.900	-0.036	**SI40Na05**	-0.853	0.175
SI20BH_2O05	0.573	-0.480	**SI40BH_2O05**	0.322	-0.678
Expl.Var	3.665	2.718	**Expl.Var**	3.520	2.785
Prp.Tot (%)	40.7	30.2	**Prp.Tot (%)**	39.1	30.9

The analysis of factor 1 “loadings”, to each depth, allows identifying pH in H_2O, assimilable phosphorous, calcium and sodium as the prime variants responsible for soil chemical competition variance. The variation (signal) of “loadings” of factor 1, in both depth levels, to this element presents the same tendency. These variants explain 70.9 % of the result variation found in superficial layer and 70.0 % of the variation found in the deepest layer.

Graphic 45- Graphic representation of the first two factors

Samples collected at < 20 cm	Samples collected at 20 - 40 cm
	

Considering the measured parameter to characterize the soil superficial layer (< 20 cm), a group analysis ("clusters") was made, defining three groups. "Cluster 1" includes cases CaG1 and CaG2, "cluster 2" includes cases BaG1, BaG2, BaG3 and BCG3 and "cluster 3" includes cases AmG1, AmG2, AmG3, BCG1, BCG2 and CaG3.

Table 15- Identification and representation of "clusters" (< 20 cm)

Identification of "clusters" (< 20 cm)

Case	Cluster	Distance
AmG1	3	1.44
AmG2	3	1.58
AmG3	3	9.57
BaG1	2	1.54
BaG2	2	6.82
BaG3	2	10.84
BCG1	3	5.94
BCG2	3	4.09
BCG3	2	5.30
CaG1	1	2.80
CaG2	1	2.80
CaG3	3	7.69

Graphic representation of "clusters" (< 20 cm)

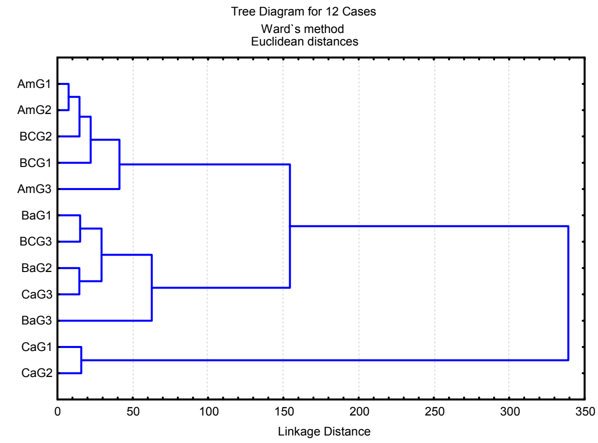


Table 16- Each "cluster" variant mean values, used in soil superficial layer characterization

	SI20pH	SI20MO05	$SI20P_2O_5$	$SI20K_2O$	SI20Ca	SI20Mg	SI20Na	$SI20BH_2O$
Cluster 1	4.82	1.02	186.33	66.17	4.86	1.22	0.06	0.83
Cluster 2	5.72	0.70	94.75	50.17	8.15	1.69	0.10	0.81
Cluster 3	5.96	0.87	43.33	53.44	9.22	1.43	0.12	0.54
F	48.91	1.601	51.340	2.237	5.275	0.214	5.432	1.114
S	0.000	0.254	0.000	0.163	0.030	0.811	0.028	0.370

As we can see in this table, soil's pH variation, assimilable phosphorous, calcium and sodium are significantly different between the three "clusters".

To the determined parameters to characterize the soil superficial layer, between 20 - 40 cm, the group analysis, defining three groups, allowed the identification in "cluster 1" of cases BaG1 and BaG2, in "cluster 2" of cases AmG1, AmG2, AmG3, BCG1,BCG2 and CaG3 and in "cluster 3" of cases BaG3, CaG1 and CaG2.

Table 17- Identification and representation of “clusters” (< 40 cm):

Identification of “clusters” (< 40 cm)

Case	Cluster	Distance
AmG1	2	1.905
AmG2	2	1.283
AmG3	2	6.701
BaG1	1	3.581
BaG2	1	6.408
BaG3	3	14.635
BCG1	2	6.269
BCG2	2	3.116
BCG3	1	6.162
CaG1	3	2.048
CaG2	3	13.606
CaG3	2	4.727

Graphic representation of “clusters” (< 40 cm)

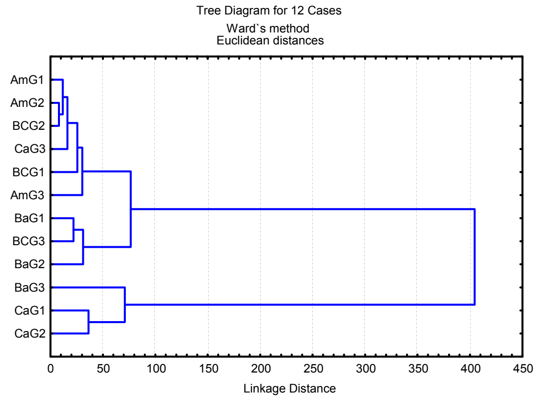


Table 18- Each “cluster” variants mean values, used in characterization of soil layer between 20 - 40 cm.

	SI40pH	**SI40MO05**	**SI40P_2O_5**	**SI40K_2O**	**SI40Ca**	**SI40Mg**	**SI40Na**	**SI40BH_2O**
Cluster 1	5.65	0.63	107.66	47.33	7.57	2.11	0.09	0.95
Cluster 2	4.80	0.77	186.00	68.67	5.18	1.24	0.06	0.68
Cluster 3	6.06	0.67	42.87	52.17	8.97	1.37	0.12	0.56
F	9.381	0.162	58.337	3.038	3.009	1.135	2.926	7.569
S	0.006	0.853	0.000	0.098	0.100	0.363	0.105	0.012

As we can see in this Table, only soil pH, assimilable phosphorous and boron variations are significantly different between the three “clusters”.

3.3.11- Exchangeable acidity, Sum of Exchangeable Bases, Cation Exchangeable Capacity and Bases Saturation

The mean values of exchangeable acidity (AT), sum of exchangeable bases (SBT), cation exchangeable capacity (CTCe) and the bases saturation (GSBe), the collected samples are presented in Annex - Soil, Table 26 to 34.

3.3.11.1- Exchangeable acidity

The results of variance analysis in the first 20 cm deep and between 20 and 40 cm (SI20(40)AT), accordingly to the plots, installation forms and stations of each one of the plots, are presented in Annex - Soil, Tables 26 and 27 to 28. Spatial and cartographic representation of these data is presented in Annex - Soil, Figures 21 and 22. The results of regression curves determination are presented no Annex - Soils, Tables 55 and 56; its graphic representation is presented Annex - Soils, Graphic 11.

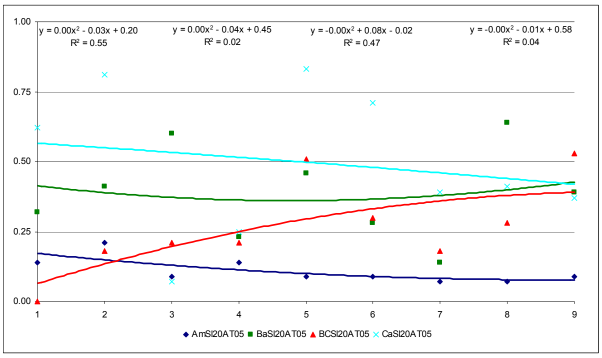
Analysing the measured data in the interior of the plots, we can see that:

- in the first 20 cm deep (Annex - Soil, Table 27, Figure 21) exchangeable acidity values are higher in Cardanhas (± 0.50) and lower in Amendoal (± 0.11). In terraces and slope vineyards, values were of ± 0.25 and ± 0.38. Stations group with the highest value was CaG2 (± 0.60) and the lowest was AmG3 (± 0.08). To plots, these values are significantly different (F=7.84, P=0.000) but to installation forms they do not (F=3.44, P=0.072). Inside the plots there are no significant differences between values;
- to depth between 20 - 40 cm (Annex - Soil, Table 28, Figure 22) the plot with the highest value was Cardanhas (± 0.46) and the lowest was Amendoal (± 0.09).In terraces and slope vineyards, values were of

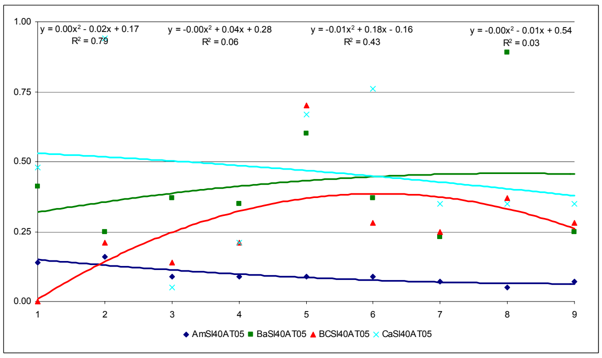
± 0.25 and ± 0.37. Stations group with the highest value was CaG2 (± 0.55) and the lowest AmG3 (± 0.06). The values of exchangeable acidity between plots are significantly different. (F=19.78, P=0.000) but not when comparing installation forms (F=2.03, P=0.163). Inside the plots there are significant differences between values found in Amendoal (F=7.07, P=0.026).

A 2nd degree regression equation and its analysis to each one of the plots, allows saying that:
- to values measured between 0 - 20 cm deep (Annex - Soil, Table 55, Graphic 11), in Amendoal there was no tendency to this factor variation (R^2=0.549, F=3.656, P=0.091), the same happening in Bateiras (R^2=0.020, F=0.062, P=0.939), Bico dos Casais (R^2=0.474, F=2.712, P=0.144) and Cardanhas (R^2=0.036, F=0.062, P=0.939);
- to values measured between 20 - 40 cm deep (Annex - Soil, Table 56, Graphic 11), in Amendoal there is a tendency to a decrease as we go up the hill (R^2=0.786, F=11.064, P=0.009), in Bateiras there is no significant tendency in this factor variation (R^2=0.055, F=0.175, P=0.843), the same happening in Bico dos Casais (R^2=0.430, F=2.263, P=0.185) and Cardanhas (R^2=0.034, F=0.107, P=0.899).

Graphic 46- Exchangeable acidity measured in the first 20 cm and between 20 and 40 cm.



SI20AT- NS, NS, NS, NS



SI40AT- S, NS, NS, NS

3.3.11.2- Exchangeable Bases Sum

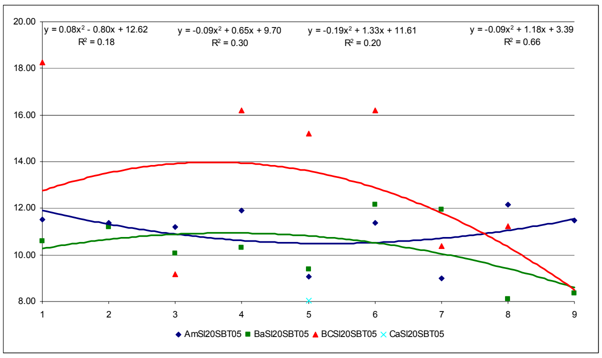
The results of the variance analysis in the first 20 cm deep and between 20 and 40 cm (SI20(40)SBT), according to the estates, installation forms and stations of each one of the estates, are presented in Annex - Soil, Tables 26 and 29 to 30. These data spatial and cartographic representation is presented in Annex - Soil, Figures 23 and 24. The results of the regression curves determination are presented in Annex - Soils, Tables 57 and 58; its graphic representation is presented in Annex - Soils, Graphic 12.

Analysing the data measured inside of the estates, we can see that:
- in the first 20 cm deep (Annex - Soil, Table 29, Figure 23) the values of exchangeable bases sum are higher in Bico dos Casais (± 12.36) and lower in Cardanhas (± 6.45). To terraces and slope vineyards, values were of ± 10.62 and ± 9.41. The stations group with the highest value was BCG2 (± 15.86) and the lowest was CaG1 (± 5.09). To the estates these values are significantly different (F=10.42, P=0.001) but not to installation forms (F=1.34, P=0.255). Inside of the estates there are significant differences between values found in Cardanhas (F=11.92, P=0.008);

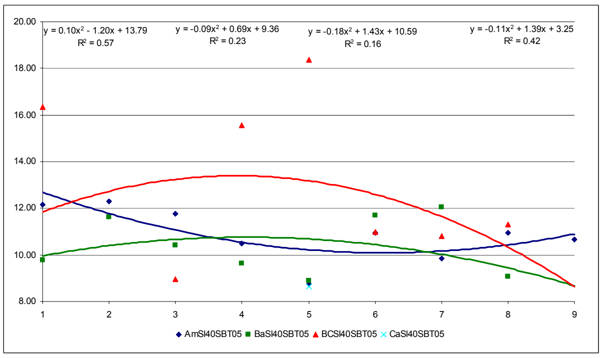
- to depths between 20 - 40 cm (Annex - Soil, Table 30, Figure 24), the estate with the highest value was Bico dos Casais (± 11.96) and the lowest was Cardanhas (± 6.70). To terraces and slope vineyards, values were of ± 10.49 and ± 9.33. The stations group with the highest value was BCG2 (± 14.97) and the lowest was CaG1 (± 5.48). The exchangeable bases sum values between estates are significantly different (F=8.80, P=0.000), but not to installation forms (F=1.41, P=0.243). Inside of the estates the values measured in Amendoal are not significantly different (F=5.75, P=0.040).

The 2nd degree regression equation and its analysis to each one of the estates, allows saying that:
- to values measured between 0 - 20 cm deep (Annex - Soil, Table 57, Graphic 12), in Amendoal there is no tendency to this factor variance (R^2=0.176, F=0.642, P=0.558), the same happening in Bateiras (R^2=0.299, F=1.280, P=0.344) and in Bico dos Casais (R^2=0.197, F=0.739, P=0.516) but, in Cardanhas, there is a tendency to its value increase, in the northwest rows (R^2=0.664, F=5.931, P=0.037);
- to values measured between 20 - 40 cm deep (Annex - Soil, Table 58, Graphic 12), in Amendoal there is no tendency to this factor variance (R^2=0.574, F=4.044, P=0.077), the same happening in Bateiras (R^2=0.233, F=0.915, P=0.449), Bico dos Casais (R^2=0.163, F=0.586, P=0.585) and Cardanhas (R^2=0.415, F=2.135, P=0.199).

Graphic 47- Exchangeable Bases Sum, measured in the first 20 cm and between 20 and 40 cm.



SI20SBT- NS, NS, NS, S



SI40SBT- NS, NS, NS, NS

3.3.11.3- Cation Exchangeable Capacity

The results of variance analysis in the first 20 cm deep and between 20 and 40 cm (SI20(40)CTCe), according to the estates, installation forms and stations of each estate, are presented in Annex - Soil, Tables 26 and 31 to 32. These data spatial and cartographic representation is presented no Annex - Soil, Figures 25 and 26. The results of regression curves determination are presented in Annex - Soils, Tables 59 and 60; its graphic representation is presented in Annex - Soils, Graphic 13.

Analysing the data measured inside of the estates, it is possible saying that:
- in the first 20 cm deep (Annex - Soil, Table 31, Figure 25) the estate with the highest value was Bico dos Casais (± 12.63) and the lowest was Cardanhas (± 6.95). To terraces and slope vineyards, values were of ± 10.87 and ± 9.79. The stations group with the highest value was BCG2 (± 16.20) and the lowest was CaG1 (± 5.60). To the estates, values are significantly different (F=9.70, P=0.000) but not to installation forms

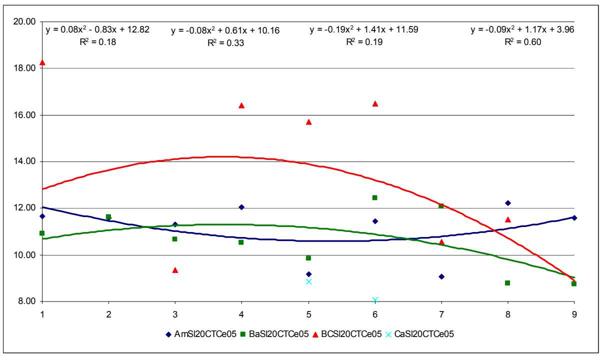
(F=1.12, P=0.297). Inside of the estates there are significant differences between values found in Cardanhas (F=13.57, P=0.006);

- to depths between 20 - 40 cm (Annex - Soil, Table 32, Figure 26) the estate with the highest value was Bico dos Casais (± 12.24) and the lowest was Cardanhas (± 7.16). To terraces and slope vineyards, values were of ± 10.76 and ± 9.70. The stations group with the highest value was BCG2 (± 15.41) and the lowest was CaG1 (± 5.97). The estates have cation exchangeable capacity values significantly different (F=7.93, P=0.000), but installation forms don't (F=1.18, P=0.284). Inside of the estates only Amendoal presents significant differences (F=5.99, P=0.037).

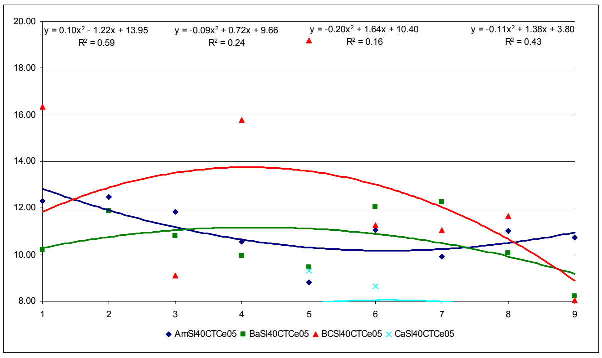
The 2nd degree regression equation and its analysis to each one of the estates, allows saying that:

- to values measured between 0 - 20 cm deep (Annex - Soil, Table 58, Graphic 13), in Amendoal there is no tendency to this factor variance (R^2=0.184, F=0.680, P=0.541), the same happening in Bateiras (R^2=0.332, F=1.495, P=0.297), Bico dos Casais (R^2=0.187, F=0.690, P=0.537) and Cardanhas (R^2=0.598, F=4.477, P=0.064);
- to values measured between 20 - 40 cm deep (Annex - Soil, Table 59, Graphic 13), in Amendoal there is no tendency to this factor variance (R^2=0.587, F=4.276, P=0.070), the same happening in Bateiras (R^2=0.240, F=0.947, P=0.438), Bico dos Casais (R^2=0.160, F=0.575, P=0.590) and Cardanhas (R^2=0.432, F=2.290, P=0.182).

Graphic 48- Cation Exchangeable Capacity measured in the first 20 cm deep and between 20 and 40 cm.



SI20CTCe- NS, NS, NS, NS



SI40CTCe- NS, NS, NS, NS

3.3.11.4- Bases Saturation

The results of variance analysis in the first 20 cm deep and between 20 and 40 cm (SI20(40)GSBe), according to the estates, installation forms and stations of each estate, are presented in Annex - Soil, Tables 26 and 33 to 34. These data spatial and cartographic representation is presented in Annex - Soil, Figures 27 and 28. The results of the regression curves determination are presented in Annex - Soils, Tables 61 and 62; its graphic representation is presented in Annex - Soils, Graphic 14.

Analysing the data measured inside of the estates, it is possible saying that:

- in the first 20 cm deep (Annex - Soil, Table 33, Figure 27) the estate with the highest value was Amendoal (± 99.01) and the lowest was Cardanhas (± 92.67). To terraces and slope vineyards, values were of ± 97.61 and ± 95.11. The stations group with the highest value was AmG3 (± 99.27) and the lowest was CaG1

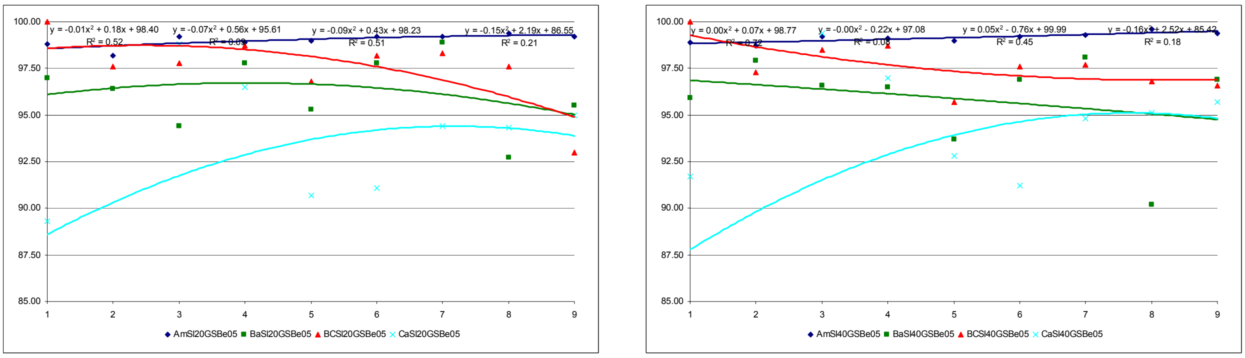
(± 90.67). To the estates and installation forms, values are significantly different (F=9.72, P=0.000 and F=5.27, P=0.028). Inside of the estates there are no significant differences between found values;

- to depths between 20 - 40 cm the estate with the highest value (Annex - Soil, Table 34, Figure 28) was Amendoal (± 99.16) and the lowest was Cardanhas (± 92.83). To terraces and slope vineyards, values were of ± 97.51 and ± 95.24. The stations group with the highest value was AmG3 (± 99.43) and the lowest was CaG1 (± 89.63). The estates present values of GSBe significantly different (F=5.75, P=0.003) but installation forms don't (F=2.99, P=0.093). Inside of the estates there are significant differences between values found in Amendoal (F=6.03, P=0.037).

The 2nd degree regression equation and its analysis to each one of the estates, allows saying that:

- to values measured between 0 - 20 cm deep (Annex - Soil, Table 61, Graphic 14), in Amendoal there is no tendency to this factor variance (R^2=0.520, F=3.262, P=0.110), the same happening in Bateiras (R^2=0.085, F=0.281, P=0.763), Bico dos Casais (R^2=0.506, F=3.078, P=0.120) and Cardanhas (R^2=0.212, F=0.809, P=0.488);
- to values measured between 20 - 40 cm deep (Annex - Soil, Table 62, Graphic 14), in Amendoal there is a tendency to this factor increases in terraces on top of the hill (R^2=0.716, F=7.595, P=0.022) but, in Bateiras, there is no significant variance of this factor (R^2=0.083, F=0.275, P=0.768), the same happening in Bico dos Casais (R^2=0.453, F=2.489, P=0.163) and Cardanhas (R^2=0.178, F=0.651, P=0.554).

Graphic 49- GSBe measured in the first 20 cm deep and between 20 and 40 cm.



SI20GSBe- NS, NS, NS, NS **SI40GSBe- S, NS, NS, NS**

Determination of these data significant correlations, relating the early ones, leads to the following results:

- total acidity (< 20 cm deep), is correlated with air temperature (-0.491**) and humidity 0.372*) and its foliar area (0.333*);
- total acidity (20 - 40 cm deep), is correlated with air temperature (-0.438**) and humidity (0.333*);
- the sum of exchangeable bases (< 20 cm deep), is correlated with leaves phosphorous content (0.529**);
- the exchangeable bases sum (20 - 40 cm deep), is correlated with leaves dry weight (0.344*) and their phosphorous content (0.508**);
- the cation exchangeable capacity (< 20 cm deep), is correlated with leaves phosphorous content (0.545**);
- the cation exchangeable capacity (20 - 40 cm deep), is correlated with leaves dry weight (0.355*) and phosphorous content (0.526**);

- the bases saturation (< 20 cm deep), is correlated with air temperature (0.488**) and humidity (-0.388*) and with soil temperature (0.366*);
- the bases saturation (20 - 40 cm deep), is correlated with air temperature (0.409*).

(1)* Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed)

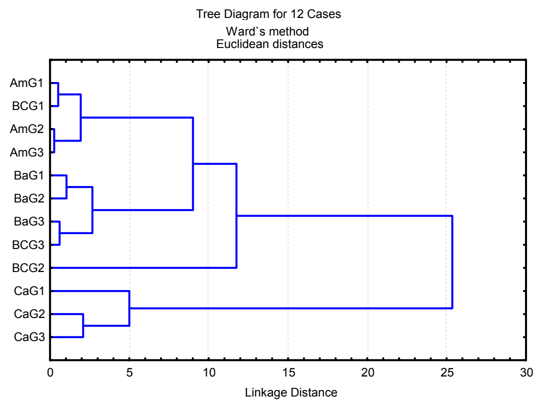
Considering the determined parameters to soil superficial layer characterization (< 20 cm), it was also made a group analysis ("clusters"), defining three groups, whose values are presented in Table 30. The "cluster 1" includes case BCG2, "cluster 2" includes cases CaG1, CaG2 and CaG3 and "cluster 3" includes cases AmG1, AmG2, AmG3, BaG1, BaG2, BaG3, BCG1 and BCG3.

Table 19- Identification and representation of "clusters" of groups with soil data (< 20 cm)

Identification of "clusters" (< 20 cm)

CASE	CLUSTER	DISTANCE
AmG1	2	0.537
AmG2	2	0.981
AmG3	2	0.950
BaG1	1	0.447
BaG2	1	0.527
BaG3	1	0.484
BCG1	2	0.332
BCG2	2	02.747
BCG3	1	0.390
CaG1	3	1.384
CaG2	3	0.738
CaG3	3	0.978

Graphic representation of "clusters" (< 20 cm)



As it is possible to see, "cluster 1" includes Bateiras, "2" Amendoal and "3" includes Cardanhas.

Table 20- Mean values of each "cluster" variants (< 20 cm)

	SI20AT	SI20SBT	SI20CTCe	SI20GSBe
Cluster 1	0.37	10.06	10.44	92.23
Cluster 2	0.16	12.11	12.27	98.68
Cluster 3	0.50	6.45	6.95	92.67
F	3.794	47.041	49.676	10.712
S	0.064	0.000	0.000	0.004

As we can see in this table, only exchangeable bases sum variance, cation exchangeable capacity and bases saturation between the three "clusters" are significantly different.

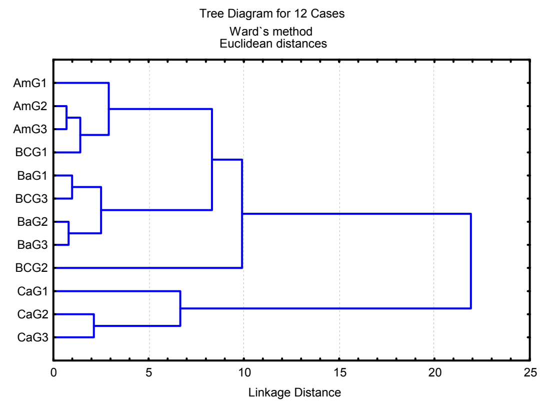
To the parameters measured to characterize the soil superficial layer between 20 - 40 cm deep, a group analysis, defining three groups, allowed the identification in "cluster 1" of the cases AmG1, AmG2, AmG3, BaG1, BaG2, BCG3, BCG1 and BCG3, in "cluster 2" the case BCG2 and in "cluster 3" the cases CaG1, CaG2 and CaG3.

Table 21- Identification and representation of "clusters" of groups with soil data (20 - 40 cm)

Identification of "clusters" (20 - 40 cm)

CASE	CLUSTER	DISTANCE
AmG1	1	1.28
AmG2	1	0.84
AmG3	1	0.93
BaG1	1	0.41
BaG2	1	0.98
BaG3	1	1.35
BCG1	1	0.59
BCG2	2	0.00
BCG3	1	0.45
CaG1	3	1.81
CaG2	3	0.89
CaG3	3	1.19

Graphic representation of "clusters" (20 - 40 cm)



Like in early situation, "cluster 3" encloses Cardanhas and "cluster 1" almost the rest of the estates blocs, except for BCG2. Of these data observation, we can see that Cardanhas and Bateiras present more uniformity of its deep chemical composition. All the vineyards installed in terraces belong to the same "cluster", showing a bigger relation between data measured there.

Table 22- Mean values of each "cluster" variants (20 - 40 cm)

	SI40AT	SI40SBT	SI40CTCe	SI40GSBe
Cluster 1	0.24	10.48	10.73	97.58
Cluster 2	0.40	14.97	15.40	97.33
Cluster 3	0.46	6.70	7.16	92.83
F	2.519	39.710	42.548	6.294
S	0.135	0.000	0.000	0.020

As we can see in this table, the significance of variance between the three "clusters" is similar to that in soil superficial layer.

3.4- Yield results

Relating to yield, several berries recollections were made, in order to determine the vintage date; part of those berries were frozen to further analysis and the rest (fresh berries) were converted in must.

These data were grouped in three groups, formed each one by three stations:

- G1 (stations E1, E2 and E3);
- G2 (stations E4, E5 and E6);
- G3 (stations E7, E8 and E9).

In terraces, groups correspond to one or part of one terrace, were the stations with the three geo referenced points are located and, in slope vineyards, they are formed by several rows were the geo referenced points are located. The groups, stations and rows (terraces) in vineyards installed in terraces are numbered from base to the top of the hill (G1, G2 and G3) and, in slope vineyards, they were installed from the top of the estate, from left to right (G1, G2 and G3). See estates representation in Annex - Geral, Figure 2.

Considering that we only have three values to characterize each one of the studied factors, it is not worth to adjust the regression curves to analyse the variance inside of the estates.

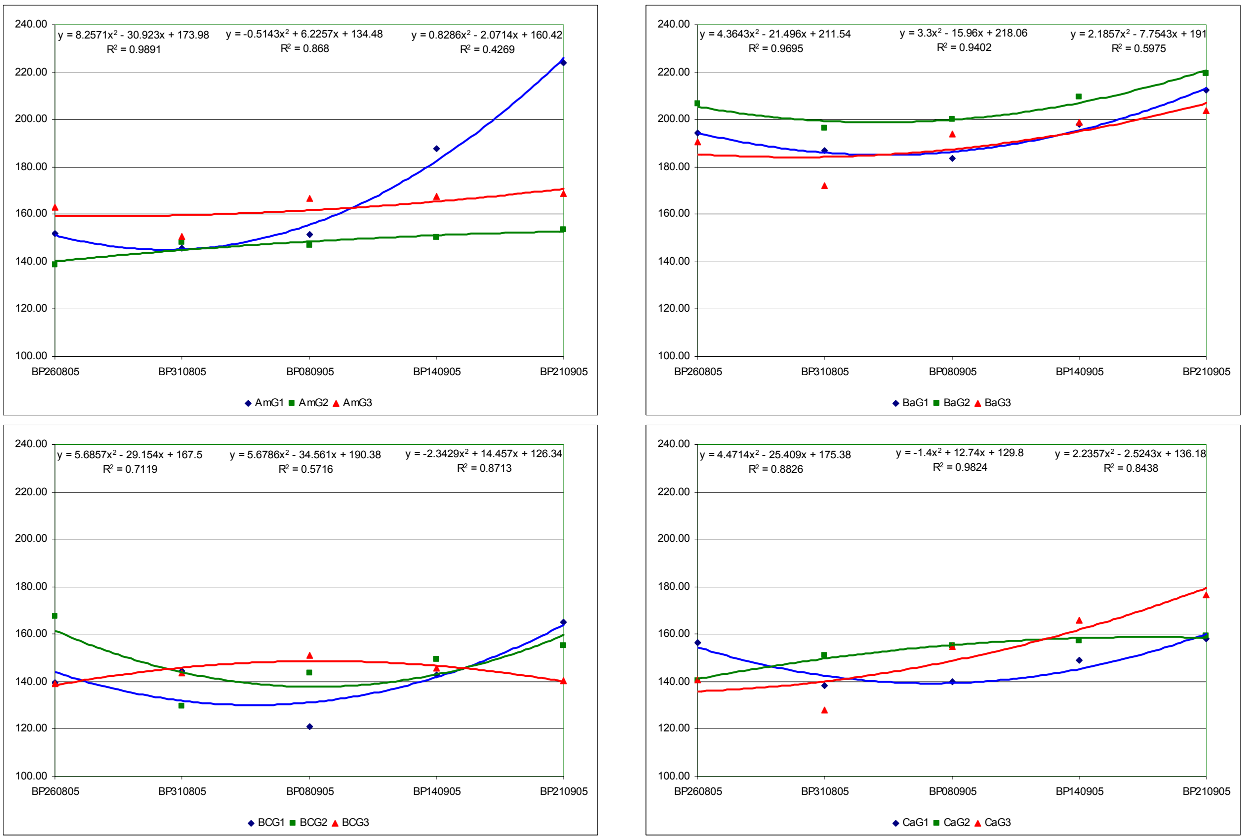
3.4.1- Fresh berries

Relating to fresh berries, several measurements were made, namely its weight, probable alcohol, total acidity and pH in different dates, in order to know its variance during its development. The data of probable alcohol, total acidity and pH of the last collect (210905 and 060906) are used to characterize the musts, because it is coincident with vintage.

3.4.1.1- Berries weight and yield *per* vine

The data relative to mean weight evolution of the 126 berries collected in several stages of its development, in 2005, are indicated in Annex - Berries, Table 1.

Graphic 50- Graphic representation of the 126 berries weight evolution to the several estates.



Analysing the evolution of berries weight (BP) in the five dates when collection was made, it is possible to see that, almost in all the situations, the weight was increasing until the vintage date; the only case were this didn't happened was Bico dos Casais.

The results of variance analysis of berries weight, in grams, and of yield *per* plant (ProPla), in kg, collected in vintage, according to the estates, installation forms and stations groups of each estate, are presented in Annex - Berries, Tables 2 and 3. Their spatial and cartographic representation is presented in Annex - Berries, Figures 1, and 2.

Analysing the data of berries mean weight in the vintage of 2005 (Annex - Berries, Table 2) it is possible to see that estates and installation forms present values significantly different. (F=4.59, P=0.038 and F=8.79, P=0.014). The estate with the highest value was Bateiras (± 211.87 g) and the lowest was Bico dos Casais (± 153.50 g); To terraces and slope vineyards, values were of ± 196.97 g and ± 159.05 g and the groups were the highest and lowest values were obtained were AmG1 (223.90 g) and BCG3 (140.207 g).
- in 2006 these measurements were not done.

Analysing the yield *per* vine data of 2005 (Annex - Berries, Table 3) it is possible to see that the estates present values significantly different. (F=8.63, P=0.007), in opposite to the installation forms (F=2.57, P=0.140). The estate with the highest value was Bateiras (± 3.67 Kg) and the lowest was Amendoal (± 2.30 Kg). To terraces and slope vineyards, values were of ± 2.98 Kg and ± 3.57 Kg and the groups were the highest and lowest value were obtained were BaG3 (4.17 kg) and AmG2 and AmG3 (2.13 Kg).

To the results of yield *per* vine of 2006 (Annex - Berries, Table 4), it is possible to see that the estates don't present significantly different values. (F=2.61, P=0.124), the same happening when installation forms are considered (F=1.92, P=0.197). The estate with the highest value was Cardanhas (± 4.89 Kg) and the lowest was Amendoal (± 2.77 Kg), To terraces and slope vineyards, values were of ± 3.64 Kg and ± 4.56 Kg. The groups were the highest and lowest value were obtained were CaG1 (6.00 kg) and AmG2 (2.60 Kg).

The mean weight of 126 berries and yield is indicated in the following Tables:

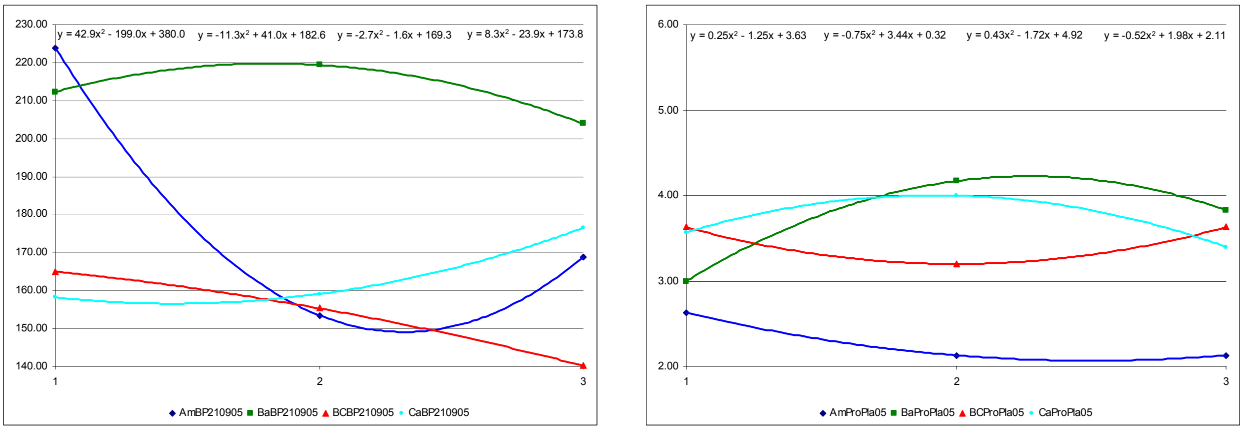
Table 23- Mean weight, in grams, of berries (2005).

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
BP05	223.9	153.5	168.8	212.3	219.4	203.9	165.0	155.3	140.2	158.2	159.1	176.5

Table 24- Mean yield, in kg, *per* vine and hectare (2005 and 2006).

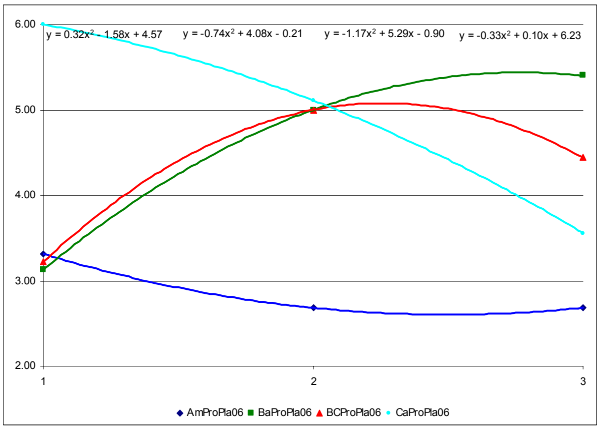
	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
Nº Plants/ha		1786			1017			1715			2076	
Kg/ProPla05	2.63	2.13	2.13	3.00	4.17	3.83	3.63	3.20	3.63	3.57	4.00	3.40
Kg/ProPla05M		2.29			3.67			3.48			3.66	
Kg/ha05		4094			3730			6098			7591	
Kg/ProPla06	3.31	2.68	2.68	3.13	5.00	5.40	3.22	5.00	4.44	6.00	5.11	3.56
Kg/ProPla06M		2.89			4.51			4.22			4.89	
Kg/ha06		5163			4588			7388			10149	

Graphic 51- Mean weight of 126 berries and yield *per* plant, in 2005



Comparing the weight of 126 berries at the vintage date with the yield *per* plant we can see that there is no significant correlation between its values (Corr=0.069, S=0.832).

Graphic 52- Yield *per* plant, in 2006



In 2005, the correlations between these data and the ones of environment, plants and soil are the following:

- berries weight with soil temperature (0.580*) and plants temperature (0.628*), leaf area (-0.594*), leaves dry weight (-0.660*), magnesium at < 20 cm (0.717**) and at 20 - 40 cm (0.741**);
- Yield *per* plant with air temperature (-0.794**) and humidity (0.686*), pruning wood (0.683*), soil pH at < 20 cm (-0.626*), assimilable phosphorous at < 20 cm (0.605*) and at 20 - 40 cm (0.603*), total acidity at < 20 cm (0.673*) and 20 - 40 cm (0.779**) and bases saturation at < 20 cm (-0.579*).

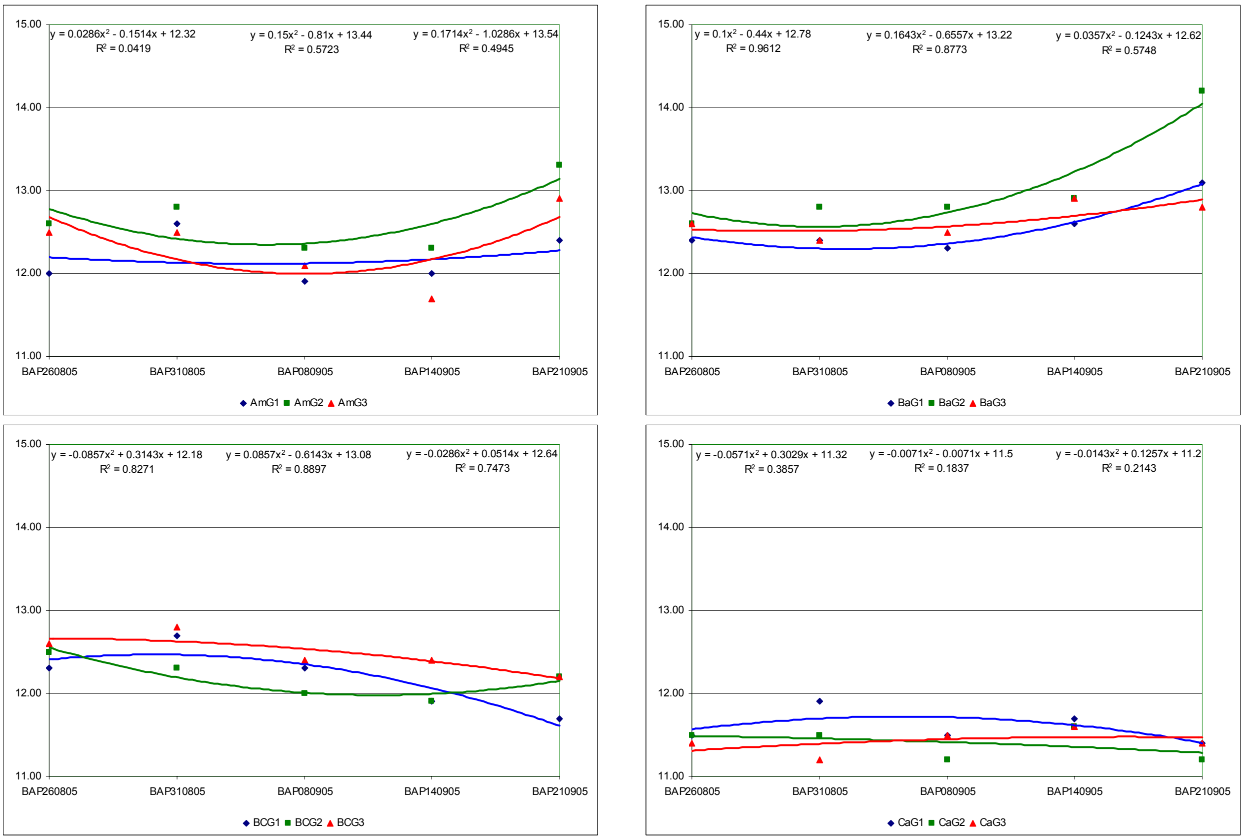
In 2006, the correlations between plants yield with environment factors and leaves chemical composition are, to data measured in 210606, with leaves copper (0.695*), magnesium (0.592*) and SPAD (-0.670*) and, to data measured in 240706, to zinc (0.580*) and manganese (0.591*).

(1)* Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed)

3.4.1.2- Berries probable alcohol

The data relative to the probable alcohol evolution of the 126 berries (BAP) collected in several fazes of its development are indicated in Annex - Berries, Table 5.

Graphic 51- Graphic representation of probable alcohol evolution in 2005.

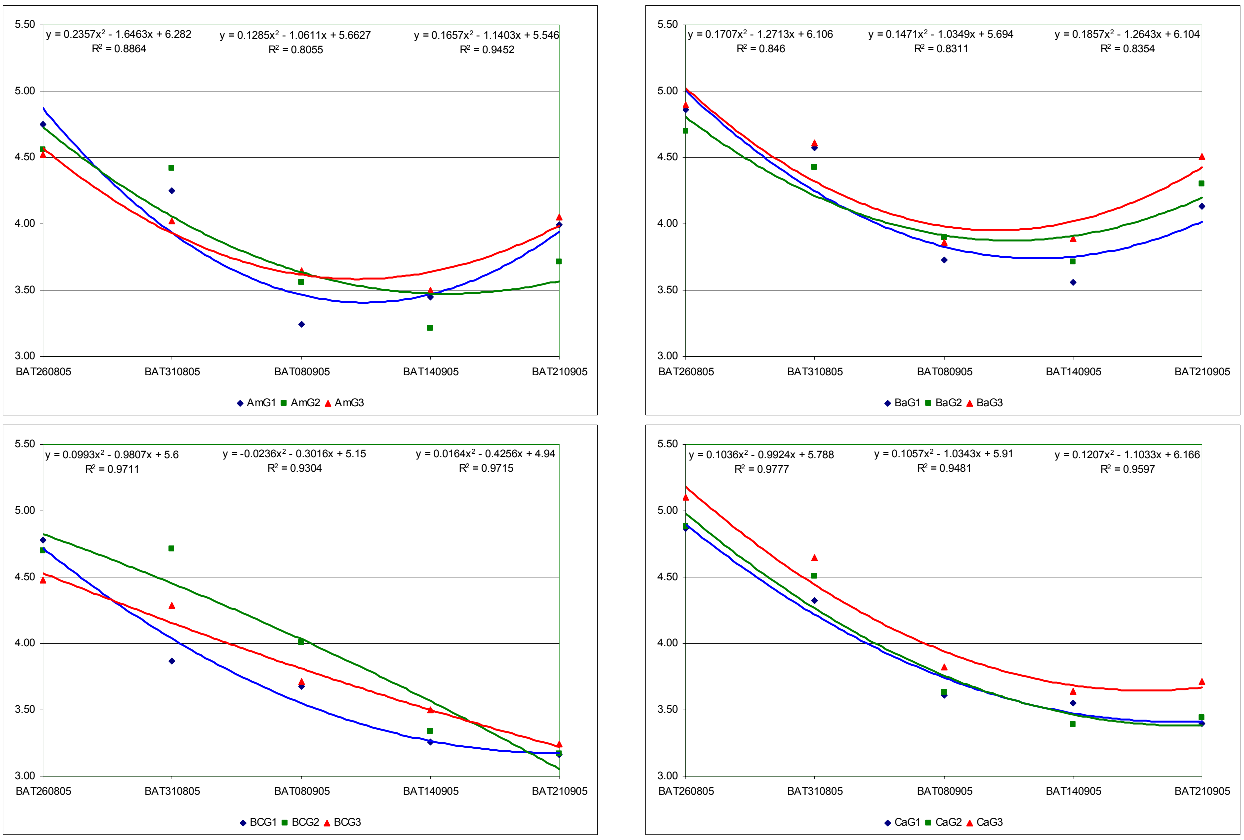


Analysing the evolution of berries probable alcohol in the five dates when the collection was made, it is possible to see that, in terraces the tendency is to an increase of values until vintage date but, to the slope vineyards, the tendency is to its decrease; in these vineyards, values are inferior to those obtained in terraces. Considering the importance of probable alcohol in the quality of the wines, it is important to consider the possibility to anticipate the date of vintage in these estates or, at least, start gathering those berries first.

3.4.1.3- Berries total acidity

The data relative to the evolution of total acidity of the 126 berries (BAT) collected in several stages of its development are indicated no Annex - Berries, Table 6.

Graphic 52- Graphic representation of total acidity evolution.

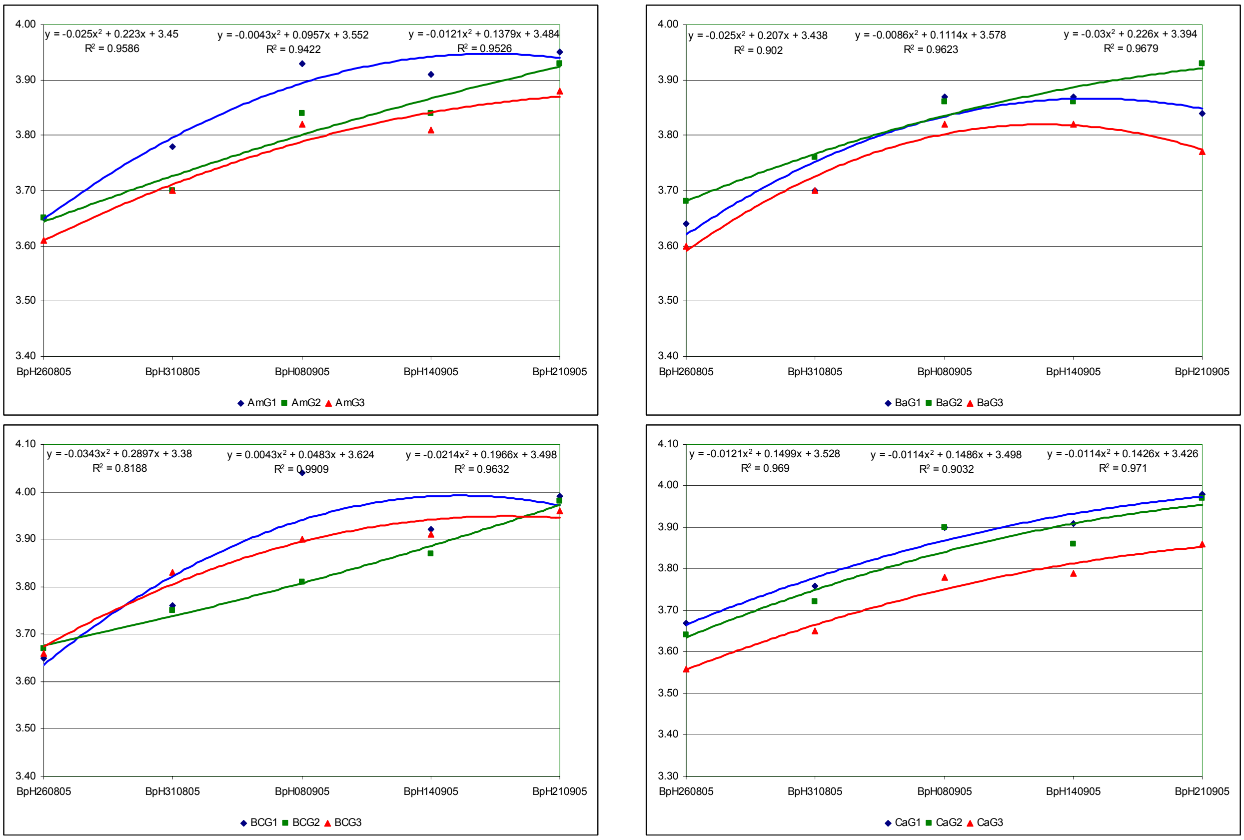


Analysing the evolution of berries total acidity in the five dates when its collection was made, we can see that in terraces the tendency is to a decrease of values in the beginning of berries development, then increasing until the date of vintage. To slope vineyards, total acidity always decreases until the date of vintage; the last measured data are higher in terraces vineyards.

3.4.1.4- Berries pH

The data relative to the evolution of the 126 berries pH (BpH), collected in several stages of its development are indicated no Annex - Berries, Table 7.

Graphic 53- Graphic representation of pH evolution.



Analysing the evolution of berries pH in the five dates when he collection was made, there is a tendency to its increase, generally less accentuated in final stage.

This tendency, along with the one verified in probable alcohol and yield determinations, confirms the importance of considering these vineyards vintage date anticipation.

3.4.2- Frozen berries

Part of the berries collected during vintage were frozen, to further analysis of several parameters, namely:

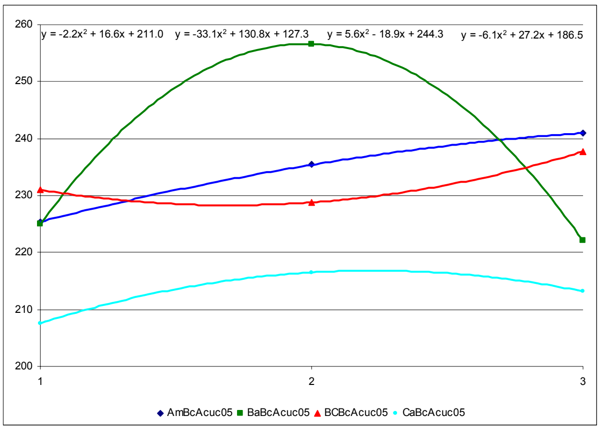
- sugar content;
- pH;
- total acidity;
- total phenols;
- total antocians

These determinations mean values are presented in Annex - Berries, Table 8.

3.4.2.1- Frozen berries sugar content

The sugar content mean values in frozen berries (BcAcucar) and its variance analysis according to the estates, installation forms and stations of each estate, are presented in Annex - Berries, Tables 8 and 9. Its spatial and cartographic representation is in Annex - Berries, Figure 3.

Graphic 54- Frozen berries sugar content, measured in musts of 2005



Analysing the data of the estates and installation forms, we can see that there are no significant differences between them (F=2.89, P=0.102 and F=2.70, P=0.132). The estate with the highest value was Bateiras (234.57 g/L) and the lowest was Cardanhas (212.43 g/L). To terraces and slope vineyards those values are 234.25 and 222.47 g/L. The group with the highest value was BaG2 (± 256.60 g/L) and the lowest was CaG3 (± 213.20 g/L).

The mean values of sugar content in frozen berries, in g/L, are as it follows:

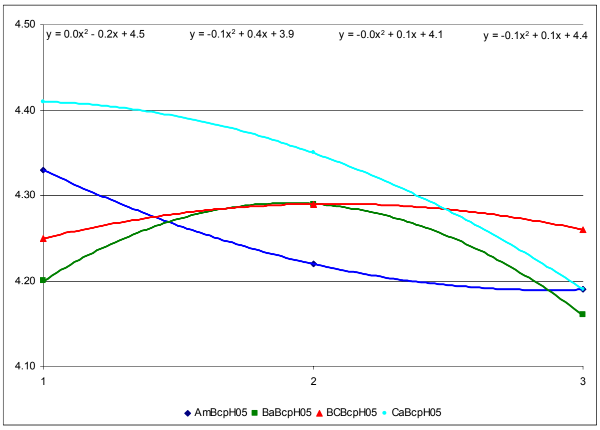
Table 25- Frozen berries sugar content.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
BcAcucar05	225.4	235.4	241.0	225.0	256.6	222.1	231.0	228.8	237.7	207.6	216.5	213.2

3.4.2.2- Frozen berries pH

The mean values of frozen berries pH (BcpH) and its variance analysis according to the estates, installation forms and stations of each estate, are presented in Annex - Berries, Tables 8 and 10. Its spatial and cartographic representation is in Annex - Berries, Figure 4.

Graphic 55- Frozen berries pH, measured in musts of 2005



Analysing the data of the estates and installation forms, it is possible to see that there are no significant differences between them (F=1.07, P=0.416 and F=4.00, P=0.073). The estates with the highest values are Bico dos Casais and Cardanhas (± 4.30), and Amendoal and Bateiras have the lowest values (± 4.23). To terraces and slope vineyards, those values are of ± 4.23 and ± 4.30. The group with the highest value was CaG1 (± 4.41) and the lowest was BaG3 (± 4.16).

The mean values of frozen berries pH, to the three groups are the following:

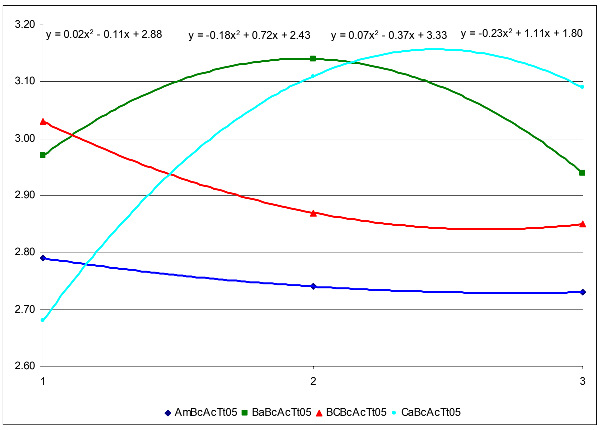
Table 26- Frozen berries pH

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
BcpH05	4.33	4.22	4.19	4.20	4.29	4.16	4.25	4.29	4.26	4.41	4.35	4.19

3.4.2.3- Frozen berries total acidity

The mean values of frozen berries total acidity (BcAcTt) and its variance analysis according to the estates, installation forms and stations of each estate, are presented in Annex - Berries, Tables 8 and 11. Its spatial and cartographic representation is in Annex - Berries, Figure 5.

Graphic 56- Frozen berries total acidity, measured in musts of 2005



Analysing the data of estates and installation forms, it is possible to see that there are no significant differences between them (F=2.46, P=0.137 and F=0.84, P=0.381). The estate were the value was higher was Bateiras (± 3.00) and the lowest was Amendoal (± 2.73). To terraces and slope vineyards, those values are of ± 2.87 and ± 2.95. The group with the highest value was BaG2 (± 3.14) and the lowest was CaG1 (± 2.68).

The mean values of frozen berries total acidity, to the three groups are as following:

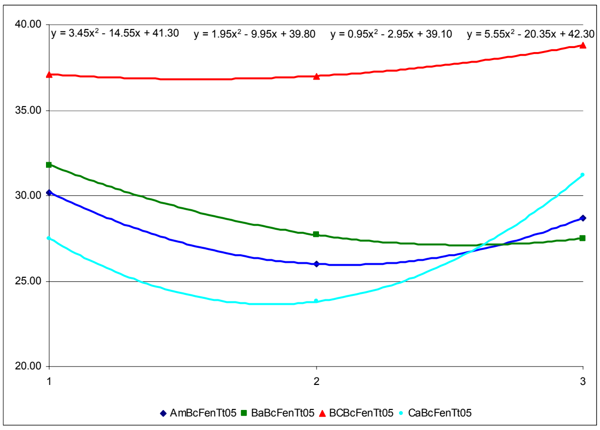
Table 27- Frozen berries total acidity.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
BcAcTt05	2.79	2.74	2.73	2.97	3.14	2.94	3.03	2.87	2.85	2.68	3.11	3.09

3.4.2.4- Frozen berries total phenols

The mean values of frozen berries total phenols (BcFenTt) and its variance analysis according to the estates, installation forms and stations of each estate, are presented in Annex - Berries, Tables 8 and 12. Its spatial and cartographic representation is in Annex - Berries, Figure 6.

Graphic 57- Frozen berries total phenols, measured in 2005 musts



Analysing the data of the estates, we can see that there are significant differences between them (F=10.65, P=0.004), contrary to installation forms (F=2.24, P=0.165). The estate were the value was higher was Bico dos Casais (± 37.63) and the lowest was Cardanhas (± 27.50). To terraces and slope vineyards, those values were of ± 28.65 and ± 32.57. The group with the highest value was BCG3 (± 38.8) and the lowest was CaG2 (± 23.80).

The mean values of frozen berries total phenols, to the three groups are:

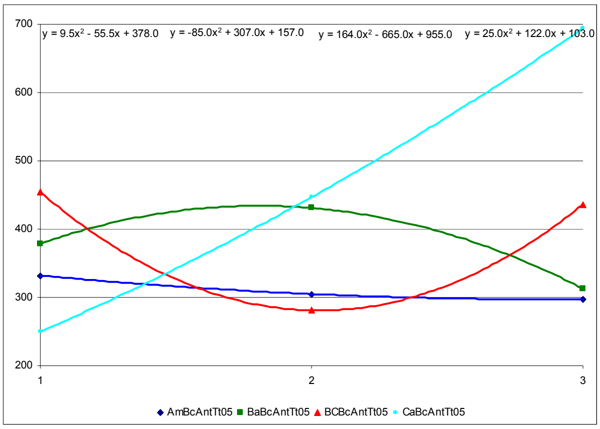
Table 28- Frozen berries total phenols.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
BcFenTt05	30.2	26.0	28.7	31.8	27.7	27.5	37.1	37.0	38.8	27.5	23.8	31.2

3.4.2.5- Frozen berries total antocians

The mean values of frozen berries total antocians (BcAntTt) and its variance analysis according to the estates, installation forms and stations of each estate, are presented in Annex - Berries, Tables 8 and 13. Its spatial and cartographic representation is in Annex - Berries, Figure 7.

Graphic 58- Frozen berries total antocians, measured in 2005 musts.



Analysing the data of the estates and installation forms, we can see that there are no significant differences between them ($F=0.75$, $P=0.550$ and $F=1.53$, $P=0.244$). The estate with the highest value was Cardanhas (± 463.67) and the lowest was Amendoal (± 311.33). To terraces and slope vineyards those values are of ± 342.83 and ± 427.00. The group with the highest value was CaG3 (± 694.00) and the lowest was CaG1 (± 250.00).

The mean values of frozen berries total antocians are the following:

Table 29 – Frozen berries total antocians

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
BcAntTt05	332	305	297	379	431	313	454	281	436	250	447	694

Doing the factorial analysis of these variants, extracting two factors, we have:

Table 30- Loadings of frozen berries factors. Extraction method: prime components. Loadings > .70

	Factor 1	Factor 2
BcAcucar05	-0.201	0.759
BcpH05	0.512	-0.493
BcAcTt05	-0.845	-0.306
BcFenTt05	-0.279	0.503
BcAnt05	-0.881	-0.326
Expl. Var.	1.870	1.272
Prp. Tt (%)	37.4	25.4

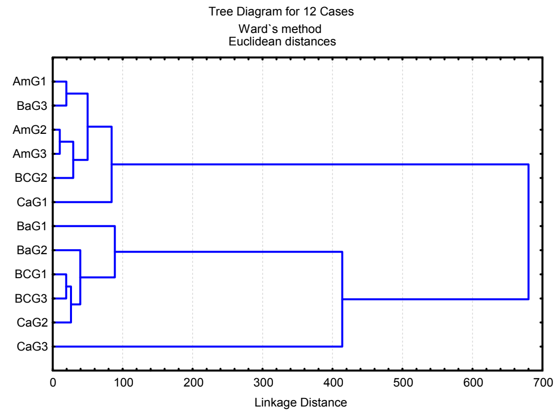
As we can see, the two extracted factors explain ± 63 % (37.4 + 25.4) of the found variance, being the variants Total Acidity and Antocians mainly responsible for that variability.

Considering the used variants to characterize the frozen berries, a group analysis was made (“clusters”), defining three groups. The “cluster 1” includes groups BaG1, BaG2, BCG3 and CaG2, “cluster 2” includes the group CaG3 and “cluster 3” includes groups AmG1, AmG2, AmG3, BaG3, BCG2 and CaG1.

Representing the measured parameters in frozen berries in three "clusters" we have:

Table 31- Numeric and graphic representation of "clusters", of groups with frozen berries data

Case	Cluster	Distance
AmG1	3	15.96
AmG2	3	5.70
AmG3	3	6.40
BaG1	1	22.85
BaG2	1	10.58
BaG3	3	7.79
BCG1	1	11.30
BCG2	3	7.69
BCG3	1	4.71
CaG1	3	22.43
CaG2	1	11.48
CaG3	2	0.00



These data group analysis allows seeing that only frozen berries of the Amendoal three blocs are included in the same "cluster"; in Cardanhas each one of the blocs belongs to a different "cluster".

Table 32- Variants mean values of each "cluster", of frozen berries characterization

	BcAcucar05	BcpH05	BcAcTt05	BcFenTt05	BcAntTt05
Cluster 1	233.36	4.27	3.02	31.84	429.40
Cluster 2	213.20	4.19	3.09	31.20	694.00
Cluster 3	226.72	4.27	2.79	29.48	296.33
F	1.049	0.447	7.874	0.297	91.401
S	0.389	0.653	0.011	0.750	0.000

As we can see in this table, only total acidity and antocians variance of frozen berries between the three "clusters" is significantly different.

3.4.3- Musts analysis results

The mean data of musts analysis are presented in Annex - Musts, Table 1, and the results of ANOVA are presented in Tables 2 to 7.

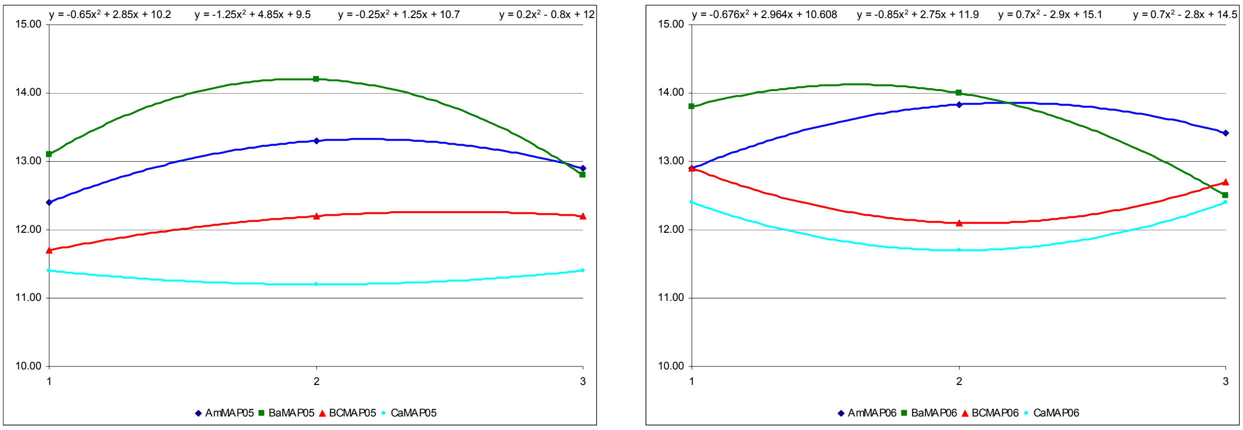
3.4.3.1- Probable alcohol

The mean values of musts probable alcohol (MAP) and its variance analysis according to the estates, installation forms and stations of each estate, are presented in Annex - Musts, Tables 1 and 2 to 3. Its spatial and cartographic representation is in Annex - Musts, Figures 1 and 2.

Analysing the data of the estates, installation forms and stations of each estate, we can see that:
- in 2005 (Annex - Musts, Table 2, Figure 1) there are significant differences between estates and installation forms (F=11.50, P=0.003 and F=22.04, P=0.000). The estate with the highest mean value was Bateiras (± 13.37) and the lowest was Cardanhas (± 11.33). To the terraces and slope vineyards, the mean values are ± 13.12 and 11.68. The stations group with the highest value was BaG2 (± 14.20) and the lowest was CaG2 (± 11.20);
- in 2006 (Annex - Musts, Table 3, Figure 2) there are no significant differences between the estates (F=3.22, P=00.83) but there are significant differences between installation forms (F=7.19, P=0.023). The estate with

the highest mean value was Bateiras (± 13.43) and the lowest was Cardanhas (± 12.17). To terraces and slope vineyards, mean values are ± 13.18 and 12.37. The stations group with the highest value was BaG2 (± 14.00) and the lowest was CaG2 (± 11.70).

Graphic 59- Musts probable alcohol in 2005 and 2006



The mean values of musts probable alcohol, to the three groups of each estate, are as it follows:

Table 33- Musts probable alcohol

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
MAP05	12.4	13.3	12.9	13.1	14.2	12.8	11.7	12.2	12.2	11.4	11.2	11.4
MAP06	12.9	13.8	13.4	13.8	14.0	12.5	12.9	12.1	12.7	12.4	11.70	12.4

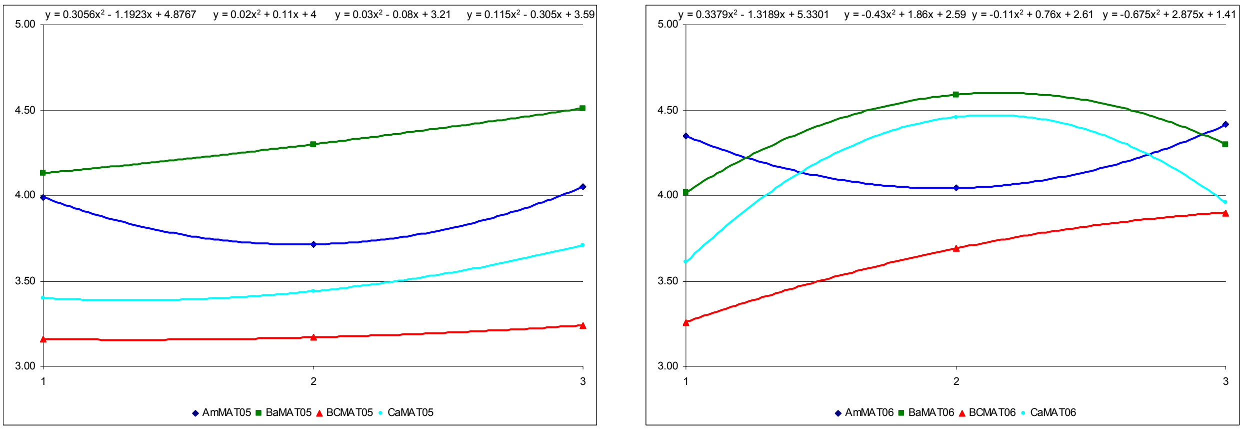
Comparing the value of probable alcohol of all the musts groups, we can see that it is lower in slope vineyards than in terraces. Measured values in Cardanhas musts are much lower than the rest of them.

3.4.3.2- Total acidity

The mean values of musts total acidity (MAT) and its variance analysis according to the estates, installation forms and stations of each estate, are presented in Annex - Musts, Tables 1 and 4 to 5. Its spatial and cartographic representation is in Annex - Musts, Figures 3 and 4.

Analysing the data of the estates, installation forms and stations of each estate, it is possible to see that:
- in 2005 (Annex - Musts, Table 4, Figure 3) total acidity presented significant differences between estates and installation forms (F=28.63, P=0.000 and F=29.25, P=0.000). The estate with the highest mean value was Bateiras (± 4.31) and the lowest was Bico dos Casais (± 3.19). To terraces and slope vineyards, mean values were of ± 4.12 and ± 3.35. The group of estates were must had the highest value was BaG3 (± 4.51) and the lowest was BCG1 (± 3.16);
- in 2006 (Annex - Musts, Table 5, Figure 4) total acidity did not present significant differences between estates and installation forms (F=2.59, P=0.126 and F=2.04, P=0.184). The estate with the highest mean value was Bateiras (± 4.30) and the lowest was Bico dos Casais (± 3.62). To terraces and slope vineyards, mean values were of ± 4.10 and 3.81. The estates group were must had the highest value was BaG2 (± 4.59) and the lowest was BCG1 (± 3.26).

Graphic 60- Total acidity measured in musts of 2005 and 2006



The mean values of musts total acidity, to the three groups, are the following:

Table 34- Musts total acidity

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
MAT05	3.99	3.71	4.05	4.13	4.30	4.51	3.16	3.17	3.24	3.40	3.44	3.71
MAT06	4.35	4.04	4.41	4.02	4.59	4.30	3.26	3.69	3.90	3.61	4.46	3.96

Comparing the values of musts total acidity to all the groups, we can see that they are lower in slope vineyards than in terraces. Bateiras present the highest values, followed by Amendoal, Cardanhas and Bico dos Casais.

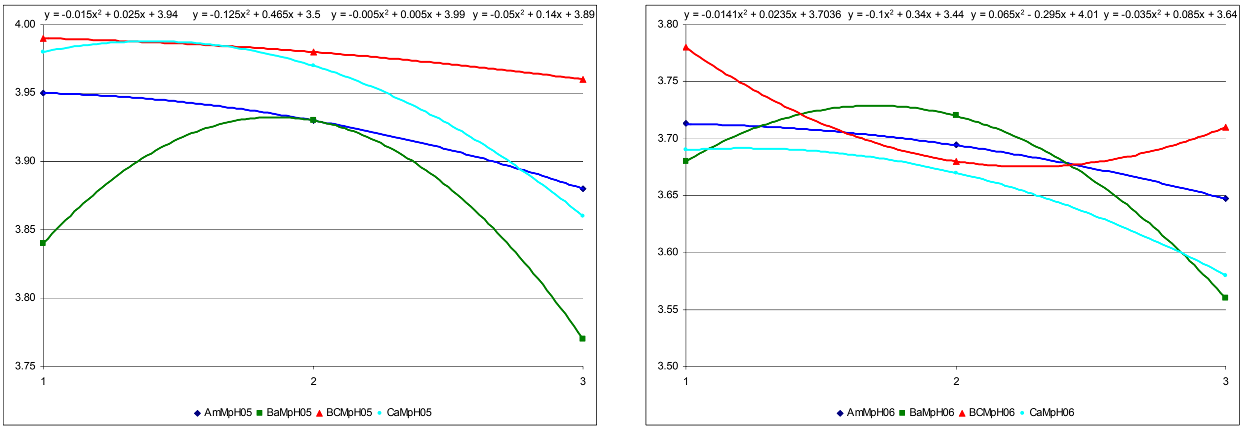
3.4.3.3- pH

Musts pH mean values (MpH) and its variance analysis according to the estates, installation forms and stations of each estate, are presented in Annex - Musts, Tables 1 and 6 to 7. Its spatial and cartographic representation is in Annex - Musts, Figures 5 and 6.

Analysing the data of the estates, installation forms and stations of each estate, we can see that:

- in 2005 (Annex - Musts, Table 6, Figure 5) there were no significant differences between estates and installation forms (F=2.86, P=0.104 and F=4.57, P=0.058). The estate with the highest mean value was Bico dos Casais (± 3.98) and the lowest was Bateiras (± 3.85). To terraces and slope vineyards, mean values are ± 3.88 and ± 3.96. The group with the highest value was BCG1 (± 3.99) and the lowest was BaG3 (± 3.77);
- in 2006 (Annex - Musts, Table 7, Figure 6) there were no significant differences between estates and installation forms (F=1.05, P=0.421 and F=0.22, P=0.650). The estate with the highest mean value was Bico dos Casais (± 3.72) and the lowest was Cardanhas (± 3.65). To terraces and slope vineyards, mean values are ± 3.67 and ± 3.69. The group with the highest value was BCG1 (± 3.78) and the lowest was BaG3 (± 3.56).

Graphic 61- Musts pH, measured in 2005 and 2006



The musts pH mean values, to the three groups are the following:

Table 35- Musts pH

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
MpH05	3.95	3.93	3.88	3.84	3.93	3.77	3.99	3.98	3.96	3.98	3.97	3.86
MpH06	3.71	3.39	3.65	3.68	3.72	3.56	3.78	3.68	3.71	3.69	3.67	3.58

Comparing musts pH values in all of the groups, it is possible to see that in Bico dos Casais there is a small variance, when compared with the other estates. This difference is particularly accentuated in Bateiras.

Determine the significant correlations between musts data with environment factors, plants, soil and yield in 2005 (Annex - Final results, Table 3) we have:

- musts alcohol content correlates significantly with air temperature (0.634*) and humidity (-0.598*), soil temperature (0.837**) and plants temperature (0.768**), soil's pH (< 20 cm) (0.601*) and potassium content (< 20 cm) (-0.741**) and (20 - 40 cm) (-0.645*), magnesium (< 20 cm) (0.705*) and (20 - 40 cm) (0.641*) and with must total acidity (0.671*);
- musts pH correlates with plants temperature (-0.628*), assimilable potassium (< 20 cm) (0.676*) and (20- 40 cm) (0.740**), potassium (< 20 cm) (0.736**) and (20- 40 cm) (0.833**), com o soil boron (20 - 40 cm) (-0.613*) and must total acidity (-0.793**);
- total acidity has a significant correlation with air temperature (0.593*) and humidity (-0.734**), soil temperature (0.709**) and plants temperature (0.906**), leaf area (-0.776**), leaves dry weight (0.679*), leaves nitrogen content (0.679*), assimilable potassium (< 20 cm) (-0.817**) and (20 – 40 cm) (-0.768**), magnesium (< 20 cm) (0.875**) and (20 - 40 cm) (0.833**), potassium (< 20 cm) (-0.594*) and (20 - 40 cm) (-0.726**), and soil boron (20 - 40 cm) (0.685*), berries weight (0.801**) and musts probable alcohol (0.671*).

In 2006 (Annex - Final results, Table 3) the results were the following:

- musts alcohol content correlates significantly some factors measured in 210606: calcium (0.701*), boron (-0.632*), iron (0.701*), copper (-0.663*), zinc (-0.653*) and manganese (-0.653*) and with some factors measured in 240706: leaves nitrogen (0.625*), potassium (0.833**), boron (-0.651*), copper 80.644*), zinc (-0.736**) and manganese (-0.748**);

- musts pH does not correlate with none of these factors;
- total acidity correlates with leaves calcium (0.578*) measured in 210606.

(1)* Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed)

As we can see in 2005, environment factors had a determinant importance in probable alcohol and musts total acidity but, in 2006, that influence was minimum.

Considering the parameters measured in 2005 to the musts characterization, a group analysis ("clusters") was made, defining three groups. "Cluster 1" includes cases BCG1, BCG2, BCG3, CaG1, CaG2 and CaG3, "cluster 2" includes cases AmG1, AmG2, AmG3, BaG1, BaG3 and "cluster 3" includes BaG2.

Table 36- Numeric and graphic representation of "clusters" of groups with the musts data (2005)

Cases	Cluster	Distance
AmG1	2	0.296
AmG2	2	0.314
AmG3	2	0.017
BaG1	2	0.121
BaG2	3	0.000
BaG3	2	0.262
BCG1	1	0.113
BCG2	1	0.317
BCG3	1	0.305
CaG1	1	0.166
CaG2	1	0.284
CaG3	1	0.269

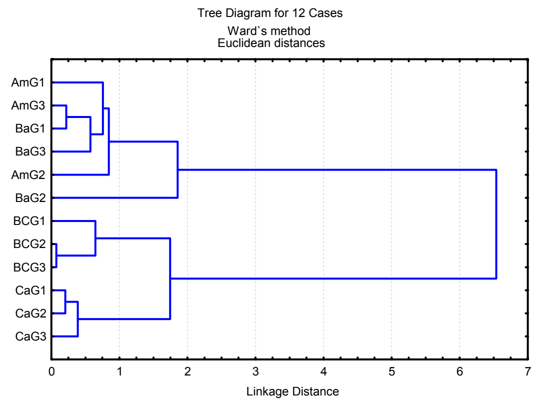


Table 37- Mean values of each "cluster" variants, used in musts characterization

	MAP05	MpH05	MAT05
Cluster 1	12.27	3.96	3.47
Cluster 2	13.26	3.87	4.14
Cluster 3	11.43	3.95	3.43
F	24.542	2.584	14.580
S	0.000	0.130	0.002

It is possible to see in this table that the probable alcohol and total acidity variance is significantly different between the three "clusters".

Making a factorial analysis (two factors) of data measured in 2005, we obtain the following data:

Table 38- Results of factorial analysis of means of data measured in 2005
(Factors loadings, Extraction method: main components, Loadings > .70

	ClTp05	ClHm05	SITp05	PITp05	SPAD05	FIAr170605	FIPS170605	FIN170605	FIP170605	FIK170605
Factor 1	0.84	-0.92	0.87	0.97	0.41	-0.78	-0.76	0.78	-0.29	0.41
Factor 2	-0.33	0.11	-0.30	-0.02	0.26	-0.51	-0.48	0.18	-0.61	0.42

SI20pH05	PIPd06	SI40pH05	SI20MO05	SI40MO05	SI20P$_2$O505	SI40P$_2$O505	SI20K$_2$O05	SI40K$_2$O05	SI20Ca05	SI40Ca05
0.46	-0.58	0.38	0.45	0.41	-0.25	-0.18	-0.89	-0.83	-0.11	-0.14
-0.84	0.45	-0.87	0.16	0.11	0.85	0.86	0.15	0.27	-0.91	-0.90

SI20Mg05	SI40Mg05	SI20K05	SI40K05	SI20Na05	SI40Na05	SI20BH2O05	SI40BH2O05	BP210905	ProPla05	BAT210905
0.92	0.92	-0.46	-0.72	0.04	0.13	0.54	0.52	0.66	-0.42	0.93
0.12	0.13	-0.43	-0.07	-0.89	-0.85	0.49	0.46	0.06	0.53	0.18

BAP210905	BpH210905	BcAcucar05	BcpH05	BcAcTt05	BcFenTt05	BcAntTt05	MAP210905	MpH210905	MAT210905
0.76	-0.67	0.35	-0.46	-0.14	-0.55	-0.23	0.76	-0.67	0.93
-0.34	-0.18	-0.52	0.31	0.23	-0.64	0.19	-0.34	-0.18	0.18

Expl.Var	Prp.Tot (%)
16.24	**39.0**
9.93	**24.0**

As it is possible to deduce from factor 1 "interpretability", the variance determined results of several environmental parameters, plants, soil and yield; the variance explained by the two factors represents ± 63 % (39.0 + 24) of total variance.

Considering the parameters measured in 2006 in the characterization of musts, the group analysis ("clusters"), defining three groups, made the "cluster 1" include cases AmG1, BaG3, CaG2, "cluster 2" cases BCG1, BCG2, BCG3, CaG1 and CaG3 and "cluster 3" groups AmG2, AmG3, BaG1 and BaG2.

Table 39- Numeric and graphic representation of "clusters" of groups with musts data (2006)

Cases	Cluster	Distance
AmG1	1	0.309
AmG2	3	0.135
AmG3	3	0.218
BaG1	3	0.144
BaG2	3	0.232
BaG3	1	0.101
BCG1	2	0.341
BCG2	2	0.231
BCG3	2	0.170
CaG1	2	0.072
CaG2	1	0.388
CaG3	2	0.181

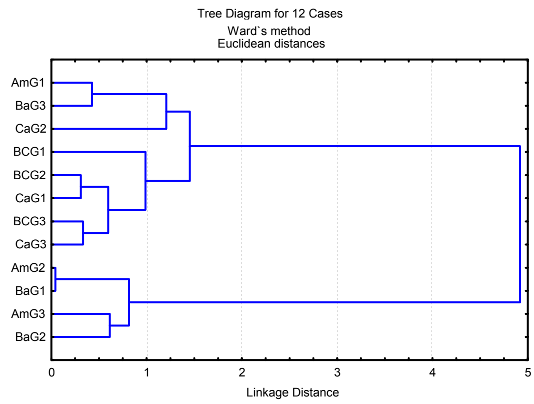


Table 40- Mean values of each "cluster" musts variants (2006)

	MAP06	MpH06	MAT06
Cluster 1	12.39	3.67	3.88
Cluster 2	13.16	3.68	4.38
Cluster 3	13.87	3.70	4.22
F	31.759	5.000	1.796
S	0.000	0.035	0.221

As it is possible to see in this table, probable alcohol and pH variance are significantly different between the three “clusters”.

By making a factorial analysis (two factors) of data measured in 2006, we obtain the data indicated in the following table:

Table 41- Results of factorial analysis of means of data measured in 2006
(Factors loadings, Extraction method: Main components, Loadings > .70

	ClTp06	ClHm06	SlTp06	PlTp06	SPAD06	FlAr210606	FIPS210606	FIPA210606	FlAr240706	FIPS240706	FIPA240706
Factor 1	-0.48	0.44	-0.48	-0.26	-0.46	-0.02	0.07	0.20	-0.58	-0.65	-0.65
Factor 2	0.769	-0.76	0.55	0.51	-0.13	0.49	0.70	0.70	0.62	0.53	0.13

FIN210606	FIP210606	FIK210606	FICa210606	FIMg210606	FIB210606	FIFe210606	FICu210606	FIZn210606	FIMn210606
-0.68	-0.38	-0.42	-0.88	-0.12	0.93	-0.53	0.91	-0.87	0.90
0.02	0.48	0.39	-0.22	-0.12	-0.18	-0.62	0.06	-0.29	-0.06

FIN240706	FIP240706	FIK240706	FICa240706	FIMg240706	FIB240706	FIFe240706	FICu240706	FIZn240706	FIMn240706
-0.65	0.34	-0.69	-0.74	0.12	0.92	0.09	-0.45	0.95	0.98
-0.08	0.57	-0.59	-0.34	0.03	-0.16	-0.47	-0.23	0.03	-0.13

PlPd07	ProPla06	MAP06	MPH06	MAT06	Expl.Var	Prp.Tot (%)
-0.48	0.55	-0.63	-0.49	0.01	12.94	**36.0**
-0.41	0.09	-0.50	-0.21	-0.51	6.42	**18.0**

In 2006, the variance results of a number of factors quite inferior to that in the previous year; variance explained by the two factors represents ± 54 % (36.0 + 18.0) of total variance.

3.4.4- Results of wine analysis

After musts fermentation initiates, and using the usual techniques of red wines fermentation with prolonged maceration, the following parameters were measured. The results of this analysis ANOVA are in Annex - Wine, Table 1.

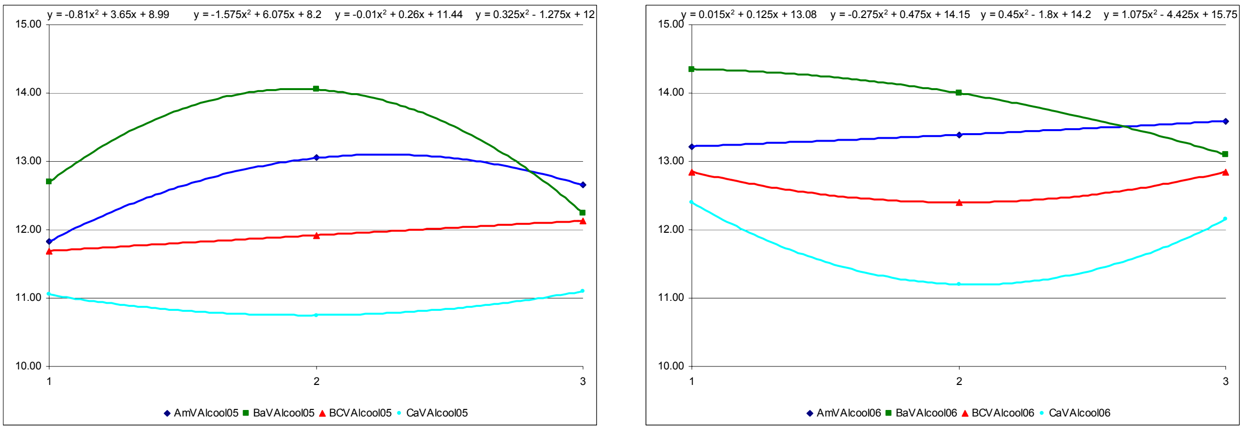
3.4.4.1- Alcohol

The mean values of wine alcoholic content (VAlcool) and its variance analysis according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Tables 1 and 2 to 3. Its spatial and cartographic representation is in Annex - Wine, Figures 1 and 2.

Analysing the data of the estates, installation forms, and stations of each estate we can see that:
- in 2005 (Annex - Wine, Table 2, Figure 1) the values of alcoholic content, measured during microvinification process, to all the estates and installation forms are significantly different (F=6.81, P=0.014 and F=11.79, P=0.006). The highest mean value was obtained in Bateiras groups (± 13.0) and the lowest in Cardanhas (± 10.97). Considering these mean values according to installation forms we have, to terraces and slope vineyards, ± 12.76 and ± 11.44. The group with the highest value comes from the stations group BaG2 (± 14.05) and the lowest from CaG2 (± 10.75).
- in 2006 (Annex - Wine, Table 3, Figure 2) the values of alcoholic content, measured during microvinification process, to all the estates and installation forms are significantly different (F=9.07, P=0.006 and F=16.80, P=0.002). The highest mean value was obtained in Bateiras groups (± 13.82) and the lowest in Cardanhas

(± 11.92). Considering these mean values according to installation forms we have, to terraces and slope vineyards, ± 13.61 and ± 12.31. The group with the highest value comes from the stations group BaG1 (± 14.35) and the lowest from CaG2 (± 11.20).

Graphic 62- Alcohol measured in wines of 2005 and 2006



The mean values of wines probable alcohol, to the three groups, are the following:

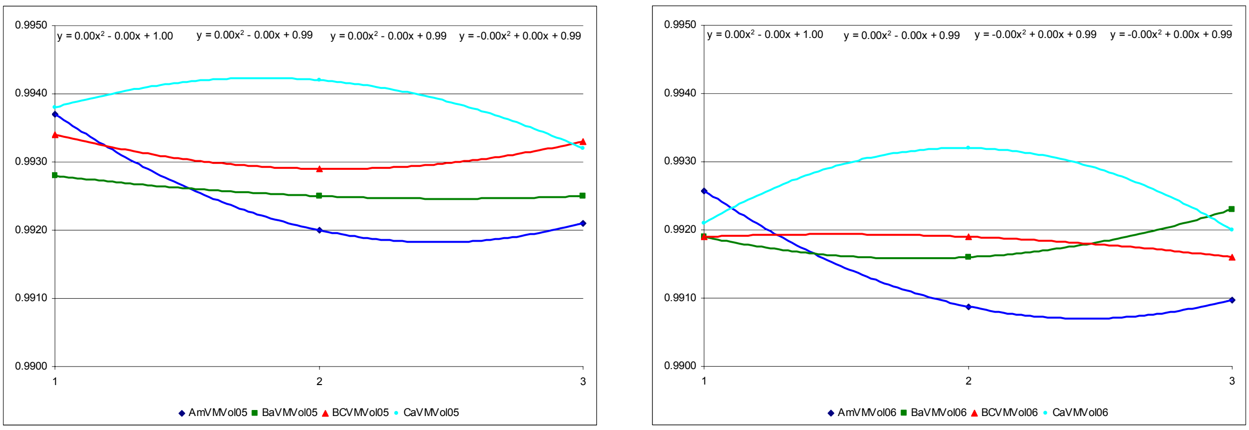
Table 42- Wines probable alcohol

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VAlcool05	11.83	13.05	12.65	12.70	14.05	12.25	11.69	11.92	12.13	11.05	10.75	11.10
VAlcool06	13.22	13.39	13.59	14.35	14.00	13.10	12.85	12.40	12.85	12.40	11.20	12.15

3.4.4.2- *Per* volume mass

The results of wine *per* volume mass (VMVol) according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Table 1 and 4 to 5.

Graphic 63- *Per* volume mass of 2005 and 2006 wines



Analysing the data of the estates, installation forms and stations of each estate, we see that:

- in 2005 (Annex - Wine, Table 4), the values of *per* volume mass measured during the microvinification process to all the estates are not significantly different (F=2.83, P=0.107), but the contrary when compared with installation forms (F=7.63, P=0.020). The highest mean value was obtained in Cardanhas (± 0.9937 g/L) and the lowest in Amendoal and Bateiras (± 0.9926 g/L). Considering the mean values according to installation forms, we have, to terraces and slope vineyards, ± 9926 and ± 9935 g/L. The group with the highest value comes from the stations group CaG2 (± 0.9942) and the lowest from AmG2 (± 0.9920 g/L);

- in 2006 (Annex - Wine, Table 5), the values of *per* volume mass measured during the microvinification process to all the estates are not significantly different (F=1.27, P=0.348), as in installation forms (F=1.36, P=0.270). The highest mean value was obtained in Cardanhas (± 0.9924 g/L) and the lowest in Amendoal and Bateiras (± 0.9914 g/L). Considering the mean values according to installation forms, we have, to terraces and slope vineyards, ± 9917 and ± 9921 g/L. The group with the highest value comes from the stations group CaG2 (± 0.9932) and the lowest from AmG2 (± 0.9906 g/L).

The mean values of wines *per* volume mass, to the three groups, are the following:

Table 43- Wines *per* volume mass in 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VMVol05	0.9937	0.9920	0.9921	0.9928	0.9925	0.9925	0.9934	0.9929	0.9933	0.9938	0.9942	0.9932
VMVol06	0.9926	0.9906	0.9910	0.9919	0.9916	0.9923	0.9919	0.9919	0.9916	0.9921	0.9932	0.9920

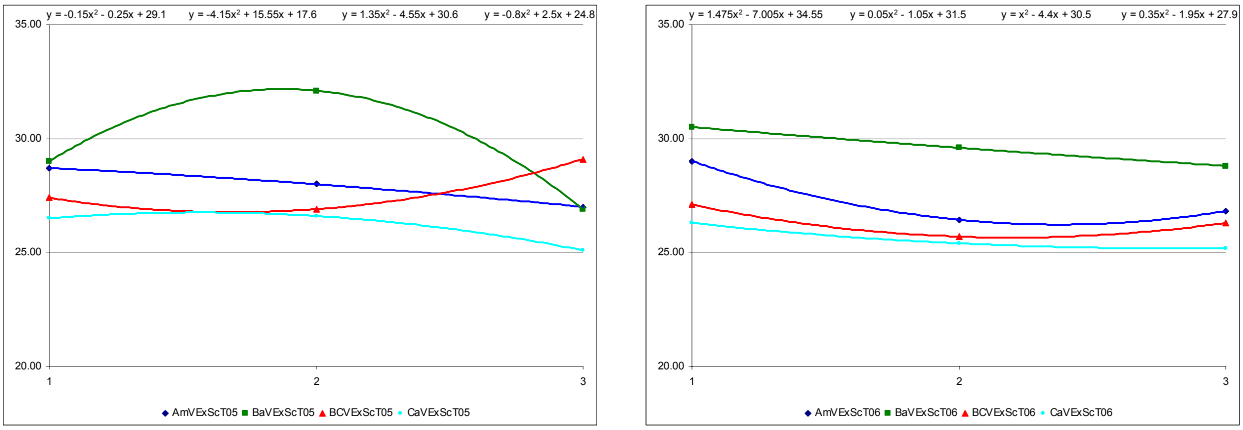
3.4.4.3- Total dry extract

The results of wines total dry extract determination analysis (VExSeT) according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Table 1 and 6 to 7 and its spatial and cartographic representation is in Annex - Wine, Figures 3 and 4. Total dry extract is the sum of dry extract and reducer sugar.

Analysing the data of the estates, installation forms and stations of each estate, it is possible to see that:

- in 2005 (Annex - Wine, Table 6, Figure 3) these data allows concluding that the values of the estates and installation forms are not significantly different (F=2.23, P=0.162 and F=3.17, P=0.105). The highest mean value was obtained in Bateiras groups (± 29.33) and the lowest in Cardanhas (± 26.07). To terraces and slope vineyards, values were of ± 28.62 and ± 26.93. The group with the highest value comes from the stations group BaG2 (± 32.10) and the lowest from CaG2 (± 26.90).
- in 2006 (Annex - Wine, Table 7, Figure 4) these data allows concluding that the values of the estates and installation forms are significantly different (F=10.39, P=0.004 and F=12.66, P=0.005). The highest mean value was obtained in Bateiras groups (± 29.63) and the lowest in Cardanhas (± 25.63). To terraces and slope vineyards, values were of ± 28.53 and ± 26.00. The group with the highest value comes from the stations group BaG1 (± 30.50) and the lowest from CaG3 (± 25.20).

Graphic 64- Total dry extract measured in wines of 2005 and 2006



The mean values of wines total dry extract, to the three groups, are the following:

Table 44- Wines total dry extract.

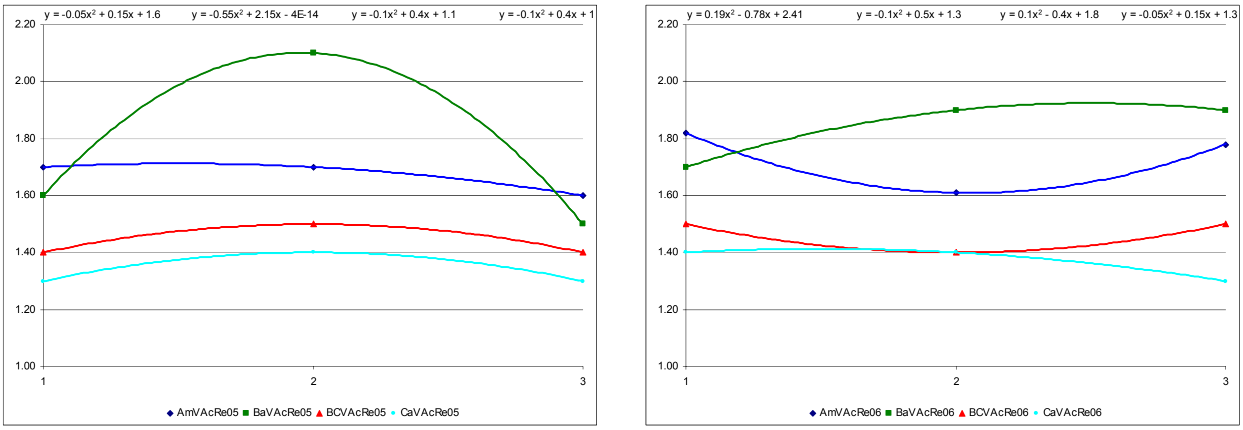
	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VExSeT05	28.70	28.00	27.00	29.00	32.10	26.90	27.40	26.90	29.10	26.50	26.60	25.10
VExSeT06	29.02	26.44	26.81	30.50	29.60	28.80	27.10	25.70	26.30	26.30	25.40	25.20

3.4.4.4- Reducer sugars content

The results of wine reducer sugars analysis (VAcRe) according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Table 1 and 8 to 9 and its spatial and cartographic representation no Annex - Wine, Figures 5 and 6.

Analysing the data of the estates, installation forms and stations of each estate, we can see that:
- in 2005 (Annex - Wine, Table 8, Figure 5), the data of the several estates are not significantly different (F=3.79, P=0.058), contrary when we consider installation forms (F=12.11, P=0.006). The highest mean value was obtained in Bateiras (± 1.73) and the lowest in Cardanhas (± 1.33). The mean values according to installation forms, to terraces and slope vineyards were, ± 1.70 and ± 1.38, respectively. The group with the highest value comes from the stations group BaG2 (± 2.10) and the lowest from CaG1 and CaG3 (± 1.30).
- in 2006 (Annex - Wine, Table 9, Figure 6), the data of the several estates are significantly different (F=11.92, P=0.000), the same happening when installation forms are considered (F=43.35, P=0.000). The highest mean value was obtained in Bateiras (± 1.83) and the lowest in Cardanhas (± 1.37). The mean values according to installation forms, to terraces and slope vineyards were, ± 1.79 and ± 1.42, respectively. The group with the highest value comes from the stations group BaG2 and BaG3 (± 1.90) and the lowest from CaG3 (± 1.30).

Graphic 64- Sugar mean content, measured in wines of 2005 and 2006



The mean values of wines reducer sugars, to the three groups, are the following:

Table 45- Wines reducer sugars.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VAcRe05	1.70	1.70	1.60	1.60	2.10	1.50	1.40	1.50	1.40	1.30	1.40	1.30
VAcRe06	1.82	1.61	1.78	1.70	1.90	1.90	1.50	1.40	1.50	1.40	1.40	1.30

Comparing the reducer sugars of the different wines, we can see that its value is lower in slope vineyards. Inside of each estate, values are quite similar, except in Bateiras, in 2005, where the value of BaG2 is highly superior to the other two groups.

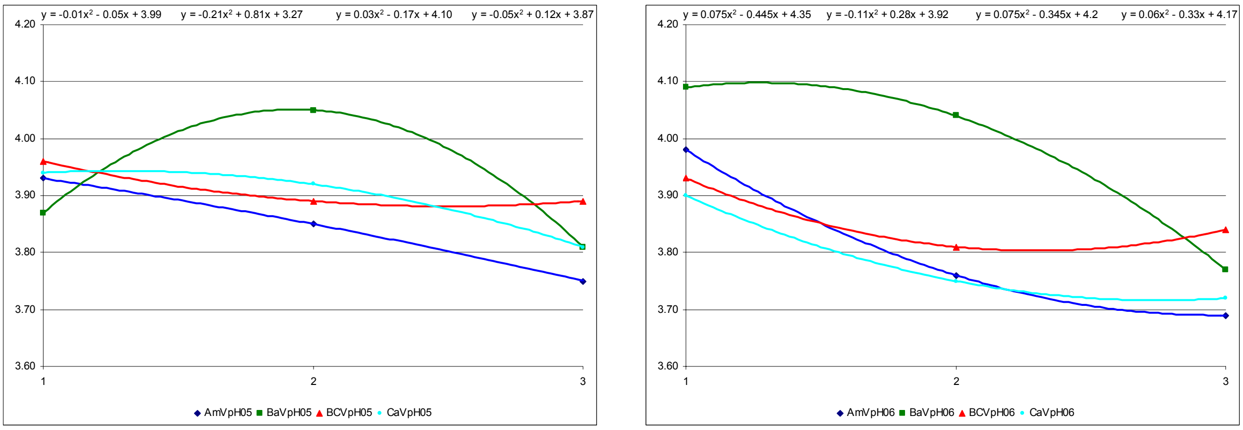
3.4.4.5- pH

The results of the analysis of wines pH value (VpH) according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wines, Table 1 and 10 to 11 and its spatial and cartographic representation no Annex - Wine, Figures 7 and 8.

Analysing the data of the estates, installation forms and stations of each estate, we can see that:

- in 2005 (Annex - Wine, Table 10, Figure 7) these values were not significantly different (F=0.41, P=0.749 and F=0.28, P=0.611). The highest mean value was obtained in Bico dos Casais groups (± 3.91) and the lowest in Amendoal (± 3.84). The mean value according to installation forms is, to terraces, of ± 3.88 and, to slope vineyards, of ± 3.90. The group with the highest value was BaG2 (± 4.05) and the lowest was AmG3 (± 3.75);
- in 2006 (Annex - Wine, Table 11, Figure 8) these values were not significantly different (F=1.14, P=0.390 and F=0.69, P=0.427). The highest mean value was obtained in Bateiras (± 3.97) and the lowest in Cardanhas (± 3.79). The mean value according to installation forms is, to terraces, of ± 3.88 and, to slope vineyards, of ± 3.83. The group with the highest value was BaG1 (± 4.09) and the lowest was AmG3 (± 3.69).

Graphic 66- pH measured in wines of 2005 and 2006



The mean values of wines pH, to the three groups, are the following:

Table 46- Wines pH.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VpH05	3.93	3.85	3.75	3.87	4.05	3.81	3.96	3.89	3.89	3.94	3.92	3.81
VpH06	3.98	3.76	3.69	4.09	4.04	3.77	3.93	3.81	3.84	3.90	3.75	3.72

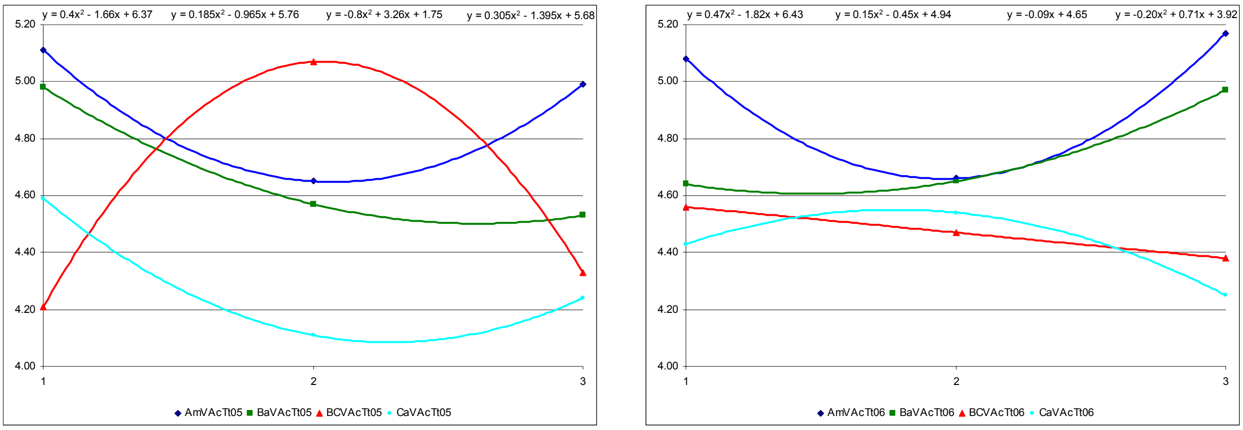
Comparing pH of different wines, we can see that only in Amendoal there is a significant decrease from base to the top of the hill. In Cardanhas there is also a decrease from group 1 to group 3.

3.4.4.6- Total acidity

The results of total acidity analysis (fix acidity + volatile acidity) of wines (VAcTt) according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Tables 1 and 12 to 13; its spatial and cartographic representation is in Annex - Wine, Figures 9 and 10.

Analysing the data of the estates, installation forms and stations of each estate we can see that:
- in 2005 (Annex - Wine, Table 12, Figure 9) values were not significantly different, the same happening to installation forms (F=1.95, P=0.199 and F=4.59, P=0.058). The highest mean value was obtained in Amendoal groups (± 4.92) and the lowest in Cardanhas (± 4.31). The mean values according to installation forms, to terraces and slope vineyards were of ± 4.81 and ± 4.43, respectively. The group with the highest value was AmG1 (± 5.11) and the lowest was CaG2 (± 4.11);
- in 2006 (Annex - Wine, Table 13, Figure 10) values were significantly different, the same happening to installation forms (F=5.90, P=0.020 and F=15.18, P=0.003). The highest mean value was obtained in Amendoal groups (± 4.97) and the lowest in Cardanhas (± 4.41). The mean values according to installation forms, to terraces and slope vineyards were of ± 4.86 and ± 4.44, respectively. The group with the highest value was AmG1 (± 5.17) and the lowest was CaG3 (± 4.25).

Graphic 67- Total acidity, measured in wines of 2005 and 2006



The mean values of wines total acidity, to the three groups, are the following:

Table 47- Wines total acidity.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VAcTt05	5.11	4.65	4.99	4.98	4.57	4.53	4.21	5.07	4.33	4.59	4.11	4.24
VAcTt06	5.08	4.66	5.17	4.64	4.65	4.97	4.56	4.47	4.38	4.43	4.54	4.25

Comparing both years total acidity, only Amendoal presents a similar variance.

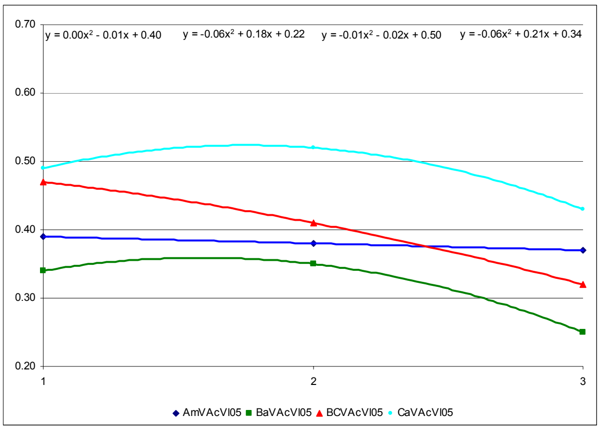
3.4.4.7- Volatile acidity

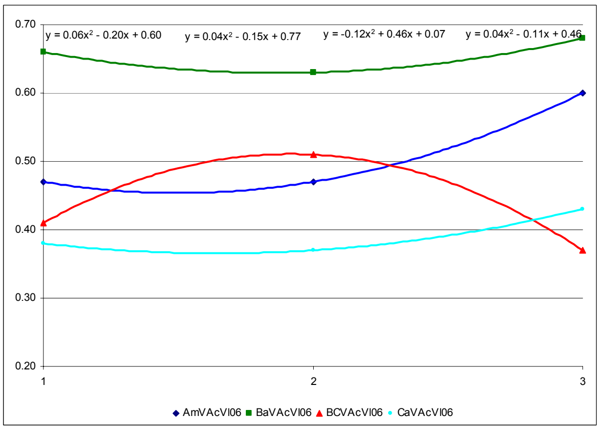
The results of wines volatile acidity analysis (VAcVl) according to the estates, installation forms and stations groups of each estate, are presented no Annex - Wine, Tables 1and 14 to 15 and its spatial and cartographic representation in Annex - Wine, Figures 11 and 12.

Analysing data of the estates, installation forms and stations of each estate, it is possible to see that:

- in 2005 (Annex - Wine, Table 14, Figure 11), values were significantly different (F=5.17, P=0.028 and F=6.85, P=0.026). The highest mean value was obtained in Cardanhas (± 0.48) and the lowest in Bateiras (± 0.31). Mean values according to installation forms are, to terraces ± 0.35 and to slope vineyards ± 0.44. The group with the highest value was CaG2 (± 0.48) and the lowest was BaG3 (± 0.25);
- in 2006 (Annex - Wine, Table 15, Figure 12), values were significantly different (F=13.12, P=0.002 and F=15.59, P=0.003). The highest mean value was obtained in Bateiras (± 0.48) and the lowest in Cardanhas (± 0.39). Mean values according to installation forms are, to terraces ± 0.59 and to slope vineyards ± 0.41. The group with the highest value was BaG3 (± 0.68) and the lowest was BCG3 and CaG2 (± 0.37).

Graphic 68- Volatile acidity, measured in wines of 2005 and 2006





The values for wines volatile acidity, to the three groups, are the following:

Table 48- Wines volatile acidity.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VAcVI05	0.39	0.38	0.37	0.34	0.35	0.25	0.47	0.41	0.32	0.49	0.52	0.43
VAcVI06	0.47	0.47	0.60	0.66	0.63	0.68	0.41	0.51	0.37	0.38	0.37	0.43

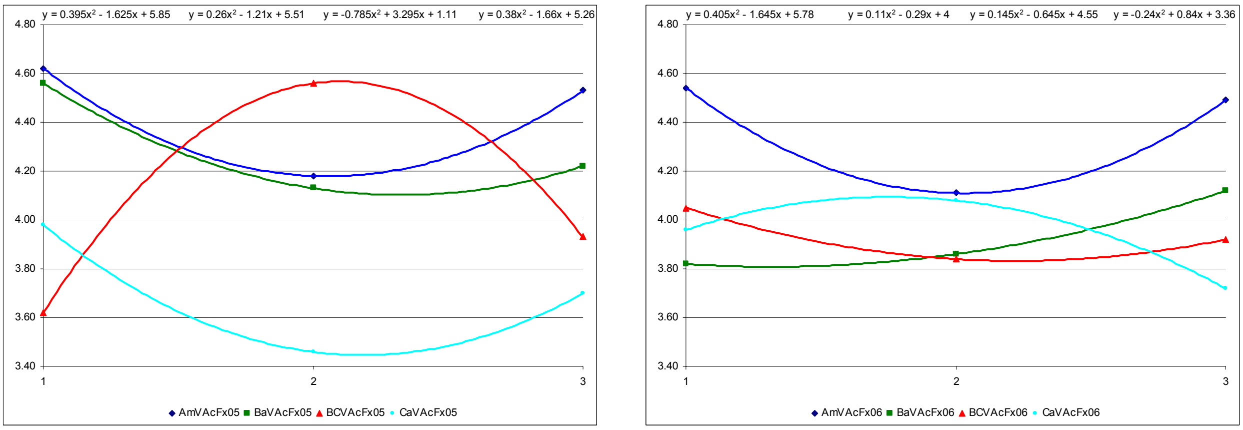
Comparing these, it is possible to see important differences between values measured in Bateiras and Cardanhas.

3.4.4.8- Fix acidity

The results of wines fix acidity analysis (VAcFx) according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Tables 1 and 16 to 17; its spatial and cartographic representation is in Annex - Wine, Figures 13 and 14.

Analysing the data of the estates, installation forms and stations of each estate, it is possible to see that:
- in 2005 (Annex - Wine, Table 16, Figure 13), values are not significantly different to the several estates ($F=3.08$, $P=0.090$), but not to installation forms ($F=7.51$, $P=0.021$). The highest mean value was obtained in Amendoal groups (± 4.44) and the lowest in Cardanhas (± 3.71). Mean values according to installation forms are of ± 4.37 to terraces and ± 3.88 to slope vineyards. The group with the highest value was AmG1 (± 4.62) and the lowest was CaG2 (± 3.46);
- in 2006 (Annex - Wine, Table 17, Figure 14), values are significantly different to the several estates ($F=4.80$, $P=0.034$), but not to installation forms ($F=2.83$, $P=0.123$). The highest mean value was obtained in Amendoal (± 4.38) and the lowest in Cardanhas (± 3.92). Mean values according to installation forms are of ± 4.16 to terraces and ± 3.93 to slope vineyards. The group with the highest value was AmG1 (± 4.54) and the lowest was CaG3 (± 3.72).

Graphic 69- Fix acidity, measured in wines of 2005 and 2006



The values for wines fix acidity, to the three groups, are the following:

Table 49- Wines fix acidity.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VAcFx05	4.62	4.18	4.53	4.56	4.13	4.22	3.62	4.56	3.93	3.98	3.46	3.70
VAcFx06	4.54	4.11	4.49	3.82	3.86	4.12	4.05	3.84	3.92	3.96	4.08	3.72

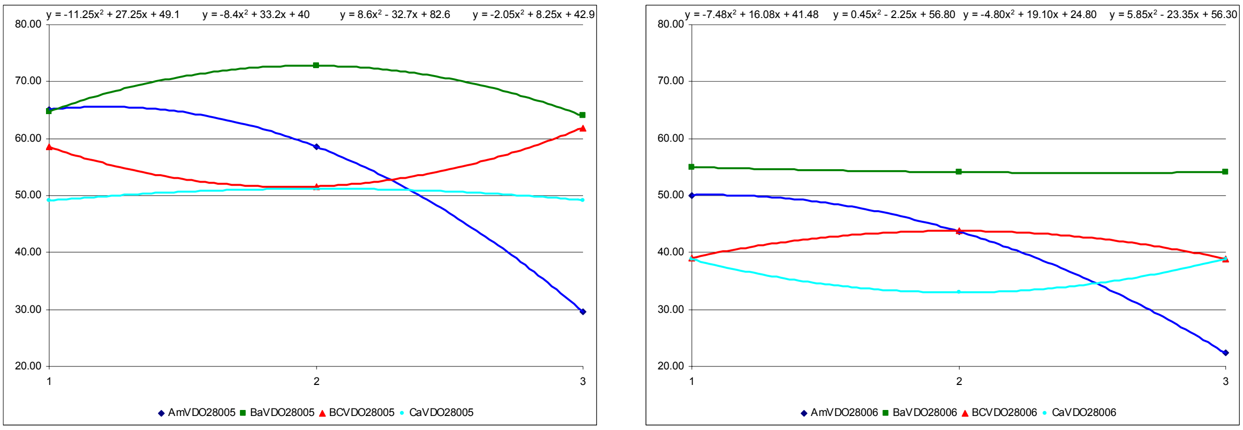
Comparing both years, we can see that only in Amendoal this parameter has a similar behaviour.

3.4.4.9- Total phenols

The results of wines total phenols analysis (VFenTt) according to the estates, installation forms and stations groups of each estate, are presented no Annex - Wine, Tables 1 and 18 to 19; its spatial and cartographic representation is in Annex - Wine, Figures 15 and 16.

Analysing the data of the estates, installation forms and stations of each estate, it is possible to see that:
- in 2005 (Annex - Wine, Table 18, Figure 15) The mean values are not significantly different to estates and installation forms (F=1.84, P=0.218 and F=0.72, P=0.416). The highest mean value was obtained in Bateiras (± 67.20) and the lowest in Cardanhas (± 49.83). The mean values according to installation forms, terraces and slope vineyards, are of ± 59.15 and ± 53.58. The group with the highest value was BaG2 (± 72.80) and the lowest was AmG3 (± 29.60);
- in 2006 (Annex - Wine, Table 19, Figure 16) The mean values are not significantly different to estates and installation forms (F=3.32, P=0.078 and F=2.15, P=0.174). The highest mean value was obtained in Bateiras (± 54.40) and the lowest in Cardanhas (± 36.90). The mean values according to installation forms, terraces and slope vineyards, are of ± 46.55 and ± 38.75. The group with the highest value was BaG1 (± 55.00) and the lowest was AmG3 (± 22.34).

Graphic 70- Total phenols, measured in wines of 2005 and 2006



The values for wines total phenols, to the three groups, are the following:

Table 50- Wines total phenols.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VFenTt05	65.1	58.6	29.6	64.8	72.8	64.0	58.5	51.6	61.9	49.1	51.2	49.2
VFenTt06	50.07	43.69	22.34	55.0	54.1	54.1	39.1	43.8	38.9	38.8	33.0	38.9

Comparing these data, we can see that terraces present similar variations in both years, although in 2006, values were lower.

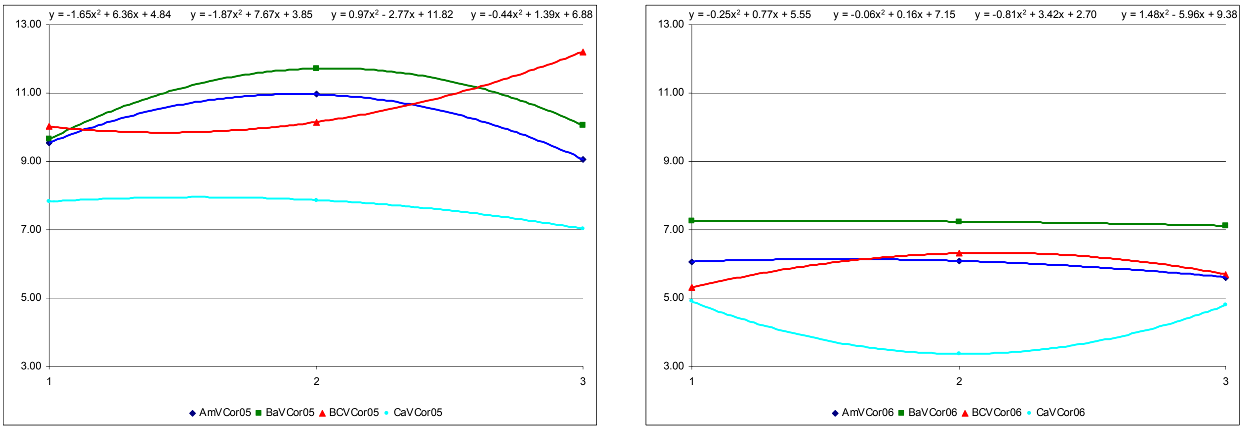
3.4.4.10- Colour intensity

The results of wines colour intensity analysis (VCor) according to the estates, installation forms and stations groups of each estate are presented in Annex - Wine, Tables 1 and 20 to 21; its spatial and cartographic representation is in Annex - Wine, Figures 17 and 18.

Analysing the data of the estates, installation forms and stations of each estate, it is possible to see that:

- in 2005 (Annex - Wine, Table 20, Figure 17), colour mean intensity was significantly different when considering the estates groups, but not the installation forms (F=6.51, P=0.015 and F=1.22, P=0.296). The highest mean value was obtained in Bico dos Casais groups (± 10.79) and the lowest in Cardanhas (± 7.57). Considering the mean values according to installation forms we have, to terraces and slope vineyards ± 10.17 and ± 9.18. The group with the highest value was BCG3 (± 12.21) and the lowest was CaG1 (± 7.82) respectively;
- in 2006 (Annex - Wine, Table 21, Figure 18), colour mean intensity was significantly different when considering estates and installation forms (F=15.37, P=0.001 and F=8.88, P=0.013). The highest mean value was obtained in Bateiras (± 7.20) and the lowest in Cardanhas (± 4.35). Considering the mean values according to installation forms we have, to terraces and slope vineyards ± 6.56 and ± 5.06. The group with the highest value was BaG1 (± 7.25) and the lowest was CaG2 (± 3.37), respectively.

Graphic 71- Colour intensity, measured in wines of 2005 and 2006



The values for wines colour intensity, to the three groups, are the following:

Table 51- Wines colour intensity.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VCor05	9.55	10.96	9.07	9.65	11.72	10.06	10.02	10.15	12.21	7.82	7.87	7.03
VCor06	6.07	6.09	5.61	7.25	7.24	7.12	5.31	6.31	5.70	4.90	3.37	4.79

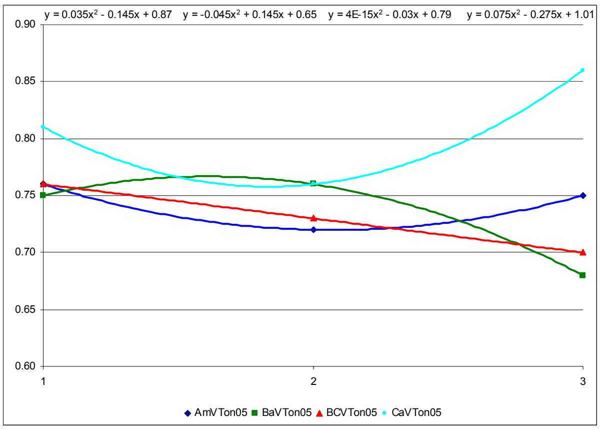
Comparing these data, the most relevant aspect are the lower values obtained in 2006, with Cardanhas with the lowest value.

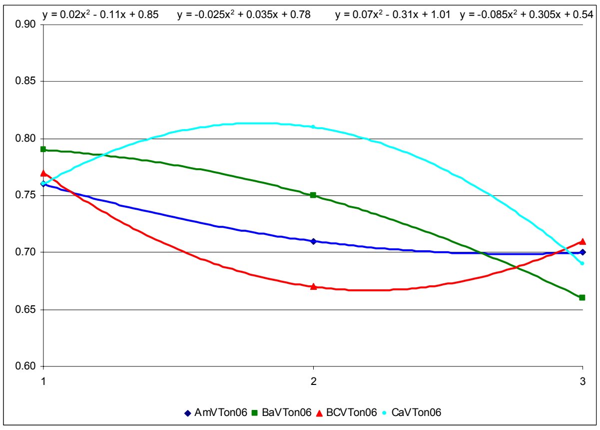
3.4.4.11- Tonality

The results of wines tonality analysis (VTon) according to the estates, installation forms and stations groups of each estate are presented in Annex - Wine, Tables 1 and 22 to 23; its spatial and cartographic representation is in Annex - Wine, Figures 19 and 20.

Analysing the data of the estates, installation forms and stations of each estate, it is possible to see that:
- in 2005 (Annex - Wine, Table 22, Figure 19), mean values, when comparing estates and installation forms, are not significantly different (F=3.07, P=0.091 and F=1.56, P=0.240). The highest mean value was obtained in Cardanhas groups (± 0.81) and the lowest in Bateiras and Bico dos Casais (± 0.73). Considering these values, according to installation forms we have, to terraces and slope vineyards ± 0.74 and ± 0.77. The group with the highest value was CaG3 (± 0.86) and the lowest was BaG3 (± 0.68).
- in 2006 (Annex - Wine, Table 23, Figure 20), mean values, when comparing estates and installation forms, are not significantly different (F=0.26, P=0.850 and F=0.05, P=0.823). The highest mean value was obtained in Cardanhas groups (± 0.75) and the lowest in Bico dos Casais (± 0.72). Considering these values, according to installation forms we have, to terraces and slope vineyards ± 0.73 and ± 0.74. The group with the highest value was CaG2 (± 0.81) and the lowest was BaG3 (± 0.66).

Graphic 72- Tonality, measured in wines of 2005 and 2006





The values for wines tonality, to the three groups, are the following:

Table 52- Wines tonality, in 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VTon05	0.76	0.72	0.75	0.75	0.76	0.68	0.76	0.73	0.70	0.81	0.76	0.86
VTon06	0.76	0.71	0.70	0.79	0.75	0.66	0.77	0.67	0.71	0.76	0.81	0.69

Comparing these data, it is not possible to notice relevant differences.

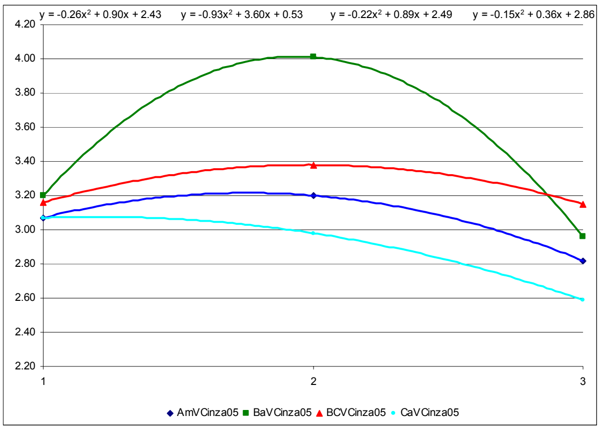
3.4.4.12- Ashes

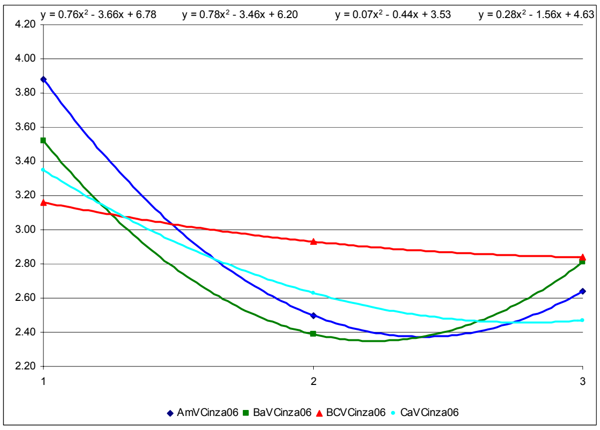
The results of wines ashes content determination (VCinza) according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Tables 1 and 24 to 25; its spatial and cartographic representation is in Annex - Wine, Figures 21 and 22.

Analysing the data of the estates, installation forms and stations of each estate, it is possible to see that:

- in 2005 (Annex - Wine, Table 24, Figure 21), this component mean values were not significantly different (F=1.42, P=0.306 and F=0.59, P=0.460). The highest mean value was obtained in Bateiras groups (± 3.39) and the lowest in Cardanhas (± 2.88). The mean values according to installation forms were, to terraces and slope vineyards of ± 3.21 and ± 3.06. The group with the highest value was BaG2 (± 4.01) and the lowest was CaG3 (± 2.59);
- in 2006 (Annex - Wine, Table 25, Figure 22), this component mean values were not significantly different (F=0.07, P=0.972 and F=0.05, P=0.835). The highest mean value was obtained in Amendoal (± 3.01) and the lowest in Cardanhas (± 2.82). The mean values according to installation forms were, to terraces and slope vineyards of ± 2.96 and ± 2.90. The group with the highest value was AmG1 (± 3.88) and the lowest was CaG3 (± 2.47).

Graphic 73- Ashes content, measured in wines of 2005 and 2006





The values for wines ashes content, to the three groups, are the following:

Table 53- Ashes content in wines of 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VCinza05	3.07	3.20	2.82	3.20	4.01	2.96	3.16	3.38	3.15	3.07	2.98	2.59
VCinza06	3.88	2.50	2.64	3.52	2.39	2.81	3.16	2.93	2.84	3.35	2.63	2.47

Comparing these data, it is not possible to notice relevant differences.

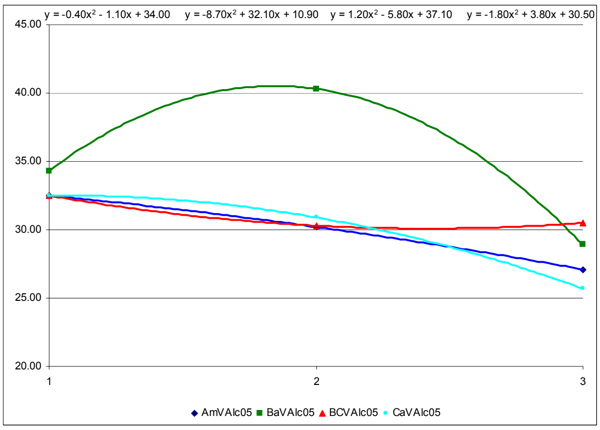
3.4.4.13- Ashes alkalinity

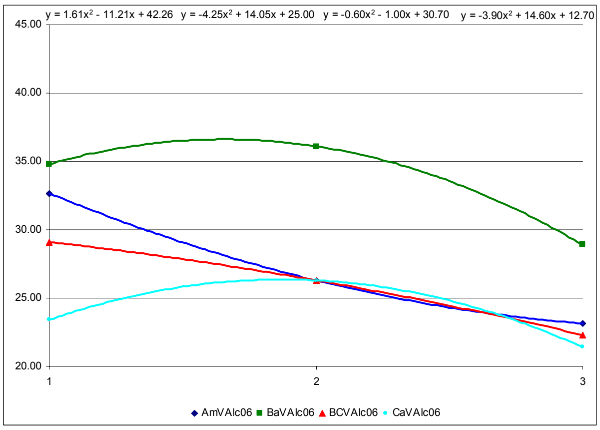
The results of wines ashes alkalinity determination (VAlc) according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Tables 1 and 26 to 27; its spatial and cartographic representation is in Annex - Wine, Figures 23 and 24.

Analysing the data of the estates, installation forms and stations of each estate, it is possible to see that:

- in 2005 (Annex - Wine, Table 26, Figure 23), mean values were not significantly different when comparing estates and installation forms (F=1.09, P=0.407 and F=0.70, P=0.424). The highest mean value was obtained in Bateiras (± 34.50) and the lowest in Cardanhas (± 29.70). Considering these mean values, according to installation forms we have, to terraces and slope vineyards ± 32.22 and ± 30.40. The group with the highest value was BaG2 (± 40.30) and the lowest was CaG3 (± 25.70);
- in 2006 (Annex - Wine, Table 27, Figure 24), mean values were not significantly different when comparing estates, but are significantly different when comparing installation forms (F=3.59, P=0.066 and F=5.33, P=0.044). The highest mean value was obtained in Bateiras (± 33.27) and the lowest in Cardanhas (± 23.70). Considering these mean values, according to installation forms we have, to terraces and slope vineyards ± 30.32 and ± 24.80. The group with the highest value was BaG2 (± 40.30) and the lowest was CaG3 (± 25.70).

Graphic 74- Alkalinity measured in wines of 2005 and 2006





The values for wines ashes alkalinity, to the three groups, are the following:

Table 54- Ashes alkalinity in wines of 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VAlc05	32.5	30.2	27.1	34.3	40.3	28.9	32.5	30.3	30.5	32.5	30.9	25.7
VAlc06	32.7	26.3	23.2	34.8	36.1	28.9	29.1	26.3	22.3	23.4	26.3	21.4

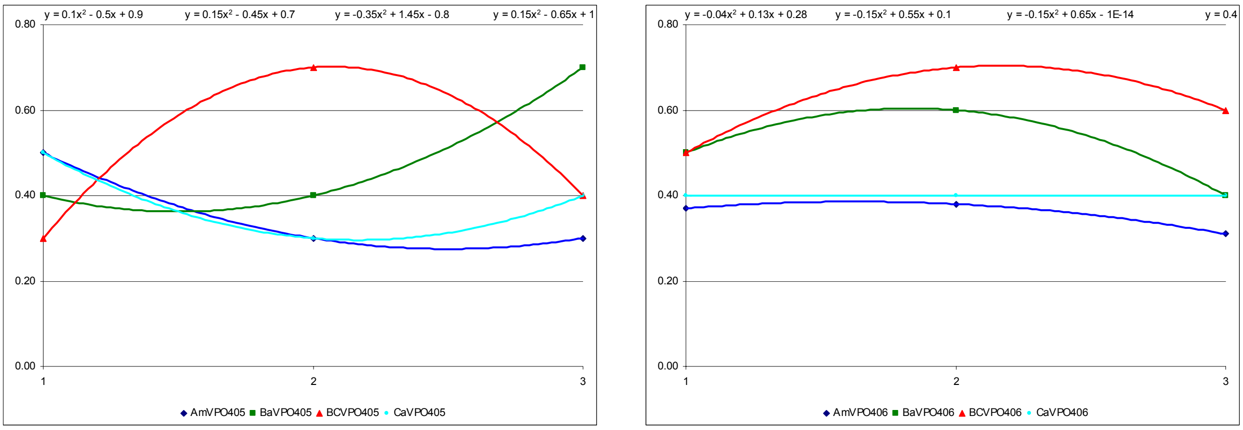
Comparing both years, we see that Bateiras have much higher values.

3.4.4.14- Inorganic phosphates

The results of wines ashes inorganic phosphates determination (VPO_4) according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Tables 1 and 28 to 29 and its spatial and cartographic representation is in Annex - Wine, Figures 25 and 26.

Analysing the data of the estates, installation forms and stations of each estate, it is possible to see that:
- in 2005 (Annex - Wine, Table 28, Figure 25), mean values of the estates are not significantly different ($F=0.46$, $P=0.718$). It is not possible to compare installation forms. The highest mean value was obtained in Bateiras groups (± 0.50) and the lowest in Amendoal (± 0.37). The groups with the highest values were BCG2 and BaG3 (± 0.70) and the lower were AmG2, AmG3, BCG1 and CaG2 (± 0.30);
- in 2006 (Annex - Wine, Table 29, Figure 26), mean values are significantly different when comparing estates, but not when comparing installation forms ($F=6.74$, $P=0.014$ and $F=1.19$, $P=0.300$). The highest mean value was obtained in Bico dos Casais (± 0.60) and the lowest in Amendoal (± 0.35). Considering these mean values according to installation forms we have, to terraces and slope vineyards ± 0.43 and ± 0.50. The group with the highest value was BCG2 (± 0.70) and the lowest was AmG3 (± 0.31).

Graphic 75- Inorganic phosphates (PO_4), measured in wines of 2005 and 2006



The values for wines ashes inorganic phosphates, to the three groups, are the following:

Table 55- Ashes inorganic phosphates in wines of 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VPO_405	0.5	0.3	0.3	0.4	0.4	0.7	0.3	0.7	0.4	0.5	0.3	0.4
VPO_406	0.4	0.4	0.3	0.5	0.6	0.4	0.5	0.7	0.6	0.4	0.4	0.4

Comparing both years, we see that Amendoal and Cardanhas have, in a general way, lower values.

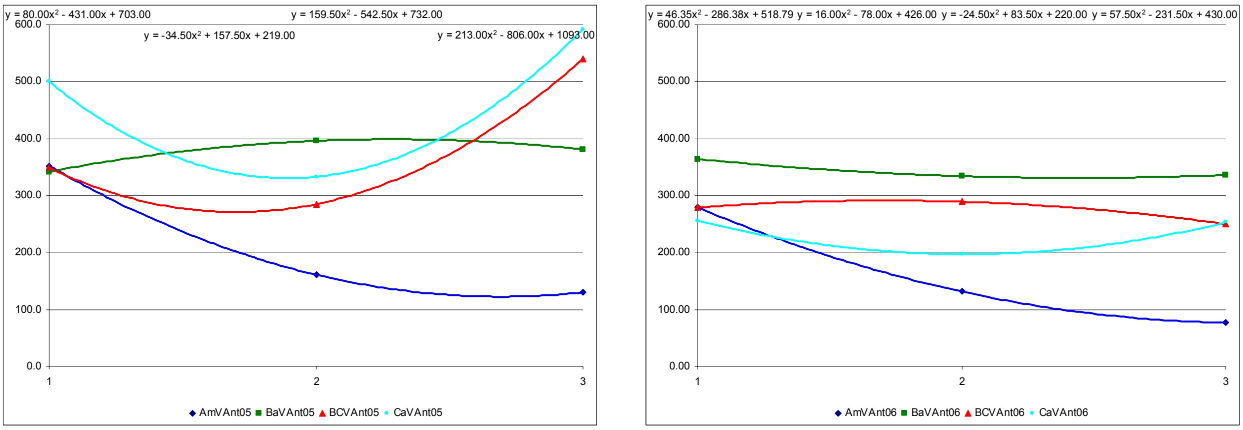
3.4.4.15- Antocians

The results of wines antocians determination (VAnt) according to the estates, installation forms and stations groups of each estate are presented in Annex - Wine, Tables 1 and 30 to 31; its spatial and cartographic representation is in Annex - Wine, Figures 27 and 28.

Analysing the data of the estates, installation forms and stations of each estate, it is possible to see that:

- in 2005 (Annex - Wine, Table 30, Figure 27), antocians mean data are not significantly different when comparing estates and installation forms (F=2.84, P=0.106 and F=3.93, P=0.075). The highest mean value was obtained in Cardanhas groups (475.00) and the lowest in Amendoal (214.33). Considering these mean values, according to installation forms we have, to terraces and slope vineyards ± 293.67 and ± 433.17. The group with the highest value was CaG3 (± 592.00) and the lowest was AmG3 (± 130.00);
- in 2006 (Annex - Wine, Table 31, Figure 28), antocians mean data are significantly different when comparing estates, but not when comparing installation forms (F=5.45, P=0.025 and F=0.00, P=0.992). The highest mean value was obtained in Bateiras (344.67) and the lowest in Amendoal (162.33). Considering these mean values, according to installation forms we have, to terraces and slope vineyards ± 253.60 and ± 254.00. The group with the highest value was BaG1 (± 364.00) and the lowest was AmG3 (± 76.80).

Graphic 76- Antocians measured in wines of 2005 and 2006



The values for wines antocians, to the three groups, are the following:

Table 56- Antocians in wines of 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VAnt05	352	161	130	342	396	381	349	285	540	500	333	592
VAnt06	279	131	77	364	334	336	279	289	250	256	197	253

Comparing both years' data, it is not possible to notice significant variations.

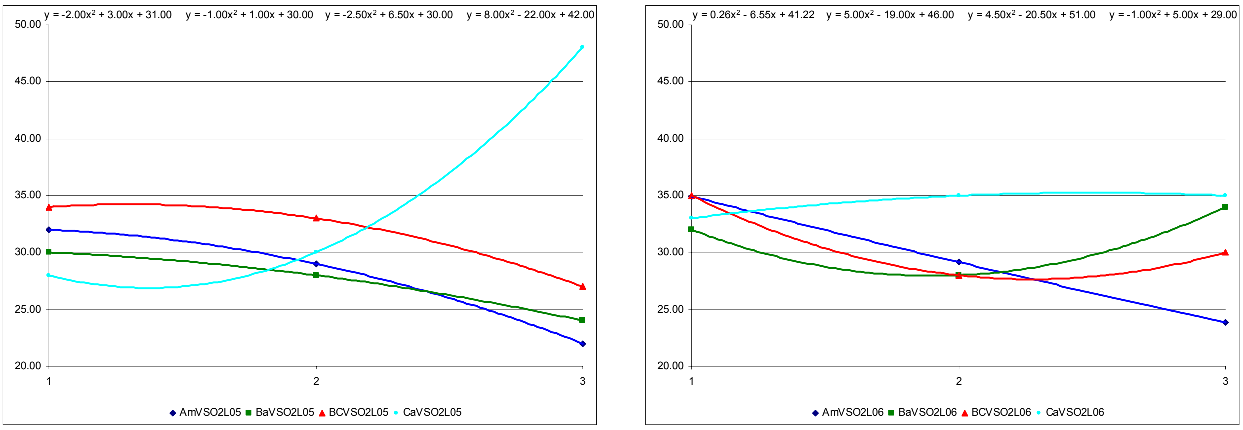
3.4.4.16- Sulphurous anhydride

The variance analysis to the first (VSO_2L) and second (VSO_2T) quantities of sulphurous anhydride applied to wine (partial and total sulphurous) according to the estates, installation forms and stations groups of each estate, are presented in Annex - Mosto, Tables 1 and 32 to 35; its spatial and cartographic representation is in Annex - Mosto, Figures 29 to 32.

In 2005, in the first application (Annex - Wine, Table 32, Figure 29), the used quantities were not significantly different in the groups of the several estates, having as a reference the installation forms (F=0.98, P=0.448 and F=2.78, P=0.126). The highest mean value was applied in Cardanhas groups (± 35.33) and the lowest in Bateiras (± 27.33). Considering these values, according to installation forms we have, to terraces and slope vineyards ± 27.50 and ± 33.33, respectively. The group with higher application of SO_2 was CaG3 (± 48.00) and the lower was AmG3 (± 22.00).

In 2006, in the first application (Annex - Wine, Table 33, Figure 30), the used quantities were not significantly different to estates and installation forms (F=0.96, P=0.456 and F=1.25, P=0.289). The highest mean value was applied in Cardanhas groups (± 34.33) and the lowest in Amendoal (± 29.32). Considering these values, according to installation forms we have, to terraces and slope vineyards ± 30.33 and ± 32.67, respectively. The groups with higher application of SO_2 were CaG2 and CaG3 (± 35.00) and the lower was AmG3 (± 23.80).

Graphic 77- Partial sulphurous anhydride (1st application) in 2005 and 2006



The mean quantities of applied sulphurous anhydride, before wines fermentation starts, to the three groups, are as followed:

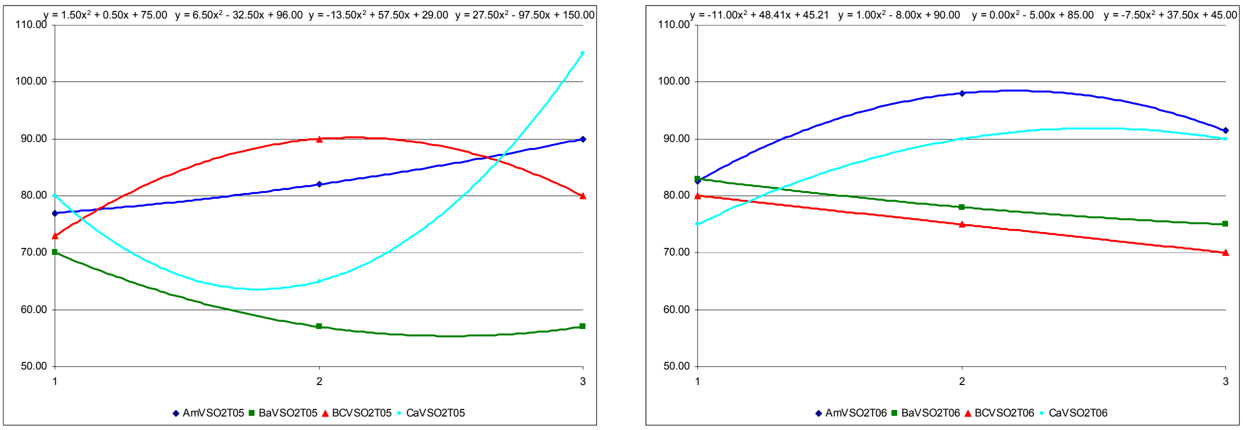
Table 57- Applied sulphurous anhydride (1st application) in wines of 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VSO_2L05	32	29	22	30	28	24	34	33	27	28	30	48
VSO_2L06	35	29	24	32	28	34	35	28	30	33	35	35

In 2005, in the second application (Annex - Wine, Table 34, Figure 31), the quantities were not significantly different between estates and installation forms ($F=2.32$, $P=0.151$ and $F=1.60$, $P=0.234$). The highest mean value was applied in Cardanhas groups (± 83.33) and the lowest in Bateiras (± 61.33). To installation forms values were, to terraces of ± 72.17 and to slope vineyards of ± 82.17. The stations group with higher application was CaG3 (± 105.00) and the lower were BaG2 and BaG3 (± 57.00).

In 2006, in the second application (Annex - Wine, Table 35, Figure 32), the quantities were not significantly different between estates and installation forms ($F=3.28$, $P=0.078$ and $F=0.91$, $P=0.362$). The highest mean value was obtained in Amendoal (± 90.70) and the lowest in Bico dos Casais (± 75.00). To installation forms values were, to terraces of ± 84.68 and to slope vineyards of ± 80.00. The stations group with higher application was AmG2 (± 98.03) and the lower was BaG3 (± 70.00).

Graphic 78- Total sulphurous anhydride (2nd application) in 2005 and 2006



The mean quantities of sulphurous anhydride applied after wines fermentation, to the three groups, are as followed:

Table 58- Applied sulphurous anhydride (2nd application) in wines of 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
VSO_2T05	77	82	90	70	57	57	73	90	80	80	65	105
VSO_2T06	83	98	91	83	78	75	80	75	70	75	90	90

Considering the 2005 wines analysis data, their correlations (Annex - Final results, Table 3), relatively to musts data are as followed:

Table 59- Wine analysis data correlations, relatively to musts data (2005 data)

	MAP05	MpH05	MAT05
VAlcool05	0,982**	-0.257	0.557
VMVol05	-0,783**	0.508	-0.511
VAcRe05	0,897**	-0.083	0,587*
VExSeT05	0,766**	0.102	0.345
VpH05	0.102	0,597*	-0.189
VAcVl05	-0,690*	0,685*	-0,651*
VAcFx05	0,577*	-0.279	0.446
VAcTt05	0.460	-0.126	0.323
VFenTt05	0.414	-0.057	0.266
VCor05	0,676*	0.093	0.088
VTon05	-0.451	0.157	-0.170
VCinza05	0,639*	0.307	0.108
VAlc05	0.505	0.280	0.188
VPO_405	0.007	-0.250	0.155
VAnt05	-0.414	0.048	-0.122
VSO_2L05	-0.458	0.079	-0.304
VSO_2T05	-0.393	0.133	-0.425

* Correlations are significant to levels 0.05
** Correlations are significant to levels 0.01

As we can see in this table, several wine parameters are significantly correlated with musts probable alcohol but, to their pH, only wines pH and volatile acidity present a significant correlation and, to musts total acidity, only wines reducer sugars and volatile acidity have significant correlations.

Considering the high number of measured parameters in wines chemical analysis, a factorial analysis was done in order to determine "new variants" (factors), that allow explaining the determined variance Considering two factors, their "loadings" are presented in the following table.

Table 60- Factors loadings. Extraction method: main components. (Loadings >.70) (2005).

	Factor 1	Factor 2
VAlcool05	0.912	0.198
VMVol05	-0.545	-0.664
VAcRe05	0.879	-0.039
VExSeT05	0.905	-0.327
VpH05	0.401	-0.870
VAcVl05	-0.613	-0.490
VAcFx05	0.527	0.616
VAcTt05	0.425	0.554
VO28005	0.625	-0.498
VCor05	0.838	0.000
VTon05	-0.560	-0.352
VCinza05	0.839	-0.411
VAlc05	0.711	-0.620
VPO$_4$05	0.120	0.233
VAnt05	-0.270	-0.551
Expl Var	6.419	3.554
Prp.Tot (%)	42.80	23.70

As we can see in the table, factor 1 explains ± 43 % of the determined variance and factor 2 ± 24 %, that is to say, ± 67 % of total.

From factor 1 "loadings" analysis, it is possible to see that the wine parameters with more influence in its variance are alcohol, reducer sugars, total dry extract, colour, ashes content, and alkalinity.

Considering the parameters used to characterize the wines, a group analysis was made ("clusters"), in which three groups were defined, allowing to notice the affinity between estates groups; the results are present in the following table.

Table 61- Results of groups analysis of wines variants (2005)

Case	Cluster	Distance
AmG1	1	1.382
AmG2	3	5.329
AmG3	3	5.329
BaG1	1	1.885
BaG2	1	12.506
BaG3	1	8.281
BCG1	1	0.771
BCG2	1	16.020
BCG3	2	2.613
CaG1	2	11.082
CaG2	1	4.662
CaG3	2	12.111

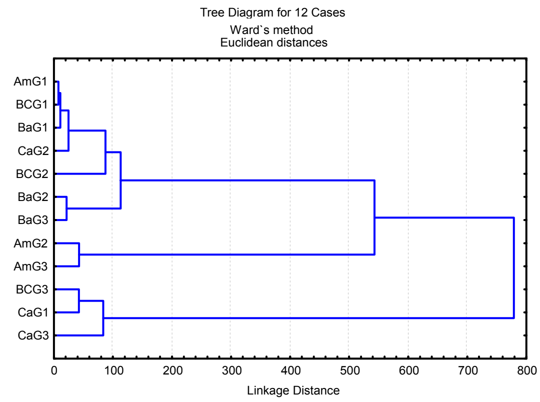


Table 62- Mean values of each “cluster” variants (2005)

	VAlcool05	VMVol05	VAcRe05	VExSeT05	VpH05	VAcVl05	VAcFx05	VAcTt05
Cluster 1	12.17	0.9930	1.58	28.15	3.92	0.39	4.09	4.58
Cluster 2	11.43	0.9934	1.33	26.90	3.88	0.41	3.87	4.39
Cluster 3	12.85	0.9920	1.65	27.50	3.80	0.38	4.36	4.82

	VDO28005	VCor05	VTon05	VCinza05	VAlc205	VPO_405	VAnt05
Cluster 1	60.48	9.91	0.74	3.28	32.87	0.47	347.67
Cluster 2	53.40	9.02	0.79	2.94	29.57	0.43	544.00
Cluster 3	44.10	10.02	0.73	3.01	28.65	0.30	145.50

Making a similar analysis to 2006 wines results (Annex - Final results, Table 3), correlations are as followed:

Table 63- Correlations of wine analysis data, relatively to must (2006)

	MAP06	MpH06	MAT06
VAlcool06	0.914 **	0.173	0.204
VAcRe06	0.622 *	-0.039	0.607 *
VExSeT06	0.634 *	0.121	0.338
VpH06	0.460	0.557	-0.074
VAcVl06	0.542	-0.353	0.457
VAcFx06	0.099	0.085	0.366
VAcTt06	0.339	-0.103	0.534
VFenTt06	0.317	-0.004	0.107
VColour06	0.652 *	-0.022	0.157
VTon06	0.080	0.563	0.028
VCinza06	-0.046	0.331	-0.294
VAlc06	0.522	0.329	0.308
VPO406	-0.026	0.362	-0.301
VAnt06	-0.016	0.024	-0.142
VSO_2L06	-0.478	-0.073	-0.241
VSO_2T06	0.250	-0.158	0.303

* Correlations are significant to levels 0.05
** Correlations are significant to levels 0.01

As we can see in this table, several wine parameters are significantly correlated with musts probable alcohol but, to their pH there is no visible relation and to must volatile acidity we can only see a correlation with wine reducer sugars.

Making a factorial analysis from these data, we have:

Table 64- Factors loadings. Extraction method: Main components. (Loadings >.70) (2006).

	Factor 1	Factor 2
VAlcool06	-0.818	-0.221
VAcRe06	-0.802	-0.523
VExSeT06	-0.976	-0.074
VpH06	-0.763	0.422
VAcVl06	-0.762	-0.280
VAcFx06	-0.073	-0.879
VAcTt06	-0.458	-0.857
VO28006	-0.800	0.392
VColour06	-0.871	0.000
VTon06	-0.119	0.198
VCinza06	-0.388	0.051
VAlc06	-0.892	0.116
VPO$_4$06	-0.201	0.730
VAnt06	-0.630	0.654
Expl Var	6.440	3.260
Prp.Tot (%)	46.0	23.3

As it can be seen in this table, factor 1 explains ± 46 % of variance and factor 2 ± 23 %, that is to say, ± 69 % from the whole.

From factor 1 loadings analysis, it is possible to see that the parameters that most influence its variance are alcohol, reducer sugars, total dry extract, pH, volatile acidity, phenols (VDO280), colour and ashes alkalinity.

Making a group analysis with these data, we have:

Table 65- Results of group analysis of wines variants (2006)

Case	Cluster	Distance
AmG1	1	6.54
AmG2	3	7.85
AmG3	3	7.85
BaG1	2	5.19
BaG2	2	2.96
BaG3	2	2.61
BCG1	1	5.81
BCG2	1	8.47
BCG3	1	2.28
CaG1	1	0.90
CaG2	1	16.31
CaG3	1	1.80

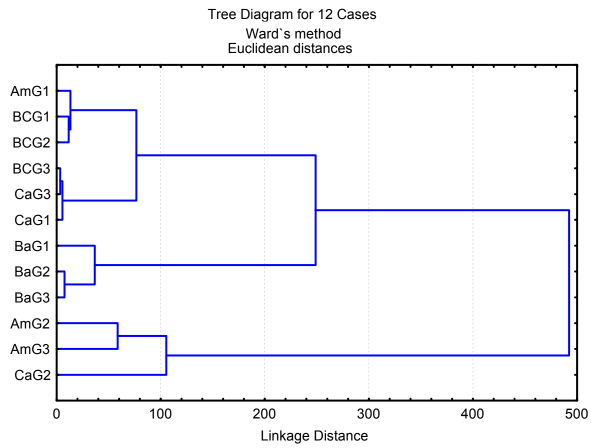


Table 66- Variants mean values for each "cluster" (2006)

	VAlcool06	VAcRe06	VExSeT06	VpH06	VAcVl06	VAcFx06	VAcTt06
Cluster 1	12.44	1.47	26.43	3.85	0.42	4.02	4.53
Cluster 2	13.82	1.83	29.63	3.97	0.66	3.93	4.75
Cluster 3	13.49	1.70	26.63	3.73	0.54	4.30	4.92

	VDO28006	VColour06	VTon06	VCinza06	VAlc06	VPO$_4$06	VAnt06
Cluster 1	40.37	5.21	0.74	3.04	25.92	0.48	257.54
Cluster 2	54.40	7.20	0.73	2.91	33.27	0.50	344.67
Cluster 3	33.02	5.85	0.71	2.57	24.72	0.35	104.12

3.5- Results of wine tasting

The results of mean values given by the tasting panel (jury), are presented in Annex - Wine, Table 35.

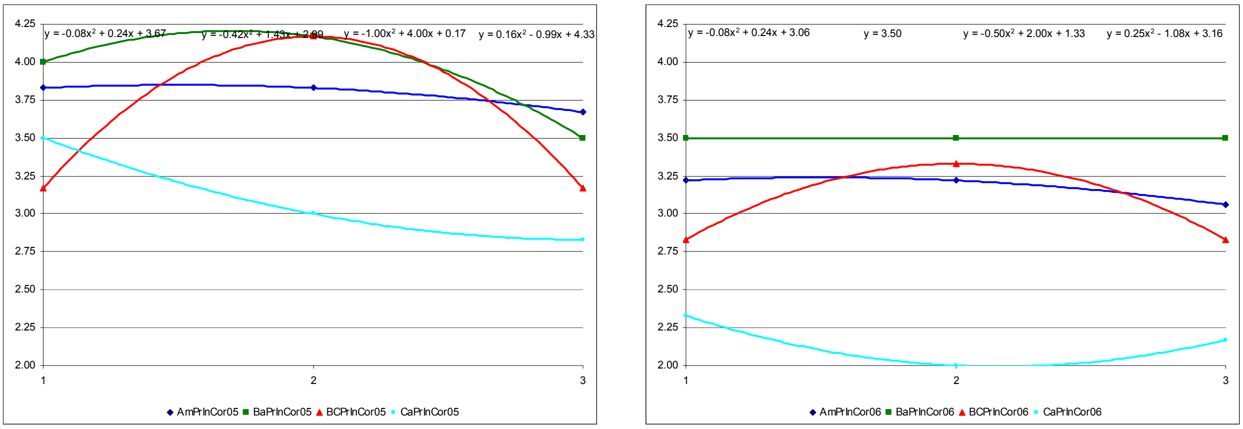
3.5.1- Colour intensity

The results of colour intensity (PrCor) attributed during wine tasting according to the estates, installation forms and stations groups of estate, are presented in Annex - Wine, Tables 37 and 38; its spatial and cartographic representation is in Annex - Wine, Figures 33 and 34.

Analysing data of estates, installation forms and stations of each estate, it is possible to see that:

- in 2005 (Annex - Wine, Table 37, Figure 33), data are not significantly different when comparing the estates (F=2.47, P=0.136), but are significantly different to installation forms (F=5.86, P=0.036). The estate with highest value was Bateiras (± 3.89) and the lowest was Cardanhas (± 2.83); mean values, according to installation form were, to terraces and slope vineyards, of ± 3.86 and ± 3.31. The groups with highest values were BCG2 and BaG2 (± 4.17) and the lowest were BCG1 and BCG3 (± 4.17).
- in 2006 (Annex - Wine, Table 38, Figure 34), data are significantly different when comparing estates (F=32.41, P=0.000) and installation forms (F=11.79, P=0.006). The estate with highest value was Bateiras (± 3.50) and the lowest was Cardanhas (± 2.17); mean values, according to installation form were, to terraces and slope vineyards, of ± 3.33 and ± 2.58. The groups with highest values were Bateiras (± 3.50) and the lowest were CaG2 (± 2.00).

Graphic 79- Colour intensity attributed to wines of 2005 and 2006



The value of colour intensity attributed to the wine of each one of the groups was as followed:

Table 67- Colour intensity of wines in 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
PrCor05	3.83	3.83	3.67	4.00	4.17	3.50	3.17	4.17	3.17	3.50	3.00	2.83
PrCor06	3.22	3.22	3.06	3.50	3.50	3.50	2.83	3.33	2.83	2.33	2.00	2.17

Comparing these data, we can see that values attributed in 2006 are quite inferior, namely in Cardanhas, to those of 2005.

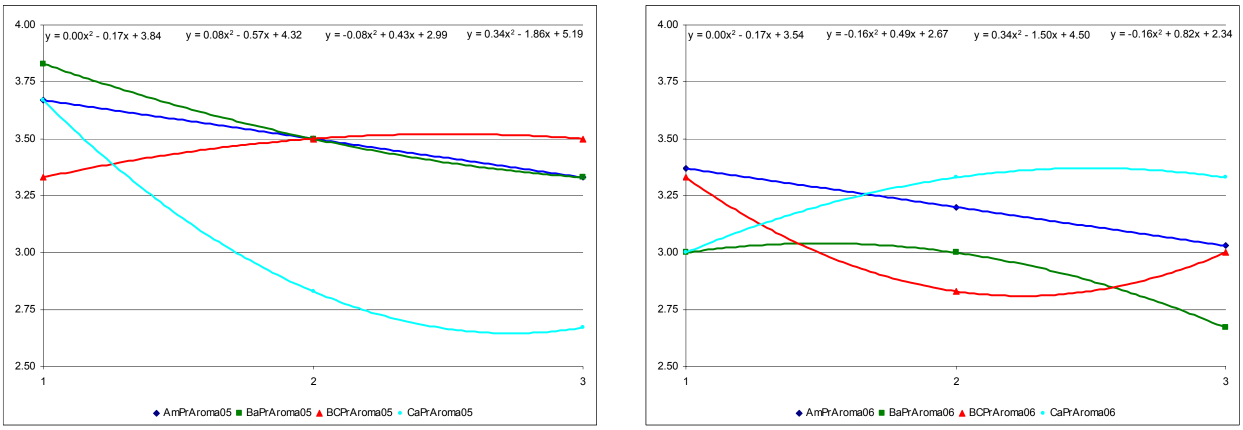
3.5.2- Aroma

The results of attributed aroma (PrAroma) during wine tasting, according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Tables 39 and 40; its spatial and cartographic representation is in Annex - Wine, Figures 35 and 36.

Analysing the data of the estates, installation forms and stations of each estate it is possible to see that:

- in 2005 (Annex - Wine, Table 39, Figure 35), mean values attributed to aroma are not significantly different when comparing estates and installation forms (F=1.56, P=0.273 and F=2.27, P=0.163). The highest mean value was attributed to Bateiras (± 3.55) and the lowest to Cardanhas (± 3.06); mean values, according to installation forms are, to terraces and slope vineyards, of ± 3.53 and ± 3.25. The group with the highest value was BaG1 (± 3.83) and the lowest was CaG3 (2.67);
- in 2006 (Annex - Wine, Table 40, Figure 36), mean values attributed to aroma are not significantly different when comparing estates and installation forms (F=1.69, P=0.245 and F=0.49, P=0.501). The highest mean value was attributed to Cardanhas (± 3.22) and the lowest to Bateiras (± 2.89); mean values, according to installation forms are, to terraces and slope vineyards, of ± 3.04 and ± 3.14. The group with the highest value was AmG1 (± 3.37) and the lowest was BaG3 (2.67).

Graphic 80- Attributed aroma to wines of 2005 and 2006



The values of aroma attributed to wines of each one of the groups were as followed:

Table 68- Aroma of wines in 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
PrAroma05	3.67	3.50	3.33	3.83	3.50	3.33	3.33	3.50	3.50	3.67	2.83	2.67
PrAroma06	3.37	3.20	3.03	3.00	3.00	2.67	3.33	2.83	3.00	3.00	3.33	3.33

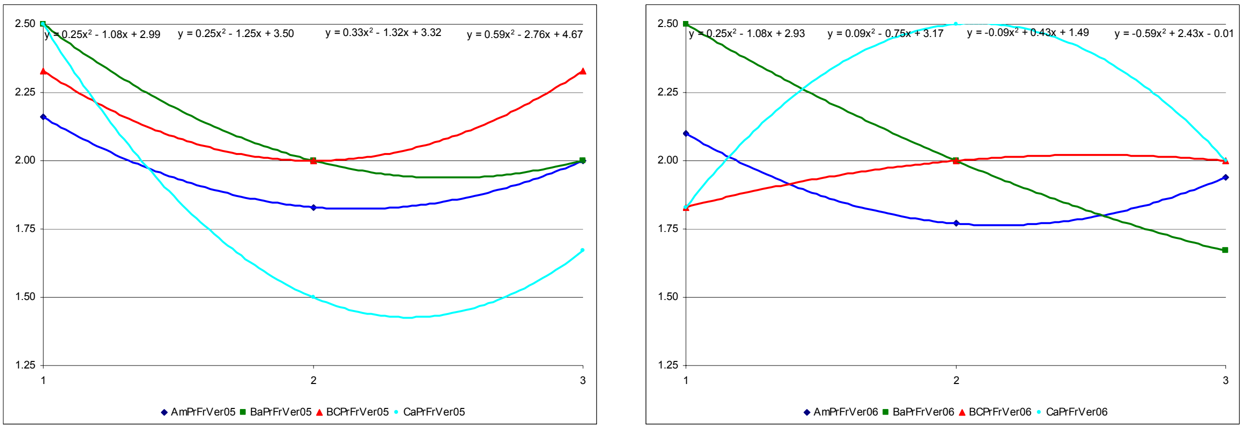
Just like in the previous parameter, values in 2006 were inferior, except in Cardanhas where groups 2 and 3 are quite superior.

3.5.3- Red fruits aroma

The results of red fruits aroma (PrFrVer) attributed during wine tasting, according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Table 41 and 42; its spatial and cartographic representation is in Annex Wine, Figures 37 and 38.

Analysing data of the estates, installation forms and stations of each estate it is possible to see that:
- in 2005 (Annex - Wine, Table 41, Figure 41), mean values attributed are not significantly different when comparing estates or installation forms (F=0.64, P=0.609 and F=0.02, P=0.891). The estate with the highest mean value was Bico dos Casais (± 2.22) and the lowest was Cardanhas (± 1.89); mean values, according to installation forms are, to terraces and slope vineyards, of ± 2.08 and ± 2.05. The groups with the highest values were BaG1 and CaG1 (± 2.50) and with the lowest were CaG2 (1.50);
- in 2006 (Annex - Wine, Table 42, Figure 42), mean values attributed are not significantly different when comparing estates or installation forms (F=0.26, P=0.849 and F=0.04, P=0.851). The estate with the highest value was Bateiras (± 2.06) and the lowest was Amendoal (± 1.93); mean values, according to installation forms are, to terraces and slope vineyards, of ± 1.99 and ± 2.03. The groups with the highest values were BaG1 and CaG2 (± 2.50) and with the lowest were BaG3 (1.67).

Graphic 81- Red fruits aroma, attributed to wines of 2005 and 2006



The value of red fruits aroma, attributed to wines of each one of the groups, was as following:

Table 69- Red fruits aroma of wines, in 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
PrFrVer05	2.16	1.83	2.00	2.50	2.00	2.00	2.33	2.00	2.33	2.50	1.50	1.67
PrFrVer06	2.10	1.77	1.94	2.50	2.00	1.67	1.83	2.00	2.00	1.83	2.50	2.00

Comparing the values of red fruits aroma in both years, the most relevant is the variation that occurred in Cardanhas.

3.5.4- Floral aroma

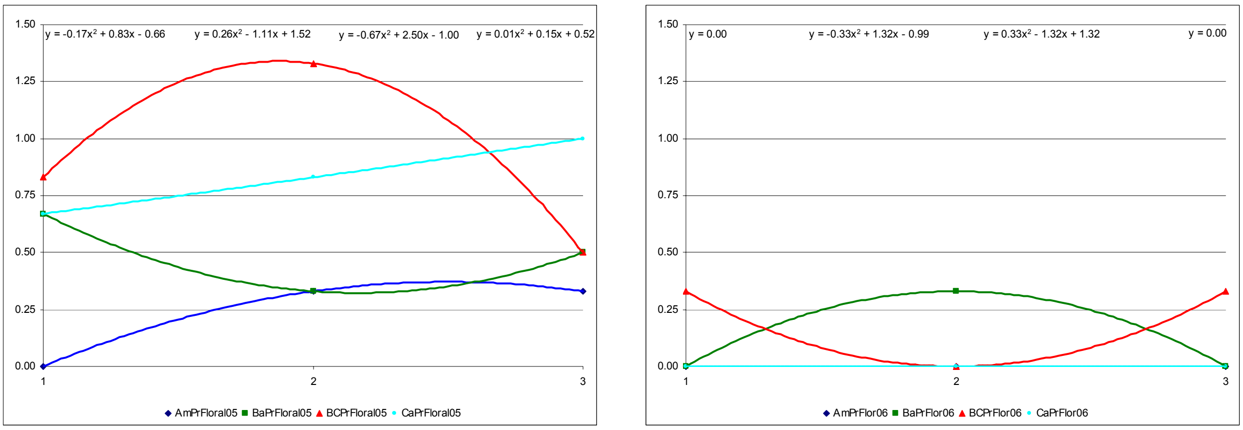
The results of floral aroma (PrFloral) attributed during wine tasting according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Tables 43 and 44; its spatial and cartographic representation is in Annex - Wine, Figures 39 and 40.

Analysing the data of the estates, installation forms and stations of each estate it is possible to see that:
- in 2005 (Annex - Wine, Table 43, Figure 43), mean data attributed are significantly different to estates and to installation forms (F=4.35, P=0.043 and F=11.43, P=0.007). The estate with the highest mean value was Bico dos Casais (± 0.89) and the lowest was in Amendoal (± 0.22); mean values, according to installation

forms are, to terraces and slope vineyards, of ± 0.36 and ± 0.86. The group with the highest value was BCG2 (± 1.33) and the lowest was in AmG1 (1.00);

- in 2006 (Annex - Wine, Table 44, Figure 44), mean data attributed are not significantly different to estates and to installation forms (F=1.73, P=0.219 and F=0.38, P=0.549). The estate with the highest mean value was Bico dos Casais (± 0.22) and the lowest was in Amendoal (± 0.00); mean values, according to installation forms are, to terraces and slope vineyards, of ± 0.36 and ± 0.86. The groups with the highest values were BaG2, BCG1, and BCG3 (± 0.33). The rest of them had zero.

Graphic 82- Floral aroma, attributed to wines of 2005 and 2006



Floral intensity attributed to wines of each one of the groups, was as following:

Table 70- Floral intensity in wines of 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
PrFloral05	0.00	0.33	0.33	0.67	0.33	0.50	0.83	1.33	0.50	0.67	0.83	1.00
PrFloral06	0.00	0.00	0.00	0.00	0.33	0.00	0.33	0.00	0.33	0.00	0.00	0.00

Comparing the floral aroma in both years, it is possible to see that values of 2006 were much inferior to those of 2005. In two of the estates, Amendoal and Cardanhas, that value was zero.

3.5.5- Body

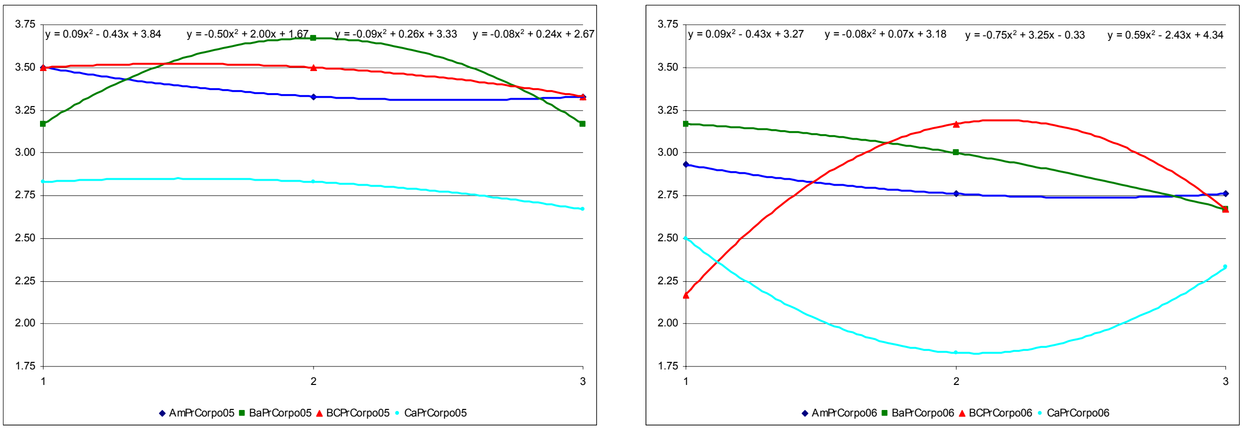
The results of "body" (PrCorpo) attributed during wine tasting according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Tables 45 and 46; its spatial and cartographic representation is in Annex - Wine, Figures 41 and 42.

Analysing data of the estates, installation forms and stations of each estate it is possible to see that:

- in 2005 (Annex - Wine, Table 45, Figure 37), mean values attributed to wine "body" were significantly different when comparing estates but not installation forms (F=10.32, P=0.004 and F=2.13, P=0.175). The estate with the highest mean value was Bico dos Casais (± 3.44) and the one with the lowest was Cardanhas (± 2.78); mean values, according to installation forms were, to terraces and slope vineyards, of ± 3.36 and ± 3.11. The group with the highest value was BaG2 (± 3.67) and with the lowest was CaG3 (2.67).

- in 2006 (Annex - Wine, Table 46, Figure 38), mean values attributed to wine "body" are not significantly different when comparing estates and installation forms (F=2.70, P=0.116 and F=4.69, P=0.056). The estate with the highest value was Bateiras (± 2.94) and with the lowest was Cardanhas (± 2.22); mean values, according to installation forms are, to terraces and slope vineyards, of ± 2.88 and ± 2.44. The groups with the highest values were BaG1 and BCG2 (± 3.17) and with the lowest were CaG2 (1.83).

Graphic 83- Body attributed to wines of 2005 and 2006



The values of "body" attributed to wines of each one of the groups, were the following:

Table 71- Body of wines in 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
PrBody05	3.50	3.33	3.33	3.17	3.67	3.17	3.50	3.50	3.33	2.83	2.83	2.67
PrBody06	2.93	2.76	2.76	3.17	3.00	2.67	2.17	3.17	2.67	2.50	1.83	2.33

Comparing the values of "body" attributed in both years, we can see that in 2006 they were much inferior, namely in Cardanhas.

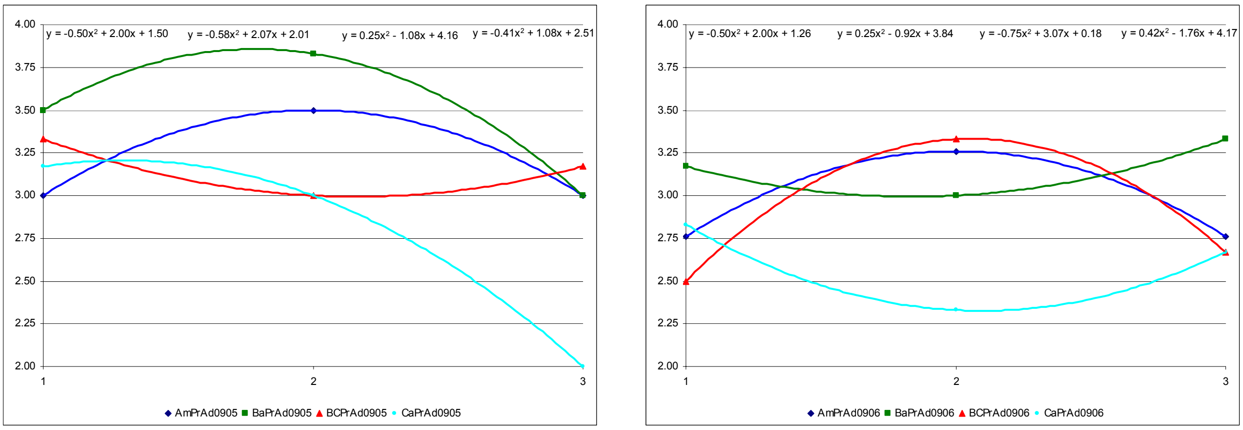
3.5.6- Astringency

The results of Astringency (PrAdst) attributed during wine tasting according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Tables 47 and 48 and its spatial and cartographic representation is in Annex - Wine, Figures 43 and 44.

Analysing the data of the estates, installation forms and stations of each estate it is possible to see that:
- in 2005 (Annex - Wine, Table 47, Figure 39), mean values attributed are not significantly different when comparing estates or installation forms (F=1.55, P=0.274 and F=2.19, P=0.170). The highest mean value was attributed to Bateiras (± 3.44) and the lowest to Cardanhas (± 2.72); mean values, according to installation forms are, to terraces and slope vineyards, of ± 3.31 and ± 2.95. The group with the highest value was BaG2 (± 3.83) and the lowest was CaG3 (± 2.00);
- in 2006 (Annex - Wine, Table 48, Figure 40), mean values attributed are not significantly different when comparing estates or installation forms (F=1.73, P=0.237 and F=3.53, P=0.089). The highest mean value was attributed to Bateiras (± 3.17) and the lowest to Cardanhas (± 2.61); mean values, according to

installation forms are, to terraces and slope vineyards, of ± 3.05 and ± 2.72. The groups with the highest values were BaG3 and BCG2 (± 3.33) and with the lowest were CaG2 (2.33).

Graphic 84- Astringency attributed to wines of 2005 and 2006



The values of astringency attributed to wines of each one of the groups, were the following:

Table 72- Astringency of wines in 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
PrAdst05	3.00	3.50	3.00	3.50	3.83	3.00	3.33	3.00	3.17	3.17	3.00	2.00
PrAdst06	2.76	3.26	2.76	3.17	3.00	3.33	2.50	3.33	2.67	2.83	2.33	2.67

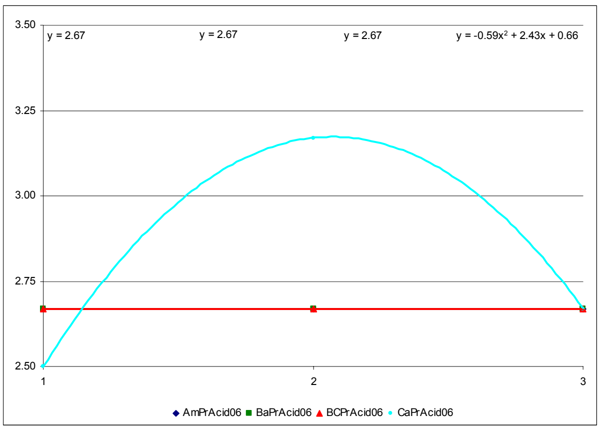
Comparing both years' values it is possible to see that, in general, in 2006 those were lower.

3.5.7- Total acidity

The result of total acidity (PrAcTt) attributed during wine tasting in 2005, was the same to all the tasted samples (Annex - Wine, Table 49).

In 2005, total acidity was the same in all of the groups.

Graphic 85- Total acidity attributed to wines of 2006



In 2006 (Annex - Wine, Table 49), the attributed data are not significantly different to estates or to installation forms (F=0.30, P=0.825 and F=0.35, P=0.568). The estate with the highest value was Cardanhas (± 2.78), and all the others had the same value (2.67); mean values, according to installation forms are, to terraces and slope vineyards, were ± 2.67 and ± 2.72. The group with the highest value was CaG2 (± 3.17) and with the lowest was CaG1 (2.50).

Total acidity attributed to wine of each one of the groups, was the following:

Table 73- Total acidity to wines of 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
PrAcTt05	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
PrAcTt06	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.50	3.17	2.67

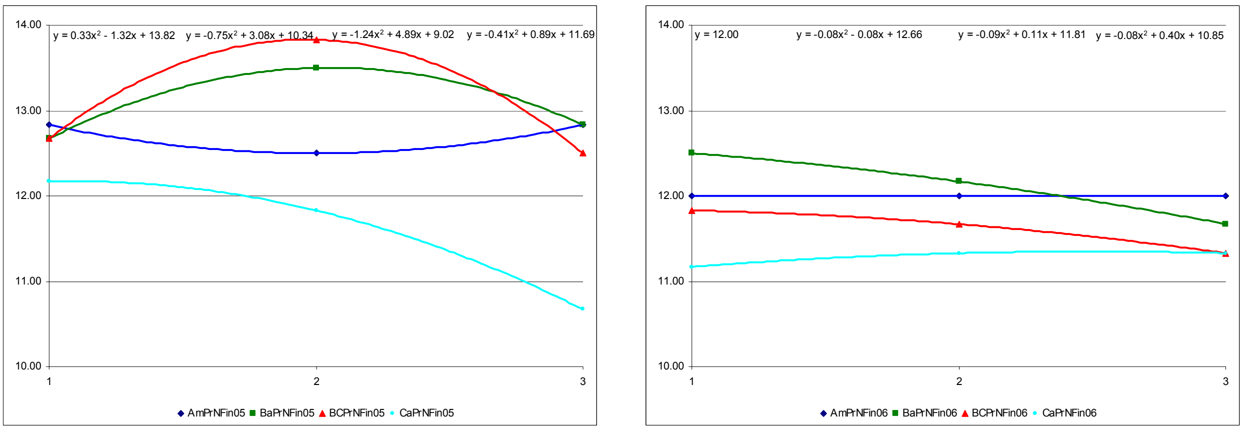
3.5.8- Final classification

The final results (PrNFin) attributed wine tasting according to the estates, installation forms and stations groups of each estate, are presented in Annex - Wine, Tables 50 and 51; its spatial and cartographic representation is in Annex - Wine, Figures 45 and 46.

Analysing the data of the estates, installation forms and stations of each estate it is possible to see that:

- in 2005 (Annex - Wine, Table 50, Figure 45), in the several tasting of wines was attributed a final classification, whose values were significantly different between all the estates, but not when they were grouped according to installation form (F=4.14, P=0.048 and F=1.70, P=0.222). To the estates, the highest mean classification was obtained in Bateiras and Bico dos Casais (± 13.00) and the lowest in Cardanhas (± 11.56); mean values, according to installation forms are, to terraces and slope vineyards, ± 12.86 and ± 12.28. The group with the highest value was BCG2 (± 13.83) and the lowest was CaG3 (10.67);
- in 2006 (Annex - Wine, Table 51, Figure 46) in the several tasting of wines was attributed a final classification, whose values were significantly different between all the estates and installation forms (F=4.61, P=0.037 and F=8.72, P=0.014). To the estates, the highest mean classification was obtained in Bateiras (± 12.11) and the lowest in Cardanhas (± 11.28); mean values, according to installation forms are, to terraces and slope vineyards, ± 12.00 and ± 11.47. The group with the highest value was BaG1 (± 12.50) and the lowest was CaG1 (11.17).

Graphic 86- Final note attributed to wines of 2005 and 2006



The final note attributed to wine of each one of the groups was the following:

Table 74- Final note to wines of 2005 and 2006.

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
PrNFin05	12.83	12.50	12.83	12.67	13.50	12.83	12.67	13.83	12.50	12.17	11.83	10.67
PrNFin06	12.00	12.00	12.00	12.50	12.17	11.67	11.83	11.67	11.33	11.17	11.33	11.33

Comparing both years' values, it is possible to see that, in general, in 2006 those values were lower.

Determining correlations of the wine tasting determined variants, relatively to data measured in musts and wines analysis we can see that, in 2005, the presented values were the following:

Table 75- Correlations between data of tasting, musts, and wines (2005)

	MAP05	MpH05	MAT05	VAlcool05	VMVol05	VAcRe05	VExSeT05	VpH05
PrCor05	0,750**	-0.023	0.369	0,704*	-0.510	0,733**	0,587*	0.226
PrAroma05	0.498	0.101	0.145	0.480	-0.223	0.390	0.558	0.269
PrFrVer05	0.106	0.103	-0.077	0.141	0.051	-0.047	0.303	0.231
PrFloral05	-0.532	0.165	-0.569	-0.478	0.244	-0.559	-0.523	-0.056
PrCorpo05	0,655*	0.220	0.117	0,699*	-0.414	0,692*	0,703*	0.367
PrAds05	0,648'	0.220	0.156	0,677*	-0.282	0,642*	0,785**	0.554
PrAcTt05	a	a	a	a	a	a	a	a
PrNFin05	0,605*	0.153	0.144	0,606*	-0.380	0,593*	0,583*	0.314

VAcVl05	VAcFx05	VAcTt05	VFenTt05	VColour05	VTon05	VCinza05	VAlc05	$VPO_4$05	VAnt05
-0.376	0,814**	0,810**	0.286	0.473	-0.346	0,679*	0.540	0.334	-0.429
-0.360	0,681*	0,664*	0.370	0.527	-0.408	0.498	0.527	0.243	-0.141
-0.194	0.335	0.322	0.235	0.288	-0.126	0.213	0.364	0.147	0.198
0.406	-0.329	-0.260	-0.257	-0.347	0.264	-0.135	-0.266	0.248	0.068
-0.394	0.491	0.446	0.387	0,803**	-0.546	0,690*	0.507	0.082	-0.347
-0.205	0.232	0.203	0.484	0,681*	-0.505	0,799**	0,796**	-0.165	-0.407
a	a	a	a	A	a	a	a	a	a
-0.383	0,622*	0,594*	0.278	0,676*	-0,638*	0,716**	0.512	0.387	-0.445

* Correlations are significant to levels 0.05
** Correlations are significant to levels 0.01
a It is not possible to determine, because one of the variants is a constant.

Making a factorial analysis, extracting two factors, of the variants determination in wines tasting, factors "loadings" are presented in the following table.

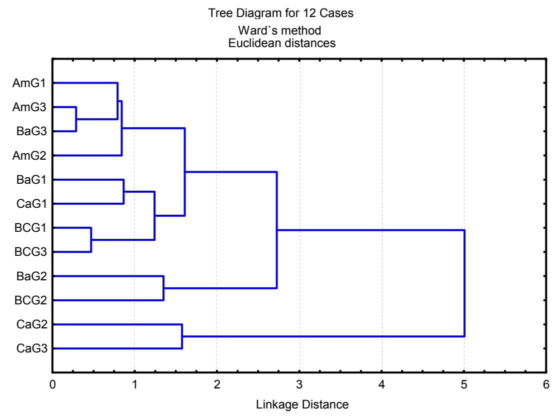
Table 76- Factors loadings. Extraction method: Main components. ("Loadings" > .70) (2005)

	Factor 1	Factor 2
PrCor05	0.810	-0.169
PrAroma05	0.930	0.296
PrFrVer05	0.648	0.709
PrFloral05	-0.500	0.452
PrCorpo05	0.777	-0.346
PrAds05	0.841	-0.122
Expl.Var	3.500	0.958
Prp.Tot (%)	**58.3**	**16.0**

As we can see in this table, factor 1 explains ± 58 % of variance and factor 2, ± 16 %, that is to say, ± 74 % of the whole. By factor 1 analysis, only the parameters relative to red fruits aroma and floral aroma do not significantly interfere in the results.
Also considering the classifications attributed to different tasting parameters, a group analysis ("clusters") was made, defining three groups, whose results are indicated in the following table.

Table 77- Results and its graphic representation of the parameters used in wines tasting group analysis (2005).

CASE	CLUSTER	DISTANCE
AmG1	1	0.24
AmG2	1	0.20
AmG3	1	0.16
BaG1	1	0.25
BaG2	2	0.24
BaG3	1	0.15
BCG1	1	0.23
BCG2	2	0.24
BCG3	1	0.16
CaG1	1	0.26
CaG2	3	0.28
CaG3	3	0.28



This analysis allows defining three quality levels of wines:

- level 1 (cluster 1) - 8 wines (AmG1, AmG2, AmG3, BaG1, BaG3, BCG1, BCG3 and CaG1), considered wines of intermediate quality;
- level 2 (cluster 2) - 2 wines (BaG2 and BCG2), considered the best quality ones;
- level 3 (cluster 3) - 2 wines (CaG2 and CaG3), considered the worst quality ones.

Mean values of each "cluster" are indicated in the following table.

Table 78- Mean values of the variants of each "cluster" (2005)

	PrCor05	PrAroma05	PrCorpo05	PrAds05	PrFrVer05	PrFloral05	PrAcidez05	PrNFin05
Cluster 1	3.584	3.520	3.270	3.209	2.206	0.479	3.000	12.625
Cluster 2	4.170	3.500	3.585	3.415	2.000	0.830	3.000	13.665
Cluster 3	2.915	2.750	2.750	2.500	1.585	0.915	3.000	11.250

The scale followed by the tasters panel, considers that the good quality wines will have a final note ≥ to 13 (< 15), the regular wines will have a note between ≥ 10 and < 13 and that the mediocre wines will have a note <10; quality interpretation is presented in 78; the wines with note ≥ a 15 are considered as very good. Inside the regular classification, three levels are considered, as presented in the following table.

Table 79- Quality interpretation according to the attributed notes

Classification	Mediocre	Regular -	Regular	Regular +	Good	Very good
Notes	**< 10**	**≥ 10 and < 11**	**≥ 11 and < 12**	**≥ 12 and < 13**	**≥ 13 and < 15**	**≥ 15**
Indices	**0**	**1**	**2**	**3**	**4**	**5**

The appreciation and final note attributed by the taster's panel is presented in the following table.

Table 80- Quality interpretation of sensorial analysis, attributed by the taster's panel (2005)

AmG1	Good colour intensity, very good aroma quality, medium good body, little astringency, final note **Regular+ (12.83)**
AmG2	Good colour intensity, regular aroma quality, medium good body, medium astringency, final note **Regular+ (12.50)**
AmG3	Good colour intensity, regular aroma quality, medium good body, little astringency, final note **Regular+ (12.83)**
BaG1	Good colour intensity, Good aroma quality, medium good body, medium astringency, final note **Regular+ (12.67)**
BaG2	Very good colour intensity, regular aroma quality, good body, astringent, final note **Good (13.50)**
BaG3	Good colour intensity, regular aroma quality, medium good body, little astringency, final note **Regular+ (12.83)**
BCG1	Good colour intensity, regular aroma quality, slightly fruited, slightly floral, medium good body, medium astringency, final note **Regular+ (12.67)**
BCG2	Very good colour intensity, regular aroma quality, medium good body, little astringency, final note **Good (13.83)**
BCG3	Good colour intensity, regular aroma quality, slightly fruited, slightly floral, medium good body, medium astringency, final note **Regular+ (12.50)**
CaG1	Good colour intensity, good aroma quality, slightly fruited, slightly floral, little good body, medium astringency, final note **Regular+ (12.17)**
CaG2	Good colour intensity, weak aroma quality, slightly fruited, slightly floral, little good body, little astringency, final note **Regular (11.83)**
CaG3	Good colour intensity, weak aroma quality, slightly fruited, slightly floral, little good body, little astringency, final note **Regular- (10.67)**

Comparing the results of "clusters" analysis with the attributed by the tasters panel, we can see that "clusters" 1 includes the wines with "good" classification, "clusters" 2 includes the regular + wines and "clusters" 3 includes regular and regular - wines.

Determining the correlations of the variants measured in wines tasting with the data measured in musts and wines analysis, we have, for 2006, the following values:

Table 81- Correlations between data of tasting, musts and wines (2006)

	MAP06	**MpH06**	**MAT06**	**VAlcool06**	**VAcRe06**	**VExSeT06**	**VpH06**
PrCor06	0.637 *	0.089	0.201	0.821 **	0.769 **	0.736 **	0.426
PrAroma06	-0.044	0.367	-0.058	-0.302	-0.336	-0.259	0.005
PrFrVer06	-0.085	0.108	0.290	-0.094	-0.147	0.152	0.315
PrFloral06	0.257	0.601 *	-0.203	0.193	0.092	0.137	0.369
PrCorpo06	0.553	0.040	0.142	0.742 **	0.504	0.569	0.438
PrAds06	0.365	-0.284	0.050	0.519	0.395	0.389	0.124
PrAcTt06	-0.404	-0.056	0.410	-0.531	-0.180	-0.252	-0.270
PrNFin06	0.724 **	0.291	0.207	0.817 **	0.667 *	0.809 **	0.621 *

VAcVl06	**VAcFx06**	**VAcTt06**	**VFenTt06**	**VColour06**	**VTon06**	**VCinza06**	**VAlc06**	**VPO406**	**VAnt06**
0.787 **	0.151	0.523	0.619 *	0.949 **	-0.296	0.161	0.645 *	0.311	0.342
-0.596 *	0.207	-0.138	-0.305	-0.602 *	0.544	0.110	-0.056	-0.366	-0.314
-0.032	-0.136	-0.128	0.020	-0.222	0.661 *	0.217	0.293	0.094	0.152
-0.147	-0.235	-0.254	0.086	0.143	0.146	-0.169	0.198	0.531	0.244
0.630 *	-0.008	0.297	0.524	0.851 **	-0.321	0.253	0.448	0.391	0.305
0.664 *	-0.168	0.189	0.593 *	0.795 **	-0.536	-0.011	0.297	0.260	0.289
-0.220	0.075	-0.036	-0.250	-0.542	0.414	-0.276	0.009	-0.103	-0.199
0.705 *	0.193	0.512	0.423	0.673 *	0.232	0.288	0.799 **	0.110	0.293

* Correlations are significant to levels 0.05
** Correlations are significant to levels 0.01

Making a factorial analysis, of the variants determination in wines tasting, factors "loadings" are presented in the following table.

Table 82- Factor loadings. Extraction method: Main components. (“Loadings” > .70) (2006)

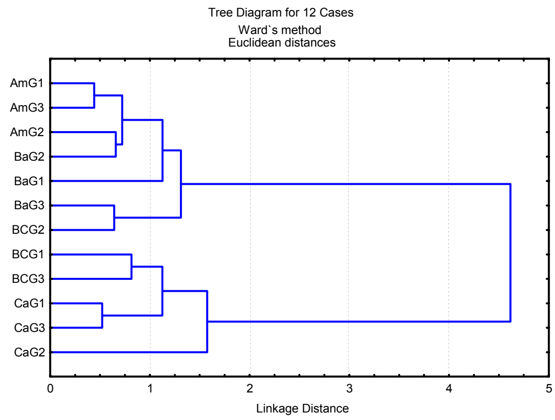
	Factor 1	Factor 2
PrCor06	-0.853	-0.122
PrAroma06	0.758	0.081
PrFrVer06	0.449	-0.717
PrFloral06	0.051	0.686
PrCorpo06	-0.865	-0.254
PrAdst06	-0.910	-0.260
PrAcTt06	0.698	-0.478
Expl.Var	3.571	1.366
Prp.Tot (%)	**51.0**	**19.5**

As we can see in the table, factor 1 explains ± 51 % of variance and factor 2, ± 20 %, that is to say, ± 71 % of the whole. As it is possible to see, by factor 1 analysis, only parameters relative to red fruits aroma, floral aroma, and acidity do not interfere significantly in the results.

Considering the classifications attributed to different tasting parameters, a group analysis (“clusters”) was made, defining three groups, and the results were the following.

Table 83- Results and its graphic representation of parameters used in wines tasting, group analysis (2006).

CASE	CLUSTER	DISTANCE
AmG1	1	0.18
AmG2	1	0.17
AmG3	1	0.16
BaG1	1	0.28
BaG2	1	0.15
BaG3	1	0.24
BCG1	3	0.26
BCG2	1	0.17
BCG3	3	0.17
CaG1	3	0.17
CaG2	2	0.00
CaG3	3	0.17



This analysis allows defining the following three quality wine levels:
- level 1 (cluster 1) - 7 wines (AmG1, AmG2, AmG3, BaG1,BaG2,BaG3, BCG2), considered the best;
- level 2 (cluster 2) - 1 wine (CaG2) considered the worst;
- level 3 (cluster 3) - 4 wines (BCG1, BCG3, CaG1, CaG3), considered the wines of intermediate quality.

Mean values determined to each “cluster” are indicated in the following table.

Table 84- Mean values of each “cluster” variants (2006)

	PrCor06	PrAroma06	PrCorpo06	PrAds06	PrFrVer06	PrFloral06	PrAcidez06	PrNFin06
Cluster 1	3.33	3.01	2.92	3.09	2.00	0.05	2.67	12.00
Cluster 2	2.00	3.33	1.83	2.33	2.50	0.00	3.17	11.33
Cluster 3	2.54	3.17	2.42	2.67	1.92	0.17	2.63	11.42

The tasting and final note attributed by the tasters' panel is presented in the following table.

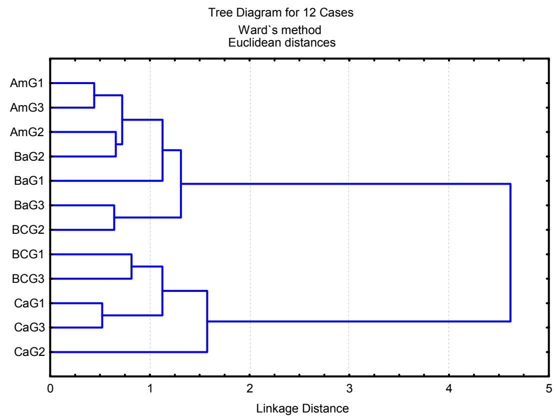
Table 85- Quality interpretation of sensorial analysis attributed by the tasters' panel (2006)

AmG1	Good colour intensity, weak aroma quality, little good body, little astringency, final note **Regular+ (12.00)**
AmG2	Good colour intensity, weak aroma quality, little good body, little astringency, final note **Regular+ (12.00)**
AmG3	Good colour intensity, weak aroma quality, little good body, little astringency, final note **Regular+ (12.00)**
BaG1	Good colour intensity, weak aroma quality, medium good body, medium astringency, final note **Regular+ (12.50)**
BaG2	Good colour intensity, weak aroma quality, little good body, little astringency, final note **Regular+ (12.17)**
BaG3	Good colour intensity, weak aroma quality, little good body, medium astringency, final note **Regular (11.67)**
BCG1	Good colour intensity, regular aroma quality, slightly fruited, slightly floral, little good body, little astringency, final note **Regular (11.83)**
BCG2	Good colour intensity, weak aroma quality, medium good body, medium astringency, final note **Regular (11.67)**
BCG3	Good colour intensity, weak aroma quality, slightly fruited, slightly floral, little good body, little astringency, final note **Regular (11.33)**
CaG1	Good colour intensity, weak aroma quality, slightly fruited, arsenical floral, little good body, little astringency, final note **Regular (11.17)**
CaG2	Good colour intensity, regular aroma quality, slightly fruited, floral absence, little good body, little astringency, final note **Regular (11.33)**
CaG3	Good colour intensity, regular aroma quality, slightly fruited, floral absence, little good body, little astringency, final note **Regular (11.33)**

Comparing the "clusters" analysis results with that attributed by the tasters panel, it is not possible to correspond the "clusters" to the attributed classifications, because they are include in only two levels (regular and regular +), so the group analysis should be made considering only two "clusters". In this situation, it is possible to see that "cluster" 1 includes groups AmG1, AmG2, AmG3, BaG1, BaG2, BaG3, BCG2 with a mean final note of 12.00, and "cluster" 2 includes groups BCG1, BCG3, CaG1, CaG2 and CaG3, with a mean final note of 11.40, allowing to consider separately vintage in terraces and slope vineyards.

Table 86- Results and its graphic representation of parameters used in wine tasting group analysis (2006) considering only two "clusters".

CASE	CLUSTER	DISTANCE
AmG1	1	0.19
AmG2	1	0.15
AmG3	1	0.17
BaG1	1	0.22
BaG2	1	0.13
BaG3	1	0.23
BCG1	2	0.20
BCG2	1	0.15
BCG3	2	0.23
CaG1	2	0.19
CaG2	2	0.36
CaG3	2	0.13



Representing the mean value of each cluster variants, we have:

Table 87- Mean values of each "cluster" variants (2006), considering two groups.

	PrCor06	PrAroma06	PrCorpo06	PrAds06	PrFrVer06	PrFloral06	PrAcidez06	PrNFin06
Cluster 1	3.33	3.01	2.92	3.09	2.00	0.05	2.67	12.00
Cluster 2	2.43	3.20	2.30	2.60	2.03	0.13	2.74	11.40

Comparing the data attributed by the tasters' panel, in both years, we have:

Table 88- Summary of the final notes attributed by sensorial analysis, to the different blocs in 2005 and 2006

	AmG1	AmG2	AmG3	BaG1	BaG2	BaG3	BCG1	BCG2	BCG3	CaG1	CaG2	CaG3
2005	Regular+ 12.83	Regular+ 12.50	Regular+ 12.83	Regular+ 12.67	Good 13.50	Regular+ 12.83	Regular+ 12.67	Good 13.83	Regular+ 12.50	Regular+ 12.17	Regular 11.83	Regular- 10.67
2006	Regular+ 12.00	Regular 11.67	Regular+ 12.00	Regular+ 12.50	Regular+ 12.17	Regular 11.67	Regular+ 12.00	Regular 11.67	Regular 11.38	Regular 11.17	Regular 11.38	Regular 11.33

The Regular classification presents a quite large spectrum and so, especially in years when quality is very similar, it is necessary to consider the three sub-levels, making it possible to define more than one group inside that classification. The identification in both years, of only one less quality group, allows the producer to choose not to vinificate, without great yield losses.

Comparing the wines obtained from the twelve groups, in both years we can say that, in 2005, wines, except those from bloc CaG3, were better that the 2006 ones.

3.6- Comparison between the several parameters values with the final classification attributed to wines

In this point we present, to 2005, mean values of the different variants according to attributed four quality levels (regular - (1), regular (2), regular + (3) and good (4).

Table 89- Climate and plants data (2005)

PrNFin05	ClTp05	ClHm05	SITp05	PITp05	SPAD05	FIAr170605	FIPS170605
1 (10 - < 11)	22.92	37.54	29.11	25.08	41.15	320.20	1.75
2 (≥ 11 - < 12)	22.27	39.84	27.90	24.80	43.02	359.16	2.11
3 (≥ 12 - < 13)	24.19	34.30	32.10	26.48	40.99	305.47	2.00
4 (≥ 13)	23.44	38.16	31.68	26.38	40.01	287.13	1.95
F , P	0.385, 0.797	0.366, 0.780	0.806, 0.525	0.261, 0.852	1.172, 0.379	0.889, 0.487	0.154, 0.924

FIN170605	FIP170605	FIK170605	ProPla05	PlPd080306
29.10	1.84	6.90	3.40	441.67
34.87	1.65	7.10	4.00	638.00
33.90	1.79	8.09	3.07	373.54
31.43	2.08	4.77	3.69	409.83
0.955, 0.459	1.069, 0.415	1.006, 0.439	0.835 , 0.512	4.326 , 0.043

ANOVA of climate and plants data indicates that only pruning wood presents significant variations between the defined groups.

Table 90- Soil data (2005)

PrNFin05	SI20pH05	SI40pH05	SI20MO05	SI40MO05	SI20$P_2O_5$05	SI40$P_2O_5$05	SI20K_2O05	SI40K_2O05
1 (10 - < 11)	5.37	5.37	5.17	0.39	64.33	48.67	49.33	46.67
2 (≥ 11 - < 12)	4.90	5.03	0.97	0.75	193.00	204.00	70.33	70.67
3 (≥ 12 - < 13)	5.78	5.90	0.92	0.76	78.33	68.42	53.83	53.42
4 (≥ 13)	5.85	5.90	0.61	0.45	63.83	65.17	51.67	52.33
F , P	1.380 , 0.317	0.785 , 0.535	0.985 , 0.447	1.733 , 0.237	1.734 , 0.237	2.390 , 0.144	0.956 , 0.459	0.893 , 0.486

SI20Ca05	SI40Ca05	SI20Mg05	SI40Mg05	SI20K05	SI40K05	SI20Na05	SI40Na05	SI20BH_2O05	SI40BH_2O05
5.34	5.34	1.33	1.34	0.08	0.08	0.06	0.07	0.40	0.48
5.79	6.04	1.45	1.51	0.12	0.14	0.08	0.08	0.75	0.55
8.03	8.14	1.46	1.46	0.12	0.12	0.10	0.11	0.74	0.67
11.14	10.37	1.64	1.54	0.12	0.12	0.13	0.14	0.55	0.67
1.942 , 0.201	1.606 , 0.263	0.040 , 0.988	0.014 , 0.997	2.463 , 0.137	1.408 , 0.310	0.876 , 0.493	1.192 , 0.373	0.808 , 0.524	0.318 , 0.812

SI20AT05	SI40AT05	SI20SBT05	SI40SBT05	SI20CTCe05	SI40CTCe05	SI20GSBe05	SI40GSBe05
0.39	0.35	6.82	6.84	7.21	7.18	94.57	95.20
0.60	0.55	7.44	7.77	8.04	8.32	92.77	93.67
0.27	0.25	9.93	9.91	10.19	10.17	96.76	96.83
0.33	0.42	13.24	12.51	13.57	12.95	97.43	96.52
1.404 , 0.311	1.445 , 0.300	2.249 , 0.160	1.917 , 0.205	2.328 , 0.151	2.093 , 0.179	0.910 , 0.478	0.365 , 0.780

ANOVA of soil data indicates that there is no significant difference between the four levels of the measured variants.

Table 91- Berries data (2005)

PrNFin05	BP2109	BAP2109	BAT2109	BpH2109	BcAcuc05	BcpH05	BcAcTt05	BcFenTt05	BcAntTt05
1 (10 - < 11)	176.50	11.40	3.71	3.86	213.20	4.19	3.09	31.20	694.00
2 (≥ 11 - < 12)	159.10	11.20	3.44	3.97	216.50	4.35	3.11	23.80	447.00
3 (≥ 12 - < 13)	178.23	12.47	3.77	3.91	228.15	4.25	2.84	30.95	345.75
4 (≥ 13)	187.35	13.20	3.74	3.96	242.70	4.29	3.00	32.35	356.00
F , P	0.164 , 0.917	1.933 , 0.203	0.119 , 0.946	0.566 , 0.653	1.768 , 0.231	0.861 , 0.500	2.284 , 0.156	0.726 , 0.565	6.473 , 0.02

ANOVA of frozen berries measured data indicates that only total antocian content is significantively different in the four levels.

Table 92- Musts data (2005)

PrNFin05	MAP05	MpH05	MAT05
1 (10 - < 11)	11.40	3.86	3.71
2 (≥ 11 - < 12)	11.20	3.97	3.44
3 (≥ 12 - < 13)	12.48	3.91	3.77
4 (≥ 13)	13.20	3.96	3.74
F , P	1.933 , 0.203	0.566 , 0.653	0.119 , 0.946

ANOVA of musts data indicates that there is no significant difference between the four levels.

Table 93- Wines data (2005)

PrNFin05	VAlcool05	VMVol05	VAcRe05	VExSeT205	VpH05	VAcTt05	VAcVl05	VAcFx05
1 (10 - < 11)	11.10	0.9932	1.30	25.10	3.81	4.24	0.43	3.70
2 (≥ 11 - < 12)	10.75	0.9942	1.40	26.60	3.92	4.11	0.52	3.46
3 (≥ 12 - < 13)	12.17	0.9930	1.53	27.83	3.88	4.67	0.38	4.21
4 (≥ 13)	12.99	0.9927	1.80	29.50	3.97	4.82	0.38	4.35
F , P	2.287 , 0.156	1.255 , 0.353	1.705 , 0.243	1.860 , 0.215	1.216 , 0.365	1.554 , 0.274	1.212 , 0.366	2.129 , 0.175

VFenTt05	VColour05	VTon05	VCinza05	VAlc05	VPO4O5	VAnt05	VSO2L05	VSO2T05
49.20	7.03	0.86	2.59	25.70	0.40	592.00	48.00	105.00
51.20	7.87	0.76	2.98	30.90	0.30	333.00	30.00	65.00
56.45	9.92	0.74	3.08	31.06	0.43	344.38	28.25	76.13
62.20	10.94	0.75	3.70	35.30	0.55	340.50	30.50	73.50
0.314 , 0.815	2.867 , 0.104	2.844 , 0.105	8.094 , 0.008	1.936 , 0.202	0.691 , 0.583	1.018 , 0.434	7.583 , 0.010	2.103 , 0.178

ANOVA of wines analysis data indicates that only ashes content and free sulphur are significantly different in the four levels.

Table 94- Wines tasting data (2005)

PrFin05	PrCor05	PrAroma05	PrCorpo05	PrAd0905	PrFrVer05	PrFloral05
1 (10 - < 11)	2.83	2.67	2.67	2.00	1.67	1.00
2 (≥ 11 - < 12)	3.00	2.83	2.83	3.00	1.50	0.83
3 (≥ 12 - < 13)	3.58	3.52	3.27	3.21	2.21	0.48
4 (≥ 13)	4.17	3.50	3.59	3.42	2.00	0.83
F , P	6.456 , 0.016	10.566 , 0.004	5.710 , 0.022	6.060 , 0.019	3.970 , 0.053	1.195 , 0.372

ANOVA of wines tasting attributed data indicates that colour, aroma, body, and astringency are significantly different in the four wine quality levels.

To 2006, when only two final notes were attributed, we have:

Table 95- Climate and plants data (2006)

PrNFin06	CITp06	CIHm06	SITp06	PITp06	SPAD2106	FIAr210606	FIPS210606
2 (≥ 11 - < 12)	32.86	29.13	31.33	27.45	45.84	268.62	2.12
3 (≥ 12 - < 13)	32.67	29.25	31.42	27.03	47.10	285.51	2.00
F , P	0.077 , 0.787	0.002 , 0.963	0.012 , 0.916	0.753 , 0.406	1.831 , 0.206	1.019 , 0.336	2.028 , 0.185

FIN210606	FIP210606	FIK210606	FICa210606	FIMg210606	FIB210606	FIFe210606	FICu210606	FIZn210606
23.87	1.72	4.98	18.90	3.90	47.06	120.48	11.42	15.90
24.63	1.70	4.94	21.24	3.48	21.28	156.40	9.15	17.73
0.487 , 0.501	0.035 , 0.856	0.007 , 0.935	1.671 , 0.225	0.236 , 0.638	3.618 , 0.086	2.506 , 0.145	3.801 , 0.080	5.547 , 0.040

FIMn210606	FIAr240706	FIPS240706	SPAD240706	FIN240706	FIP240706	FIK240706	FICa240706	FIMg240706
173.14	234.45	1.83	46.34	21.87	1.53	2.90	14.07	4.71
107.20	242.96	1.92	46.63	22.13	1.48	4.81	18.36	4.86
8.906 , 0.014	1.331 , 0.275	1.730 , 0.218	0.103 , 0.755	0.197 , 0.667	0.986 , 0.344	5.040 , 0.049	14.467 , 0.003	0.025 , 0.877

FIB240706	FIFe240706	FICu240706	FIZn240706	FIMn240706	ProPla06	PIPd07
41.49	210.90	4.44	19.29	170.38	4.60	573.02
25.27	239.67	5.62	15.20	119.40	3.47	716.11
4.859 , 0.052	1.770 , 0.213	6.305 , 0.031	3.217 , 0.103	4.999 , 0.049	3.395 , 0.095	6.256 , 0.031

ANOVA of climate and plants data indicates that, the zinc and manganese contents measured in 2106, and the potassium, calcium and manganese contents measured in 2407, as well as the pruning wood weight are significantly different in both levels.

Table 96- Musts data (2006)

PrNFin06	MAP06	MpH06	MAT06
2 (≥ 11 - < 12)	12.52	3.65	3.99
3 (≥ 12 - < 13)	13.40	3.71	4.13
F , P	6.228 , 0.032	2.648 , 0.135	0.303 , 0.594

ANOVA of musts data indicates that only probable alcohol is significantly different in both levels.

Table 97- Wines data (2006)

PrNFin06	Valcool06	VAcRe06	VExSeT206	VpH06	VAcTt06	VAcVl06	VAcFx06
2 (≥ 11 - < 12)	12.50	1.50	26.31	3.79	4.53	0.46	3.96
3 (≥ 12 - < 13)	13.60	1.74	28.61	3.95	4.82	0.55	4.15
F , P	7.828 , 0.019	4.957 , 0.050	8.170 , 0.017	5.736 , 0.038	3.846 , 0.078	2.188 , 0.170	1.694 , 0.222

PrNFin06	VFenTt06	VColour06	VTon06	VCinza06	VAlc06	$VPO_4 06$	VAnt06	$VSO_2 L06$	$VSO_2 T06$
2 (≥ 11 - < 12)	41.60	5.47	0.72	2.79	24.98	0.47	244.63	32.02	81.86
3 (≥ 12 - < 13)	44.12	6.30	0.75	3.12	31.16	0.46	266.51	30.76	83.01
F , P	0.183 , 0.678	1.616 , 0.232	2.008 , 0.187	1.530 , 0.244	7.354 , 0.022	0.031 , 0.865	0.184 , 0.677	0.324 , 0.582	0.049 , 0.829

ANOVA of wines analysis data indicates that alcohol, reducer sugars, total dry extract, pH and ashes alkalinity are significantly different in both levels.

Table 98- Wines tasting data (2006)

PrNFin06	PrCor06	PrAroma06	PrCorpo06	PrAd0906	PrFrVer06	PrFloral06	PrAcidez06
2 (≥ 11 - < 12)	2.77	3.05	2.56	2.92	1.97	0.05	2.72
3 (≥ 12 - < 13)	3.22	3.15	2.81	2.84	2.07	0.13	2.67
F , P	2.367 , 0.155	0.504 , 0.494	1.078 , 0.324	0.153 , 0.704	0.477 , 0.506	0.938 , 0.356	0.246 , 0.631

ANOVA of wines tasting attributed values indicates that there are no significant differences between the two levels, explaining its classification as regular.

4- Conclusions

The high number of available data difficult a simultaneous approach of all the information, and so, the various data groups will be separately analysed, establishing whenever necessary, a connection to those more directly correlated.

In Annex - Final results, Table 1, are presented the correlations between the mean values and the data measured or calculated during all the work.

4.1- Environment data

Considering stations mean air temperature, we can say that:

- in 2005, differences are significant between estates and installation forms; relating the intra estate variability, only in Bico dos Casais differences are significant;
- in 2006, differences are significant between estates, but not installation forms; relating the intra estate variability, differences are significant in all of the estates.
- the mean temperatures (May - September) in 2005, was 29.97 ºC and, in 2006, was 32.78 ºC. These values are significantly different (S=0.027).

Considering air mean humidity in the stations, we can say that:

- in 2005, differences are significant between estates and installation forms; relating the intra estate variability, differences are not significant in none of the estates;
- in 2006, differences are significant between estates, but not installation forms; relating the intra estate variability, only in Bico dos Casais differences are not significant;
- humidity mean in 2005 was 35.67 % and, in 2006, was 29.29 %. These values are significantly different (S=0.004).

Considering plants mean temperature in the stations, we can say that:

- in 2005, differences are significant between estates and installation forms; relating the intra estate variability, differences are not significant in Amendoal and Cardanhas, but are significant in Bateiras and Bico dos Casais;
- in 2006, differences are not significant between estates and installation forms; relating the intra estate variability, differences are significant in all of the estates.
- plants mean temperature in 2005 was 26.20 ºC and, in 2006, was 27.28 ºC. These values are not significantly different (S=0.063).

Considering soil mean temperature in the stations, we can say that:

- in 2005, differences are significant between estates and installation forms; relating the intra estate variability, differences are significant only in Bico dos Casais;
- in 2006, differences are significant between estates, but not installation forms; relating the intra estate variability, differences are significant only in Amendoal.
- soil mean temperature 2005 was 31.43 ºC and, in 2006, was 31.37 ºC. These values are not significantly different (S=0.943).

Table 99- Significance (1) of environment mean data

		TpAr	HmAr	TpPl	TpSl
2005	Estates	S	S	S	S
	Instalation form	S	S	S	S
	Amendoal	N	N	N	N
	Bateiras	N	N	S	N
	Bico dos Casais	S	N	S	S
	Cardanhas	N	N	N	N
2006	Estates	S	S	N	S
	Instalation form	N	N	N	N
	Amendoal	S	S	S	S
	Bateiras	S	S	S	N
	Bico dos Casais	S	N	S	N
	Cardanhas	S	S	S	N

(1) S – Significant; N – Not significant

As we can see by these data analysis, there are significant differences between estates, except for plants temperature in 2006. To installation forms, in 2005, those differences were significant, contrary to 2006, when temperatures were higher. Relating the intra estate variability, it is quite different in all of the estates and years.

A group analysis of these data allowed, in 2005, to differentiate installation forms; in that year, terraces presented higher temperatures, but in 2006, when mean temperatures were higher, AmG1 (group on the base of the hill, next to the river), Bateiras and Cardanhas, with western exposure, turned to Douro river, presented values lower than the rest of the stations groups.

The 2nd degree equation determination between these data, considering temperature as an independent variant, allowed estimating its values (Annex - Final results, Table 4).

Relatively to these data, we consider that the followed methodology, using only one team in data measurements, does not allow the desired rigour to its comparison, because the time lapse necessary to complete those measurements is too long. The data measured in the different geo referenced points, being done at the same time, allow its comparison but, when considered to estate and between estates, differences in values will accentuate; temperature differences, in certain days, between the beginning and the end of the measurements, can reach 4 - 5 ºC, conditioning its comparison. Altering the order of data measurements, allowed to partially correct the error resulting of time lapse but, considering the differences watched in the several days when measurements were done, its influence will always feel.

4.2- Plants data

Relating the stations mean SPAD data, we can conclude that differences are significant between estates and installation forms and, relating the intra estate variability, there are no significant variations in the several estates. There are no significant correlations with the environment data.

Considering leaves area and dry weight, having as a reference the measurements made in 240706, we conclude that:

- to leaves area, differences between estates are significant, but not when comparing installation forms; relatively the intra estate variability, this is not significant in none of the estates;
- to leaves dry weight, the same thing happens.

- mean leaves area and dry weight are of 237.99 cm^2 and 1.87 g, respectively. These data, measured in 210606 are of 275.66 cm^2 and 2.07 g, which indicates the presence of young leaves at that time (240706).

Comparing the area and dry weight measured in 170605 and 210606, it is possible to see that the differences are of + 32.45 cm^2 and - 0.09 g, with significance index of 0.060 and 0.403, that is to say that values are not significantly different. Making the same comparison between data measured in 210606 and 240706, differences are of + 37.67 cm^2 and + 0.20 g, with significance index of 0.001 and 0.002, that is too say that values are significantly different.

Considering leaves chemical composition in the several stations, and having as a reference the measurements made in 240706, we can say that:

- to nitrogen, estates and installation forms present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to phosphorous, estates do not present significantly different values, but they are different when comparing installation forms; relatively the intra estate variability, it is not significant in none of the estates;
- to potassium, estates and installation forms present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to calcium, estates and installation forms present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to magnesium, estates present significantly different values but installation forms don't; relatively the intra estate variability, it is significant in Amendoal and Cardanhas, and not in the other estates;
- to boron, estates and installation forms present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to iron, estates present significantly different values but installation forms don't; relatively the intra estate variability, it is not significant in none of the estates;
- to copper, estates and installation forms do not present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to zinc, estates and installation forms present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to manganese, estates and installation forms present significantly different values; relatively the intra estate variability, it is not significant in none of the estates.

Table 100- Significance (1) of plants data, measured in 240706

		SPAD	FlAr	FIPS	N	P	K	Ca	Mg
240706	Estates	S	S	S	S	N	S	S	S
	Instalation form	S	N	N	S	S	S	S	N
	Amendoal	N	N	N	N	N	N	N	S
	Bateiras	N	N	N	N	N	N	N	N
	Bico dos Casais	N	N	N	N	N	N	N	N
	Cardanhas	N	N	N	N	N	N	N	S

		B	Fe	Cu	Zn	Mn
240706	Estates	S	S	N	S	S
	Instalation form	S	N	N	S	S
	Amendoal	N	N	N	N	N
	Bateiras	N	N	N	N	N
	Bico dos Casais	N	N	N	N	N
	Cardanhas	N	N	N	N	N

(1) S- Significant; N- Non significant

Considering the data measured in 240706, relative to SPAD, leaves area, its dry weight and macro and micro nutrients composition, we can see that between estates there are numerous situations where data are significantly different but, relating the intra estate variability these number is quite inferior.

Comparing the leaves composition data, measured in 210606 and 240706, it is possible to see that:

Table 101- Leaves chemical composition data in 210606 and 240706

	N	P	K	Ca	Mg	B	Fe	Cu	Zn	Mn
210606	24.19	1.71	4.96	19.88	3.73	36.32	135.42	10.48	16.67	145.67
240706	21.98	1.51	3.69	15.86	4.78	34.73	222.89	4.93	17.58	149.14
S (95%)	0.000	0.000	0.026	0.000	0.019	0.653	0.000	0.000	0.585	0.552

Determining correlations between SPAD and leaves chemical composition, we can see that they are not significant but, to values measured in 210606, SPAD significantly correlates with dry weight, N, Ca, Mg, Cu, Zn and Mn (Annex - Final results, Table 1).

Comparing the macro elements data (N, P and K), measured in 170605 and 210606, we can see differences of + 8.98, + 0.12 and + 2.89; significances are 0.000, 0.070 and 0.000, that is to say, differences are significant to N and K.

Relatively to pruning wood weight data we have, in 2005, 407.31 g and, in 2006, 632.64 g, with the difference (225.33 g) considered significant (S=0.001).

In Annex - Final results, Table 3, we present the results of 2^{nd} degree equations determinations for leaves area *vs* leaves dry weight; to the other situations, determination coefficients (R^2) are to low.

4.3- Soil data

Relating the soil data, to the several stations, we can say that:

- to pH, in the first 20 cm deep, estates and installation forms present significantly different values; relatively the intra estate variability, it is significant only in Cardanhas;
- to pH, between 20 - 40 cm deep, estates and installation forms present significantly different values; relatively the intra estate variability, it is significant only in Cardanhas;
- to OM, in the first 20 cm deep, estates and installation forms present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to OM, between 20 - 40 deep, estates present significantly different values but installation forms don't; relatively the intra estate variability, it is significant only in Cardanhas;
- to assimilable phosphorous, in the first 20 cm deep, estates present significantly different values but installation forms don't; relatively the intra estate variability, it is significant only in Cardanhas;
- to assimilable phosphorous, between 20 - 40 cm deep, estates and installation forms present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to assimilable potassium, in the first 20 cm deep, estates and installation forms present significantly different values; relatively the intra estate variability, it is significant in Amendoal and Cardanhas;

- to assimilable potassium, between 20 - 40 cm deep, estates and installation forms present significantly different values; relatively the intra estate variability, it is significant only in Amendoal;
- to calcium, in the first 20 cm deep, estates present significantly different values but installation forms don’t; relatively the intra estate variability, it is significant in Bico dos Casais and Cardanhas;
- to calcium, between 20 - 40 cm deep , estates present significantly different values but installation forms do not; relatively the intra estate variability, it is significant only in Amendoal;
- to magnesium, in the first 20 cm deep, estates and installation forms present significantly different values; relatively the intra estate variability, it is significant only in Bico dos Casais;
- to magnesium, between 20 - 40 cm deep, estates and installation forms present significantly different values; relatively the intra estate variability, it is significant only in Bico dos Casais;
- to potassium, in the first 20 cm deep, estates and installation forms do not present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to potassium, between 20 - 40 cm deep, estates and installation forms do not present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to sodium, in the first 20 cm deep, estates and installation forms do not present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to sodium, between 20 - 40 cm deep , estates and installation forms do not present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to boron, in the first 20 cm deep, estates do not present significantly different values, but differences are significant between installation forms; relatively the intra estate variability, it is not significant in none of the estates;
- to boron, between 20 - 40 cm deep, estates and installation forms present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to exchangeable acidity, in the first 20 cm deep, estates present significantly different values, but differences are not significant between installation forms; relatively the intra estate variability, it is not significant in none of the estates;
- to exchangeable acidity, between 20 - 40 cm deep, estates present significantly different values, but differences are not significant between installation forms; relatively the intra estate variability, it is not significant in none of the estates;
- to exchangeable bases sum, in the first 20 cm deep, estates present significantly different values, but differences are not significant between installation forms; relatively the intra estate variability, it is not significant in none of the estates;
- to exchangeable bases sum, between 20 - 40 cm deep, estates present significantly different values, but differences are not significant between installation forms; relatively the intra estate variability, it is significant only in Amendoal;
- to cation exchangeable capacity, in the first 20 cm deep, estates present significantly different values, but differences are not significant between installation forms; relatively the intra estate variability, it is significant only in Cardanhas;

- to cation exchangeable capacity, between 20 - 40 cm deep, estates present significantly different values, but differences are not significant between installation forms; relatively the intra estate variability, it is significant only in Amendoal;
- to bases saturation, in the first 20 cm deep, estates and installation forms present significantly different values; relatively the intra estate variability, it is not significant in none of the estates;
- to bases saturation, between 20 - 40 cm deep, estates present significantly different values but installation forms do not; relatively the intra estate variability, it is significant only in Amendoal.

Table 102- Soil data **s**ignificance (1)

			pH (H_2O)	MO	P_2O_5	K_2O	Ca	Mg	K	Na
2005	< 20 cm	Estates	S	S	S	S	S	S	N	N
		Instalation form	S	S	S	S	N	S	N	N
		Amendoal	N	N	N	S	N	N	N	N
		Bateiras	N	N	N	N	N	N	N	N
		Bico dos Casais	N	N	N	N	S	S	N	N
		Cardanhas	S	N	S	S	S	N	N	N
	20 - 40 cm	Estates	S	S	S	S	S	S	N	N
		Instalation form	S	N	S	S	N	S	N	N
		Amendoal	N	N	N	S	S	N	N	N
		Bateiras	N	N	N	N	N	N	N	N
		Bico dos Casais	N	N	N	N	N	S	N	N
		Cardanhas	S	S	N	N	N	N	N	N

			B	AT	SBT	CTCe	GSBE
2005	< 20 cm	Estates	N	S	S	S	S
		Instalation form	S	N	N	N	S
		Amendoal	N	N	N	N	N
		Bateiras	N	N	N	N	N
		Bico dos Casais	N	N	N	N	N
		Cardanhas	N	N	S	S	N
	20 - 40 cm	Estates	S	S	S	S	S
		Instalation form	S	N	N	N	N
		Amendoal	N	N	S	S	S
		Bateiras	N	N	N	N	N
		Bico dos Casais	N	N	N	N	N
		Cardanhas	N	N	N	N	N

(1) S- Significant; N- Non significant

According to the presented data, it is possible to identificate, between estates and installation forms and inside them, which soil factors stipulate variability, that is to say, the ones who are significantly different. As we can see, there are several factors that present significant differences between estates, and its number decreases when intra estate variability is considered. This lead to a different seasoning between estates, in the end of the first year, but equally in their interior.

Thru the observation of Annex - Final results, Table 1, it is possible to see that the results of leaves and soil analysis, measured in 2005, are significantly correlated in the following way:

- leaves N significantly correlates with the soil OM, K (< 20 cm), Mg and B (< 20 cm);
- leaves P significantly correlates with the soil OM, Ca and Na (20 - 40 cm);
- leaves K significantly correlates with the soil B.

4.4- Berries weight and vineyard yield data

Comparing the weight of 126 berries (2005), we can see that values are significantly different between several estates and installation forms. Relating to vineyard yield, differences are significant comparing estates but not installation forms.

In 2006, when berries weight measurements were not made, differences of *per* plant yield, between estates and installation forms, are not significant.
Because these data, as the following, were measured to stations groups, three measurements for each estate, it is not possible to determine variability inside of the estates.

Table 103- Significance of berries weight and per *plant yield* data (1)

		BP	ProPla
2005	Estates	S	S
	Instalation form	S	N
2006	Estates	-	N
	Instalation form	-	N

(1) S- Significant; N- Non significant

Per plant mean yield was, in 2005, of 3.28 kg and, in 2006, of 4.13 kg, that is to say, there is a difference of (0.85 kg), that is significant (S=0.003).

Relatively to *per* plant yield, in 2005, it is possible to see in Annex - Final results, Table 1, that it is significantly correlated with air temperature and humidity, pruning wood weight, pH and soil assimilable phosphorous. In 2006, yield significantly correlates with leaves SPAD, Cu, Zn and Mn, measured in 210606, and with Zn and Mn, measured in 240706; in 2006, soil analysis were not done.

4.5- Musts data

The musts data analyses allows concluding that, in 2005, alcohol content of estates and installation forms presented significantly different values; in 2006, these values to the estates, are not significantly different but are when comparing installation forms.
Relatively to total acidity, in 2005, estates and installation forms present significantly different values; in 2006, variation is similar to the previous year.
Considering pH, in 2005 and 2006, estates and installation forms do not present significantly different values.

Table 104- Musts data significance (1)

		MAP	MAT	MpH
2005	Estates	S	S	N
	Instalation form	S	S	N
2006	Estates	N	S	N
	Instalation form	S	S	N

(1) S- Significant; N- Non significant

Relating to musts characteristics, probable alcohol content and total acidity are the ones that allow their quality differentiation; in 2006, the difference between MAP estates was not significant.

Comparing musts data (probable alcohol, pH and total acidity) of 2005 and 2006, we can see differences of - 0.49, + 0.24 and - 0.32, with significance levels of 0.005, 0.000 and 0.007, that is to say, they are all significantly different.

Correlating these musts characteristics with *per* plant yield, there is no visible significant correlation (Annex - Final results, Table 1).

4.6- Wines data

The analysis of the wines data allows concluding that, in 2005, alcohol content of wines from estates and installation forms presented significantly different values; in 2006, the variation is similar to the previous year.

In 2005, wines total dry extract of estates and installation forms do not presented significantly different values; in 2006, the variation is significant in both situations.

In 2005, wines reducer sugars of estates do not present significant values, but differences are significant to installation forms; in 2006, differences are significant in both situations.

In 2005, wines pH of estates and installation forms do not present significantly different values; in 2006, the variation is similar to the previous year.

In 2005, wines total acidity of estates installation forms do not present significant values; in 2006, differences are significant in both situations.

In 2005, wines volatile acidity of estates and installation forms present significantly different values; in 2006, differences are equally significant in both situations.

In 2005, wines fix acidity of estates is not significantly different, but is to installation forms; in 2006, differences are significant to estates and not significant to installation forms.

In 2005, wines total phenols of estates and installation forms are not significantly different; in 2006, the same situation is observed.

In 2005, wines colour intensity of estates is significantly different, but not to installation forms; in 2006, differences are significant in both situations.

In 2005, wines tonality of estates and installation forms are not significantly different; in 2006, the same situation is observed.

In 2005, wines ashes content of estates and installation forms are not significantly different; in 2006, the same situation is observed.

In 2005, wines ashes alkalinity of estates and installation forms are not significantly different; in 2006, the difference is not significant to estates but is significant to installation forms.

In 2005, wines inorganic phosphates concentration of estates and installation forms are not significantly different; in 2006, that difference is significant when comparing estates but not when comparing installation forms.

In 2005, wines antocians content of estates and installation forms are not significantly different; in 2006, that difference is significant when comparing estates but not when comparing installation forms.

In 2005, the contents of sulphurous anhydride in the first application to wines of estates and installation forms are not significantly different; in 2006, the same situation is observed.

In 2005, the contents of sulphurous anhydride in the second application to wines of estates and installation forms are not significantly different; in 2006, the same situation is observed.

Table 105- Wines data significance (1)

		VAlcool	VExSeT	VAcuRe	VpH	VAcTt	VAcVl	VAcFx	VFenTt
2005	Estates	S	N	N	N	N	S	N	N
	Instalation	S	N	S	N	N	S	S	N
2006	Estates	S	S	S	N	S	S	S	N
	Instalation	S	S	S	N	S	S	N	N

		VColour	VTon	VCinza	VAlc	VPO4	VAnt	VSO_2L	VSO_2T
2005	Estates	S	N	N	N	N	N	N	N
	Instalation	N	N	N	N	N	N	N	N
2006	Estates	S	N	N	N	S	S	N	N
	Instalation	S	N	N	S	N	N	N	N

(1) S- Significant; N- Non significant

Considering these results, the wines characteristics that better distinguish them, that is to say, that are significantly different in at least one of the years are alcohol content, total dry extract, reducer sugars, total and fix acidity, colour, inorganic phosphates content and antocians.

Correlating the musts data with the wine ones (Annex - Final results, Table 1), it is possible to identify the following significant correlations.

To 2005:

- must probable alcohol with wine alcohol, *per* volume mass, total dry extract, reducer sugars, volatile and fix acidity, colour ashes content;
- must total acidity with wine pH and volatile acidity;
- must pH with wine pH and volatile acidity.

To 2006:

- must probable alcohol with wine alcohol, reducer sugars, total dry extract and colour;
- must total acidity with wine reducer sugars;
- must pH has no correlation with none of wine characteristics.

Comparing data of both years: differences and their significances are as followed:

Table 106- Difference between 2005 and 2006 data and its significance

	VAlcool	VExSeT	VAcuRe	VpH	VAcTt	VAcVl	VAcFx	VFenTt
2005-2006	-0.861	0.511	-0.059	0.325	-0.035	-0.105	0.082	13.717
S (95%)	0.000	0.241	0.212	0.263	0.700	0.067	0.481	0.000

	VCor	VTon	VCinza	VAlc	VPO4	VAnt	VSO_2L	VSO_2T
2005-2006	3.863	0.022	0.206	3.750	-0.030	109.67	-1.080	-5.175
S (95%)	0.000	0.221	0.258	0.001	0.507	0.008	0.524	0.226

4.6- Wine tasting data

Relatively to classifications attributed by the tasters' panel, it is possible to conclude that, in 2005 wine colour intensity of estates was not significantly different, but that characteristic is different when comparing installation forms; in 2006, that difference is significant when comparing estates and installation forms.

Relatively to wines aroma, it is possible to conclude that in 2005, values attributed to estates and installation forms are not significantly different; in 2006, the same situation occurs.

Relating to wines "body", it is possible to conclude that, in 2005, values attributed to estates are significantly different but not when comparing installation forms; in 2006, differences are not significant in both situations.

Considering wines astringency, it is possible to conclude that in 2005, values attributed to estates and installation forms are not significantly different; in 2006, the same situation occurs.

Relatively to wines red fruits aroma, it is possible to conclude that in 2005, values attributed to estates and installation forms are not significantly different; in 2006, the same situation occurs.

Relatively to wines floral intensity, it is possible to conclude that in 2005, values attributed to estates and installation forms are significantly different; in 2006, differences, in both situations, are not significantly different.

Relatively to wines acidity, it is possible to conclude that in 2005, values attributed to estates and installation forms are not significantly different; in 2006, the same situation occurs.

Relatively to final notes attributed to wines, it is possible to conclude that in 2005, values attributed to estates are significantly different but not to installation forms; in 2006, differences, in both situations, are significantly different.

Table 107- Significance of wines tasting data (1)

		PrCor	PrAroma	PrCorpo	PrAdst	PrFrVe	PrFloral	PrAcidez	PrNFin
2005	Estates	N	N	S	N	N	S	N	S
	Instalation	S	N	N	N	N	S	N	N
2006	Estates	S	N	N	N	N	N	N	S
	Instalation	S	N	N	N	N	N	N	S

(1) S- Significant; N- Non significant

Correlating the tasting results with wine characteristics (Annex - Final results, Table 1), it is possible to identificate the following significant correlations.

To 2005:

- colour correlates with alcohol, reducer sugars, total dry extract, fix and total acidity wine ashes;
- aroma correlates with fix and total acidity;
- "body" correlates with alcohol, dry extract, reducer sugars, colour ashes content;
- astringency correlates with alcohol, dry extract, reducer sugars, ashes, ashes alkalinity and partial and total sulphurous anhydride;
- red fruits aroma does not present any significant correlation;
- floral aroma does not present any significant correlation;
- final note correlates with alcohol, reducer sugars, total dry extract, fix and total, colour, tonality, ashes and free sulphurous anhydride and with colour, aroma, "body" and astringency attributed in tasting.

As we can see in Annex - Final results, Table 3, significant correlations of final note attributed to wines, in 2005, by the tasters' panel relatively to all the measured factors are indicated in the following Tables.

Table 108- Significant correlations between final note and all of the measured factors (2005)

SI20Ca05	SI40Ca05	SI20Na05	SI20SBT05	SI40SBT05	SI20CTCe05	SI40CTCe05	BAP210905	BcAcucar05	BcAntTt05
0.728**	0.719**	0.606*	0.771**	0.769**	0.774**	0.781**	0.605*	0.617*	-0.675*

VAlcool05	VAcRe05	VExSeT05	VAcFx05	VAcTt05	VCor05	VTon05	VCinza05	VSO_2L05	PrCor05
0.606*	0.593*	0.583*	0.623*	0.594*	0.677*	-0.638*	0.717**	-0.592*	0.820**

PrAroma05	PrCorpo05	PrAdst05
0.670*	0.856**	0.678*

* Correlations are significant to levels 0.05
** Correlations are significant to levels 0.01

To 2006:

- colour correlates with wine alcohol, reducer sugars, total dry extract, volatile acidity, phenols, colour and ashes alkalinity;
- aroma correlates with wine volatile acidity and colour;
- "body" correlates with wine alcohol, volatile acidity and colour;
- astringency correlates with wine volatile acidity, phenols and colour;
- red fruits aroma correlates with wine tonality;
- floral aroma does not present any significant correlation;
- final note correlates with wine alcohol, reducer sugars, total dry extract, pH, volatile acidity, ashes alkalinity and colour attributed in tasting.

As we can see in Annex - Final results, Table 3, significant correlations of final note attributed to wines, in 2006, by the tasters panel relatively to all of the measured factors are indicate in the following Tables.

Table 109- Significant correlations between final note and all of the measured factors (2006)

FIB210606	FIFe210606	FIZn210606	FIMn210606	FIK240706	FICa240706	FIB240706	FICu240706	FIZn240706	FIMn240706
-0.676*	0.677*	0.649*	-0.782**	0.652*	0.762**	-0.743**	0.612*	-0.601*	-0.662*

MAP06	VAlcool06	VAcRe06	VExSeT06	VpH06	VAcVI06	VCor06	VAlc06	PrCor06
0.724**	0.817**	0.667**	0.809**	0.621*	0.705*	0.673*	0.799**	0.735**

* Correlations are significant to levels 0.05

** Correlations are significant to levels 0.01

As we could see in previous Tables, in 2005, there were many soil factors with significant correlations relating to final note attributed to wines and, in 2006, several significant correlations with leaves composition; soil analysis were made only in 2005 and leaves composition analysis, including microelements, in 2006. The environment data do not present any significant correlation, but the quality difference between wines produced in both years was very much influenced by the mean temperature difference observed in both years.

Comparing the data of wines sensorial analysis in 2005 and 2006, it is possible to see the following differences and significances:

Table 110- Difference between wines sensorial analysis data of 2005 and 2006 and its significance

	PrCor	PrAroma	PrCorpo	PrAdst	PrFrVe.	PrFloral	PrAcidez	PrNFin
2005-2006	+0.613	+0.298	+0.573	+0.241	+0.057	+0.528	+0.303	+0.833
S (95%)	0.000	0.050	0.000	0.104	0.654	0.001	0.000	0.001

Considering that the mean final notes of each estate are significantly different, a comparison of the attributed notes to the several groups must be done, to evaluate if separate vintage in each one of the groups is in order or if separate vintage of estates should be done. The impossibility to vinificate separately the groups or estates with different final notes advises that, according to available means, the vinification of two or three wines correspondent to the same quality levels, should be done.

In the present case, notes attributed by the tasters panel in 2005, advises to separately vinificate grapes from groups BaG2 and BCG2 (classification Good) in order to obtain better quality wines, grapes from groups CaG2 and CaG3 (classification Regular and Regular-), to obtain wines of lower quality and the rest of the groups AmG1, AmG2, AmG3, BaG1, BaG3, BCG1, BCG3 and CaG1 (classification Regular +), to obtain wines of intermediate quality. If estates were to be separately initiated, the option would be to gather production from Bateiras and Bico dos Casais, to obtain better quality wines, production from Amendoal to obtain wines of intermediate quality, and the production of Cardanhas to obtain less quality wines or even not to transform this last production, giving it other purpose.

In 2006, quality interpretation defined only two levels (Regular and Regular +), and so the options would be to make only one wine with all yield, or two, corresponding to each of them a classification.

Not being possible to make separately the similar quality groups from the estates, namely in situations were production does not justify it, the estates should be chosen according to their wine homogenous characteristics. Vintage and vinification according to the installation forms, as long as they present significant difference could be an alternative.

Comparing both years data, it is possible to conclude that the most relevant factors considered by the tasters panel to determine wines quality, that is to say, those that presented significant differences at least in one of the two years, are colour, “body” and floral aroma.

Determining correlations between mean values obtained in the analysed twelve groups (Annex - Final results, Table 1), numerals significant correlations can be identified that, due to the reduced number of cases should be considered with reserves. Equally considering that “viticulture” and “oenology” have their own characteristics, although the first greatly influences the second, the field data should be analysed separately from the oenological ones, being important to establish the relations that present as significant between them.

In summary, it is possible to say that it is fundamental to identificate the climate, soil and plants characteristics, which could rise to power wines differentiation and that way separately gather the grapes of the several estates or at least part of them. Creating a “history” relative to this differentiation is decisive to alter situations in which viticulturist can intervene, like soil seasonings, etc., in order to “approach” situations of better quality “prime matter” obtainment that will allow better wines vinification. The improvement of vinification techniques, although can overcome some lack of grapes quality, is raise to power when they present the necessary characteristics to obtain good quality wines.

Annex - General

Tables, figures and protocols

Table 1- Cultural operations done in 2005 and 2006

Year of 2005:

Amendoal:

Pruning	16 of March
Lopping	12 of May
1st Treatment	20 of May (Fórum F + Rubigan)
Supporting	17 of May
2nd Treatment	14 of June (Enxofre F/Extra)
3rd Treatment	28 of June (Arius)
Clipping	7 of July

Bateiras:

Pruning	14 and 15 of March (Wood prunning)
Lopping	9 and 10 of May (Green prunning)
1º Treatment	21 of May (Fórum F + Rubigan) (Spray)
Supporting	23 of May
2º Treatment	13 of June (Enxofre F/Extra)
3º Treatment	30 of June (Arius)
Clipping	13 of July

Bico Casais:

Pruning	14 of March
Lopping	4 of May
1º Treatment	21 of May (Fórum F + Rubigan)
Supporting	19 of May
2º Treatment	13 of June (Enxofre F/Extra)
3º Treatment	30 of June (Arius)
Clipping	13 of July

Cardanhas:

Pruning	11 of March
Lopping	4 of May
1º Treatment	21 of May (Fórum F + Rubigan)
Supporting	19 of May
2º Treatment	13 of June (Enxofre F/Extra)
3º Treatment	30 of June (Arius)
Clipping	13 of July

Year of 2006:

Amendoal:

Pruning	27 of March
Sulphur	17 of May
Sulphate: Melody and Vento	20 of June

Bateiras:

Seasoning	200 grams/plant of Eurogan (May ?)
Pruning	28 of March
Lopping and Supporting	24 of May
Sulphur	26 of May
Sulphate: Melody and Vento	22 of June

Bico dos Casais:

Pruning	20 of March
Lopping	15 of May
Supporting	16 of May
Sulphur	17 of May
Sulphate: Melody and Vento	20 of June

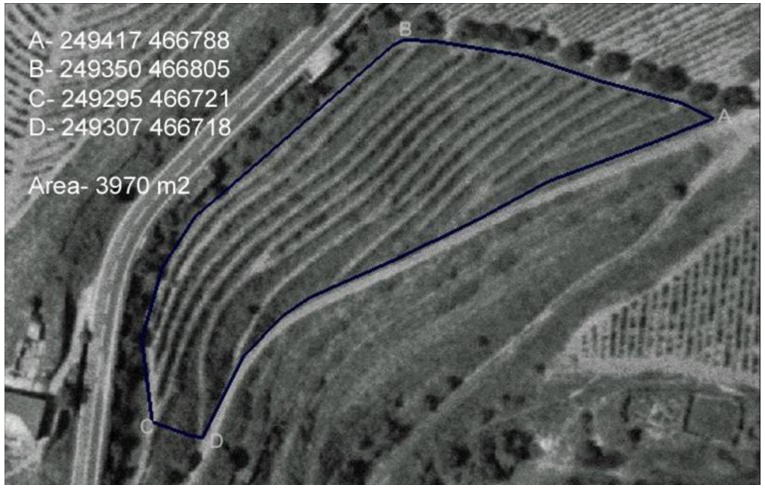
Cardanhas:

Pruning	21 of March
Lopping and Supporting	18 of May
Sulphur	23 of May
Sulphate: Melody and Vento	20 of June

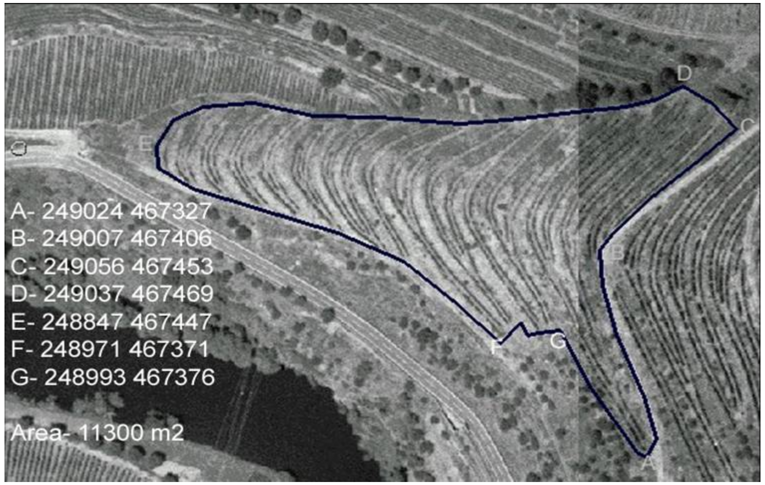
Site with pesticides caracterisation:
(http://www.drabl.min-agricultura.pt/servicos_online/dsag/dcf/files/produtos_autorizados_mildio_vinha_dao_2006.pdf)

Figure 1- Aerial photos from trial plots and its graphic representation

Amendoal



Bateiras



Bico dos Casais

Cardanhas

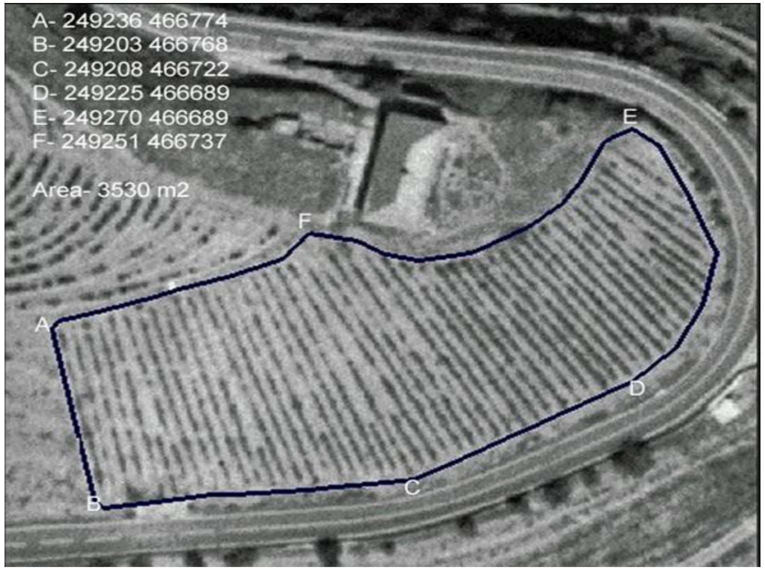
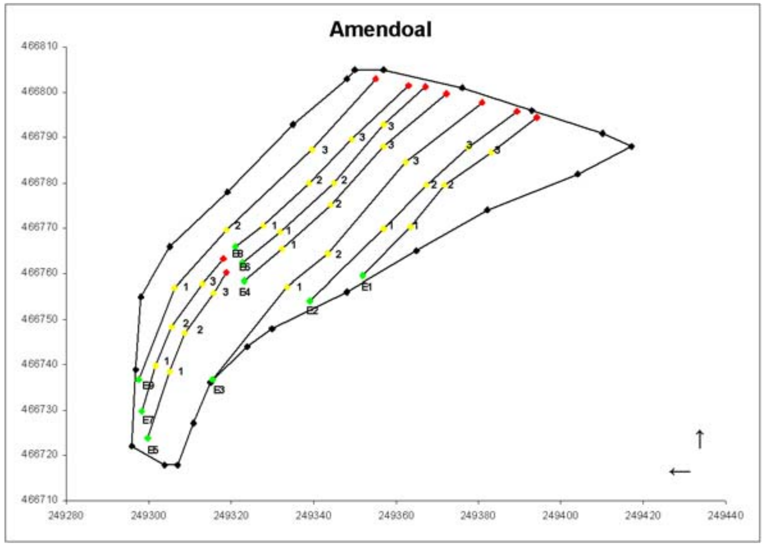
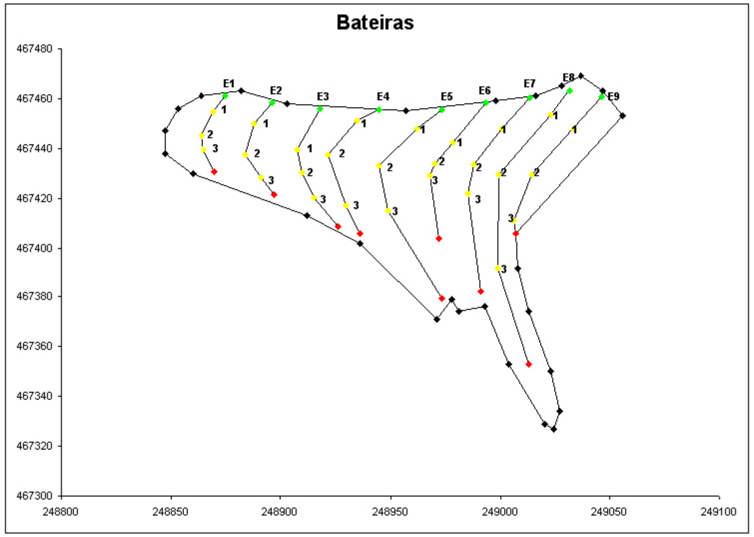
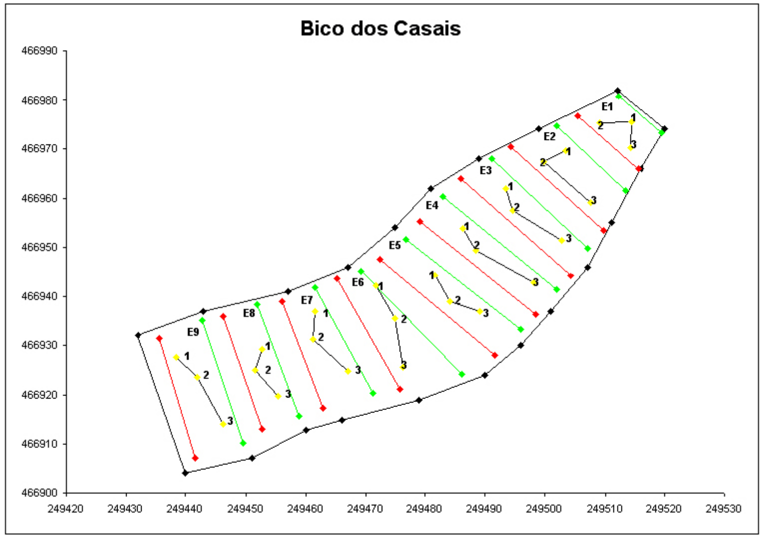


Figure 2 - Plots graphical representation and georeferenced points







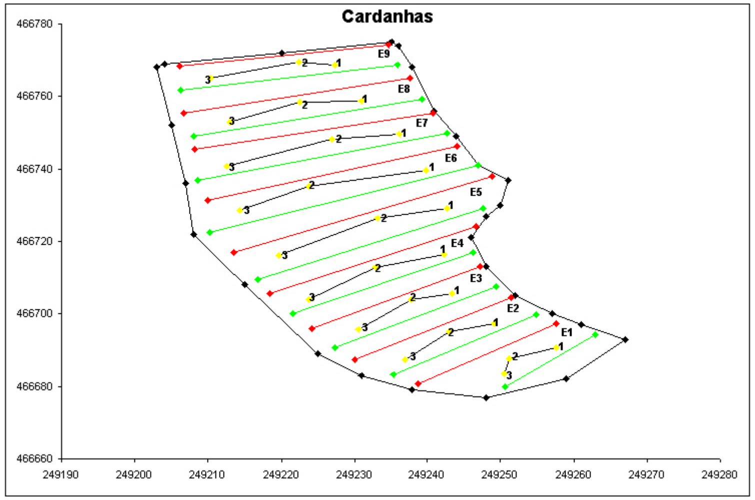
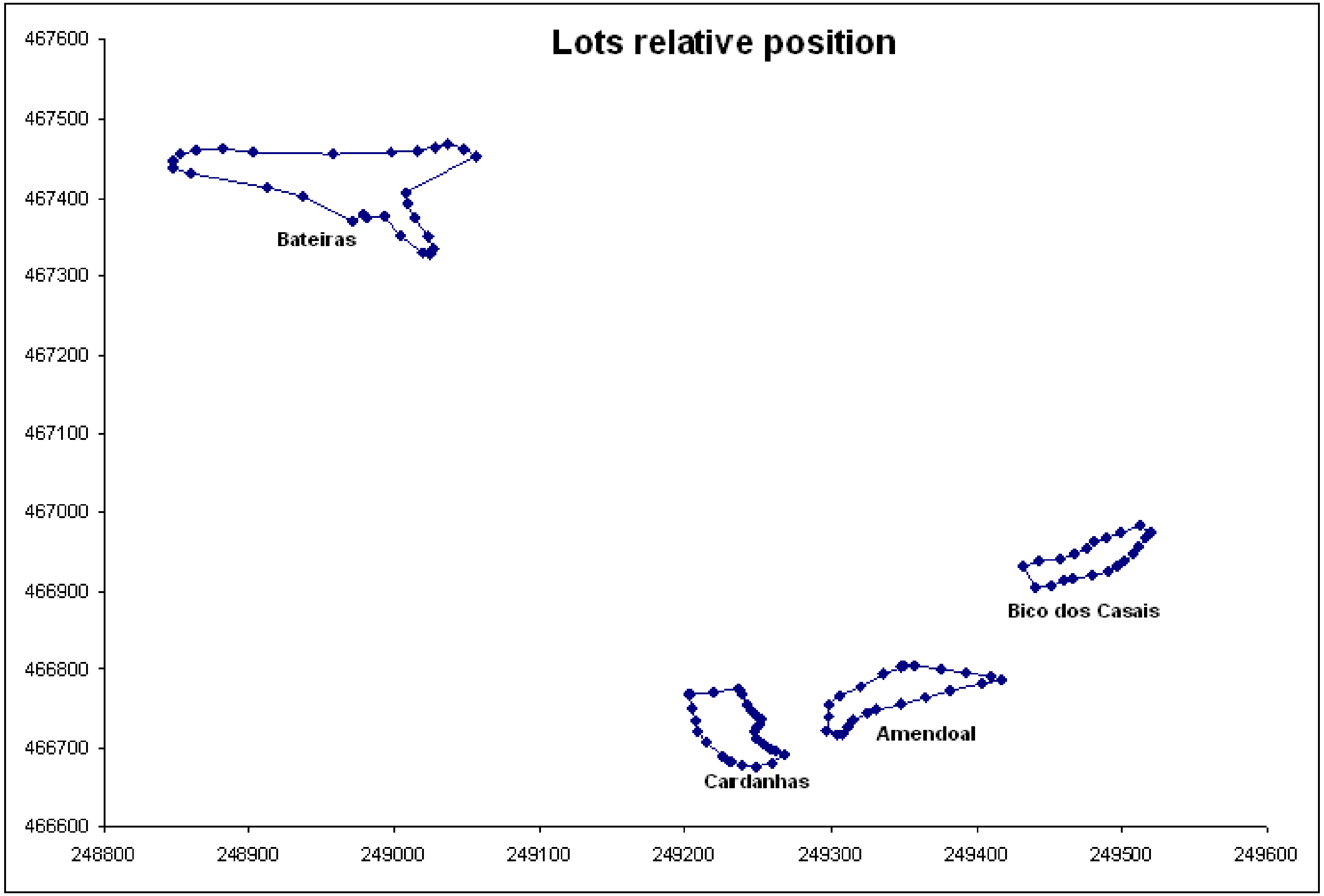


Figure 3- Lots relative position



Protocol 1- Vinification protocol

After determining vintage date, based on ripening evolution in the different estates, we collected the grapes in the previously selected plants, recording each modality yield, in the four studied estates.

The technique used in vinification (microvinification), was carried out according to the following protocol:

1- Different modality yield weighing;

2- Picking/Crushing of about 25/30 Kg of grapes, by modality;

3- Collection of a must sample to analysis, with measurement of probable alcohol, pH, total acidity;

4- Addition of sulphurous, with a dosage of 60 mg/l and pH correction, if necessary (pH > 3.8);

5- Fermentation until reaching a density near to 1000, with two daily macerations, to homogenize the mean and extract the different components. Daily record of density and fermentation temperature;

6- Racking and gentle pressing of grapes. All of wine from press is mixed with drop wine;

7- Wine preservation at a temperature near 20ºC and racking after confirmation of the absence of remnant sugars;

8- Acidity correction, if necessary (pH> 3,6) and inoculation with selected lactic bacteria;

9- Wine preservation at a temperature near 20ºC until malolactic fermentation (FML) has ended, confirmed by paper chromatography;

10- Racking with sulphurous correction to 25-30 mg/l of free sulphurous;

11- Bottling and bottles preservation in cool environment;

12- Physical and chemical analysis, determining the following parameters: ethanol, pH, total acidity, volatile acidity, tartaric acid, reducer sugars, total dry extract and non reducer, ash, ash alkalinity, phosphates, total poliphenols, total antocians, colour intensity and totality;

13- Tasting, evaluating colour, aroma, including red fruits and floral aroma, flavour (“body” and astringency) and Final Note attribution.

Annex - Environment

Tables, graphics and figures

Table 1- Average air temperature (ºC), air humidity (%), soil temperature (ºC) and plant temperature (ºC), for different plots and installations forms in 2005 and 2006**.**

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
ClTp05M	27	26.453	0.9207	24.130	27.800
ClTp06M	27	33.741	1.3376	31.100	35.560
ClHm05M	27	27.488	1.2398	25.270	29.500
ClHm06M	27	27.192	1.8724	24.020	30.380
PlTp05M	27	27.983	0.5652	26.730	29.070
PlTp06M	27	27.349	0.9560	25.800	29.100
SlTp05M	27	34.676	1.5238	31.820	37.920
SlTp06M	27	31.155	1.5736	28.220	34.400

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
ClTp05M	27	24.108	0.4272	23.200	24.970
ClTp06M	27	32.061	0.4992	31.180	33.140
ClHm05M	27	33.504	1.8460	29.800	37.000
ClHm06M	27	31.527	1.1703	28.860	33.180
PlTp05M	27	27.989	1.2565	25.800	30.230
PlTp06M	27	27.579	1.1694	25.260	29.480
SlTp05M	27	33.350	1.7839	29.930	36.430
SlTp06M	27	32.101	1.4599	30.120	35.960

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
ClTp05M	27	22.229	0.7411	20.770	23.500
ClTp06M	27	33.333	0.5703	32.040	34.360
ClHm05M	27	42.624	0.8492	41.400	44.300
ClHm06M	27	27.492	0.5570	26.360	28.740
PlTp05M	27	24.079	1.0010	21.850	25.650
PlTp06M	27	27.288	0.8745	25.900	29.180
SlTp05M	27	29.241	1.5147	27.080	32.180
SlTp06M	27	32.430	1.2893	29.700	35.280

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
ClTp05M	27	22.410	0.5845	21.270	23.270
ClTp06M	27	31.989	0.6716	31.060	33.260
ClHm05M	27	39.077	1.6991	35.800	41.800
ClHm06M	27	30.954	1.1693	29.220	33.040
PlTp05M	27	24.771	0.5469	23.480	25.500
PlTp06M	27	26.893	0.6804	25.660	28.380
SlTp05M	27	28.457	1.2395	25.980	31.280
SlTp06M	27	29.794	1.6175	26.900	33.720

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
ClTp05M	54	25.281	1.3805	23.200	27.800
ClTp06M	54	32.901	1.3111	31.100	35.560
ClHm05M	54	30.496	3.4122	25.270	37.000
ClHm06M	54	29.359	2.6792	24.020	33.180
PlTp05M	54	27.986	0.9650	25.800	30.230
PlTp06M	54	27.464	1.0643	25.260	29.480
SlTp05M	54	34.013	1.7742	29.930	37.920
SlTp06M	54	31.628	1.5774	28.220	35.960

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
ClTp05M	54	22.319	0.6674	20.770	23.500
ClTp06M	54	32.661	0.9172	31.060	34.360
ClHm05M	54	40.851	2.2304	35.800	44.300
ClHm06M	54	29.223	1.9688	26.360	33.040
PlTp05M	54	24.425	0.8720	21.850	25.650
PlTp06M	54	27.091	0.8012	25.660	29.180
SlTp05M	54	28.849	1.4268	25.980	32.180
SlTp06M	54	31.112	1.9668	26.900	35.280

Table 2- ANOVA air temperature average among plots, between vineyard installations and inside plots in 2005

```
ONE-WAY AOV FOR ClTp05M BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     311.440    103.813  216.16  0.0000
WITHIN   104     49.9479    0.48027
TOTAL    107     361.388
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   15.51     3    0.0014

COCHRAN'S Q                    0.4413
LARGEST VAR / SMALLEST VAR     4.6456
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    3.82715
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             26.453     27       0.9207
Ba             24.108     27       0.4272
BC             22.229     27       0.7411
Ca             22.410     27       0.5845
TOTAL          23.800    108       0.6930
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClTp05M BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     236.770    236.770  201.40  0.0000
WITHIN   106     124.618    1.17564
TOTAL    107     361.388
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   25.59     1    0.0000
COCHRAN'S Q                    0.8106
LARGEST VAR / SMALLEST VAR     4.2790
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4.36287
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             25.281     54       1.3805
VA             22.319     54       0.6674
TOTAL          23.800    108       1.0843
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClTp05M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     17.0423    2.13029    7.67  0.0002
WITHIN    18     4.99927    0.27774
TOTAL     26     22.0416
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   16.10     8    0.0410
COCHRAN'S Q                    0.3694
LARGEST VAR / SMALLEST VAR     218.11
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.61752
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           25.010      3       0.8516
AmE2           25.910      3       0.1929
AmE3           26.733      3       0.1739
AmE4           26.623      3       0.6532
AmE5           26.657      3       0.4070
AmE6           27.733      3       0.0651
AmE7           27.253      3       0.1365
AmE8           26.623      3       0.4105
AmE9           25.533      3       0.9609
TOTAL          26.453     27       0.5270
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClTp05M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     3.04114    0.38014    4.02  0.0068
WITHIN    18     1.70347    0.09464
TOTAL     26     4.74461
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.01     8    0.4325
COCHRAN'S Q                    0.3396
LARGEST VAR / SMALLEST VAR     36.612
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.09517
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           24.243      3       0.2503
BaE2           23.700      3       0.1997
BaE3           24.623      3       0.3356
BaE4           24.363      3       0.1528
BaE5           23.800      3       0.0889
BaE6           23.743      3       0.4864
BaE7           24.467      3       0.2219
BaE8           23.767      3       0.5378
BaE9           24.267      3       0.1739
TOTAL          24.108     27       0.3076
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClTp05M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     8.99321    1.12415    3.83  0.0086
WITHIN    18     5.28593    0.29366
TOTAL     26     14.2791
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.46     8    0.5960
COCHRAN'S Q                    0.2863
LARGEST VAR / SMALLEST VAR     14.973
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.27683
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           21.857      3       0.7744
BCE2           21.447      3       0.6145
BCE3           21.443      3       0.3009
BCE4           23.090      3       0.2987
BCE5           22.757      3       0.8698
BCE6           22.877      3       0.6860
BCE7           22.487      3       0.3371
BCE8           22.223      3       0.3075
BCE9           21.877      3       0.2248
TOTAL          22.229     27       0.5419
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClTp05M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     6.20940    0.77617    5.23  0.0017
WITHIN    18     2.67320    0.14851
TOTAL     26     8.88260
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   11.28     8    0.1862
COCHRAN'S Q                    0.3102
LARGEST VAR / SMALLEST VAR     157.46
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.20922
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           21.570      3       0.3464
CaE2           22.013      3       0.6439
CaE3           22.547      3       0.1570
CaE4           22.457      3       0.0513
CaE5           21.810      3       0.2536
CaE6           22.533      3       0.4234
CaE7           22.913      3       0.4557
CaE8           23.047      3       0.1365
CaE9           22.800      3       0.5522
TOTAL          22.410     27       0.3854
CASES INCLUDED 27    MISSING CASES 0
```

Table 3- ANOVA air temperature average among plots, between vineyard installations and inside plots in 2006

```
ONE-WAY AOV FOR ClTp06M BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    64.0641    21.3547   30.35  0.0000
WITHIN   104    73.1825    0.70368
TOTAL    107    137.247
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   33.81     3    0.0000
COCHRAN'S Q                 0.6357
LARGEST VAR / SMALLEST VAR     7.1798
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.76485
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             33.741     27       1.3376
Ba             32.061     27       0.4992
BC             33.333     27       0.5703
Ca             31.989     27       0.6716
TOTAL          32.781    108       0.8389
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClTp06M BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    1.56000    1.56000    1.22  0.2721
WITHIN   106    135.687    1.28006
TOTAL    107    137.247
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.56     1    0.0104
COCHRAN'S Q                 0.6714
LARGEST VAR / SMALLEST VAR     2.0433
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00518
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             32.901     54       1.3111
VA             32.661     54       0.9172
TOTAL          32.781    108       1.1314
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    45.0109    5.62636   67.15  0.0000
WITHIN    18    1.50827    0.08379
TOTAL     26    46.5191
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    9.04     8    0.3390
COCHRAN'S Q                 0.3188
LARGEST VAR / SMALLEST VAR     138.69
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.84752
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           31.553      3       0.4319
AmE2           31.920      3       0.2107
AmE3           32.993      3       0.1617
AmE4           33.147      3       0.3202
AmE5           34.587      3       0.2723
AmE6           34.653      3       0.0416
AmE7           35.080      3       0.4903
AmE8           34.647      3       0.2248
AmE9           35.093      3       0.1665
TOTAL          33.741     27       0.2895
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    5.71914    0.71489   16.93  0.0000
WITHIN    18    0.76000    0.04222
TOTAL     26    6.47914
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.99     8    0.6486
COCHRAN'S Q                 0.3372
LARGEST VAR / SMALLEST VAR     50.579
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.22422
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           31.673      3       0.2082
BaE2           32.113      3       0.1963
BaE3           31.700      3       0.2433
BaE4           31.373      3       0.1815
BaE5           31.900      3       0.1114
BaE6           31.873      3       0.1553
BaE7           32.427      3       0.0503
BaE8           32.660      3       0.1970
BaE9           32.833      3       0.3580
TOTAL          32.061     27       0.2055
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    7.50667    0.93833   17.76  0.0000
WITHIN    18    0.95093    0.05283
TOTAL     26    8.45760
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.75     8    0.5642
COCHRAN'S Q                 0.2914
LARGEST VAR / SMALLEST VAR     37.107
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.29517
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           32.333      3       0.2663
BCE2           32.513      3       0.3722
BCE3           33.313      3       0.2230
BCE4           33.613      3       0.1973
BCE5           34.073      3       0.2485
BCE6           33.573      3       0.0611
BCE7           33.673      3       0.0902
BCE8           33.427      3       0.2901
BCE9           33.480      3       0.1400
TOTAL          33.333     27       0.2298
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    11.0603    1.38253   37.34  0.0000
WITHIN    18    0.66640    0.03702
TOTAL     26    11.7267
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.07     8    0.8509
COCHRAN'S Q                 0.2897
LARGEST VAR / SMALLEST VAR     25.857
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.44850
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           33.193      3       0.0611
CaE2           32.653      3       0.1793
CaE3           32.387      3       0.1474
CaE4           32.180      3       0.2163
CaE5           32.027      3       0.1701
CaE6           31.533      3       0.3107
CaE7           31.340      3       0.2088
CaE8           31.327      3       0.1405
CaE9           31.260      3       0.2000
TOTAL          31.989     27       0.1924
CASES INCLUDED 27    MISSING CASES 0
```

Table 4- ANOVA air humidity average among plots, between vineyard installations and inside plots in 2005

```
ONE-WAY AOV FOR ClHm05M BY Parc
SOURCE    DF       SS         MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     3553.48    1184.49  553.95  0.0000
WITHIN   104     222.379    2.13826
TOTAL    107     3775.85
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   16.65     3    0.0008
COCHRAN'S Q                   0.3984
LARGEST VAR / SMALLEST VAR     4.7256
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    43.7909
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am              27.488     27       1.2398
Ba              33.504     27       1.8460
BC              42.624     27       0.8492
Ca              39.077     27       1.6991
TOTAL           35.673    108       1.4623
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClHm05M BY Inst
SOURCE    DF       SS         MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     2895.10    2895.10  348.43  0.0000
WITHIN   106     880.752    8.30898
TOTAL    107     3775.85
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    9.22     1    0.0024
COCHRAN'S Q                   0.7006
LARGEST VAR / SMALLEST VAR     2.3405
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    53.4591
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt              30.496     54       3.4122
VA              40.851     54       2.2304
TOTAL           35.673    108       2.8825
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClHm05M BY PaEt
SOURCE    DF       SS         MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     28.3495    3.54369    5.49  0.0013
WITHIN    18     11.6151    0.64528
TOTAL     26     39.9646
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.65     8    0.7944
COCHRAN'S Q                   0.3376
LARGEST VAR / SMALLEST VAR     11.539
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.96614
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1            28.313      3       0.4844
AmE2            27.667      3       0.5807
AmE3            28.613      3       0.9185
AmE4            28.457      3       0.9336
AmE5            26.923      3       0.4203
AmE6            26.100      3       0.7211
AmE7            26.000      3       0.4122
AmE8            26.657      3       1.4002
AmE9            28.663      3       0.8327
TOTAL           27.488     27       0.8033
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClHm05M BY PaEt
SOURCE    DF       SS         MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     67.7363    8.46704    7.30  0.0002
WITHIN    18     20.8683    1.15935
TOTAL     26     88.6046
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.23     8    0.4109
COCHRAN'S Q                   0.2191
LARGEST VAR / SMALLEST VAR     88.484
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.43590
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1            31.867      3       0.8808
BaE2            36.017      3       1.4919
BaE3            33.400      3       0.9836
BaE4            34.233      3       0.1607
BaE5            34.200      3       1.4080
BaE6            34.483      3       0.6526
BaE7            31.650      3       0.4770
BaE8            34.750      3       1.2319
BaE9            30.933      3       1.5119
TOTAL           33.504     27       1.0767
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClHm05M BY PaEt
SOURCE    DF       SS         MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     10.8608    1.35760    3.10  0.0221
WITHIN    18     7.88927    0.43829
TOTAL     26     18.7501
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.05     8    0.7517
COCHRAN'S Q                   0.2557
LARGEST VAR / SMALLEST VAR     13.218
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.30644
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1            42.520      3       0.2762
BCE2            43.800      3       0.8402
BCE3            42.377      3       0.8886
BCE4            41.767      3       0.4726
BCE5            41.800      3       0.3161
BCE6            42.490      3       0.5632
BCE7            42.523      3       0.7366
BCE8            42.923      3       1.0043
BCE9            43.420      3       0.4258
TOTAL           42.624     27       0.6620
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClHm05M BY PaEt
SOURCE    DF       SS         MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     52.4979    6.56223    5.24  0.0017
WITHIN    18     22.5617    1.25343
TOTAL     26     75.0595
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.60     8    0.5807
COCHRAN'S Q                   0.2582
LARGEST VAR / SMALLEST VAR     61.656
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.76960
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1            39.720      3       0.6159
CaE2            39.353      3       0.9459
CaE3            40.467      3       0.2173
CaE4            40.587      3       1.0520
CaE5            41.000      3       0.7238
CaE6            37.947      3       1.2152
CaE7            37.313      3       1.3220
CaE8            38.233      3       1.7065
CaE9            37.077      3       1.4808
TOTAL           39.077     27       1.1196
CASES INCLUDED 27    MISSING CASES 0
```

Table 5- ANOVA air humidity average among plots, between vineyard installations and inside plots in 2006

```
ONE-WAY AOV FOR ClHm06M BY Parc
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     415.999    138.666   84.65  0.0000
WITHIN   104     170.371    1.63819
TOTAL    107     586.371
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   32.32     3    0.0000
COCHRAN'S Q                  0.5350
LARGEST VAR / SMALLEST VAR   11.301
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    5.07512
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             27.192     27       1.8724
Ba             31.527     27       1.1703
BC             27.492     27       0.5570
Ca             30.954     27       1.1693
TOTAL          29.291    108       1.2799
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClHm06M BY Inst
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.50157    0.50157    0.09  0.7638
WITHIN   106     585.869    5.52707
TOTAL    107     586.371
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.91     1    0.0268
COCHRAN'S Q                  0.6493
LARGEST VAR / SMALLEST VAR   1.8518
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.09306
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             29.359     54       2.6792
VA             29.223     54       1.9688
TOTAL          29.291    108       2.3510
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClHm06M BY PaEt
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     84.5951    10.5744   29.04  0.0000
WITHIN    18     6.55387    0.36410
TOTAL     26     91.1490
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   14.99     8    0.0593
COCHRAN'S Q                  0.2368
LARGEST VAR / SMALLEST VAR   5821.0
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    3.40343
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           29.040      3       0.5758
AmE2           29.753      3       0.6987
AmE3           28.827      3       0.3900
AmE4           28.733      3       0.8810
AmE5           26.107      3       0.7300
AmE6           26.347      3       0.0115
AmE7           24.787      3       0.7414
AmE8           25.893      3       0.6268
AmE9           25.240      3       0.2307
TOTAL          27.192     27       0.6034
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClHm06M BY PaEt
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     25.2381    3.15477    5.48  0.0013
WITHIN    18     10.3691    0.57606
TOTAL     26     35.6072
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   10.01     8    0.2645
COCHRAN'S Q                  0.2710
LARGEST VAR / SMALLEST VAR   138.67
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.85957
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           31.553      3       0.2715
BaE2           31.347      3       1.0207
BaE3           32.147      3       0.9153
BaE4           32.773      3       0.1007
BaE5           32.173      3       0.4801
BaE6           32.300      3       0.9699
BaE7           31.293      3       0.4692
BaE8           30.840      3       1.1854
BaE9           29.313      3       0.6516
TOTAL          31.527     27       0.7590
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClHm06M BY PaEt
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     5.02767    0.62846    3.72  0.0098
WITHIN    18     3.03813    0.16879
TOTAL     26     8.06581
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.54     8    0.8051
COCHRAN'S Q                  0.3526
LARGEST VAR / SMALLEST VAR   23.769
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.15322
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           27.640      3       0.3904
BCE2           28.333      3       0.3523
BCE3           26.967      3       0.1501
BCE4           27.373      3       0.4760
BCE5           26.800      3       0.3831
BCE6           27.700      3       0.2750
BCE7           27.247      3       0.3807
BCE8           27.700      3       0.7318
BCE9           27.667      3       0.3009
TOTAL          27.492     27       0.4108
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ClHm06M BY PaEt
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     28.1055    3.51318    8.50  0.0001
WITHIN    18     7.44400    0.41356
TOTAL     26     35.5495
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   23.11     8    0.0032
COCHRAN'S Q                  0.4080
LARGEST VAR / SMALLEST VAR   1626.9
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.03321
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           29.473      3       0.1677
CaE2           29.867      3       0.2139
CaE3           30.500      3       0.1709
CaE4           30.407      3       0.6243
CaE5           30.340      3       1.0214
CaE6           31.640      3       1.2322
CaE7           32.127      3       0.7986
CaE8           31.587      3       0.1701
CaE9           32.647      3       0.0306
TOTAL          30.954     27       0.6431
CASES INCLUDED 27    MISSING CASES 0
```

Table 6- ANOVA plant temperature average among plots, between vineyard installations and inside plots in 2005

```
ONE-WAY AOV FOR PlTp05M BY Parc
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     348.763    116.254  145.34  0.0000
WITHIN   104     83.1866    0.79987
TOTAL    107     431.950
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   25.49     3    0.0000
COCHRAN'S Q                   0.4935
LARGEST VAR / SMALLEST VAR    5.2778
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4.27609
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             27.983     27      0.5652
Ba             27.989     27      1.2565
BC             24.079     27      1.0010
Ca             24.771     27      0.5469
TOTAL          26.205    108      0.8944
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlTp05M BY Inst
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     342.294    342.294  404.69  0.0000
WITHIN   106     89.6559    0.84581
TOTAL    107     431.950
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.54     1    0.4631
COCHRAN'S Q                   0.5505
LARGEST VAR / SMALLEST VAR    1.2247
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    6.32311
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             27.986     54      0.9650
VA             24.425     54      0.8720
TOTAL          26.205    108      0.9197
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlTp05M BY PaEt
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     3.29099    0.41137    1.48  0.2334
WITHIN    18     5.01413    0.27856
TOTAL     26     8.30512
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    9.28     8    0.3189
COCHRAN'S Q                   0.3714
LARGEST VAR / SMALLEST VAR    85.960
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04427
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           27.870      3      0.3291
AmE2           28.233      3      0.1041
AmE3           27.750      3      0.6083
AmE4           27.633      3      0.9650
AmE5           27.467      3      0.6806
AmE6           27.953      3      0.3356
AmE7           28.710      3      0.3460
AmE8           28.027      3      0.5862
AmE9           28.200      3      0.2179
TOTAL          27.983     27      0.5278
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlTp05M BY PaEt
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     25.2689    3.15861    3.60  0.0114
WITHIN    18     15.7809    0.87671
TOTAL     26     41.0497
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.55     8    0.4786
COCHRAN'S Q                   0.3332
LARGEST VAR / SMALLEST VAR    42.045
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.76063
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           26.410      3      0.4508
BaE2           26.523      3      0.6532
BaE3           27.567      3      1.4012
BaE4           27.647      3      0.7229
BaE5           28.247      3      0.6322
BaE6           29.010      3      1.6215
BaE7           28.423      3      1.0843
BaE8           29.047      3      0.7125
BaE9           29.023      3      0.2501
TOTAL          27.989     27      0.9363
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlTp05M BY PaEt
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     23.1096    2.88870   17.66  0.0000
WITHIN    18     2.94427    0.16357
TOTAL     26     26.0539
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   11.69     8    0.1658
COCHRAN'S Q                   0.2961
LARGEST VAR / SMALLEST VAR    74.714
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.90838
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           22.060      3      0.2594
BCE2           23.033      3      0.6602
BCE3           23.653      3      0.5021
BCE4           24.413      3      0.2566
BCE5           24.393      3      0.1250
BCE6           24.567      3      0.0764
BCE7           24.753      3      0.5746
BCE8           24.777      3      0.1419
BCE9           25.060      3      0.5285
TOTAL          24.079     27      0.4044
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlTp05M BY PaEt
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     4.12360    0.51545    2.54  0.0480
WITHIN    18     3.65427    0.20301
TOTAL     26     7.77787
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.04     8    0.9320
COCHRAN'S Q                   0.2092
LARGEST VAR / SMALLEST VAR    8.0939
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.10415
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           23.837      3      0.3296
CaE2           24.627      3      0.3656
CaE3           24.810      3      0.5048
CaE4           24.527      3      0.5862
CaE5           24.827      3      0.5746
CaE6           25.060      3      0.6183
CaE7           24.993      3      0.3495
CaE8           25.243      3      0.3235
CaE9           25.017      3      0.2173
TOTAL          24.771     27      0.4506
CASES INCLUDED 27    MISSING CASES 0
```

Table 7- ANOVA plant temperature average among plots, between vineyard installations and inside plots in 2006

```
ONE-WAY AOV FOR PlTp06M BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3    6.58401    2.19467    2.50  0.0635
WITHIN   104   91.2337    0.87725
TOTAL    107   97.8177
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.46     3    0.0586
COCHRAN'S Q                   0.3897
LARGEST VAR / SMALLEST VAR    2.9534
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04879
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            27.349     27       0.9560
Ba            27.579     27       1.1694
BC            27.288     27       0.8745
Ca            26.893     27       0.6804
TOTAL         27.277    108       0.9366
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlTp06M BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1     3.76320    3.76320    4.24  0.0419
WITHIN   106    94.0545    0.88731
TOTAL    107    97.8177
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.18     1    0.0410
COCHRAN'S Q                   0.6383
LARGEST VAR / SMALLEST VAR    1.7644
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.05326
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            27.464     54       1.0643
VA            27.091     54       0.8012
TOTAL         27.277    108       0.9420
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   8    18.6467    2.33083    8.20  0.0001
WITHIN    18    5.11520   0.28418
TOTAL     26   23.7619
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   12.24     8    0.1406
COCHRAN'S Q                   0.4323
LARGEST VAR / SMALLEST VAR    89.161
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.68222
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1          26.320      3       0.4779
AmE2          26.560      3       1.0515
AmE3          26.267      3       0.5873
AmE4          27.553      3       0.2386
AmE5          27.280      3       0.1114
AmE6          27.407      3       0.3190
AmE7          28.947      3       0.1858
AmE8          27.633      3       0.7798
AmE9          28.173      3       0.2548
TOTAL         27.349     27       0.5331
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   8     28.7452    3.59315    9.50  0.0000
WITHIN    18    6.80720    0.37818
TOTAL     26    35.5524
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.58     8    0.8009
COCHRAN'S Q                   0.3648
LARGEST VAR / SMALLEST VAR    10.631
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.07166
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1          26.267      3       0.7215
BaE2          25.827      3       0.6028
BaE3          26.687      3       0.6929
BaE4          27.480      3       0.3418
BaE5          27.733      3       0.3921
BaE6          28.540      3       0.4104
BaE7          28.380      3       0.4678
BaE8          28.427      3       1.1143
BaE9          28.873      3       0.3743
TOTAL         27.579     27       0.6150
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   8    16.1335    2.01669    9.68  0.0000
WITHIN    18    3.74827   0.20824
TOTAL     26   19.8818
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.07     8    0.9787
COCHRAN'S Q                   0.2186
LARGEST VAR / SMALLEST VAR    5.9554
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.60282
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1          26.280      3       0.2960
BCE2          26.253      3       0.4356
BCE3          26.533      3       0.4717
BCE4          27.780      3       0.2623
BCE5          27.693      3       0.5801
BCE6          27.653      3       0.4835
BCE7          27.167      3       0.4202
BCE8          28.747      3       0.3859
BCE9          27.487      3       0.6401
TOTAL         27.288     27       0.4563
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   8     7.91573    0.98947    4.32  0.0047
WITHIN    18    4.12187    0.22899
TOTAL     26    12.0376
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.96     8    0.4370
COCHRAN'S Q                   0.2681
LARGEST VAR / SMALLEST VAR    24.234
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.25349
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1          27.307      3       0.5937
CaE2          27.360      3       0.1510
CaE3          27.787      3       0.5900
CaE4          26.793      3       0.2802
CaE5          27.147      3       0.6525
CaE6          26.687      3       0.7433
CaE7          26.753      3       0.1701
CaE8          26.287      3       0.4474
CaE9          25.920      3       0.2272
TOTAL         26.893     27       0.4785
CASES INCLUDED 27    MISSING CASES 0
```

Table 8- ANOVA soil temperature average among plots, between vineyard installations and inside plots in 2005

```
ONE-WAY AOV FOR SlTp05M BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    751.944    250.648  107.40  0.0000
WITHIN   104    242.704    2.33370
TOTAL    107    994.648
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.33     3    0.3438
COCHRAN'S Q                  0.3409
LARGEST VAR / SMALLEST VAR   2.0714
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    9.19682
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            34.676      27       1.5238
Ba            33.350      27       1.7839
BC            29.241      27       1.5147
Ca            28.457      27       1.2395
TOTAL         31.431     108       1.5276
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SlTp05M BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    719.924    719.924  277.78  0.0000
WITHIN   106    274.725    2.59174
TOTAL    107    994.648
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.47     1    0.1158
COCHRAN'S Q                  0.6073
LARGEST VAR / SMALLEST VAR   1.5463
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    13.2839
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            34.013      54       1.7742
VA            28.849      54       1.4268
TOTAL         31.431     108       1.6099
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SlTp05M BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    44.0336    5.50420    6.07  0.0007
WITHIN    18    16.3347    0.90748
TOTAL     26    60.3683
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.34     8    0.9116
COCHRAN'S Q                  0.2626
LARGEST VAR / SMALLEST VAR   8.3223
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.53224
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1          35.267       3       0.5486
AmE2          34.960       3       0.9914
AmE3          35.840       3       0.8848
AmE4          36.967       3       0.8751
AmE5          34.673       3       1.4646
AmE6          34.580       3       1.1205
AmE7          33.960       3       1.1494
AmE8          33.600       3       0.5963
AmE9          32.233       3       0.5077
TOTAL         34.676      27       0.9526
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SlTp05M BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    64.9285    8.11607    8.20  0.0001
WITHIN    18    17.8133    0.98963
TOTAL     26    82.7418
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.30     8    0.7247
COCHRAN'S Q                  0.2086
LARGEST VAR / SMALLEST VAR   22.541
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.37548
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1          34.217       3       1.0555
BaE2          32.320       3       0.7158
BaE3          33.340       3       0.5828
BaE4          35.603       3       1.3631
BaE5          35.077       3       1.1461
BaE6          32.627       3       0.2871
BaE7          30.613       3       0.6048
BaE8          31.817       3       1.2677
BaE9          34.537       3       1.3091
TOTAL         33.350      27       0.9948
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SlTp05M BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    43.0912    5.38640    5.86  0.0009
WITHIN    18    16.5585    0.91991
TOTAL     26    59.6497
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.10     8    0.7463
COCHRAN'S Q                  0.2828
LARGEST VAR / SMALLEST VAR   11.251
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.48883
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1          27.907       3       0.7991
BCE2          27.887       3       0.4562
BCE3          28.593       3       1.0631
BCE4          30.357       3       0.5661
BCE5          27.680       3       0.5231
BCE6          28.727       3       0.6354
BCE7          30.373       3       1.5303
BCE8          30.607       3       0.9411
BCE9          31.040       3       1.4412
TOTAL         29.241      27       0.9591
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SlTp05M BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    14.4352    1.80440    1.27  0.3165
WITHIN    18    25.5093    1.41719
TOTAL     26    39.9446
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.61     8    0.6910
COCHRAN'S Q                  0.3313
LARGEST VAR / SMALLEST VAR   12.047
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.12907
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1          28.907       3       2.0558
CaE2          28.533       3       1.6398
CaE3          27.640       3       0.5923
CaE4          27.200       3       1.1049
CaE5          27.593       3       1.4250
CaE6          28.913       3       0.9144
CaE7          29.400       3       0.6835
CaE8          28.960       3       0.6428
CaE9          28.967       3       0.7218
TOTAL         28.457      27       1.1905
CASES INCLUDED 27    MISSING CASES 0
```

Table 9- ANOVA soil temperature average among plots, between vineyard installations and inside plots in 2006

```
ONE-WAY AOV FOR SlTp06M BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     113.039    37.6798   16.96  0.0000
WITHIN   104     231.037    2.22151
TOTAL    107     344.076
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.52     3    0.6781
COCHRAN'S Q                    0.2944
LARGEST VAR / SMALLEST VAR     1.5737
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.31327
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            31.155      27       1.5736
Ba            32.101      27       1.4599
BC            32.430      27       1.2893
Ca            29.794      27       1.6175
TOTAL         31.370     108       1.4905
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SlTp06M BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     7.18685    7.18685    2.26  0.1356
WITHIN   106     336.890    3.17820
TOTAL    107     344.076
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.53     1    0.1113
COCHRAN'S Q                    0.6086
LARGEST VAR / SMALLEST VAR     1.5546
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.07423
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            31.628      54       1.5774
VA            31.112      54       1.9668
TOTAL         31.370     108       1.7828
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SlTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     37.2165    4.65206    3.08  0.0225
WITHIN    18     27.1632    1.50907
TOTAL     26     64.3797
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.64     8    0.3732
COCHRAN'S Q                    0.2993
LARGEST VAR / SMALLEST VAR     30.853
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.04766
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1          29.480       3       1.5565
AmE2          29.600       3       0.8996
AmE3          30.173       3       0.4438
AmE4          31.673       3       0.6048
AmE5          31.580       3       2.0160
AmE6          33.060       3       1.1609
AmE7          32.567       3       0.3630
AmE8          31.400       3       1.8920
AmE9          30.860       3       0.8146
TOTAL         31.155      27       1.2284
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SlTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     11.9436    1.49295    0.62  0.7518
WITHIN    18     43.4720    2.41511
TOTAL     26     55.4156
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.27     8    0.5073
COCHRAN'S Q                    0.3503
LARGEST VAR / SMALLEST VAR     32.369
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.30739
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1          31.380       3       1.1011
BaE2          30.787       3       0.7915
BaE3          32.447       3       0.9347
BaE4          31.880       3       2.7592
BaE5          32.220       3       0.4850
BaE6          32.707       3       1.2209
BaE7          33.187       3       2.4257
BaE8          32.173       3       1.4162
BaE9          32.127       3       1.3396
TOTAL         32.101      27       1.5541
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SlTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     10.0227    1.25284    0.68  0.7040
WITHIN    18     33.1992    1.84440
TOTAL     26     43.2219
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   12.02     8    0.1505
COCHRAN'S Q                    0.3805
LARGEST VAR / SMALLEST VAR     69.766
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.19719
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1          32.280       3       0.8052
BCE2          31.693       3       0.3754
BCE3          31.827       3       2.5132
BCE4          33.260       3       1.2957
BCE5          31.967       3       0.5217
BCE6          31.767       3       0.3009
BCE7          33.027       3       1.9519
BCE8          33.087       3       0.8732
BCE9          32.960       3       1.6972
TOTAL         32.430      27       1.3581
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SlTp06M BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     30.0535    3.75668    1.78  0.1472
WITHIN    18     37.9664    2.10924
TOTAL     26     68.0199
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.94     8    0.3476
COCHRAN'S Q                    0.3378
LARGEST VAR / SMALLEST VAR     75.510
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.54915
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1          29.533       3       2.5325
CaE2          29.740       3       1.3000
CaE3          32.073       3       1.5284
CaE4          29.873       3       1.0431
CaE5          30.467       3       0.3580
CaE6          30.280       3       1.5243
CaE7          29.360       3       1.6701
CaE8          28.547       3       1.4594
CaE9          28.273       3       0.2914
TOTAL         29.794      27       1.4523
CASES INCLUDED 27    MISSING CASES 0
```

Table 10- Regression analysis for average data 2005 temperatures

```
Dependent variable.. ClTp05           Method.. QUADRATI

Multiple R           .78299
R Square             .61307
Adjusted R Square    .58082
Standard Error       .59605

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        13.509621        6.7548107
Residuals      24         8.526510         .3552713

F =      19.01311       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .369999     .061115   3.189995     6.054  .0000
Pt**2             -.011849     .002118  -2.947174    -5.593  .0000
(Constant)       24.314245     .371292               65.486  .0000
```

```
Dependent variable.. ClTp05           Method.. QUADRATI

Multiple R           .08263
R Square             .00683
Adjusted R Square   -.07594
Standard Error       .44285

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2         .0323589        .01617944
Residuals      24        4.7067358        .19611399

F =        .08250       Signif F =  .9211

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                -.016285     .045407   -.302755     -.359  .7230
Pt**2              .000475     .001574    .255034      .302  .7652
(Constant)       24.214587     .275860               87.778  .0000
```

```
Dependent variable.. ClTp05           Method.. QUADRATI

Multiple R           .59002
R Square             .34812
Adjusted R Square    .29380
Standard Error       .62307

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        4.9755983        2.4877991
Residuals      24        9.3170766         .3882115

F =       6.40836       Signif F =  .0059

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .221476     .063886   2.370970     3.467  .0020
Pt**2             -.006974     .002214  -2.153846    -3.149  .0043
(Constant)       20.917664     .388123               53.894  .0000
```

```
Dependent variable.. ClTp05           Method.. QUADRATI

Multiple R           .66537
R Square             .44272
Adjusted R Square    .39628
Standard Error       .45435

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        3.9358737        1.9679368
Residuals      24        4.9543321         .2064305

F =       9.53317       Signif F =  .0009

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .092524     .046586   1.255895     1.986  .0586
Pt**2             -.001599     .001615   -.626324     -.990  .3318
(Constant)       21.523818     .283023               76.050  .0000
```

Table 11- Regression analysis for average data 2006 temperatures

```
Dependent variable.. ClTp06           Method.. QUADRATI

Multiple R           .95398
R Square             .91008
Adjusted R Square    .90259
Standard Error       .41747

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        42.336332        21.168166
Residuals      24         4.182809          .174284

F =     121.45808       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T

Pt                 .348247     .042805   2.066465     8.136  .0000
Pt**2             -.006962     .001484  -1.191867    -4.692  .0001
(Constant)       30.652957     .260054              117.872  .0000
```

```
Dependent variable.. ClTp06           Method.. QUADRATI

Multiple R           .84031
R Square             .70611
Adjusted R Square    .68162
Standard Error       .28167

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        4.5750083        2.2875042
Residuals      24        1.9041324         .0793389

F =      28.83208       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T

Pt                -.063012     .028881  -1.001895    -2.182  .0391
Pt**2              .003874     .001001   1.777245     3.870  .0007
(Constant)       31.949231     .175460              182.088  .0000
```

```
Dependent variable.. ClTp06           Method.. QUADRATI

Multiple R           .89406
R Square             .79935
Adjusted R Square    .78263
Standard Error       .26591

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        6.7605577        3.3802788
Residuals      24        1.6970423         .0707101

F =      47.80475       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T

Pt                 .232315     .027265   3.233038     8.521  .0000
Pt**2             -.006723     .000945  -2.699162    -7.114  .0000
(Constant)       31.806427     .165644              192.017  .0000
```

```
Dependent variable.. ClTp06           Method.. QUADRATI

Multiple R           .96872
R Square             .93841
Adjusted R Square    .93328
Standard Error       .17347

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        11.004432        5.5022162
Residuals      24          .722234         .0300931

F =     182.83984       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T

Pt                -.135842     .017787  -1.605475    -7.637  .0000
Pt**2              .001965     .000617    .670057     3.187  .0040
(Constant)       33.386291     .108061              308.958  .0000
```

Table 12- Regression analysis for average data 2005 humidity

```
Dependent variable.. ClHm05           Method.. QUADRATI

Multiple R           .48231
R Square             .23262
Adjusted R Square    .16867
Standard Error      1.13063

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2         9.300325        4.6501625
Residuals      24        30.680004        1.2783335

F =       3.63768       Signif F =  .0417

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.272792     .115929  -1.746083    -2.353  .0271
Pt**2               .007900     .004018   1.458875     1.966  .0610
(Constant)        29.279031     .704299               41.572  .0000
```

```
Dependent variable.. ClHm05           Method.. QUADRATI

Multiple R           .48830
R Square             .23843
Adjusted R Square    .17497
Standard Error      1.67678

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        21.126444        10.563222
Residuals      24        67.478186         2.811591

F =       3.75703       Signif F =  .0381

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .328948     .171927   1.414346     1.913  .0677
Pt**2              -.013885     .005959  -1.722344    -2.330  .0285
(Constant)        32.462222    1.044506               31.079  .0000
```

```
Dependent variable.. ClHm05           Method.. QUADRATI

Multiple R           .50566
R Square             .25569
Adjusted R Square    .19367
Standard Error       .76283

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2         4.797741        2.3988704
Residuals      24        13.965798         .5819083

F =       4.12242       Signif F =  .0289

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.201382     .078216  -1.881565    -2.575  .0166
Pt**2               .007605     .002711   2.049973     2.805  .0098
(Constant)        43.492080     .475184               91.527  .0000
```

```
MDependent variable.. ClHm05           Method.. QUADRATI

Multiple R           .64349
R Square             .41408
Adjusted R Square    .36525
Standard Error      1.35443

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        31.114833        15.557416
Residuals      24        44.027389         1.834475

F =       8.48058       Signif F =  .0016

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .132893     .138875    .620467      .957  .3481
Pt**2              -.009117     .004814  -1.228061    -1.894  .0703
(Constant)        39.557322     .843705               46.885  .0000
```

Table 13- Regression analysis for average data 2006 humidity

```
Dependent variable.. ClHm06           Method.. QUADRATI

Multiple R           .86203
R Square             .74310
Adjusted R Square    .72170
Standard Error       .98775

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        67.733207        33.866604
Residuals      24        23.415800          .975658

F =      34.71154       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.283208     .101278  -1.200566    -2.796  .0100
Pt**2               .002888     .003510    .353149      .823  .4189
(Constant)        30.415624     .615296               49.433  .0000
```

```
Dependent variable.. ClHm06           Method.. QUADRATI

Multiple R           .79350
R Square             .62965
Adjusted R Square    .59878
Standard Error       .74126

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        22.419956        11.209978
Residuals      24        13.187244          .549468

F =      20.40149       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .316143     .076005   2.144232     4.160  .0004
Pt**2              -.013713     .002634  -2.683255    -5.205  .0000
(Constant)        30.620274     .461749               66.314  .0000
```

```
Dependent variable.. ClHm06           Method.. QUADRATI

Multiple R           .47469
R Square             .22533
Adjusted R Square    .16077
Standard Error       .51024

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        1.8174377        .90871884
Residuals      24        6.2483697        .26034874

F =       3.49039       Signif F =  .0467

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.137498     .052317  -1.959424    -2.628  .0147
Pt**2               .004744     .001813   1.950434     2.616  .0151
(Constant)        28.199179     .317843               88.720  .0000
```

```
Dependent variable.. ClHm06           Method.. QUADRATI

Multiple R           .86346
R Square             .74556
Adjusted R Square    .72436
Standard Error       .61391

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        26.504296        13.252148
Residuals      24         9.045156          .376881

F =      35.16264       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .096031     .062946    .651853     1.526  .1402
Pt**2               .001105     .002182    .216407      .506  .6171
(Constant)        29.326017     .382417               76.686  .0000
```

Table 14- Regression analysis for average data 2005 plants temperature

```
Dependent variable.. PlTp05           Method.. QUADRATI

Multiple R           .29439
R Square             .08667
Adjusted R Square    .01056
Standard Error       .56289

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2         .7215757        .36078786
Residuals      24        7.6041650        .31684021

F =       1.13871       Signif F =  .3369

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                -.019715     .057715   -.276528     -.342  .7356
Pt**2              .001372     .002001    .555133      .686  .4994
(Constant)       27.905385     .350635                79.585  .0000
```

```
Dependent variable.. PlTp05           Method.. QUADRATI

Multiple R           .70328
R Square             .49461
Adjusted R Square    .45249
Standard Error       .92976

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        20.304367        10.152184
Residuals      24        20.747073          .864461

F =      11.74394       Signif F =  .0003

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .198210     .095333   1.252041     2.079  .0485
Pt**2             -.003182     .003304   -.579867     -.963  .3452
(Constant)       26.029402     .579172                44.942  .0000
```

```
Dependent variable.. PlTp05           Method.. QUADRATI

Multiple R           .91688
R Square             .84066
Adjusted R Square    .82738
Standard Error       .41575

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        21.886545        10.943272
Residuals      24         4.148362          .172848

F =      63.31138       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .279248     .042629   2.214979     6.551  .0000
Pt**2             -.006136     .001478  -1.404209    -4.153  .0004
(Constant)       21.742350     .258981                83.953  .0000
```

```
Dependent variable.. PlTp05           Method.. QUADRATI

Multiple R           .61288
R Square             .37562
Adjusted R Square    .32359
Standard Error       .44972

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        2.9201163        1.4600581
Residuals      24        4.8540504         .2022521

F =       7.21900       Signif F =  .0035

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .097925     .046112   1.421430     2.124  .0442
Pt**2             -.002081     .001598   -.871320    -1.302  .2054
(Constant)       23.932521     .280144                85.429  .0000
```

Table 15- Regression analysis for average data 2006 plants temperature

```
Dependent variable.. PlTp06           Method.. QUADRATI

Multiple R           .73380
R Square             .53846
Adjusted R Square    .50000
Standard Error       .67599

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        12.794886        6.3974432
Residuals      24        10.966980         .4569575

F =      14.00008       Signif F =  .0001

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .142173     .069312   1.180413     2.051  .0513
Pt**2             -.001959     .002402   -.469203     -.815  .4229
(Constant)       25.861231     .421088               61.415  .0000
```

```
Dependent variable.. PlTp06           Method.. QUADRATI

Multiple R           .84508
R Square             .71416
Adjusted R Square    .69034
Standard Error       .65071

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        25.390163        12.695081
Residuals      24        10.162223          .423426

F =      29.98182       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .159081     .066720   1.079797     2.384  .0254
Pt**2             -.001246     .002313   -.243952     -.539  .5951
(Constant)       25.671863     .405344               63.334  .0000
```

```
Dependent variable.. PlTp06           Method.. QUADRATI

Multiple R           .71006
R Square             .50418
Adjusted R Square    .46286
Standard Error       .64089

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        10.024051        5.0120257
Residuals      24         9.857756         .4107398

F =      12.20243       Signif F =  .0002

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .176391     .065713   1.601055     2.684  .0130
Pt**2             -.003658     .002278   -.957780    -1.606  .1214
(Constant)       25.757436     .399226               64.518  .0000
```

```
Dependent variable.. PlTp06           Method.. QUADRATI

Multiple R           .74999
R Square             .56249
Adjusted R Square    .52603
Standard Error       .46845

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2         6.7709785        3.3854892
Residuals      24         5.2666215         .2194426

F =      15.42768       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .002777     .048032    .032395      .058  .9544
Pt**2             -.002322     .001665   -.781390    -1.395  .1759
(Constant)       27.450393     .291807               94.070  .0000
```

Table 16- Regression analysis for average data 2005 soil temperatures

```
Dependent variable.. SlTp05           Method.. QUADRATI

Multiple R           .74720
R Square             .55831
Adjusted R Square    .52150
Standard Error      1.05394

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        33.698007        16.849004
Residuals      24        26.659034         1.110793

F =      15.16844       Signif F =  .0001

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .192131     .108065   1.000900     1.778  .0881
Pt**2              -.011169     .003746  -1.678608    -2.982  .0065
(Constant)        34.852708     .656525               53.087  .0000
```

```
Dependent variable.. SlTp05           Method.. QUADRATI

Multiple R           .23538
R Square             .05540
Adjusted R Square   -.02331
Standard Error      1.80510

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2         4.586771        2.2933856
Residuals      24        78.201450        3.2583937

F =        .70384       Signif F =  .5046

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.115914     .185085   -.515594     -.626  .5370
Pt**2               .002342     .006415    .300483      .365  .7183
(Constant)        34.372213    1.124441               30.568  .0000
```

```
Dependent variable.. SlTp05           Method.. QUADRATI

Multiple R           .69989
R Square             .48984
Adjusted R Square    .44733
Standard Error      1.12592

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        29.212797        14.606399
Residuals      24        30.424664         1.267694

F =      11.52202       Signif F =  .0003

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.014062     .115445   -.073694     -.122  .9041
Pt**2               .005100     .004002    .771183     1.275  .2146
(Constant)        28.129797     .701362               40.107  .0000
```

```
Dependent variable.. SlTp05           Method.. QUADRATI

Multiple R           .40042
R Square             .16034
Adjusted R Square    .09036
Standard Error      1.18269

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2         6.410334        3.2051672
Residuals      24        33.570412        1.3987672

F =       2.29142       Signif F =  .1228

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.166511     .121267  -1.065799    -1.373  .1824
Pt**2               .007265     .004203   1.341592     1.728  .0968
(Constant)        28.923295     .736729               39.259  .0000
```

Table 17- Regression analysis for average data 2006 soil temperatures

```
Dependent variable.. SlTp06            Method.. QUADRATI

Multiple R           .70005
R Square             .49007
Adjusted R Square    .44758
Standard Error      1.16956

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        31.550599        15.775300
Residuals      24        32.829075         1.367878

F =      11.53268       Signif F =  .0003

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T

Pt                   .507926     .119920   2.562022     4.236  .0003
Pt**2               -.014819     .004157  -2.156515    -3.565  .0016
(Constant)         27.847419     .728549               38.223  .0000
```

```
Dependent variable.. SlTp06            Method.. QUADRATI

Multiple R           .35760
R Square             .12788
Adjusted R Square    .05520
Standard Error      1.41905

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2         7.086497        3.5432483
Residuals      24        48.329089        2.0137120

F =       1.75956       Signif F =  .1936

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T

Pt                   .188331     .145501   1.023910     1.294  .2079
Pt**2               -.004685     .005043   -.734894     -.929  .3621
(Constant)         30.666667     .883962               34.692  .0000
```

```
Dependent variable.. SlTp06            Method.. QUADRATI

Multiple R           .28161
R Square             .07930
Adjusted R Square    .00258
Standard Error      1.28767

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2         3.427667        1.7138334
Residuals      24        39.794229        1.6580929

F =       1.03362       Signif F =  .3710

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T

Pt                  -.015221     .132030   -.093703     -.115  .9092
Pt**2                .002093     .004576    .371645      .457  .6516
(Constant)         32.105641     .802120               40.026  .0000
```

```
Dependent variable.. SlTp06            Method.. QUADRATI

Multiple R           .54129
R Square             .29300
Adjusted R Square    .23408
Standard Error      1.41554

            Analysis of Variance:

               DF   Sum of Squares      Mean Square

Regression      2        19.929813        9.9649063
Residuals      24        48.090039        2.0037516

F =       4.97312       Signif F =  .0156

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T

Pt                   .208484     .145141   1.023085     1.436  .1638
Pt**2               -.010417     .005031  -1.474826    -2.071  .0493
(Constant)         29.549060     .881773               33.511  .0000
```

Figure 1- Spatial and cartographic distribution of average station data 2005 air temperature

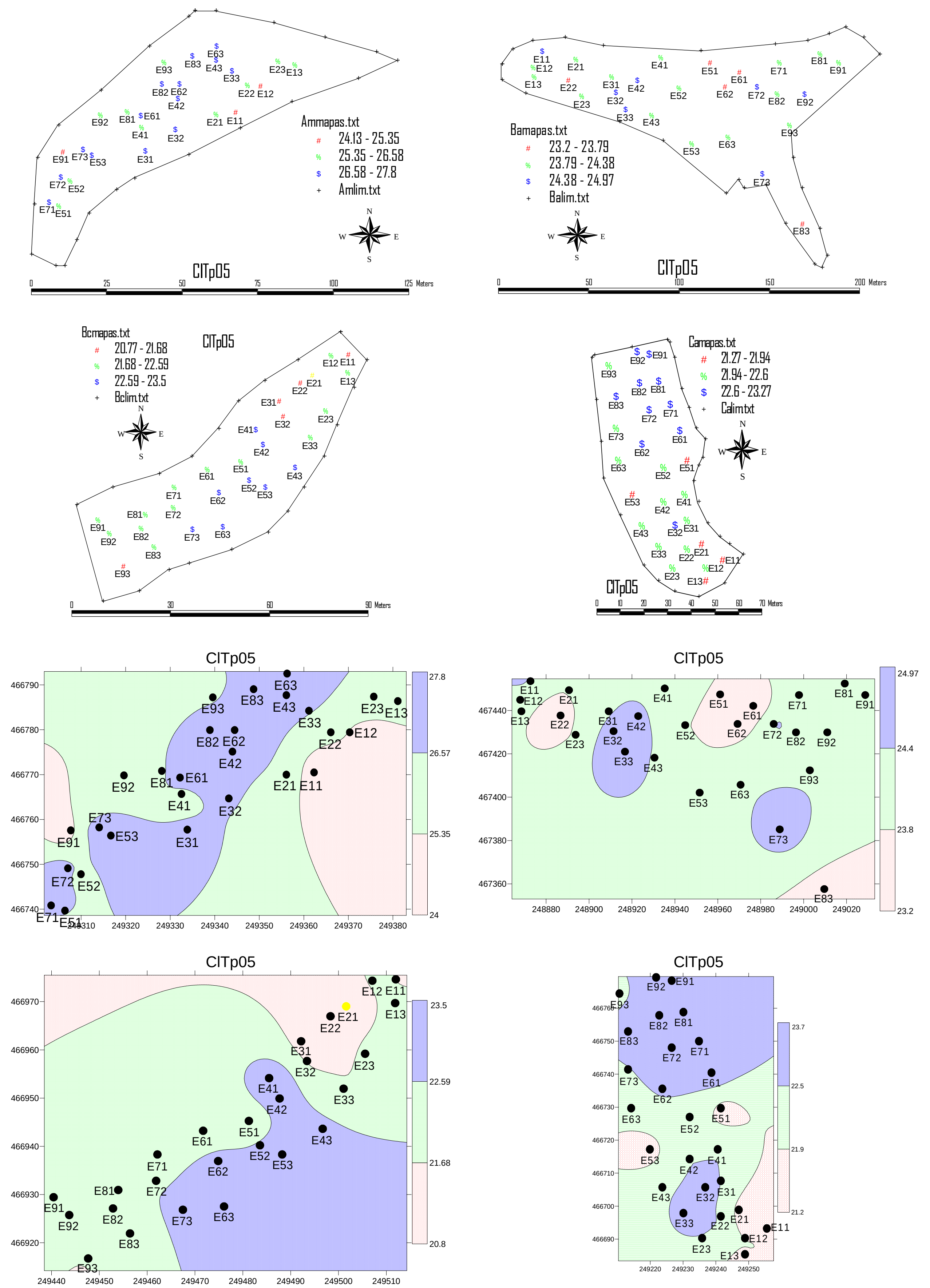


Figure 2- Spatial and cartographic distribution of average station data 2006 air temperature

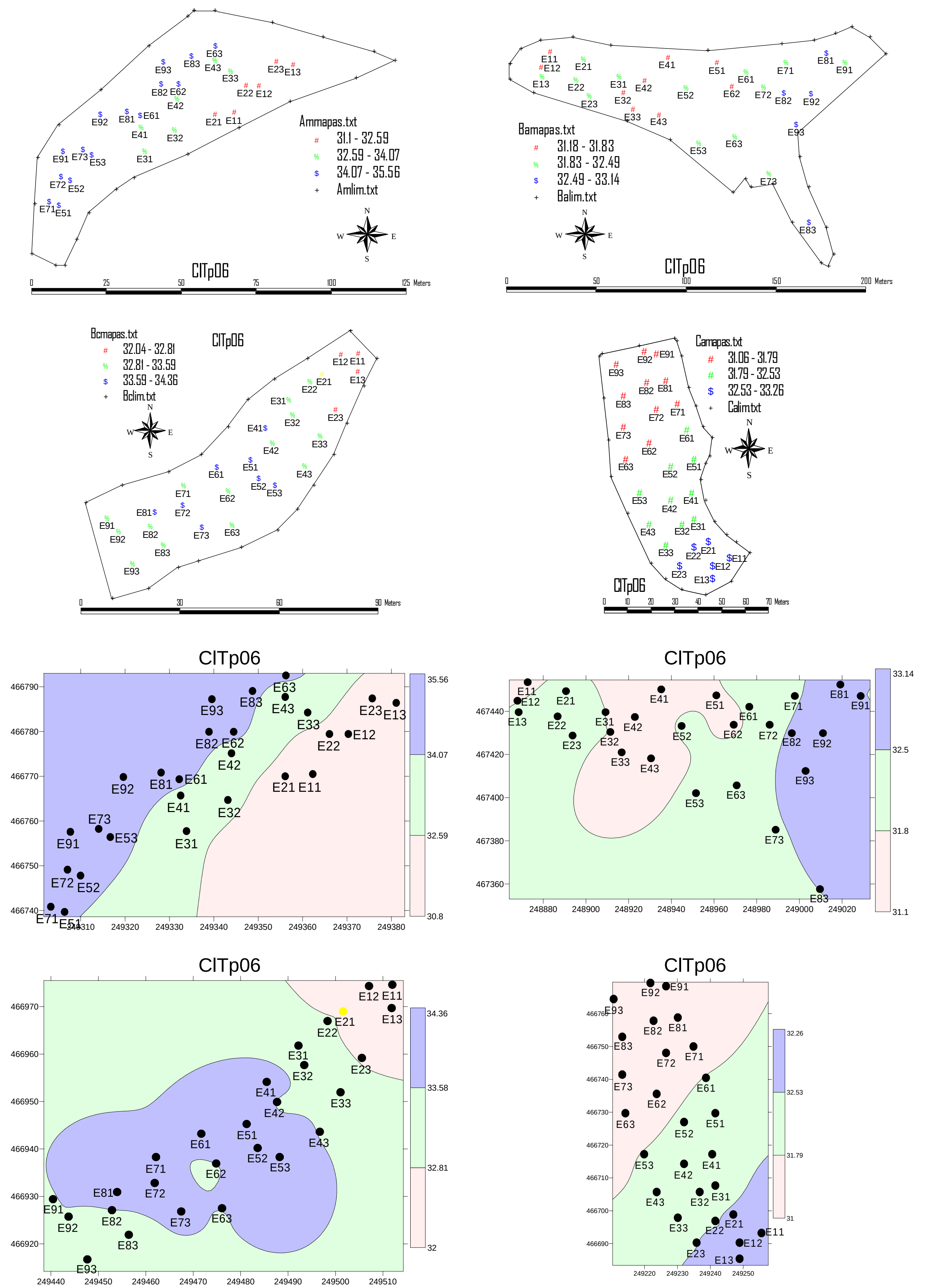


Figure 3- Spatial and cartographic distribution of average station data 2005 air humidity

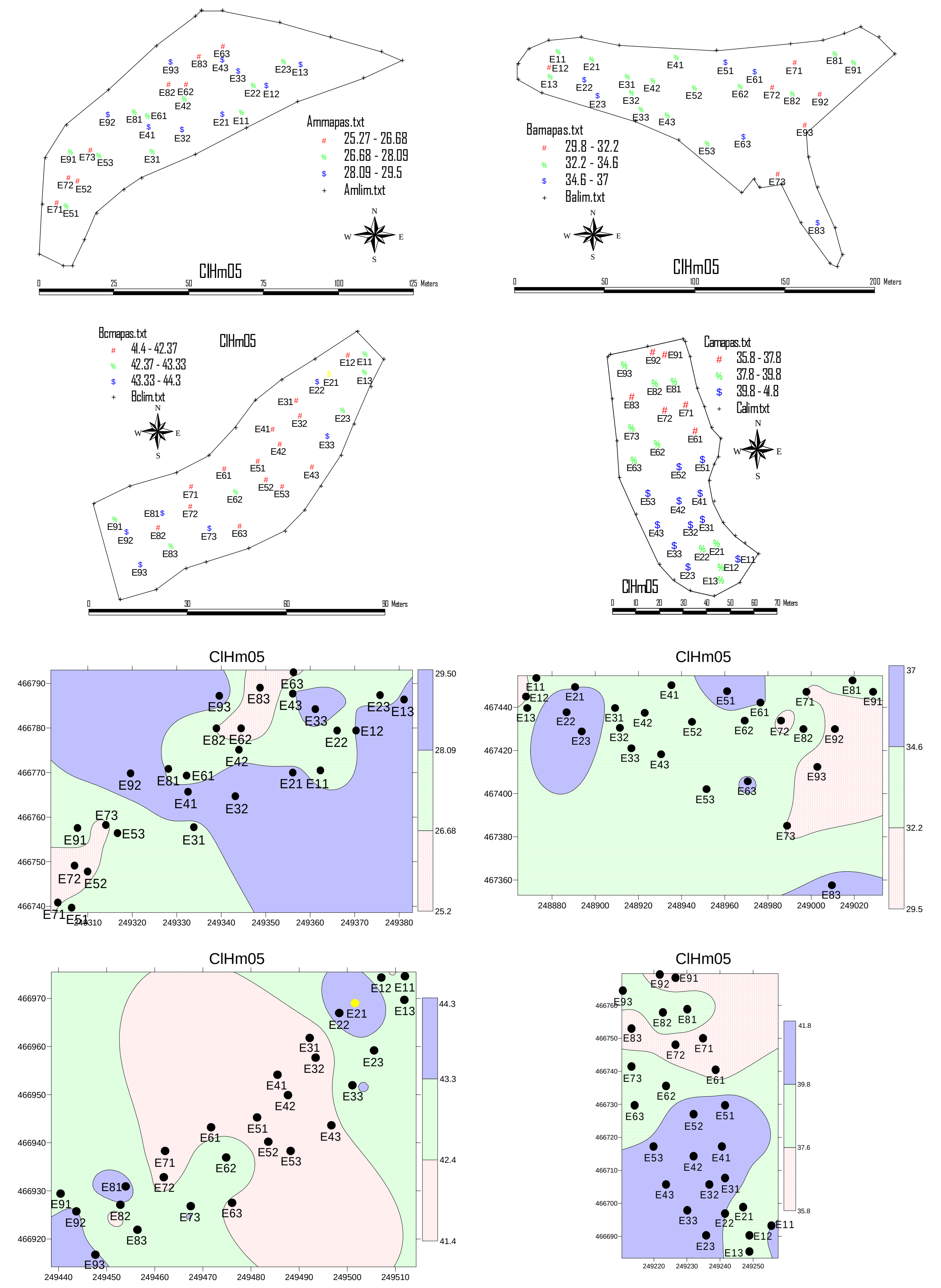


Figure 4- Spatial and cartographic distribution of average station data 2006 air humidity

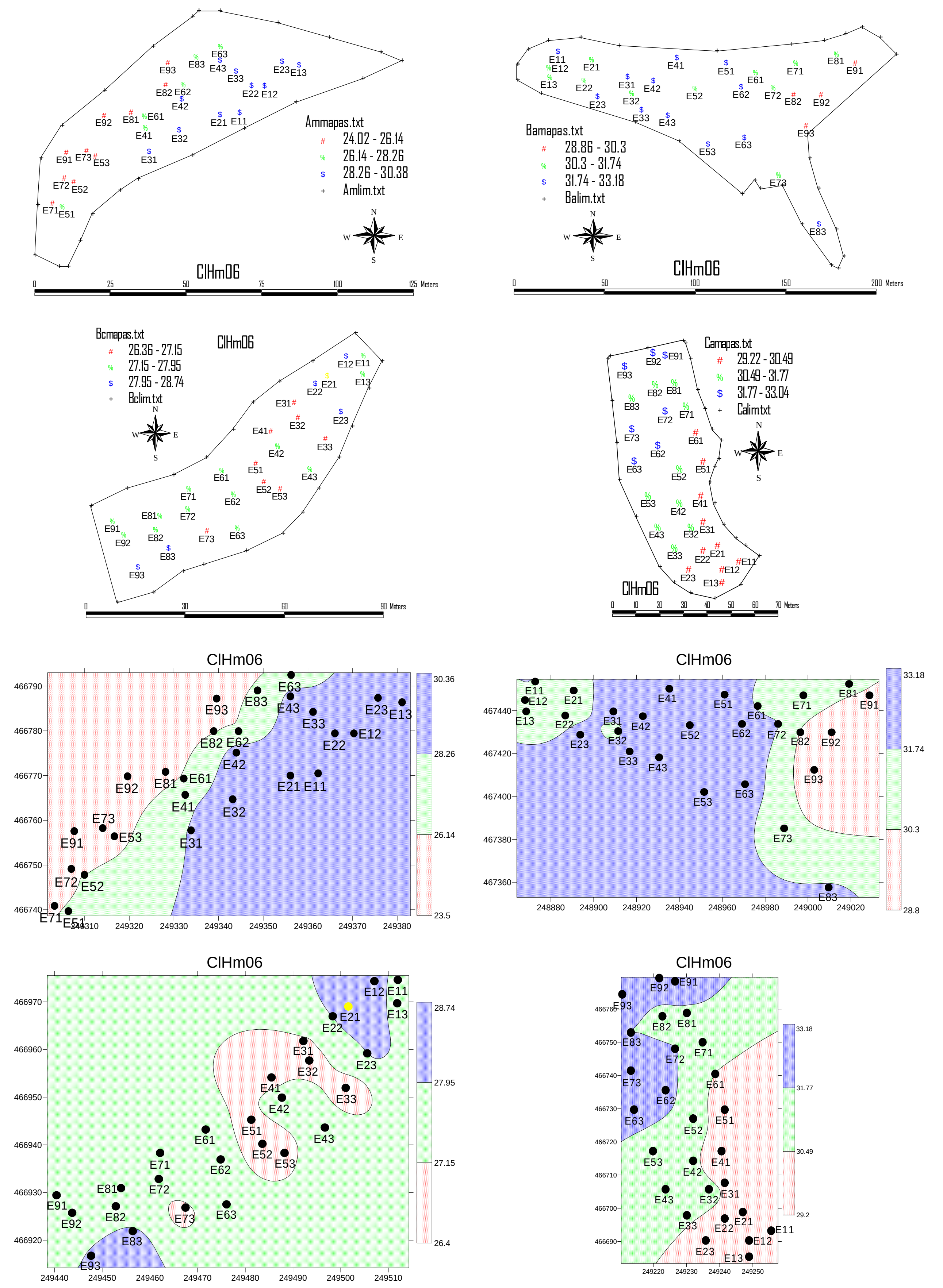


Figure 5- Spatial and cartographic distribution of average station data 2005 plant temperature

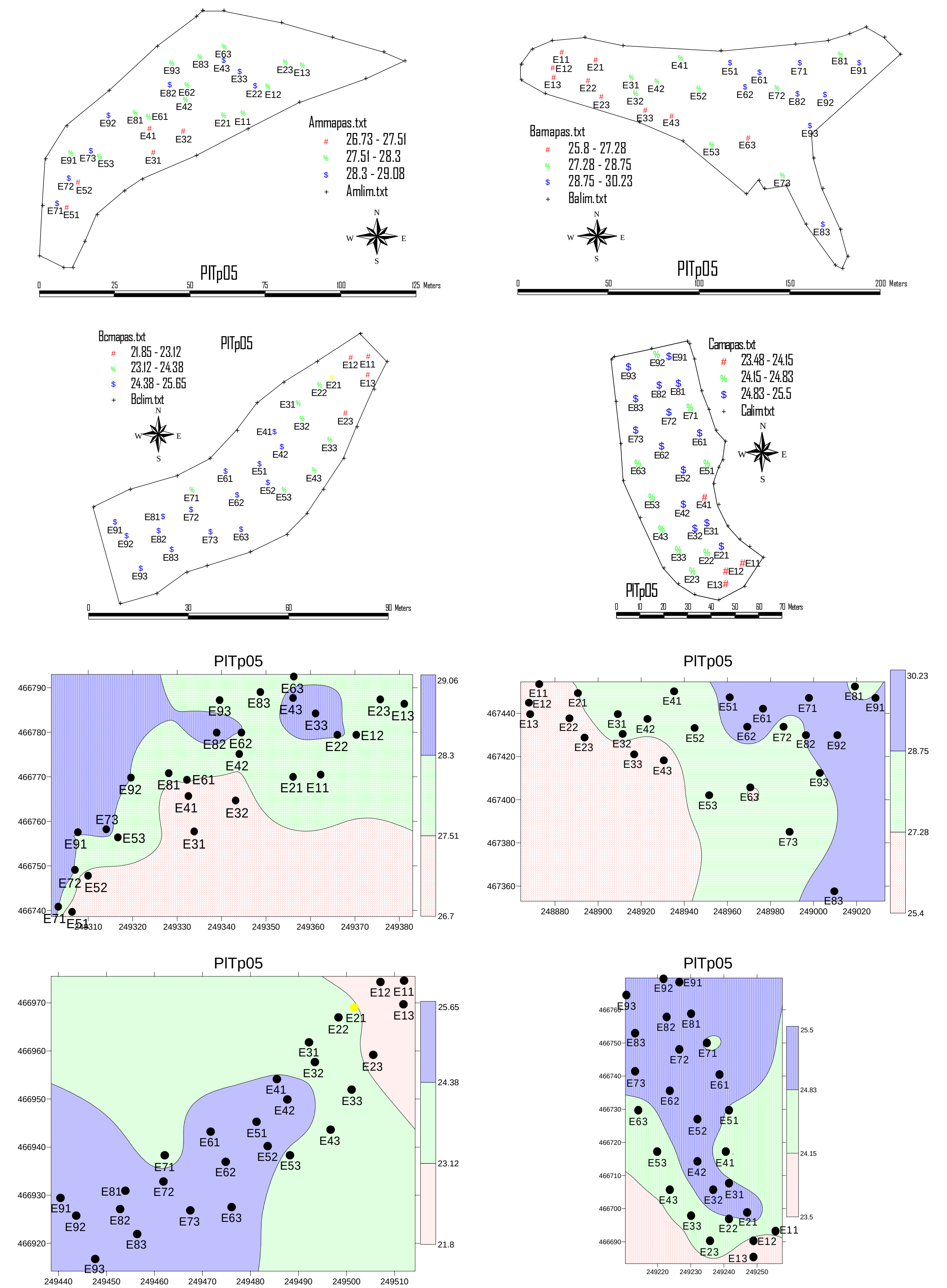


Figure 6- Spatial and cartographic distribution of average station data 2006 plant temperature

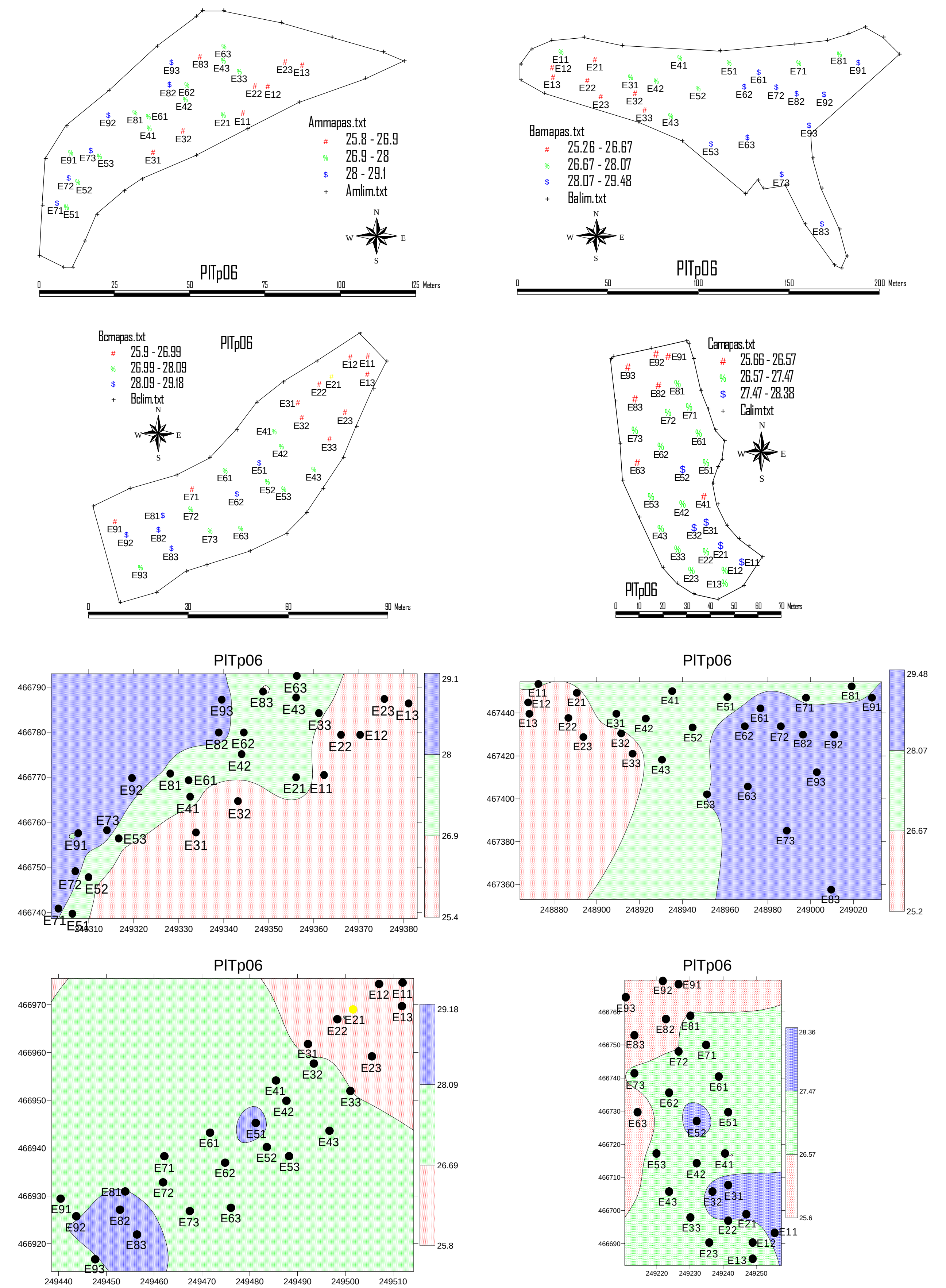


Figure 7- Spatial and cartographic distribution of average station data 2005 soil temperature

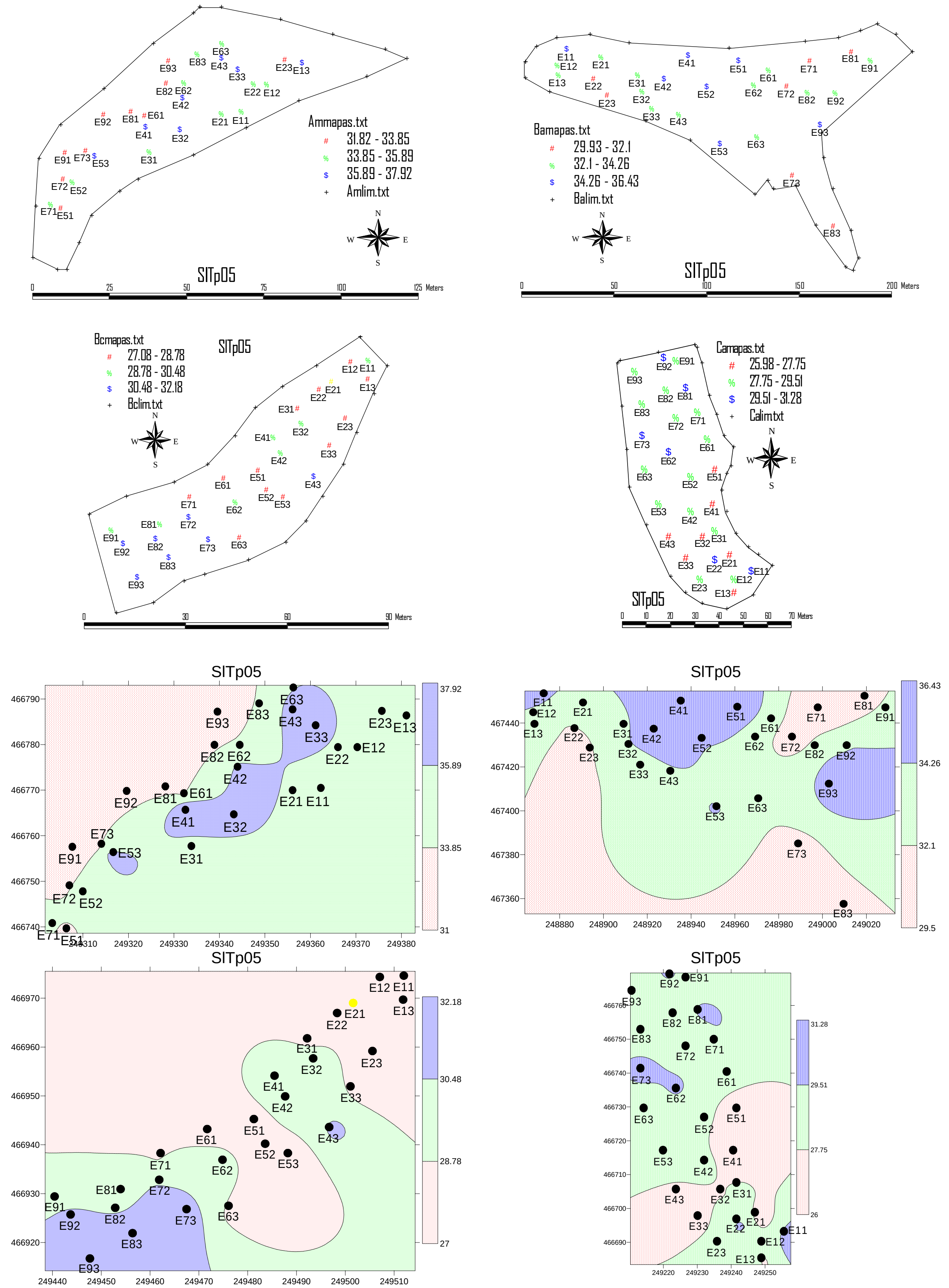
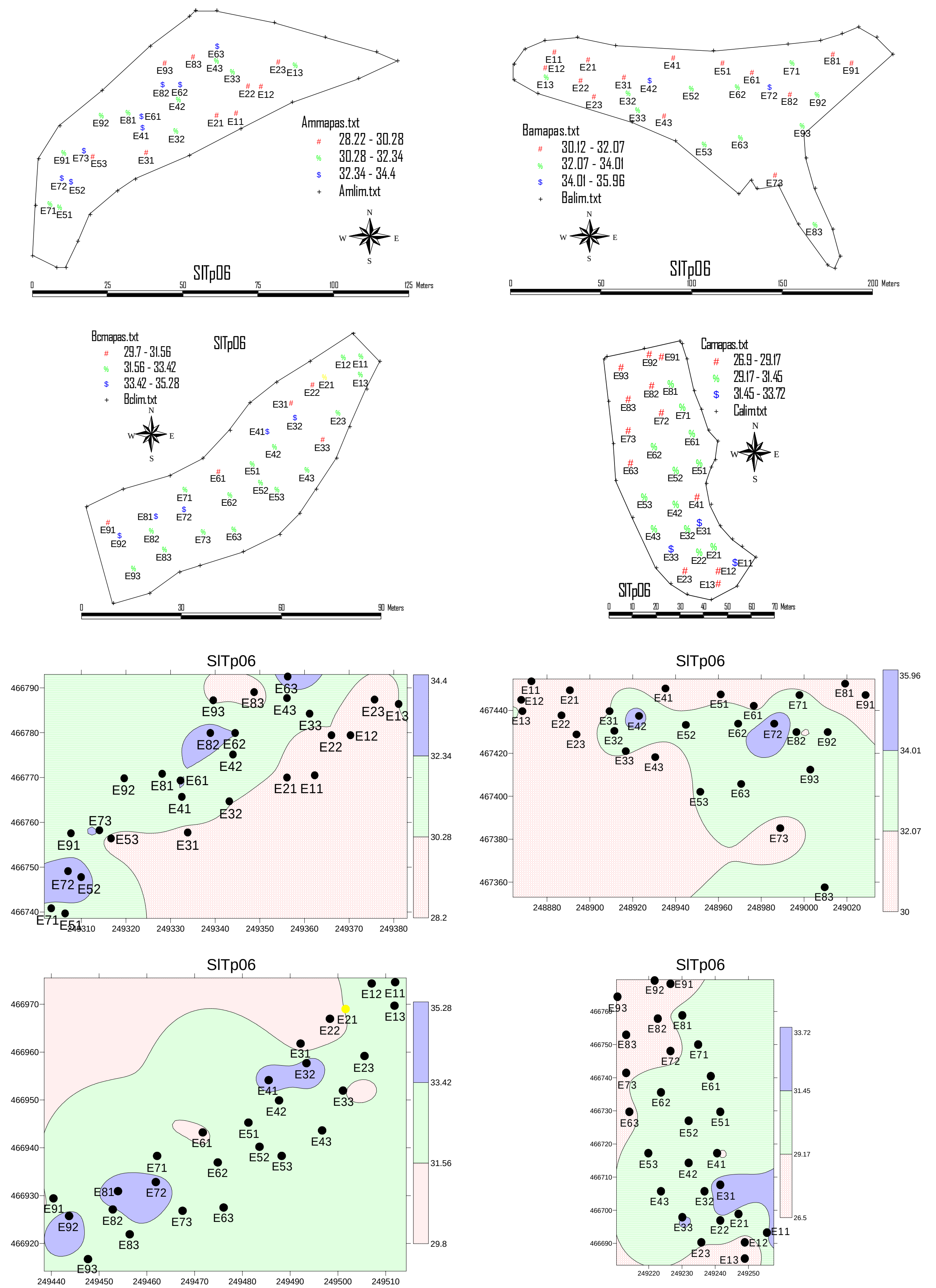
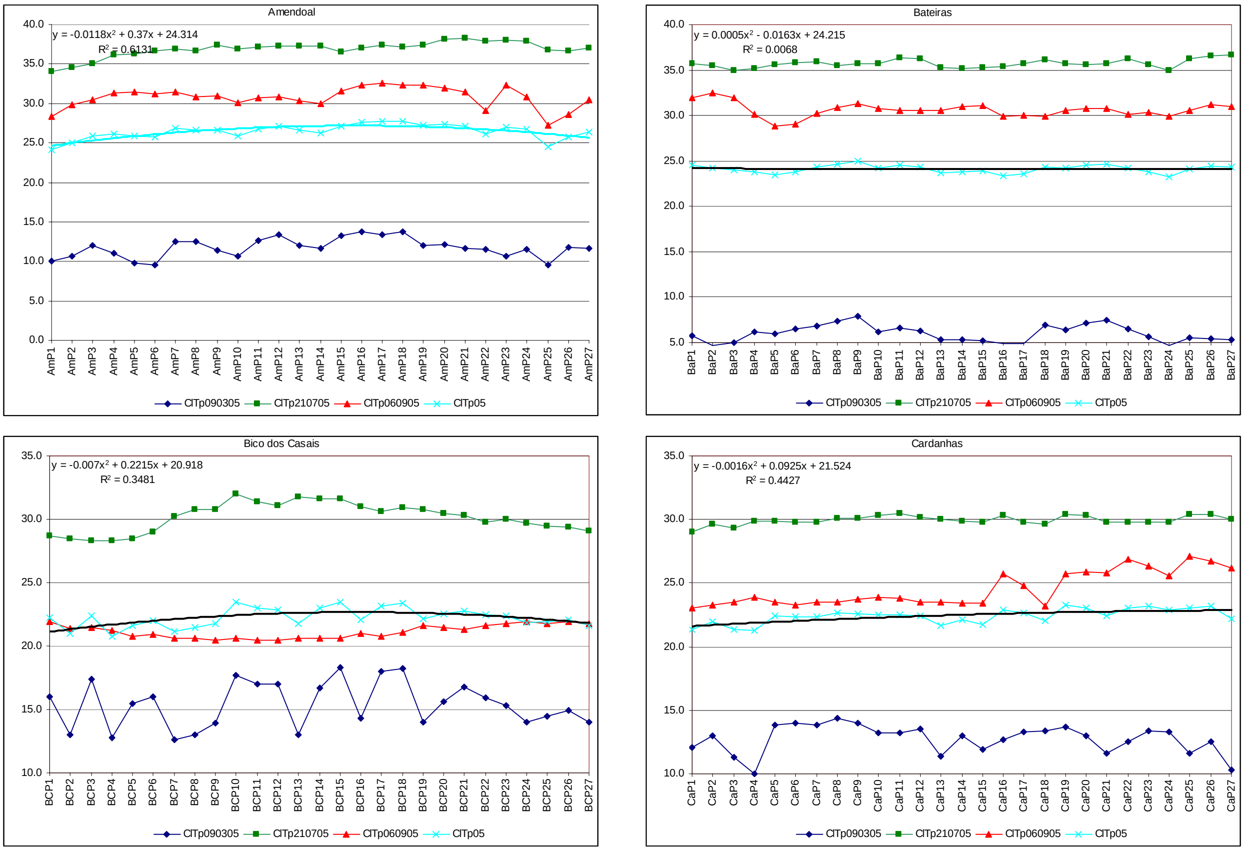


Figure 8- Spatial and cartographic distribution of average station data 2006 soil temperature

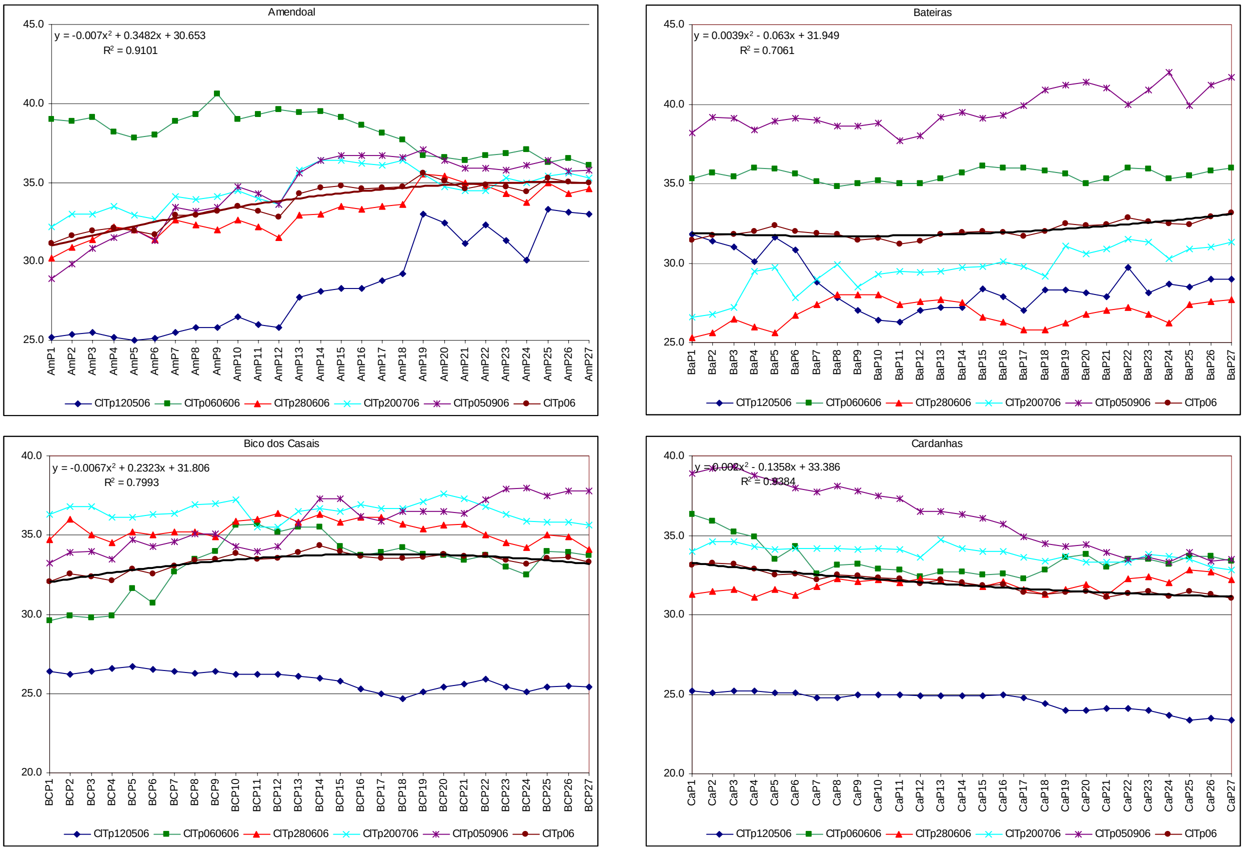


Graphic 1- Representation of regression analysis for average station data 2005 air temperature



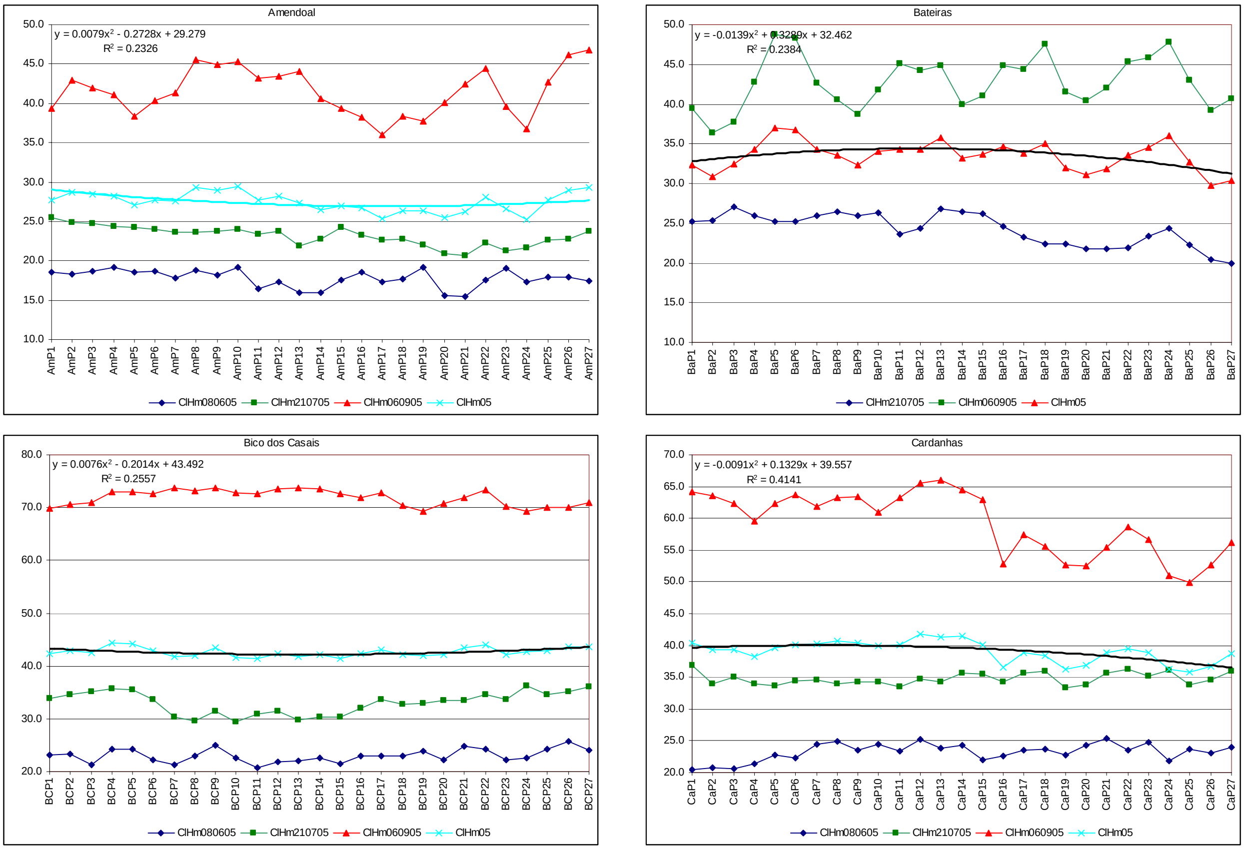
CITp05- S, Ns, S, S

Graphic 2- Representation of regression analysis for average station data 2006 air temperature



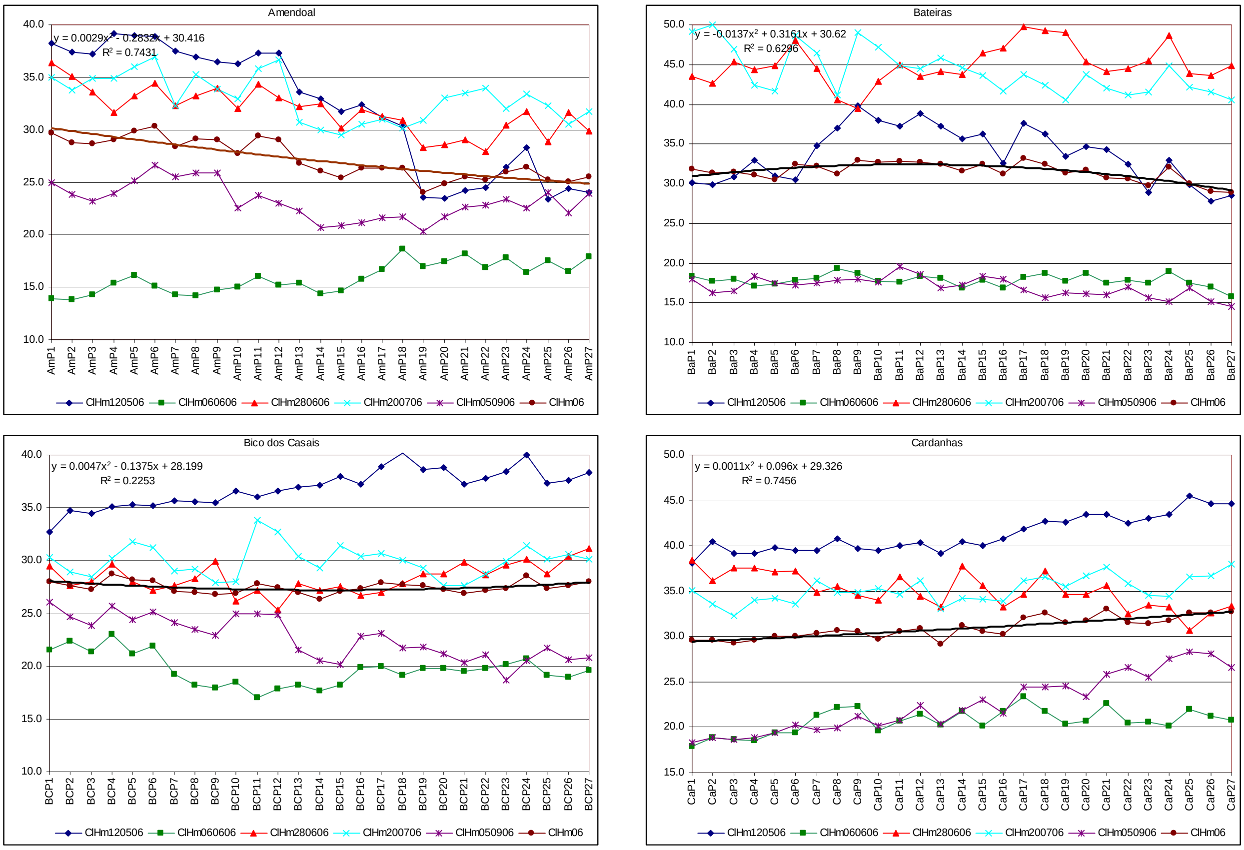
CITp06- S, S, S, S

Graphic 3- Representation of regression analysis for average station data 2005 air humidity



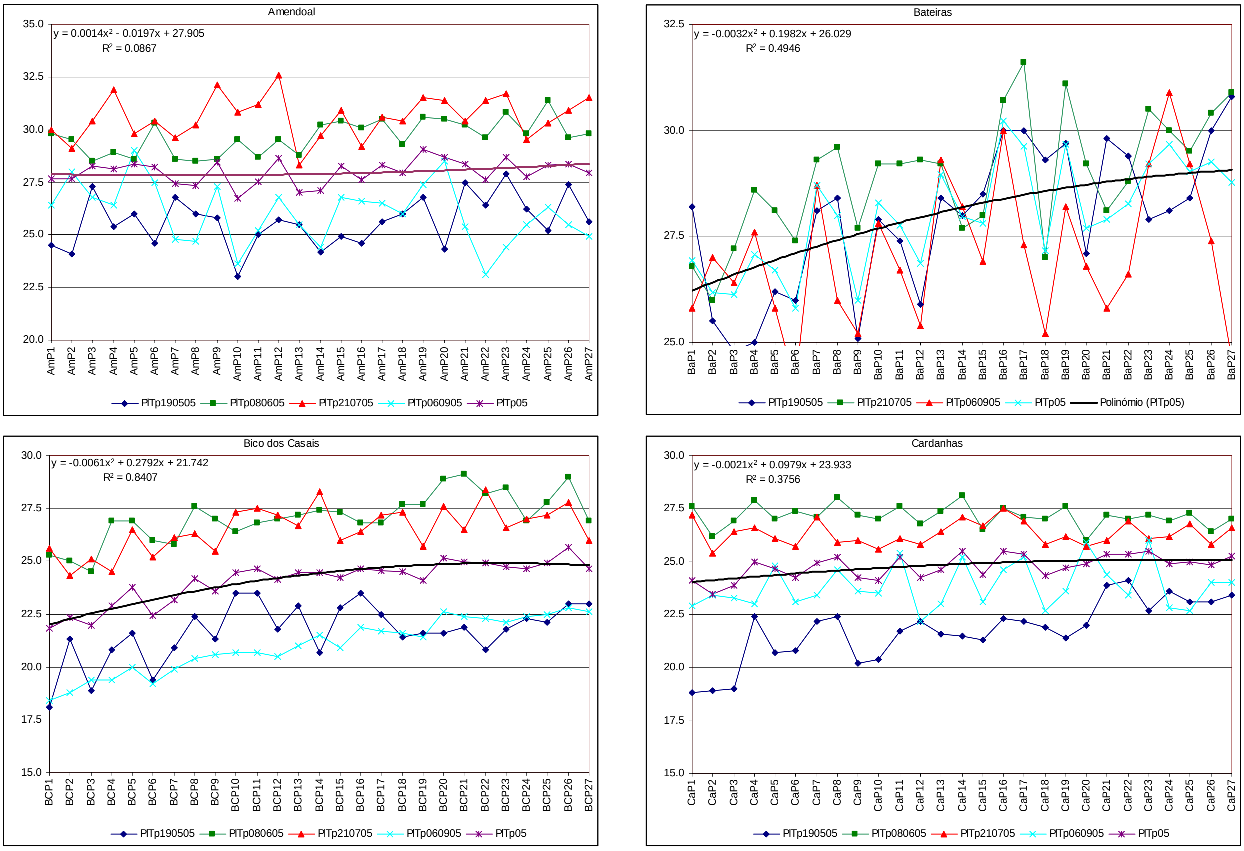
ClHm05- S, S, S, S

Graphic 4- Representation of regression analysis for average station data 2006 air humidity



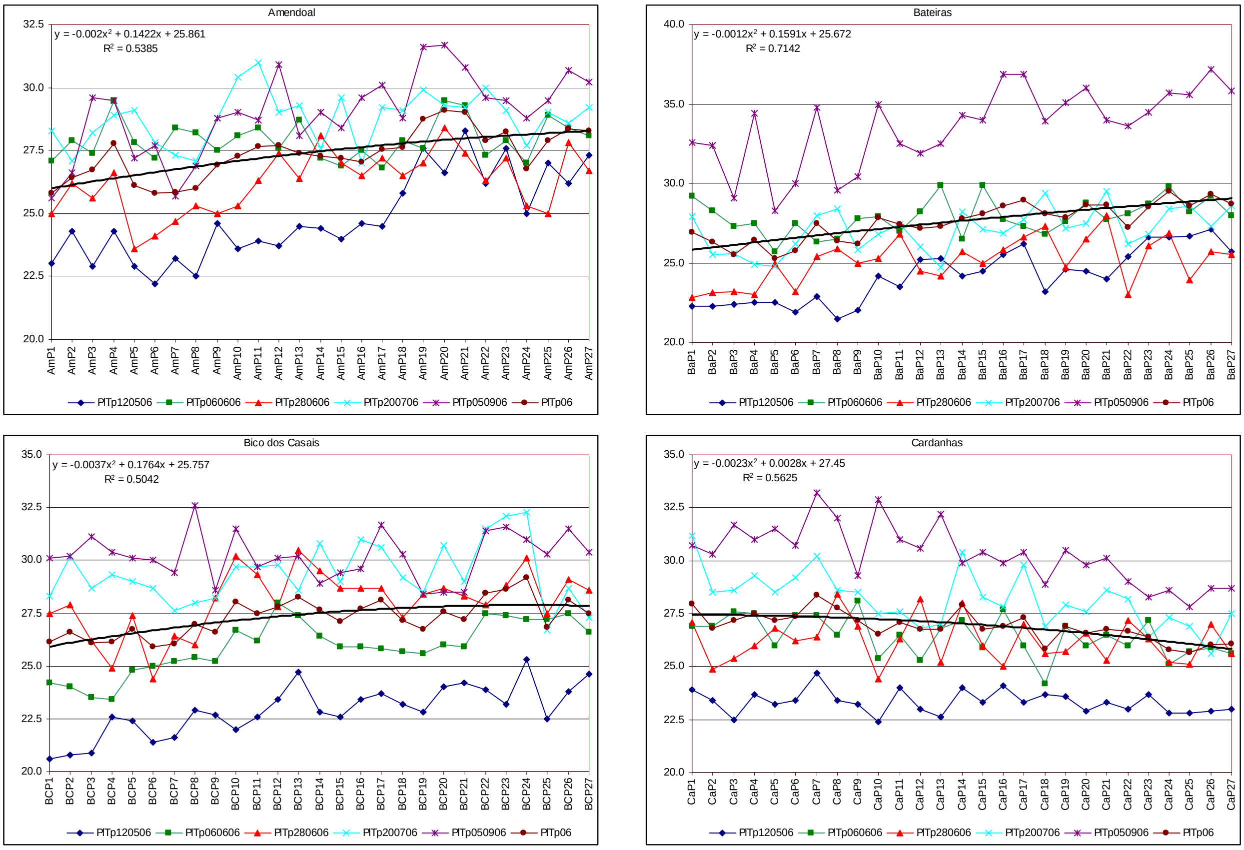
ClHm06- S, S, S, S

Graphic 5- Representation of regression analysis for average station data 2005 plant temperature



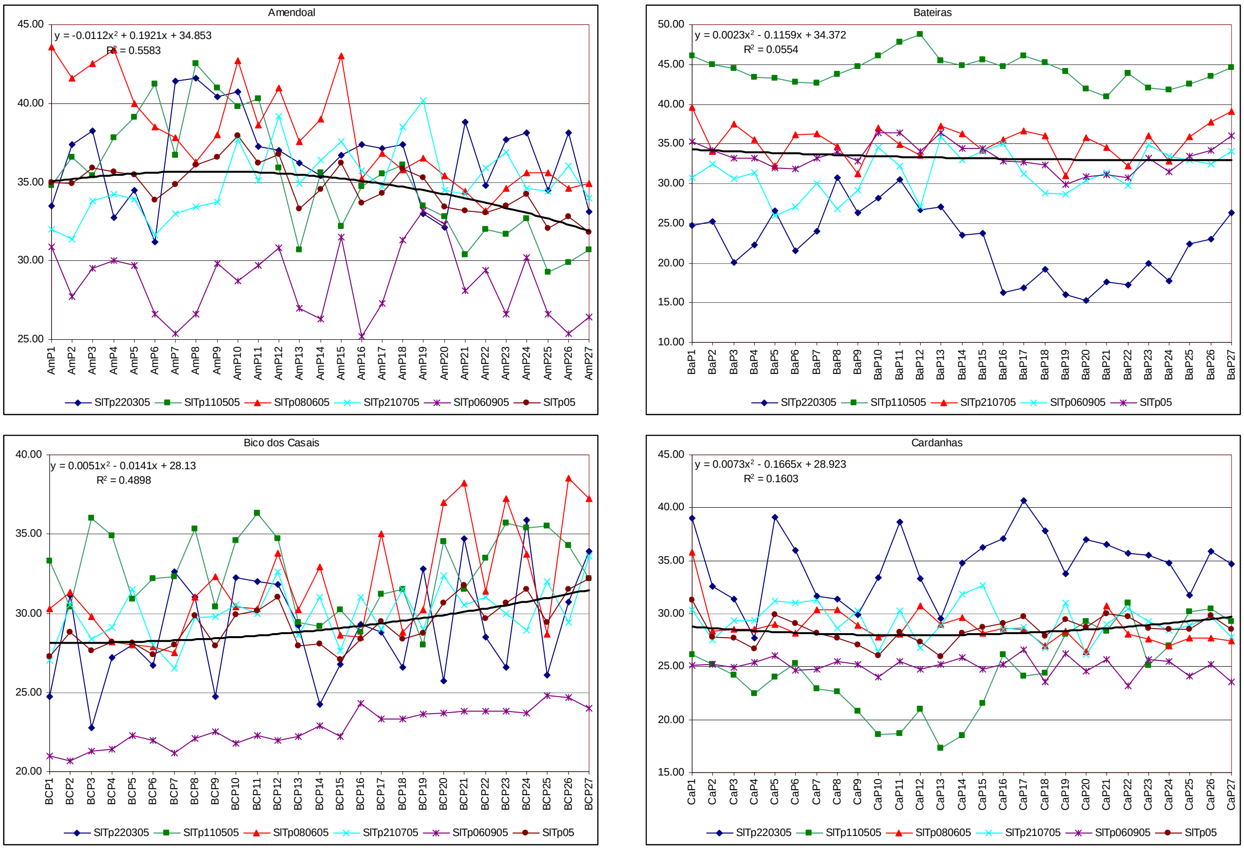
PITp05- Ns, S, S, S

Graphic 6- Representation of regression analysis for average station data 2006 plant temperature



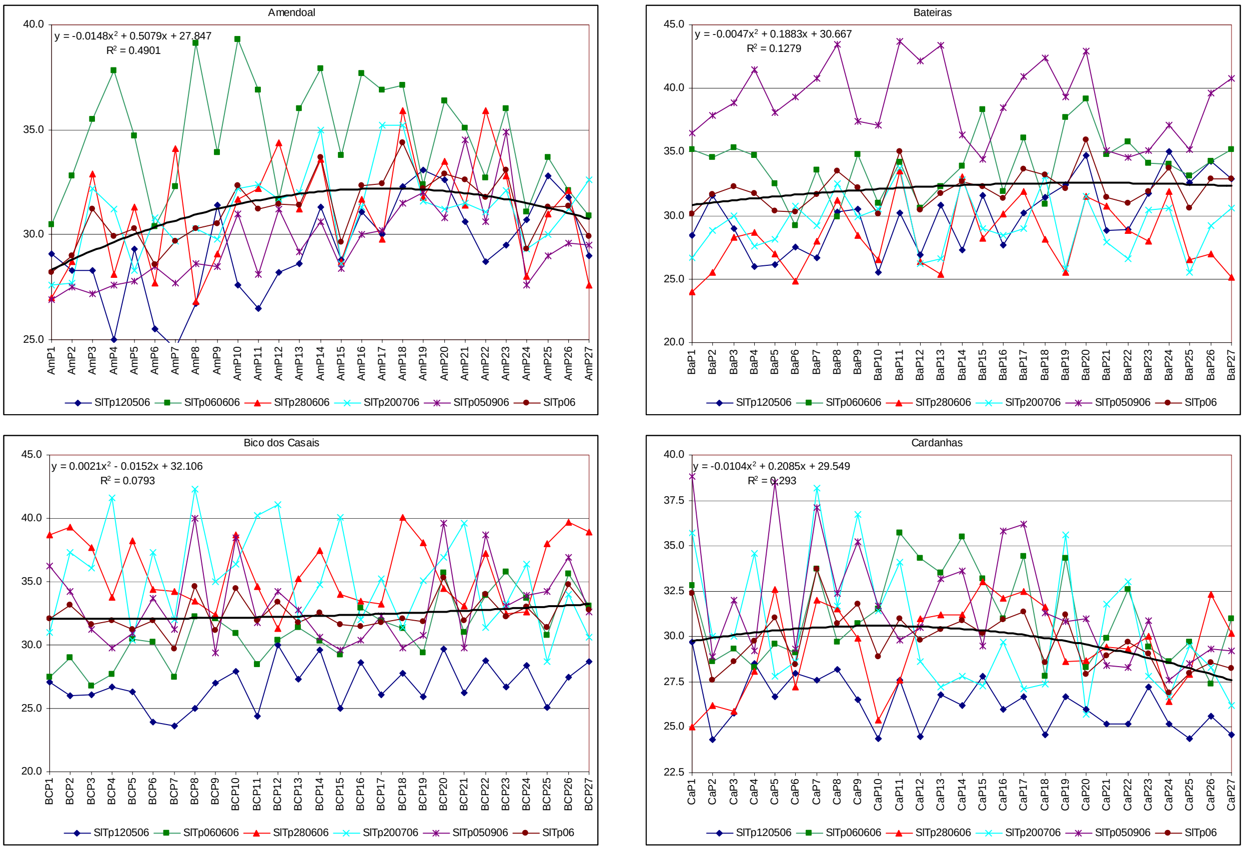
PITp06- S, S, S, S

Graphic 7- Representation of regression analysis for average station data 2005 soil temperature



SITp05- S, Ns, S, Ns

Graphic 8- Representation of regression analysis for average station data 2006 soil temperature



SITp06- S, NS, NS, S

Annex - Plants

Tables, graphics and figures

Table 1- SPAD leaf in different date, for different plots and installations forms**.**

DESCRIESTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD190505	27	39.548	1.8719	36.600	43.100
SPAD170605	27	45.170	1.9566	41.200	49.300
SPAD250705	27	42.448	2.1138	38.400	46.200
SPAD210606	27	48.306	2.2288	43.650	52.300
SPAD240706	27	48.283	2.1152	43.950	51.350

DESCRIESTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD190505	27	36.889	3.3164	31.800	42.000
SPAD170605	27	42.859	2.8011	37.900	47.800
SPAD250705	27	41.789	2.8058	36.700	48.100
SPAD210606	27	46.093	2.0366	42.450	50.050
SPAD240706	27	45.170	1.9825	41.400	49.100

DESCRIESTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD190505	27	39.744	1.8895	36.200	43.100
SPAD170605	27	42.048	2.9126	36.600	47.100
SPAD250705	27	37.548	2.9393	31.600	43.600
SPAD210606	27	45.543	2.4120	41.450	50.200
SPAD240706	27	45.419	2.4803	40.900	50.450

DESCRIESTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD190505	27	40.007	2.1066	35.300	43.700
SPAD170605	27	43.274	2.8619	39.200	49.900
SPAD250705	27	40.744	3.2255	32.700	47.500
SPAD210606	27	45.519	1.9817	40.900	49.250
SPAD240706	27	46.974	2.5082	41.100	51.200

DESCRIESTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD190505	54	38.219	2.9859	31.800	43.100
SPAD170605	54	44.015	2.6623	37.900	49.300
SPAD250705	54	42.119	2.4829	36.700	48.100
SPAD210606	54	47.199	2.3914	42.450	52.300
SPAD240706	54	46.727	2.5674	41.400	51.350

DESCRIESTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
SPAD190505	54	39.876	1.9865	35.300	43.700
SPAD170605	54	42.661	2.9262	36.600	49.900
SPAD250705	54	39.146	3.4561	31.600	47.500
SPAD210606	54	45.531	2.1865	40.900	50.200
SPAD240706	54	46.196	2.5924	40.900	51.200

Table 2- ANOVA SPAD average among plots, between vineyard installations and inside plots in 1905055

```
ONE-WAY AOV FOR SPAD190505 BY Parc
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     170.570    56.8566   10.10  0.0000
WITHIN   104     585.279    5.62769
TOTAL    107     755.849
                   CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   12.70      3   0.0053
COCHRAN'S Q                   0.4886
LARGEST VAR / SMALLEST VAR    3.1388
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.89737
EFlFeCTIVE CELL SIZE                           27.0
                           SAMPLE     GROUP
   Parc          MEAN       SIZE     STD DEV
---------   ----------   ------   ----------
Am             39.548       27        1.8719
Ba             36.889       27        3.3164
BC             39.744       27        1.8895
Ca             40.007       27        2.1066
TOTAL          39.047      108        2.3723
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD190505 BY Inst
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     74.1690    74.1690   11.53  0.0010
WITHIN   106     681.680    6.43095
TOTAL    107     755.849
                   CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.49      1   0.0036
COCHRAN'S Q                   0.6932
LARGEST VAR / SMALLEST VAR    2.2595
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.25441
EFlFeCTIVE CELL SIZE                           54.0
                           SAMPLE     GROUP
   Inst          MEAN       SIZE     STD DEV
---------   ----------   ------   ----------
Pt             38.219       54        2.9859
VA             39.876       54        1.9865
TOTAL          39.047      108        2.5359
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD190505 BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     9.63407    1.20426    0.27  0.9692
WITHIN    18     81.4733    4.52630
TOTAL     26     91.1074
                   CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.51      8   0.8083
COCHRAN'S Q                   0.2816
LARGEST VAR / SMALLEST VAR    14.519
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1.10735
EFlFeCTIVE CELL SIZE                            3.0
                           SAMPLE     GROUP
   PaEt          MEAN       SIZE     STD DEV
---------   ----------   ------   ----------
AmE1           39.567        3        3.1660
AmE2           39.600        3        1.5000
AmE3           40.267        3        2.2745
AmE4           39.200        3        1.4799
AmE5           38.567        3        1.9757
AmE6           40.467        3        1.5535
AmE7           40.100        3        0.8888
AmE8           39.200        3        3.3867
AmE9           38.967        3        1.5885
TOTAL          39.548       27        2.1275
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD190505 BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     129.700    16.2125    1.87  0.1292
WITHIN    18     156.267    8.68148
TOTAL     26     285.967
                   CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.44      8   0.3917
COCHRAN'S Q                   0.1858
LARGEST VAR / SMALLEST VAR    71.410
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.51034
EFlFeCTIVE CELL SIZE                            3.0
                           SAMPLE     GROUP
   PaEt          MEAN       SIZE     STD DEV
---------   ----------   ------   ----------
BaE1           32.233        3        0.4509
BaE2           36.567        3        3.0551
BaE3           36.433        3        1.2741
BaE4           37.900        3        3.4828
BaE5           36.767        3        3.4487
BaE6           35.000        3        3.8105
BaE7           40.000        3        1.2767
BaE8           37.700        3        3.5679
BaE9           39.400        3        3.7510
TOTAL          36.889       27        2.9464
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD190505 BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     12.7733    1.59667    0.36  0.9289
WITHIN    18     80.0533    4.44741
TOTAL     26     92.8267
                   CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.14      8   0.6321
COCHRAN'S Q                   0.2891
LARGEST VAR / SMALLEST VAR    15.228
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.95025
EFlFeCTIVE CELL SIZE                            3.0
                           SAMPLE     GROUP
   PaEt          MEAN       SIZE     STD DEV
---------   ----------   ------   ----------
BCE1           40.300        3        0.8718
BCE2           40.167        3        2.6312
BCE3           39.967        3        2.2745
BCE4           39.233        3        3.4020
BCE5           40.500        3        0.8888
BCE6           39.500        3        0.9539
BCE7           38.967        3        1.6563
BCE8           40.567        3        2.6577
BCE9           38.500        3        2.0224
TOTAL          39.744       27        2.1089
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD190505 BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     66.5452    8.31815    3.07  0.0230
WITHIN    18     48.8333    2.71296
TOTAL     26     115.379
                   CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.04      8   0.6433
COCHRAN'S Q                   0.3053
LARGEST VAR / SMALLEST VAR    45.633
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.86840
EFlFeCTIVE CELL SIZE                            3.0
                           SAMPLE     GROUP
   PaEt          MEAN       SIZE     STD DEV
---------   ----------   ------   ----------
CaE1           36.867        3        1.4295
CaE2           39.933        3        1.2583
CaE3           40.700        3        1.1533
CaE4           41.933        3        1.5373
CaE5           40.833        3        2.1548
CaE6           39.467        3        1.9553
CaE7           41.233        3        2.7301
CaE8           37.933        3        0.4041
CaE9           41.167        3        1.0066
TOTAL          40.007       27        1.6471
CASES INCLUDED 27    MISSING CASES 0
```

Table 3- ANOVA SPAD average among plots, between vineyard installations and inside plots in 170605

```
ONE-WAY AOV FOR SPAD170605 BY Parc
SOURCE    DF       SS          MS          F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    3     141.874     47.2912    6.67  0.0004
WITHIN   104     737.061     7.08712
TOTAL    107     878.934
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.85     3    0.1830
COCHRAN'S Q                  0.2993
LARGEST VAR / SMALLEST VAR     2.2159
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.48904
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
Am             45.170     27       1.9566
Ba             42.859     27       2.8011
BC             42.048     27       2.9126
Ca             43.274     27       2.8619
TOTAL          43.338    108       2.6622
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD170605 BY Inst
SOURCE    DF       SS          MS          F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    1     49.4779     49.4779    6.32  0.0134
WITHIN   106     829.456     7.82506
TOTAL    107     878.934
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.47     1    0.4938
COCHRAN'S Q                  0.5471
LARGEST VAR / SMALLEST VAR     1.2081
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.77135
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
Pt             44.015     54       2.6623
VA             42.661     54       2.9262
TOTAL          43.338    108       2.7973
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD170605 BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    8     17.3430     2.16787    0.47  0.8582
WITHIN    18     82.1933     4.56630
TOTAL     26     99.5363
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   11.36     8    0.1820
COCHRAN'S Q                  0.3623
LARGEST VAR / SMALLEST VAR     124.08
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.79948
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
AmE1           46.633      3       2.4132
AmE2           45.200      3       3.8588
AmE3           44.500      3       0.3464
AmE4           45.233      3       1.2503
AmE5           44.000      3       1.1533
AmE6           45.767      3       3.0989
AmE7           45.433      3       0.8505
AmE8           44.100      3       2.4249
AmE9           45.667      3       1.0786
TOTAL          45.170     27       2.1369
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD170605 BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    8     38.9052     4.86315    0.53  0.8187
WITHIN    18     165.100     9.17222
TOTAL     26     204.005
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.53     8    0.6999
COCHRAN'S Q                  0.1764
LARGEST VAR / SMALLEST VAR     46.968
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1.43636
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
BaE1           41.167      3       3.3005
BaE2           44.800      3       3.0512
BaE3           42.367      3       3.5233
BaE4           44.133      3       3.5949
BaE5           44.133      3       1.9553
BaE6           42.467      3       3.7220
BaE7           42.367      3       2.1127
BaE8           41.300      3       3.8158
BaE9           43.000      3       0.5568
TOTAL          42.859     27       3.0286
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD170605 BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    8     132.847     16.6059    3.41  0.0146
WITHIN    18     87.7200     4.87333
TOTAL     26     220.567
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.78     8    0.6716
COCHRAN'S Q                  0.2718
LARGEST VAR / SMALLEST VAR     25.734
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    3.91086
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
BCE1           41.833      3       1.4572
BCE2           42.500      3       2.1656
BCE3           41.333      3       3.4530
BCE4           37.967      3       1.1846
BCE5           40.767      3       0.6807
BCE6           44.767      3       2.0599
BCE7           40.400      3       1.9698
BCE8           45.800      3       1.8358
BCE9           43.067      3       3.4298
TOTAL          42.048     27       2.2076
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD170605 BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    8     113.425     14.1781    2.56  0.0463
WITHIN    18     99.5267     5.52926
TOTAL     26     212.952
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.00     8    0.8575
COCHRAN'S Q                  0.2432
LARGEST VAR / SMALLEST VAR     8.5035
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.88296
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
CaE1           40.967      3       1.7673
CaE2           40.033      3       1.1930
CaE3           44.633      3       3.4790
CaE4           46.500      3       3.4511
CaE5           44.300      3       1.6703
CaE6           45.733      3       1.6289
CaE7           41.967      3       2.9704
CaE8           42.967      3       2.1385
CaE9           42.367      3       1.5373
TOTAL          43.274     27       2.3514
CASES INCLUDED 27    MISSING CASES 0
```

Table 4- ANOVA SPAD average among plots, between vineyard installations and inside plots in 250705

```
ONE-WAY AOV FOR SPAD250705 BY Parc
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    382.308    127.436    16.24  0.0000
WITHIN   104    815.988    7.84604
TOTAL    107    1198.30
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.64     3    0.2005
COCHRAN'S Q                    0.3315
LARGEST VAR / SMALLEST VAR     2.3286
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4.42926
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE      GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             42.448     27       2.1138
Ba             41.789     27       2.8058
BC             37.548     27       2.9393
Ca             40.744     27       3.2255
TOTAL          40.632    108       2.8011
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD250705 BY Inst
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    238.521    238.521    26.34  0.0000
WITHIN   106    959.776    9.05449
TOTAL    107    1198.30
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.64     1    0.0175
COCHRAN'S Q                    0.6596
LARGEST VAR / SMALLEST VAR     1.9376
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4.24938
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE      GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             42.119     54       2.4829
VA             39.146     54       3.4561
TOTAL          40.632    108       3.0091
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD250705 BY PaEt
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    55.0941    6.88676     2.03  0.1012
WITHIN    18    61.0733    3.39296
TOTAL     26    116.167
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.82     8    0.8729
COCHRAN'S Q                    0.2682
LARGEST VAR / SMALLEST VAR     17.676
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.16460
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           41.267      3       1.4364
AmE2           41.867      3       1.8583
AmE3           44.400      3       1.1269
AmE4           40.933      3       2.1502
AmE5           44.600      3       2.1703
AmE6           43.333      3       0.6807
AmE7           40.233      3       1.6503
AmE8           42.900      3       2.8618
AmE9           42.500      3       1.7436
TOTAL          42.448     27       1.8420
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD250705 BY PaEt
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    80.4533    10.0567     1.46  0.2404
WITHIN    18    124.233    6.90185
TOTAL     26    204.687
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.01     8    0.4327
COCHRAN'S Q                    0.2238
LARGEST VAR / SMALLEST VAR     148.96
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.05160
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           39.500      3       2.4269
BaE2           40.900      3       2.7731
BaE3           39.033      3       0.3055
BaE4           44.100      3       2.5534
BaE5           43.133      3       1.4048
BaE6           41.167      3       3.6679
BaE7           44.133      3       3.7287
BaE8           42.000      3       1.8028
BaE9           42.133      3       3.0567
TOTAL          41.789     27       2.6271
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD250705 BY PaEt
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    105.681    13.2101     2.00  0.1060
WITHIN    18    118.947    6.60815
TOTAL     26    224.627
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    9.43     8    0.3077
COCHRAN'S Q                    0.3094
LARGEST VAR / SMALLEST VAR     96.860
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.21065
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           36.633      3       1.5503
BCE2           40.367      3       4.2899
BCE3           36.867      3       4.2736
BCE4           35.700      3       2.3302
BCE5           34.133      3       2.1939
BCE6           38.733      3       2.4786
BCE7           38.700      3       0.4359
BCE8           40.233      3       1.3650
BCE9           36.567      3       1.4012
TOTAL          37.548     27       2.5706
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD250705 BY PaEt
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    194.220    24.2775     5.73  0.0010
WITHIN    18    76.2867    4.23815
TOTAL     26    270.507
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.05     8    0.4283
COCHRAN'S Q                    0.2881
LARGEST VAR / SMALLEST VAR     33.990
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    6.67978
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           34.400      3       1.9975
CaE2           39.567      3       2.6102
CaE3           41.600      3       0.6928
CaE4           45.200      3       2.0421
CaE5           41.500      3       2.0075
CaE6           41.733      3       2.5736
CaE7           40.200      3       3.3151
CaE8           40.967      3       0.5686
CaE9           41.533      3       0.8505
TOTAL          40.744     27       2.0587
CASES INCLUDED 27    MISSING CASES 0
```

Table 5- ANOVA SPAD average among plots, between vineyard installations and inside plots in 210606

```
ONE-WAY AOV FOR SPAD210606 BY Parc
SOURCE    DF       SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    3    141.287     47.0956     9.99   0.0000
WITHIN   104    490.359     4.71499
TOTAL    107    631.646
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    1.25      3    0.7418
COCHRAN'S Q                   0.3085
LARGEST VAR / SMALLEST VAR    1.4814
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.56965
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
Am             48.306     27       2.2288
Ba             46.093     27       2.0366
BC             45.543     27       2.4120
Ca             45.519     27       1.9817
TOTAL          46.365    108       2.1714
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD210606 BY Inst
SOURCE    DF       SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    1    75.1668     75.1668    14.32   0.0003
WITHIN   106    556.480     5.24981
TOTAL    107    631.646
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    0.42      1    0.5165
COCHRAN'S Q                   0.5447
LARGEST VAR / SMALLEST VAR    1.1963
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.29476
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
Pt             47.199     54       2.3914
VA             45.531     54       2.1865
TOTAL          46.365    108       2.2912
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD210606 BY PaEt
SOURCE    DF       SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    8    71.6750     8.95938     2.81   0.0329
WITHIN    18    57.4767     3.19315
TOTAL     26    129.152
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    5.89      8    0.6592
COCHRAN'S Q                   0.3038
LARGEST VAR / SMALLEST VAR    19.084
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.92208
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           45.267      3       1.9977
AmE2           46.700      3       1.6256
AmE3           50.733      3       1.3568
AmE4           50.533      3       0.6825
AmE5           49.150      3       2.5045
AmE6           47.917      3       2.9548
AmE7           47.800      3       1.3811
AmE8           48.100      3       1.5588
AmE9           48.550      3       0.6764
TOTAL          48.306     27       1.7869
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD210606 BY PaEt
SOURCE    DF       SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    8    67.0219     8.37773     3.69   0.0101
WITHIN    18    40.8167     2.26759
TOTAL     26    107.839
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES   12.60      8    0.1262
COCHRAN'S Q                   0.2847
LARGEST VAR / SMALLEST VAR    188.46
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.03671
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           48.133      3       2.3229
BaE2           47.117      3       0.6048
BaE3           43.667      3       0.1756
BaE4           45.517      3       0.9292
BaE5           43.400      3       1.0642
BaE6           46.767      3       1.2770
BaE7           45.617      3       2.4106
BaE8           47.417      3       0.5752
BaE9           47.200      3       2.2017
TOTAL          46.093     27       1.5059
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD210606 BY PaEt
SOURCE    DF       SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    8    123.029     15.3786     9.80   0.0000
WITHIN    18    28.2350     1.56861
TOTAL     26    151.264
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    4.13      8    0.8451
COCHRAN'S Q                   0.3202
LARGEST VAR / SMALLEST VAR    11.976
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4.60332
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           48.100      3       1.2971
BCE2           48.117      3       2.1262
BCE3           48.583      3       0.8083
BCE4           42.567      3       0.8578
BCE5           43.250      3       1.5620
BCE6           45.317      3       0.8505
BCE7           44.567      3       1.3868
BCE8           43.683      3       1.0300
BCE9           45.700      3       0.6144
TOTAL          45.543     27       1.2524
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD210606 BY PaEt
SOURCE    DF       SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    8    37.6807     4.71009     1.32   0.2971
WITHIN    18    64.4250     3.57917
TOTAL     26    102.106
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    3.39      8    0.9074
COCHRAN'S Q                   0.1947
LARGEST VAR / SMALLEST VAR    9.5982
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.37698
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           42.583      3       2.0040
CaE2           46.567      3       2.1888
CaE3           46.133      3       0.8083
CaE4           46.000      3       1.2580
CaE5           45.200      3       1.9487
CaE6           46.583      3       2.3438
CaE7           46.350      3       2.1231
CaE8           45.133      3       2.5042
CaE9           45.117      3       1.0492
TOTAL          45.519     27       1.8919
CASES INCLUDED 27    MISSING CASES 0
```

Table 6- ANOVA SPAD average among plots, between vineyard installations and inside plots in 240706

```
ONE-WAY AOV FOR SPAD240706 BY Parc
SOURCE    DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    3     171.089     57.0297    10.94   0.0000
WITHIN   104     542.034     5.21186
TOTAL    107     713.123
                    CHI-SQ     DF       P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    2.07      3    0.5585
COCHRAN'S Q                   0.3018
LARGEST VAR / SMALLEST VAR    1.6006
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.91918
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             48.283     27       2.1152
Ba             45.170     27       1.9825
BC             45.419     27       2.4803
Ca             46.974     27       2.5082
TOTAL          46.462    108       2.2830
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD240706 BY Inst
SOURCE    DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    1     7.60021     7.60021     1.14   0.2877
WITHIN   106     705.523     6.65588
TOTAL    107     713.123
                    CHI-SQ     DF       P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    0.00      1    0.9440
COCHRAN'S Q                   0.5048
LARGEST VAR / SMALLEST VAR    1.0196
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01749
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             46.727     54       2.5674
VA             46.196     54       2.5924
TOTAL          46.462    108       2.5799
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD240706 BY PaEt
SOURCE    DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    8     78.2683     9.78354     4.63   0.0033
WITHIN    18     38.0617     2.11454
TOTAL     26     116.330
                    CHI-SQ     DF       P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES   17.57      8    0.0247
COCHRAN'S Q                   0.6109
LARGEST VAR / SMALLEST VAR    112.51
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.55633
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           48.833      3       0.3215
AmE2           47.883      3       0.6007
AmE3           50.967      3       0.3547
AmE4           49.133      3       0.5575
AmE5           48.450      3       0.9849
AmE6           45.067      3       1.0054
AmE7           45.883      3       2.0386
AmE8           49.100      3       0.6062
AmE9           49.233      3       3.4097
TOTAL          48.283     27       1.4541
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD240706 BY PaEt
SOURCE    DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    8     52.2546     6.53183     2.35   0.0626
WITHIN    18     49.9367     2.77426
TOTAL     26     102.191
                    CHI-SQ     DF       P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    3.74      8    0.8796
COCHRAN'S Q                   0.3679
LARGEST VAR / SMALLEST VAR    9.6608
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.25252
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           45.550      3       1.4731
BaE2           43.083      3       0.9751
BaE3           44.567      3       1.6166
BaE4           47.833      3       1.3288
BaE5           45.517      3       1.3013
BaE6           44.783      3       3.0308
BaE7           44.617      3       1.9393
BaE8           46.850      3       1.0500
BaE9           43.733      3       1.3137
TOTAL          45.170     27       1.6656
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD240706 BY PaEt
SOURCE    DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    8     94.1957     11.7745     3.22   0.0186
WITHIN    18     65.7500     3.65278
TOTAL     26     159.946
                    CHI-SQ     DF       P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    3.27      8    0.9160
COCHRAN'S Q                   0.2584
LARGEST VAR / SMALLEST VAR    9.0275
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.70723
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           45.483      3       2.0251
BCE2           45.600      3       2.5293
BCE3           45.150      3       1.2258
BCE4           42.667      3       1.4835
BCE5           44.950      3       1.9615
BCE6           47.017      3       1.9264
BCE7           42.383      3       1.2965
BCE8           47.133      3       0.9700
BCE9           48.383      3       2.9143
TOTAL          45.419     27       1.9112
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SPAD240706 BY PaEt
SOURCE    DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    8     88.6135     11.0767     2.66   0.0404
WITHIN    18     74.9533     4.16407
TOTAL     26     163.567
                    CHI-SQ     DF       P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    3.66      8    0.8864
COCHRAN'S Q                   0.2250
LARGEST VAR / SMALLEST VAR    9.2056
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.30421
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           42.750      3       2.0180
CaE2           48.533      3       1.3156
CaE3           46.400      3       1.2580
CaE4           48.983      3       2.6487
CaE5           45.567      3       0.9570
CaE6           47.600      3       2.6665
CaE7           47.667      3       2.9036
CaE8           46.867      3       2.0678
CaE9           48.400      3       1.5305
TOTAL          46.974     27       2.0406
CASES INCLUDED 27    MISSING CASES 0
```

Table 7- Leaf area (FlAr), in cm^2 and dry weight leaf (FlPS), in mg, for different plots and installations forms**.**

DESCRIESTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlAr170605	27	299.88	27.797	254.60	350.10
FlAr210606	27	135.16	17.987	101.55	161.52
FlAr240706	27	243.00	29.573	195.05	299.01
FlPS170605	27	1.8137	0.1689	1.5200	2.2200
FlPS210606	27	2.0622	0.4476	1.5000	2.9300
FlPS240706	27	1.9033	0.2818	1.5500	2.4400

DESCRIESTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlAr170605	27	284.03	36.493	230.40	348.60
FlAr210606	27	131.18	14.006	104.45	155.41
FlAr240706	27	239.68	27.082	194.72	288.51
FlPS170605	27	1.7111	0.2009	1.3900	2.0700
FlPS210606	27	2.0196	0.2968	1.5400	2.8000
FlPS240706	27	1.9163	0.2141	1.5900	2.3500

DESCRIESTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlAr170605	27	322.73	100.34	111.30	508.60
FlAr210606	27	131.37	16.459	103.24	167.08
FlAr240706	27	247.31	20.930	212.91	283.32
FlPS170605	27	2.3944	0.2929	1.9500	2.9400
FlPS210606	27	2.0930	0.3764	1.5200	2.9000
FlPS240706	27	1.9530	0.1584	1.6600	2.3100

DESCRIESTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlAr170605	27	343.25	27.569	299.30	397.90
FlAr210606	27	135.60	16.689	100.88	165.48
FlAr240706	27	221.98	23.725	181.28	263.12
FlPS170605	27	1.8730	0.2350	1.5000	2.3300
FlPS210606	27	2.1056	0.3443	1.5400	2.7400
FlPS240706	27	1.6930	0.1385	1.4300	1.9700

DESCRIESTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlAr170605	54	291.95	33.110	230.40	350.10
FlAr210606	54	133.17	16.093	101.55	161.52
FlAr240706	54	241.34	28.136	194.72	299.01
FlPS170605	54	1.7624	0.1910	1.3900	2.2200
FlPS210606	54	2.0409	0.3768	1.5000	2.9300
FlPS240706	54	1.9098	0.2479	1.5500	2.4400

DESCRIESTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlAr170605	54	533.00	204.81	299.30	908.60
FlAr210606	54	133.48	16.556	100.88	167.08
FlAr240706	54	234.65	25.583	181.28	283.32
FlPS170605	54	2.1337	0.3721	1.5000	2.9400
FlPS210606	54	2.0993	0.3574	1.5200	2.9000
FlPS240706	54	1.8230	0.1973	1.4300	2.3100

Table 8- ANOVA leaf area average among plots, between vineyard installations and inside plots in 170605

```
ONE-WAY AOV FOR FLAR17060 BY PARC
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    16930.6    5643.52    2.59  0.0701
WITHIN    32    69791.0    2180.97
TOTAL     35    86721.5
                   CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   32.87     3   0.0000
COCHRAN'S Q                  0.8386
LARGEST VAR / SMALLEST VAR     52.915
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    384.729
EFFECTIVE CELL SIZE                             9.0
                       SAMPLE     GROUP
   PARC         MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
Am            299.87      9       11.758
Ba            284.03      9       31.009
BC            322.73      9       85.532
Ca            343.26      9       17.560
TOTAL         308.77     36       46.701
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FLAR17060 BY INST
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    10178.8    10178.8    4.52  0.0408
WITHIN    34    76542.7    2251.26
TOTAL     35    86721.5
                   CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   13.13     1   0.0003
COCHRAN'S Q                  0.8703
LARGEST VAR / SMALLEST VAR     6.7110
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    440.419
EFFECTIVE CELL SIZE                            18.0
                       SAMPLE     GROUP
   INST         MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
Pt            291.95     18       24.164
VA            325.58     18       62.599
TOTAL         308.76     36       47.447
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr170605 BY PaEt
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     3318.68    414.835    0.44  0.8781
WITHIN    18    16780.5    932.248
TOTAL     26    20099.1
                   CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   13.83     8   0.0863
COCHRAN'S Q                  0.2899
LARGEST VAR / SMALLEST VAR     407.41
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -172.471
EFlFeCTIVE CELL SIZE                            3.0
                       SAMPLE     GROUP
   PaEt         MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
AmE1          293.56      3       39.951
AmE2          303.50      3       15.292
AmE3          295.00      3       2.4436
AmE4          309.64      3       48.931
AmE5          296.18      3       17.092
AmE6          313.32      3       49.323
AmE7          312.37      3       12.001
AmE8          275.72      3       16.135
AmE9          299.53      3       32.109
TOTAL         299.87     27       30.533
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr170605 BY PaEt
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    23069.0    2883.62    4.50  0.0039
WITHIN    18    11536.1    640.892
TOTAL     26    34605.1
                   CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   10.47     8   0.2334
COCHRAN'S Q                  0.5513
LARGEST VAR / SMALLEST VAR     53.151
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    747.577
EFlFeCTIVE CELL SIZE                            3.0
                       SAMPLE     GROUP
   PaEt         MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
BaE1          281.08      3       25.742
BaE2          336.82      3       10.523
BaE3          333.48      3       13.216
BaE4          287.57      3       56.393
BaE5          262.21      3       7.7351
BaE6          248.74      3       17.501
BaE7          265.28      3       27.665
BaE8          270.41      3       15.465
BaE9          270.69      3       16.408
TOTAL         284.03     27       25.316
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FLAR1706 BY PAET
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     175554    21944.3    2.04  0.0994
WITHIN    18     193413    10745.2
TOTAL     26     368968
                   CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.92     8   0.4409
COCHRAN'S Q                  0.2726
LARGEST VAR / SMALLEST VAR     41.319
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    3733.03
EFFECTIVE CELL SIZE                             3.0
                       SAMPLE     GROUP
   PAET         MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
BCE1          302.90      3       92.129
BCE2          210.40      3       57.505
BCE3          227.00      3       162.38
BCE4          195.70      3       156.43
BCE5          399.77      3       25.261
BCE6          328.77      3       45.181
BCE7          376.80      3       137.33
BCE8          434.67      3       81.115
BCE9          295.20      3       77.186
TOTAL         307.91     27       103.66
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr170605 BY PaEt
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     7400.72    925.090    1.35  0.2829
WITHIN    18    12345.3    685.848
TOTAL     26    19746.0
                   CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.34     8   0.4010
COCHRAN'S Q                  0.3138
LARGEST VAR / SMALLEST VAR     43.631
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    79.7474
EFlFeCTIVE CELL SIZE                            3.0
                       SAMPLE     GROUP
   PaEt         MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
CaE1          363.17      3       26.432
CaE2          332.43      3       44.009
CaE3          318.90      3       29.461
CaE4          332.07      3       7.8334
CaE5          346.84      3       6.6626
CaE6          371.92      3       20.562
CaE7          327.60      3       15.431
CaE8          355.48      3       36.770
CaE9          340.87      3       23.464
TOTAL         343.25     27       26.189
CASES INCLUDED 27    MISSING CASES 0
```

Table 9- ANOVA leaf area average among plots, between vineyard installations and inside plots in 210606

```
ONE-WAY AOV FOR FlAr210606 BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     34462.2    11487.4    0.63  0.5948
WITHIN   104     1884588    18121.0
TOTAL    107    19190505
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   86.62     3    0.0000
COCHRAN'S Q                  0.6442
LARGEST VAR / SMALLEST VAR   39.508
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -245.691
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             279.80     27       55.444
Ba             266.06     27       34.377
BC             299.34     27       146.76
Ca             312.65     27       216.08
TOTAL          289.46    108       134.61
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr210606 BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     29522.6    29522.6    1.66  0.2009
WITHIN   106     1889528    17825.7
TOTAL    107    19190505
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   78.25     1    0.0000
COCHRAN'S Q                  0.9401
LARGEST VAR / SMALLEST VAR   15.692
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    216.608
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             272.93     54       46.216
VA             306.00     54       183.07
TOTAL          289.46    108       133.51
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr210606 BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     32853.9    4106.74    1.57  0.2026
WITHIN    18     47071.8    2615.10
TOTAL     26     79925.7
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   10.09     8    0.2586
COCHRAN'S Q                  0.3387
LARGEST VAR / SMALLEST VAR   24.526

COMPONENT OF VARIANCE FOR BETWEEN GROUPS    497.212
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           226.92      3       31.311
AmE2           216.65      3       18.029
AmE3           280.94      3       22.734
AmE4           310.63      3       77.298
AmE5           299.98      3       89.287
AmE6           273.80      3       25.328
AmE7           287.26      3       26.701
AmE8           330.59      3       75.539
AmE9           291.45      3       26.572
TOTAL          279.80     27       51.138
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr210606 BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     13549.0    1693.62    1.77  0.1486
WITHIN    18     17177.7    954.316
TOTAL     26     30726.7
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   10.34     8    0.2421
COCHRAN'S Q                  0.4792
LARGEST VAR / SMALLEST VAR   39.459
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    246.435
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           251.95      3       42.850
BaE2           276.75      3       14.359
BaE3           237.19      3       10.213
BaE4           266.88      3       64.153
BaE5           253.45      3       16.543
BaE6           268.35      3       11.737
BaE7           318.63      3       28.441
BaE8           246.83      3       20.597
BaE9           274.49      3       26.115
TOTAL          266.06     27       30.892
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr210606 BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8      149667    18708.3    0.82  0.5948
WITHIN    18      410306    22794.8
TOTAL     26      559973
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   37.37     8    0.0000
COCHRAN'S Q                  0.9223
LARGEST VAR / SMALLEST VAR   700.65
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1362.15
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           228.69      3       19.170
BCE2           267.22      3       23.006
BCE3           306.85      3       44.540
BCE4           289.01      3       79.570
BCE5           256.33      3       16.433
BCE6           500.01      3       434.98
BCE7           302.14      3       43.839
BCE8           278.00      3       20.076
BCE9           265.87      3       64.298
TOTAL          299.34     27       150.98
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr210606 BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8      400252    50031.4    1.11  0.4035
WITHIN    18      813712    45206.2
TOTAL     26     1213963
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   48.99     8    0.0000
COCHRAN'S Q                  0.9748
LARGEST VAR / SMALLEST VAR   1164.1
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1608.42
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           264.48      3       47.132
CaE2           296.79      3       26.083
CaE3           655.11      3       629.76
CaE4           285.56      3       22.112
CaE5           271.84      3       24.286
CaE6           260.27      3       43.060
CaE7           266.90      3       18.458
CaE8           253.85      3       59.832
CaE9           259.04      3       22.323
TOTAL          312.65     27       212.62
CASES INCLUDED 27    MISSING CASES 0
```

Table 10- ANOVA leaf area average among plots, between vineyard installations and inside plots in 240706

```
ONE-WAY AOV FOR FlAr2407 BY Parc
SOURCE    DF        SS          MS         F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    3     10022.1     3340.71     5.12  0.0024
WITHIN   104     67830.5     652.216
TOTAL    107     77852.6
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.45      3   0.3276
COCHRAN'S Q                    0.3352
LARGEST VAR / SMALLEST VAR     1.9964
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    99.5738
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             243.00     27       29.573
Ba             239.68     27       27.082
BC             247.31     27       20.930
Ca             221.98     27       23.725
TOTAL          237.99    108       25.539
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr2407 BY Inst
SOURCE    DF        SS          MS         F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    1     1209.22     1209.22     1.67  0.1988
WITHIN   106     76643.4     723.051
TOTAL    107     77852.6
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.47      1   0.4911
COCHRAN'S Q                    0.5474
LARGEST VAR / SMALLEST VAR     1.2095
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    9.00308
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             241.34     54       28.136
VA             234.65     54       25.583
TOTAL          237.99    108       26.890
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr2407 BY PaEt
SOURCE    DF        SS          MS         F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    8     9202.25     1150.28     1.53  0.2155
WITHIN    18     13535.8     751.991
TOTAL     26     22738.1
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.82      8   0.8729
COCHRAN'S Q                    0.2678
LARGEST VAR / SMALLEST VAR     11.177
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    132.764
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           223.09      3       12.735
AmE2           216.78      3       25.525
AmE3           265.69      3       17.715
AmE4           242.00      3       27.501
AmE5           233.32      3       40.184
AmE6           228.61      3       19.616
AmE7           257.71      3       21.668
AmE8           246.10      3       24.544
AmE9           273.67      3       42.575
TOTAL          243.00     27       27.422
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr2407 BY PaEt
SOURCE    DF        SS          MS         F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    8     8035.43     1004.43     1.64  0.1827
WITHIN    18     11033.4     612.969
TOTAL     26     19068.9
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.76      8   0.5629
COCHRAN'S Q                    0.4359
LARGEST VAR / SMALLEST VAR     20.636
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    130.487
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           215.70      3       27.004
BaE2           253.39      3       11.084
BaE3           232.85      3       10.795
BaE4           249.89      3       49.036
BaE5           228.22      3       18.168
BaE6           221.39      3       13.731
BaE7           235.72      3       26.977
BaE8           275.12      3       19.362
BaE9           244.85      3       22.853
TOTAL          239.68     27       24.758
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr2407 BY PaEt
SOURCE    DF        SS          MS         F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    8     5781.99     722.749     2.32  0.0659
WITHIN    18     5607.27     311.515
TOTAL     26     11389.3
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.00      8   0.5364
COCHRAN'S Q                    0.3105
LARGEST VAR / SMALLEST VAR     32.676
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    137.078
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           223.89      3       11.729
BCE2           270.03      3       5.1613
BCE3           265.87      3       18.689
BCE4           255.29      3       24.882
BCE5           248.98      3       29.503
BCE6           234.54      3       17.665
BCE7           231.02      3       15.857
BCE8           244.81      3       6.4098
BCE9           251.38      3       13.999
TOTAL          247.31     27       17.650
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlAr2407 BY PaEt
SOURCE    DF        SS          MS         F       P
-------  ----  ---------   ---------   ------  ------
BETWEEN    8     2944.83     368.104     0.57  0.7913
WITHIN    18     11689.5     649.416
TOTAL     26     14634.3
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.91      8   0.9397
COCHRAN'S Q                    0.2344
LARGEST VAR / SMALLEST VAR     6.9628
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -93.7706
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           203.31      3       23.697
CaE2           240.54      3       14.029
CaE3           224.88      3       37.017
CaE4           223.63      3       16.163
CaE5           221.78      3       15.378
CaE6           222.39      3       29.668
CaE7           214.67      3       25.738
CaE8           233.80      3       25.675
CaE9           212.82      3       31.882
TOTAL          221.98     27       25.484
CASES INCLUDED 27    MISSING CASES 0
```

Table 11- ANOVA dry weight leaf average among plots, between vineyard installations and inside plots in 170605

```
ONE-WAY AOV FOR FlPS170605 BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    7.53557    2.51186    47.87  0.0000
WITHIN   104    5.45733    0.05247
TOTAL    107    12.9929
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.42     3    0.0380
COCHRAN'S Q                  0.4087
LARGEST VAR / SMALLEST VAR   3.0062
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.09109
EFlFeCTIVE CELL SIZE                           27.0
                       SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            1.8137     27       0.1689
Ba            1.7111     27       0.2009
BC            2.3944     27       0.2929
Ca            1.8730     27       0.2350
TOTAL         1.9481    108       0.2291
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS170605 BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    3.72225    3.72225    42.56  0.0000
WITHIN   106    9.27065    0.08746
TOTAL    107    12.9929
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   21.80     1    0.0000
COCHRAN'S Q                  0.7915
LARGEST VAR / SMALLEST VAR   3.7950
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.06731
EFlFeCTIVE CELL SIZE                           54.0
                       SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            1.7624     54       0.1910
VA            2.1337     54       0.3721
TOTAL         1.9481    108       0.2957
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS170605 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    0.19670    0.02459     0.81  0.6017
WITHIN    18    0.54533    0.03030
TOTAL     26    0.74203
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.23     8    0.5125
COCHRAN'S Q                  0.4270
LARGEST VAR / SMALLEST VAR   29.855
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00190
EFlFeCTIVE CELL SIZE                            3.0
                       SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1          1.6867      3       0.1756
AmE2          1.7133      3       0.1320
AmE3          1.8233      3       0.1115
AmE4          1.9633      3       0.1973
AmE5          1.8967      3       0.1002
AmE6          1.8633      3       0.3412
AmE7          1.8000      3       0.0624
AmE8          1.8433      3       0.1888
AmE9          1.7333      3       0.0839
TOTAL         1.8137     27       0.1741
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS170605 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    0.55687    0.06961     2.54  0.0476
WITHIN    18    0.49240    0.02736
TOTAL     26    1.04927
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    9.33     8    0.3152
COCHRAN'S Q                  0.3949
LARGEST VAR / SMALLEST VAR   47.820
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01408
EFlFeCTIVE CELL SIZE                            3.0
                       SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1          1.7167      3       0.1940
BaE2          1.8100      3       0.0854
BaE3          2.0267      3       0.0451
BaE4          1.7633      3       0.3118
BaE5          1.5100      3       0.0520
BaE6          1.5767      3       0.1943
BaE7          1.5900      3       0.1868
BaE8          1.6933      3       0.1102
BaE9          1.7133      3       0.1206
TOTAL         1.7111     27       0.1654
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS170605 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    1.56173    0.19522     5.25  0.0017
WITHIN    18    0.66893    0.03716
TOTAL     26    2.23067
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    9.03     8    0.3394
COCHRAN'S Q                  0.2891
LARGEST VAR / SMALLEST VAR   26.135
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.05268
EFlFeCTIVE CELL SIZE                            3.0
                       SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1          2.1333      3       0.2344
BCE2          2.0967      3       0.2369
BCE3          2.2733      3       0.2631
BCE4          2.2500      3       0.0608
BCE5          2.8433      3       0.0643
BCE6          2.2500      3       0.0656
BCE7          2.5200      3       0.1709
BCE8          2.5133      3       0.1270
BCE9          2.6700      3       0.3110
TOTAL         2.3944     27       0.1928
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS170605 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    0.49483    0.06185     1.18  0.3610
WITHIN    18    0.94053    0.05225
TOTAL     26    1.43536
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.87     8    0.4460
COCHRAN'S Q                  0.3448
LARGEST VAR / SMALLEST VAR   66.630
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00320
EFlFeCTIVE CELL SIZE                            3.0
                       SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1          1.8233      3       0.0945
CaE2          1.6767      3       0.2627
CaE3          1.8100      3       0.1249
CaE4          1.9267      3       0.0493
CaE5          2.0100      3       0.2621
CaE6          2.1600      3       0.1931
CaE7          1.7600      3       0.2252
CaE8          1.8733      3       0.4027
CaE9          1.8167      3       0.2354
TOTAL         1.8730     27       0.2286
CASES INCLUDED 27    MISSING CASES 0
```

Table 12- ANOVA dry weight leaf average among plots, between vineyard installations and inside plots in 210606

```
ONE-WAY AOV FOR FlPS2106 BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    0.11851    0.03950    0.29  0.8340
WITHIN   104    14.2664    0.13718
TOTAL    107    14.3849
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.54     3    0.2086
COCHRAN'S Q                 0.3651
LARGEST VAR / SMALLEST VAR    2.2744
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00362
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            2.0622      27      0.4476
Ba            2.0196      27      0.2968
BC            2.0930      27      0.3764
Ca            2.1056      27      0.3443
TOTAL         2.0701     108      0.3704
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS2106 BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    0.09188    0.09188    0.68  0.4110
WITHIN   106    14.2930    0.13484
TOTAL    107    14.3849
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.15     1    0.7018
COCHRAN'S Q                 0.5264
LARGEST VAR / SMALLEST VAR    1.1115
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -7.956E-04
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            2.0409      54      0.3768
VA            2.0993      54      0.3574
TOTAL         2.0701     108      0.3672
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS2106 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    2.21287    0.27661    1.66  0.1764
WITHIN    18    2.99620    0.16646
TOTAL     26    5.20907
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   10.22     8    0.2499
COCHRAN'S Q                 0.2952
LARGEST VAR / SMALLEST VAR    51.224
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.03672
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1          1.5767       3      0.0929
AmE2          1.6067       3      0.1097
AmE3          2.1100       3      0.1908
AmE4          2.3633       3      0.5101
AmE5          2.2633       3      0.6650
AmE6          1.9600       3      0.2117
AmE7          2.0133       3      0.4600
AmE8          2.3100       3      0.5386
AmE9          2.3567       3      0.4382
TOTAL         2.0622      27      0.4080
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS2106 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    1.63236    0.20405    5.58  0.0012
WITHIN    18    0.65793    0.03655
TOTAL     26    2.29030
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   14.44     8    0.0710
COCHRAN'S Q                 0.3551
LARGEST VAR / SMALLEST VAR    3504.0
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.05583
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1          2.0133       3      0.1305
BaE2          2.1400       3      0.1825
BaE3          1.7133       3      0.0874
BaE4          1.8600       3      0.3418
BaE5          1.7900       3      0.1735
BaE6          2.1067       3    5.774E-03
BaE7          2.5800       3      0.2553
BaE8          1.8567       3      0.1250
BaE9          2.1167       3      0.2079
TOTAL         2.0196      27      0.1912
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS2106 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    0.79850    0.09981    0.62  0.7484
WITHIN    18    2.88567    0.16031
TOTAL     26    3.68416
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.94     8    0.4390
COCHRAN'S Q                 0.3241
LARGEST VAR / SMALLEST VAR    28.807
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.02017
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1          1.8933       3      0.1358
BCE2          2.1433       3      0.1274
BCE3          2.3800       3      0.3306
BCE4          2.0233       3      0.2631
BCE5          1.9833       3      0.3126
BCE6          1.8500       3      0.3251
BCE7          2.3433       3      0.6493
BCE8          2.1433       3      0.3700
BCE9          2.0767       3      0.6838
TOTAL         2.0930      27      0.4004
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS2106 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    0.74320    0.09290    0.71  0.6762
WITHIN    18    2.33967    0.12998
TOTAL     26    3.08287
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.23     8    0.6220
COCHRAN'S Q                 0.3604
LARGEST VAR / SMALLEST VAR    37.646
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.01236
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1          2.0433       3      0.4524
CaE2          2.4100       3      0.3251
CaE3          2.2200       3      0.2787
CaE4          2.1800       3      0.1058
CaE5          2.0233       3      0.2515
CaE6          1.9867       3      0.3620
CaE7          2.2600       3      0.3487
CaE8          1.9967       3      0.6493
CaE9          1.8300       3      0.1819
TOTAL         2.1056      27      0.3605
CASES INCLUDED 27    MISSING CASES 0
```

Table 13- ANOVA dry weight leaf average among plots, between vineyard installations and inside plots in 240706

```
ONE-WAY AOV FOR FlPS2407 BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     1.11854    0.37285    8.80  0.0000
WITHIN   104     4.40636    0.04237
TOTAL    107     5.52489
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   15.62     3    0.0014
COCHRAN'S Q                   0.4684
LARGEST VAR / SMALLEST VAR    4.1399
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01224
EFlFeCTIVE CELL SIZE                          27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            1.9033      27       0.2818
Ba            1.9163      27       0.2141
BC            1.9530      27       0.1584
Ca            1.6930      27       0.1385
TOTAL         1.8664     108       0.2058
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS2407 BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.20367    0.20367    4.06  0.0465
WITHIN   106     5.32122    0.05020
TOTAL    107     5.52489
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.71     1    0.0995
COCHRAN'S Q                   0.6122
LARGEST VAR / SMALLEST VAR    1.5787
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00284
EFlFeCTIVE CELL SIZE                          54.0

                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            1.9098      54       0.2479
VA            1.8230      54       0.1973
TOTAL         1.8664     108       0.2241
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS2407 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.80860    0.10108    1.45  0.2433
WITHIN    18     1.25540    0.06974
TOTAL     26     2.06400
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   10.07     8    0.2604
COCHRAN'S Q                   0.2679
LARGEST VAR / SMALLEST VAR    55.429
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01044
EFlFeCTIVE CELL SIZE                           3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1          1.6700       3       0.1908
AmE2          1.7767       3       0.0551
AmE3          2.1067       3       0.0643
AmE4          1.9500       3       0.2170
AmE5          1.8267       3       0.4100
AmE6          1.7067       3       0.1365
AmE7          2.0667       3       0.3308
AmE8          1.8400       3       0.3005
AmE9          2.1867       3       0.3880
TOTAL         1.9033      27       0.2641
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS2407 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.52123    0.06515    1.75  0.1543
WITHIN    18     0.67020    0.03723
TOTAL     26     1.19143
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   11.74     8    0.1632
COCHRAN'S Q                   0.4408
LARGEST VAR / SMALLEST VAR    1107.7
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00931
EFlFeCTIVE CELL SIZE                           3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1          1.7367       3       0.1484
BaE2          1.9567       3       0.1686
BaE3          1.8933       3       0.1665
BaE4          2.0300       3       0.3843
BaE5          1.7833       3       0.1305
BaE6          1.7633       3       0.0115
BaE7          1.9700       3       0.2081
BaE8          2.2033       3       0.1818
BaE9          1.9100       3       0.1253
TOTAL         1.9163      27       0.1930
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS2407 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.37270    0.04659    3.00  0.0252
WITHIN    18     0.27967    0.01554
TOTAL     26     0.65236
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.48     8    0.5938
COCHRAN'S Q                   0.4236
LARGEST VAR / SMALLEST VAR    19.527
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01035
EFlFeCTIVE CELL SIZE                           3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1          1.7933       3       0.0569
BCE2          2.1200       3       0.0794
BCE3          2.0833       3       0.1060
BCE4          2.0467       3       0.2434
BCE5          1.9367       3       0.0551
BCE6          1.8167       3       0.1021
BCE7          1.8000       3       0.1572
BCE8          1.9967       3       0.0874
BCE9          1.9833       3       0.1185
TOTAL         1.9530      27       0.1246
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlPS2407 BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.13523    0.01690    0.84  0.5824
WITHIN    18     0.36333    0.02019
TOTAL     26     0.49856
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.31     8    0.9699
COCHRAN'S Q                   0.2127
LARGEST VAR / SMALLEST VAR    5.3410
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00109
EFlFeCTIVE CELL SIZE                           3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1          1.6867       3       0.1193
CaE2          1.8200       3       0.1552
CaE3          1.7167       3       0.1415
CaE4          1.5967       3       0.0850
CaE5          1.6233       3       0.0850
CaE6          1.7833       3       0.1102
CaE7          1.6167       3       0.1644
CaE8          1.7067       3       0.1762
CaE9          1.6867       3       0.1966
TOTAL         1.6930      27       0.1421
CASES INCLUDED 27    MISSING CASES 0
```

Table 14- Content of leaf nitrogen, phosphorous and potassium, in g.kg^{-1}, for different plots and installations forms

DESCRIESTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlN170605	9	36.100	1.8861	33.100	38.500
FlN210606	9	26.718	1.5438	24.820	28.810
FlN240706	9	22.799	1.5801	20.160	25.420
FlP170605	9	1.7344	0.1308	1.5600	1.9400
FlP210606	9	1.8067	0.1319	1.6100	2.0000
FlP240706	9	1.4489	0.1147	1.2700	1.6500
FlK170605	9	7.7444	0.8187	6.6000	9.1000
FlK210606	9	5.0556	1.1490	3.5000	6.6500
FlK240706	9	4.7833	1.7674	2.8000	8.4000

DESCRIESTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlN170605	9	35.144	0.8502	34.000	36.400
FlN210606	9	24.138	1.3157	22.070	26.360
FlN240706	9	22.584	0.8509	21.070	23.640
FlP170605	9	1.8344	0.1443	1.6600	2.0700
FlP210606	9	1.6489	0.0936	1.5000	1.7700
FlP240706	9	1.4667	0.0695	1.3600	1.6200
FlK170605	9	8.6111	1.1174	6.3000	10.100
FlK210606	9	5.1111	1.2850	3.5000	7.1000
FlK240706	9	5.3667	1.9170	2.8000	9.4500

DESCRIESTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlN170605	9	29.422	1.8102	26.500	32.200
FlN210606	9	22.668	1.8080	19.500	25.520
FlN240706	9	21.039	0.7683	19.540	22.160
FlP170605	9	2.0600	0.3653	1.6700	2.5200
FlP210606	9	1.7678	0.1869	1.5300	2.0800
FlP240706	9	1.6056	0.2268	1.3800	1.9200
FlK170605	9	7.4333	0.9849	6.2000	9.1000
FlK210606	9	5.2667	1.0615	3.5000	6.8000
FlK240706	9	2.1000	0.4287	1.4000	2.8000

DESCRIESTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlN170605	9	32.011	3.3348	27.700	36.800
FlN210606	9	23.232	1.0429	21.250	24.440
FlN240706	9	21.490	1.3181	20.040	24.020
FlP170605	9	1.6989	0.1372	1.5500	1.9800
FlP210606	9	1.6289	0.1654	1.4200	1.8700
FlP240706	9	1.5156	0.1240	1.4000	1.7500
FlK170605	9	7.6222	1.2843	6.2000	10.100
FlK210606	9	4.4111	1.1866	3.1500	6.8000
FlK240706	9	2.5278	0.9709	1.7500	4.9000

DESCRIESTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlN170605	18	35.622	1.5020	33.100	38.500
FlN210606	18	25.428	1.9231	22.070	28.810
FlN240706	18	22.692	1.2360	20.160	25.420
FlP170605	18	1.7844	0.1432	1.5600	2.0700
FlP210606	18	1.7278	0.1375	1.5000	2.0000
FlP240706	18	1.4578	0.0925	1.2700	1.6500
FlK170605	18	8.1778	1.0497	6.3000	10.100
FlK210606	18	5.0833	1.1828	3.5000	7.1000
FlK240706	18	5.0750	1.8137	2.8000	9.4500

DESCRIESTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlN170605	18	30.717	2.9240	26.500	36.800
FlN210606	18	22.950	1.4610	19.500	25.520
FlN240706	18	21.264	1.0720	19.540	24.020
FlP170605	18	1.8794	0.3258	1.5500	2.5200
FlP210606	18	1.6983	0.1855	1.4200	2.0800
FlP240706	18	1.5606	0.1833	1.3800	1.9200
FlK170605	18	7.5278	1.1145	6.2000	10.100
FlK210606	18	4.8389	1.1776	3.1500	6.8000
FlK240706	18	2.3139	0.7606	1.4000	4.9000

Table 15- ANOVA nitrogen leaf average among plots, between vineyard installations and inside plots in 170605

```
ONE-WAY AOV FOR FlN170605 BY Parc
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     250.850    83.6166   17.91  0.0000
WITHIN    32     149.427    4.66958
TOTAL     35     400.276
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   12.35     3    0.0063
COCHRAN'S Q                   0.5954
LARGEST VAR / SMALLEST VAR    15.387
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    8.77189
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             36.100      9       1.8861
Ba             35.144      9       0.8502
BC             29.422      9       1.8102
Ca             32.011      9       3.3348
TOTAL          33.169     36       2.1609
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN170605 BY Inst
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     216.580    216.580   40.09  0.0000
WITHIN    34     183.696    5.40283
TOTAL     35     400.276
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.84     1    0.0089
COCHRAN'S Q                   0.7912
LARGEST VAR / SMALLEST VAR    3.7899
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    11.7321
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             35.622     18       1.5020
VA             30.717     18       2.9240
TOTAL          33.169     36       2.3244
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN170605 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     21.1467    10.5733    8.67  0.0170
WITHIN     6     7.31333    1.21889
TOTAL      8     28.4600
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.15     2    0.5615
COCHRAN'S Q                   0.4850
LARGEST VAR / SMALLEST VAR    5.4845
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    3.11815
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           33.967      3       1.3317
AmG2           36.833      3       0.5686
AmG3           37.500      3       1.2490
TOTAL          36.100      9       1.1040
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN170605 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.32889    0.16444    0.18  0.8389
WITHIN     6     5.45333    0.90889
TOTAL      8     5.78222
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.44     2    0.8028
COCHRAN'S Q                   0.5293
LARGEST VAR / SMALLEST VAR    2.7580
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.24815
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           35.167      3       1.2014
BaG2           34.900      3       0.8718
BaG3           35.367      3       0.7234
TOTAL          35.144      9       0.9534
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN170605 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     16.1489    8.07444    4.81  0.0566
WITHIN     6     10.0667    1.67778
TOTAL      8     26.2156
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.27     2    0.1183
COCHRAN'S Q                   0.7099
LARGEST VAR / SMALLEST VAR    51.048
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.13222
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           31.200      3       1.1790
BCG2           27.967      3       1.8903
BCG3           29.100      3       0.2646
TOTAL          29.422      9       1.2953
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN170605 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     49.8956    24.9478    3.83  0.0847
WITHIN     6     39.0733    6.51222
TOTAL      8     88.9689
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.33     2    0.5138
COCHRAN'S Q                   0.6026
LARGEST VAR / SMALLEST VAR    6.8450
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    6.14519
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           32.067      3       3.4312
CaG2           34.867      3       2.4583
CaG3           29.100      3       1.3115
TOTAL          32.011      9       2.5519
CASES INCLUDED 9    MISSING CASES 0
```

Table 16- ANOVA nitrogen leaf average among plots, between vineyard installations and inside plots in 210606

```
ONE-WAY AOV FOR FlN210606 BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3     86.6419    28.8806   13.64  0.0000
WITHIN    32    67.7700    2.11781
TOTAL     35    154.412
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.40     3    0.4936
COCHRAN'S Q                  0.3859
LARGEST VAR / SMALLEST VAR     3.0053
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.97365
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             26.718      9       1.5438
Ba             24.138      9       1.3157
BC             22.668      9       1.8080
Ca             23.232      9       1.0429
TOTAL          24.189     36       1.4553
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN210606 BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1     55.2544    55.2544   18.95  0.0001
WITHIN    34    99.1575    2.91640
TOTAL     35    154.412
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.23     1    0.2671
COCHRAN'S Q                  0.6340
LARGEST VAR / SMALLEST VAR     1.7326
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.90767
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             25.428     18       1.9231
VA             22.950     18       1.4610
TOTAL          24.189     36       1.7077
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     5.73642    2.86821    1.29  0.3417
WITHIN    6     13.3303    2.22172
TOTAL     8     19.0668
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.78     2    0.6770
COCHRAN'S Q                  0.5888
LARGEST VAR / SMALLEST VAR     3.9574
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.21550
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           25.677      3       1.3227
AmG2           27.617      3       1.9809
AmG3           26.860      3       0.9958
TOTAL          26.718      9       1.4905
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     8.80976    4.40488    5.24  0.0482
WITHIN    6     5.03980    0.83997
TOTAL     8     13.8496
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.83     2    0.6595
COCHRAN'S Q                  0.4602
LARGEST VAR / SMALLEST VAR     4.0542
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.18830
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           22.933      3       1.0769
BaG2           24.123      3       0.5348
BaG3           25.357      3       1.0365
TOTAL          24.138      9       0.9165
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     3.51049    1.75524    0.47  0.6489
WITHIN    6     22.6413    3.77354
TOTAL     8     26.1518
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.95     2    0.3777
COCHRAN'S Q                  0.6705
LARGEST VAR / SMALLEST VAR     10.629
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.67277
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           23.550      3       1.7367
BCG2           22.263      3       2.7550
BCG3           22.190      3       0.8450
TOTAL          22.668      9       1.9426
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     2.57269    1.28634    1.26  0.3494
WITHIN    6     6.12927    1.02154
TOTAL     8     8.70196
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.90     2    0.3877
COCHRAN'S Q                  0.5934
LARGEST VAR / SMALLEST VAR     10.617
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.08827
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           23.007      3       1.0366
CaG2           23.970      3       0.4139
CaG3           22.720      3       1.3486
TOTAL          23.232      9       1.0107
CASES INCLUDED 9    MISSING CASES 0
```

Table 17- ANOVA nitrogen leaf average among plots, between vineyard installations and inside plots in 240706

```
ONE-WAY AOV FOR FlN240706 BY Parc
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3    19.4554    6.48512    4.68  0.0081
WITHIN   32    44.3856    1.38705
TOTAL    35    63.8410
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.26     3    0.1538
COCHRAN'S Q                  0.4500
LARGEST VAR / SMALLEST VAR   4.2296
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.56645
EFlFeCTIVE CELL SIZE                             9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            22.799      9       1.5801
Ba            22.584      9       0.8509
BC            21.039      9       0.7683
Ca            21.490      9       1.3181
TOTAL         21.978     36       1.1777
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN240706 BY Inst
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1    18.3327    18.3327   13.70  0.0008
WITHIN   34    45.5083    1.33848
TOTAL    35    63.8410
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.33     1    0.5635
COCHRAN'S Q                  0.5707
LARGEST VAR / SMALLEST VAR   1.3295
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.94412
EFlFeCTIVE CELL SIZE                            18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            22.692     18       1.2360
VA            21.264     18       1.0720
TOTAL         21.978     36       1.1569
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN240706 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2    2.35662    1.17831    0.40  0.6861
WITHIN    6    17.6161    2.93601
TOTAL     8    19.9727
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.36     2    0.8372
COCHRAN'S Q                  0.4727
LARGEST VAR / SMALLEST VAR   2.5783
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.58590
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          22.177      3       2.0404
AmG2          23.430      3       1.7407
AmG3          22.790      3       1.2707
TOTAL         22.799      9       1.7135
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN240706 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2    1.98816    0.99408    1.57  0.2833
WITHIN    6    3.80447    0.63408
TOTAL     8    5.79262
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.19     2    0.9081
COCHRAN'S Q                  0.4475
LARGEST VAR / SMALLEST VAR   1.9994
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.12000
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          21.950      3       0.9226
BaG2          22.730      3       0.7908
BaG3          23.073      3       0.6525
TOTAL         22.584      9       0.7963
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN240706 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2    0.13402    0.06701    0.09  0.9172
WITHIN    6    4.58807    0.76468
TOTAL     8    4.72209
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.25     2    0.3248
COCHRAN'S Q                  0.7737
LARGEST VAR / SMALLEST VAR   8.9086
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.23256
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          20.990      3       1.3323
BCG2          20.920      3       0.5656
BCG3          21.207      3       0.4464
TOTAL         21.039      9       0.8745
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlN240706 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2    5.71920    2.85960    2.10  0.2038
WITHIN    6    8.17900    1.36317
TOTAL     8    13.8982
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.44     2    0.8006
COCHRAN'S Q                  0.4582
LARGEST VAR / SMALLEST VAR   2.8234
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.49881
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          22.570      3       1.3689
CaG2          20.670      3       0.8147
CaG3          21.230      3       1.2458
TOTAL         21.490      9       1.1675
CASES INCLUDED 9    MISSING CASES 0
```

Table 18- ANOVA phosphorous leaf average among plots, between vineyard installations and inside plots in 170605

```
ONE-WAY AOV FOR FlP170605 BY Parc
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.71303    0.23768    5.00  0.0059
WITHIN    32     1.52153    0.04755
TOTAL     35     2.23456
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   13.26     3    0.0041
COCHRAN'S Q                 0.7017
LARGEST VAR / SMALLEST VAR    7.8028
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.02113
EFlFeCTIVE CELL SIZE                            9.0
                      SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             1.7344      9       0.1308
Ba             1.8344      9       0.1443
BC             2.0600      9       0.3653
Ca             1.6989      9       0.1372
TOTAL          1.8319     36       0.2181
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP170605 BY Inst
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.08123    0.08123    1.28  0.2654
WITHIN    34     2.15334    0.06333
TOTAL     35     2.23456
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   10.10     1    0.0015
COCHRAN'S Q                 0.8382
LARGEST VAR / SMALLEST VAR    5.1799
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  9.940E-04
EFlFeCTIVE CELL SIZE                           18.0
                      SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             1.7844     18       0.1432
VA             1.8794     18       0.3258
TOTAL          1.8319     36       0.2517
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP170605 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.09909    0.04954    7.88  0.0210
WITHIN     6     0.03773    0.00629
TOTAL      8     0.13682
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.77     2    0.6809
COCHRAN'S Q                 0.5848
LARGEST VAR / SMALLEST VAR    3.9405
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01442
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           1.6867      3       0.1050
AmG2           1.8800      3       0.0529
AmG3           1.6367      3       0.0709
TOTAL          1.7344      9       0.0793
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP170605 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.09556    0.04778    4.03  0.0776
WITHIN     6     0.07107    0.01184
TOTAL      8     0.16662
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.97     2    0.1374
COCHRAN'S Q                 0.8593
LARGEST VAR / SMALLEST VAR    23.487
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01198
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           1.9233      3       0.1747
BaG2           1.6900      3       0.0361
BaG3           1.8900      3       0.0608
TOTAL          1.8344      9       0.1088
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP170605 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.79287    0.39643    8.66  0.0170
WITHIN     6     0.27473    0.04579
TOTAL      8     1.06760
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.41     2    0.1105
COCHRAN'S Q                 0.8512
LARGEST VAR / SMALLEST VAR    36.165
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.11688
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           1.7900      3       0.1311
BCG2           2.4733      3       0.0569
BCG3           1.9167      3       0.3420
TOTAL          2.0600      9       0.2140
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP170605 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.09716    0.04858    5.46  0.0445
WITHIN     6     0.05333    0.00889
TOTAL      8     0.15049
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.06     2    0.0178
COCHRAN'S Q                 0.6838
LARGEST VAR / SMALLEST VAR    547.00
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01323
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           1.6033      3    5.774E-03
CaG2           1.6500      3       0.0917
CaG3           1.8433      3       0.1350
TOTAL          1.6989      9       0.0943
CASES INCLUDED 9    MISSING CASES 0
```

Table 19- ANOVA phosphorous leaf average among plots, between vineyard installations and inside plots in 210606

```
ONE-WAY AOV FOR FlP210606 BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    0.20663    0.06888    3.11  0.0398
WITHIN    32    0.70773    0.02212
TOTAL     35    0.91436
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.77      3    0.2875
COCHRAN'S Q                    0.3950
LARGEST VAR / SMALLEST VAR     3.9886
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00520
EFlFeCTIVE CELL SIZE                            9.0
                         SAMPLE     GROUP
   Parc         MEAN      SIZE     STD DEV
---------   ----------   ------  ----------
Am             1.8067      9       0.1319
Ba             1.6489      9       0.0936
BC             1.7678      9       0.1869
Ca             1.6289      9       0.1654
TOTAL          1.7131     36       0.1487
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP210606 BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    0.00780    0.00780    0.29  0.5921
WITHIN    34    0.90656    0.02666
TOTAL     35    0.91436
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.46      1    0.2265
COCHRAN'S Q                    0.6456
LARGEST VAR / SMALLEST VAR     1.8214
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00105
EFlFeCTIVE CELL SIZE                           18.0
                         SAMPLE     GROUP
   Inst         MEAN      SIZE     STD DEV
---------   ----------   ------  ----------
Pt             1.7278     18       0.1375
VA             1.6983     18       0.1855
TOTAL          1.7131     36       0.1633
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.02807    0.01403    0.76  0.5089
WITHIN     6    0.11113    0.01852
TOTAL      8    0.13920
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.36      2    0.8337
COCHRAN'S Q                    0.5207
LARGEST VAR / SMALLEST VAR     2.3912
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00150
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------   ------  ----------
AmG1           1.7367      3       0.1206
AmG2           1.8733      3       0.1701
AmG3           1.8100      3       0.1100
TOTAL          1.8067      9       0.1361
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.01562    0.00781    0.86  0.4693
WITHIN     6    0.05447    0.00908
TOTAL      8    0.07009
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.74      2    0.1542
COCHRAN'S Q                    0.8605
LARGEST VAR / SMALLEST VAR     18.026
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -4.222E-04
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------   ------  ----------
BaG1           1.5900      3       0.0500
BaG2           1.6767      3       0.1531
BaG3           1.6800      3       0.0361
TOTAL          1.6489      9       0.0953
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.18682    0.09341    6.04  0.0365
WITHIN     6    0.09273    0.01546
TOTAL      8    0.27956
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.63      2    0.7294
COCHRAN'S Q                    0.5845
LARGEST VAR / SMALLEST VAR     2.9350
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.02599
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------   ------  ----------
BCG1           1.7067      3       0.0961
BCG2           1.9667      3       0.1002
BCG3           1.6300      3       0.1646
TOTAL          1.7678      9       0.1243
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.05576    0.02788    1.03  0.4140
WITHIN     6    0.16313    0.02719
TOTAL      8    0.21889
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.87      2    0.6479
COCHRAN'S Q                    0.6265
LARGEST VAR / SMALLEST VAR     3.5404
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  2.296E-04
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------   ------  ----------
CaG1           1.6100      3       0.2261
CaG2           1.7333      3       0.1266
CaG3           1.5433      3       0.1201
TOTAL          1.6289      9       0.1649
CASES INCLUDED 9    MISSING CASES 0
```

Table 20- ANOVA phosphorous leaf average among plots, between vineyard installations and inside plots in 240706

```
ONE-WAY AOV FOR FlP240706 BY Parc
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    0.13294    0.04431    2.09  0.1211
WITHIN    32    0.67853    0.02120
TOTAL     35    0.81148
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   10.59     3    0.0142
COCHRAN'S Q                   0.6066
LARGEST VAR / SMALLEST VAR    10.664
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00257
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             1.4489      9       0.1147
Ba             1.4667      9       0.0695
BC             1.6056      9       0.2268
Ca             1.5156      9       0.1240
TOTAL          1.5092     36       0.1456
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP240706 BY Inst
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    0.09507    0.09507    4.51  0.0410
WITHIN    34    0.71641    0.02107
TOTAL     35    0.81148
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.20     1    0.0073
COCHRAN'S Q                   0.7972
LARGEST VAR / SMALLEST VAR    3.9301
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00411
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             1.4578     18       0.0925
VA             1.5606     18       0.1833
TOTAL          1.5092     36       0.1452
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP240706 BY PaEtG3
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.05056    0.02528    2.77  0.1405
WITHIN     6    0.05473    0.00912
TOTAL      8    0.10529
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.27     2    0.3221
COCHRAN'S Q                   0.7710
LARGEST VAR / SMALLEST VAR    9.4478
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00539
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           1.3433      3       0.0635
AmG2           1.5100      3       0.1453
AmG3           1.4933      3       0.0473
TOTAL          1.4489      9       0.0955
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP240706 BY PaEtG3
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.01340    0.00670    1.60  0.2783
WITHIN     6    0.02520    0.00420
TOTAL      8    0.03860
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.31     2    0.1915
COCHRAN'S Q                   0.6667
LARGEST VAR / SMALLEST VAR    28.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  8.333E-04
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           1.4300      3       0.0624
BaG2           1.5200      3       0.0917
BaG3           1.4500      3       0.0173
TOTAL          1.4667      9       0.0648
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP240706 BY PaEtG3
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.11549    0.05774    1.17  0.3724
WITHIN     6    0.29613    0.04936
TOTAL      8    0.41162
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.84     2    0.6583
COCHRAN'S Q                   0.5574
LARGEST VAR / SMALLEST VAR    4.4293
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00280
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           1.5933      3       0.2873
BCG2           1.7500      3       0.2166
BCG3           1.4733      3       0.1365
TOTAL          1.6056      9       0.2222
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlP240706 BY PaEtG3
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.00309    0.00154    0.08  0.9266
WITHIN     6    0.11993    0.01999
TOTAL      8    0.12302
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.92     2    0.3824
COCHRAN'S Q                   0.6442
LARGEST VAR / SMALLEST VAR    10.731
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00615
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           1.4900      3       0.0600
CaG2           1.5333      3       0.1332
CaG3           1.5233      3       0.1966
TOTAL          1.5156      9       0.1414
CASES INCLUDED 9    MISSING CASES 0
```

Table 21- ANOVA potassium leaf average among plots, between vineyard installations and inside plots in 170605

```
ONE-WAY AOV FOR FlK170605 BY Parc
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     7.34306    2.44769    2.16  0.1124
WITHIN    32     36.3067    1.13458
TOTAL     35     43.6497
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.62     3    0.6547
COCHRAN'S Q                    0.3634
LARGEST VAR / SMALLEST VAR     2.4608
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.14590
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             7.7444      9       0.8187
Ba             8.6111      9       1.1174
BC             7.4333      9       0.9849
Ca             7.6222      9       1.2843
TOTAL          7.8528     36       1.0652
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK170605 BY Inst
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     3.80250    3.80250    3.24  0.0805
WITHIN    34     39.8472    1.17198
TOTAL     35     43.6497
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.06     1    0.8077
COCHRAN'S Q                    0.5299
LARGEST VAR / SMALLEST VAR     1.1273
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.14614
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             8.1778     18       1.0497
VA             7.5278     18       1.1145
TOTAL          7.8528     36       1.0826
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK170605 BY PaEtG3
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     1.20222    0.60111    0.87  0.4669
WITHIN     6     4.16000    0.69333
TOTAL      8     5.36222
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.61     2    0.7381
COCHRAN'S Q                    0.5497
LARGEST VAR / SMALLEST VAR     3.4300
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.03074
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           8.0667      3       0.5774
AmG2           7.9333      3       1.0693
AmG3           7.2333      3       0.7767
TOTAL          7.7444      9       0.8327
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK170605 BY PaEtG3
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     3.38889    1.69444    1.54  0.2885
WITHIN     6     6.60000    1.10000
TOTAL      8     9.98889
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.90     2    0.6377
COCHRAN'S Q                    0.6101
LARGEST VAR / SMALLEST VAR     4.3453
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.19815
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           7.8333      3       1.4189
BaG2           8.6667      3       0.9074
BaG3           9.3333      3       0.6807
TOTAL          8.6111      9       1.0488
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK170605 BY PaEtG3
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     2.18000    1.09000    1.17  0.3718
WITHIN     6     5.58000    0.93000
TOTAL      8     7.76000
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.20     2    0.9031
COCHRAN'S Q                    0.3955
LARGEST VAR / SMALLEST VAR     1.8914
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.05333
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           7.3667      3       1.0504
BCG2           6.8667      3       0.7638
BCG3           8.0667      3       1.0504
TOTAL          7.4333      9       0.9644
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK170605 BY PaEtG3
SOURCE    DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     7.02889    3.51444    3.42  0.1021
WITHIN     6     6.16667    1.02778
TOTAL      8     13.1956
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.19     2    0.5524
COCHRAN'S Q                    0.6043
LARGEST VAR / SMALLEST VAR     6.0108
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.82889
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           8.8667      3       1.3650
CaG2           7.1000      3       0.9539
CaG3           6.9000      3       0.5568
TOTAL          7.6222      9       1.0138
CASES INCLUDED 9    MISSING CASES 0
```

Table 22- ANOVA potassium leaf average among plots, between vineyard installations and inside plots in 210606

```
ONE-WAY AOV FOR FlK210606 BY Parc
SOURCE    DF        SS          MS         F        P
-------  ----   ---------   ---------   ------   ------
BETWEEN    3     3.84556     1.28185     0.93   0.4370
WITHIN    32    44.0500      1.37656
TOTAL     35    47.8956
                     CHI-SQ    DF       P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES    0.28      3    0.9629
COCHRAN'S Q                   0.2999
LARGEST VAR / SMALLEST VAR    1.4652
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.01052
EFlFeCTIVE CELL SIZE                            9.0
                         SAMPLE     GROUP
   Parc         MEAN      SIZE     STD DEV
---------    ----------  ------   ----------
Am             5.0556      9        1.1490
Ba             5.1111      9        1.2850
BC             5.2667      9        1.0615
Ca             4.4111      9        1.1866
TOTAL          4.9611     36        1.1733
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK210606 BY Inst
SOURCE    DF        SS          MS         F        P
-------  ----   ---------   ---------   ------   ------
BETWEEN    1     0.53778     0.53778     0.39   0.5385
WITHIN    34    47.3578      1.39288
TOTAL     35    47.8956
                     CHI-SQ    DF       P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES    0.00      1    0.9855
COCHRAN'S Q                   0.5022
LARGEST VAR / SMALLEST VAR    1.0090
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.04751
EFlFeCTIVE CELL SIZE                           18.0
                         SAMPLE     GROUP
   Inst         MEAN      SIZE     STD DEV
---------    ----------  ------   ----------
Pt             5.0833     18        1.1828
VA             4.8389     18        1.1776
TOTAL          4.9611     36        1.1802
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK210606 BY PaEtG3
SOURCE    DF        SS          MS         F        P
-------  ----   ---------   ---------   ------   ------
BETWEEN    2     3.04889     1.52444     1.22   0.3599
WITHIN     6     7.51333     1.25222
TOTAL      8    10.5622
                     CHI-SQ    DF       P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES    4.57      2    0.1017
COCHRAN'S Q                   0.6848
LARGEST VAR / SMALLEST VAR    63.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.09074
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------    ----------  ------   ----------
AmG1           4.9000      3        1.6039
AmG2           5.8333      3        0.2021
AmG3           4.4333      3        1.0693
TOTAL          5.0556      9        1.1190
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK210606 BY PaEtG3
SOURCE    DF        SS          MS         F        P
-------  ----   ---------   ---------   ------   ------
BETWEEN    2     3.82056     1.91028     1.22   0.3591
WITHIN     6     9.38833     1.56472
TOTAL      8    13.2089
                     CHI-SQ    DF       P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES    0.02      2    0.9893
COCHRAN'S Q                   0.3740
LARGEST VAR / SMALLEST VAR    1.2564
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.11519
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------    ----------  ------   ----------
BaG1           4.2167      3        1.2413
BaG2           5.3667      3        1.3251
BaG3           5.7500      3        1.1822
TOTAL          5.1111      9        1.2509
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK210606 BY PaEtG3
SOURCE    DF        SS          MS         F        P
-------  ----   ---------   ---------   ------   ------
BETWEEN    2     3.16667     1.58333     1.62   0.2730
WITHIN     6     5.84833     0.97472
TOTAL      8     9.01500
                     CHI-SQ    DF       P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES    0.04      2    0.9816
COCHRAN'S Q                   0.3910
LARGEST VAR / SMALLEST VAR    1.3333
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.20287
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------    ----------  ------   ----------
BCG1           5.7667      3        0.9609
BCG2           4.4333      3        1.0693
BCG3           5.6000      3        0.9260
TOTAL          5.2667      9        0.9873
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK210606 BY PaEtG3
SOURCE    DF        SS          MS         F        P
-------  ----   ---------   ---------   ------   ------
BETWEEN    2     8.35056     4.17528     8.60   0.0173
WITHIN     6     2.91333     0.48556
TOTAL      8    11.2639
                     CHI-SQ    DF       P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES    1.16      2    0.5593
COCHRAN'S Q                   0.6339
LARGEST VAR / SMALLEST VAR    5.5678
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.22991
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------    ----------  ------   ----------
CaG1           5.7667      3        0.9609
CaG2           3.8500      3        0.6062
CaG3           3.6167      3        0.4072
TOTAL          4.4111      9        0.6968
CASES INCLUDED 9    MISSING CASES 0
```

Table 23- ANOVA potassium leaf average among plots, between vineyard installations and inside plots in 240706

```
ONE-WAY AOV FOR FlK240706 BY Parc
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    70.9683    23.6561   11.94  0.0000
WITHIN    32    63.4006    1.98127
TOTAL     35    134.369
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   15.57     3    0.0014
COCHRAN'S Q                    0.4637
LARGEST VAR / SMALLEST VAR     20.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.40832
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            4.7833      9       1.7674
Ba            5.3667      9       1.9170
BC            2.1000      9       0.4287
Ca            2.5278      9       0.9709
TOTAL         3.6944     36       1.4076
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK240706 BY Inst
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    68.6136    68.6136   35.48  0.0000
WITHIN    34    65.7553    1.93398
TOTAL     35    134.369
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   11.16     1    0.0008
COCHRAN'S Q                    0.8504
LARGEST VAR / SMALLEST VAR     5.6865
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    3.70442
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            5.0750     18       1.8137
VA            2.3139     18       0.7606
TOTAL         3.6944     36       1.3907
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK240706 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    1.71500    0.85750    0.22  0.8079
WITHIN     6    23.2750    3.87917
TOTAL      8    24.9900
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.48     2    0.4774
COCHRAN'S Q                    0.7053
LARGEST VAR / SMALLEST VAR     5.5833
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1.00722
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          5.2500      3       2.8649
AmG2          4.9000      3       1.4000
AmG3          4.2000      3       1.2124
TOTAL         4.7833      9       1.9696
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK240706 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    17.2317    8.61583    4.25  0.0709
WITHIN     6    12.1683    2.02806
TOTAL      8    29.4000
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.83     2    0.4008
COCHRAN'S Q                    0.7450
LARGEST VAR / SMALLEST VAR     5.8421
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.19593
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          5.4833      3       0.8808
BaG2          7.0000      3       2.1290
BaG3          3.6167      3       0.8808
TOTAL         5.3667      9       1.4241
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK240706 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.73500    0.36750    3.00  0.1250
WITHIN     6    0.73500    0.12250
TOTAL      8    1.47000
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   -0.00     2    1.0000
COCHRAN'S Q                    0.3333
LARGEST VAR / SMALLEST VAR     1.0000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.08167
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          2.1000      3       0.3500
BCG2          1.7500      3       0.3500
BCG3          2.4500      3       0.3500
TOTAL         2.1000      9       0.3500
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlK240706 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    4.27389    2.13694    3.92  0.0813
WITHIN     6    3.26667    0.54444
TOTAL      8    7.54056
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.05     2    0.0799
COCHRAN'S Q                    0.9000
LARGEST VAR / SMALLEST VAR     36.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.53083
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          3.5000      3       1.2124
CaG2          1.9833      3       0.2021
CaG3          2.1000      3       0.3500
TOTAL         2.5278      9       0.7379
CASES INCLUDED 9    MISSING CASES 0
```

Table 24- Content of leaf micronutrients, in g.kg^{-1}, for different plots and installations forms for 210606 data.

DESCRIESTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa210606	9	23.167	1.2980	21.370	25.500
FlMg210606	9	5.5044	1.1397	2.8100	6.6500
FlB210606	9	15.136	3.2334	10.370	20.780
FlFe210606	9	141.78	16.200	120.00	171.00
FlCu210606	9	7.2222	1.0305	6.1000	9.3000
FlZn210606	9	18.333	1.6583	16.000	21.000
FlMn210606	9	95.556	9.0982	82.000	109.00

DESCRIESTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa210606	9	21.939	1.8112	18.970	24.330
FlMg210606	9	2.4344	0.4840	1.7300	3.3600
FlB210606	9	25.298	3.4002	20.310	31.730
FlFe210606	9	192.33	33.653	141.00	241.00
FlCu210606	9	10.489	1.0410	8.9000	11.800
FlZn210606	9	17.444	1.5092	15.000	20.000
FlMn210606	9	131.22	21.649	109.00	169.00

DESCRIESTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa210606	9	18.146	2.3815	15.300	21.880
FlMg210606	9	2.8556	0.6193	2.0400	3.8300
FlB210606	9	27.919	3.5972	22.070	33.220
FlFe210606	9	99.556	22.063	60.000	140.00
FlCu210606	9	11.367	1.3784	9.3000	13.500
FlZn210606	9	15.778	2.2791	13.000	19.000
FlMn210606	9	140.89	40.757	77.000	196.00

DESCRIESTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa210606	9	16.251	2.0741	13.520	19.940
FlMg210606	9	4.1156	1.3880	2.2900	6.1600
FlB210606	9	76.912	14.288	45.770	93.500
FlFe210606	9	108.00	13.491	90.000	125.00
FlCu210606	9	12.822	1.2112	11.100	15.000
FlZn210606	9	15.111	1.1667	13.000	16.000
FlMn210606	9	215.00	28.275	179.00	256.00

DESCRIESTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa210606	18	22.553	1.6540	18.970	25.500
FlMg210606	18	3.9694	1.7934	1.7300	6.6500
FlB210606	18	20.217	6.1398	10.370	31.730
FlFe210606	18	167.06	36.510	120.00	241.00
FlCu210606	18	8.8556	1.9582	6.1000	11.800
FlZn210606	18	17.889	1.6047	15.000	21.000
FlMn210606	18	113.39	24.418	82.000	169.00

DESCRIESTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa210606	18	17.198	2.3756	13.520	21.880
FlMg210606	18	3.4856	1.2277	2.0400	6.1600
FlB210606	18	52.416	27.158	22.070	93.500
FlFe210606	18	103.78	18.265	60.000	140.00
FlCu210606	18	12.094	1.4647	9.3000	15.000
FlZn210606	18	15.444	1.7896	13.000	19.000
FlMn210606	18	177.94	51.106	77.000	256.00

Table 25- Content of leaf micronutrients, in $g.kg^{-1}$, for different plots and installations forms for 240706 data.

DESCRIESTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa240706	9	18.604	3.3923	12.090	23.460
FlMg240706	9	5.7800	2.1028	3.0600	10.200
FlB240706	9	24.749	5.2376	15.970	33.260
FlFe240706	9	190.56	50.334	132.00	295.00
FlCu240706	9	4.9778	1.3227	2.6000	7.0000
FlZn240706	9	12.000	1.9365	9.0000	15.000
FlMn240706	9	98.667	16.785	82.000	126.00

DESCRIESTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa240706	9	17.017	3.4362	9.1300	20.860
FlMg240706	9	3.5189	0.6872	2.5500	4.5900
FlB240706	9	25.457	4.4241	19.470	32.390
FlFe240706	9	272.00	35.472	218.00	338.00
FlCu240706	9	5.6889	1.9624	2.3000	8.4000
FlZn240706	9	16.778	1.8559	15.000	20.000
FlMn240706	9	139.00	30.948	108.00	204.00

DESCRIESTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa240706	9	15.006	1.9879	12.440	18.970
FlMg240706	9	4.4200	1.5300	3.0600	7.6500
FlB240706	9	30.952	5.2445	23.190	37.640
FlFe240706	9	202.11	32.033	174.00	268.00
FlCu240706	9	4.5444	1.4196	2.7000	7.0000
FlZn240706	9	18.444	2.7889	14.000	22.000
FlMn240706	9	145.00	35.486	106.00	221.00

DESCRIESTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa240706	9	12.807	2.2429	9.0300	15.250
FlMg240706	9	5.3833	1.8930	3.0600	8.1600
FlB240706	9	57.754	9.3011	48.370	78.220
FlFe240706	9	226.89	26.189	190.00	265.00
FlCu240706	9	4.5111	1.3062	2.9000	6.6000
FlZn240706	9	23.111	3.3333	17.000	29.000
FlMn240706	9	213.89	33.710	163.00	267.00

DESCRIESTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa240706	18	17.811	3.4116	9.1300	23.460
FlMg240706	18	4.6494	1.9122	2.5500	10.200
FlB240706	18	25.103	4.7173	15.970	33.260
FlFe240706	18	231.28	59.500	132.00	338.00
FlCu240706	18	5.3333	1.6642	2.3000	8.4000
FlZn240706	18	14.389	3.0705	9.0000	20.000
FlMn240706	18	118.83	31.842	82.000	204.00

DESCRIESTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
FlCa240706	18	13.906	2.3467	9.0300	18.970
FlMg240706	18	4.9017	1.7417	3.0600	8.1600
FlB240706	18	44.353	15.614	23.190	78.220
FlFe240706	18	214.50	31.115	174.00	268.00
FlCu240706	18	4.5278	1.3235	2.7000	7.0000
FlZn240706	18	20.778	3.8280	14.000	29.000
FlMn240706	18	179.44	48.822	106.00	267.00

Table 26- ANOVA calcium leaf average among plots, between vineyard installations and inside plots for 210606 data

```
ONE-WAY AOV FOR FlCa210606 BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     280.964    93.6548   25.08  0.0000
WITHIN    32     119.508    3.73461
TOTAL     35     400.472
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.79      3    0.4257
COCHRAN'S Q                    0.3796
LARGEST VAR / SMALLEST VAR     3.3661
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    9.99113
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            23.167       9       1.2980
Ba            21.939       9       1.8112
BC            18.146       9       2.3815
Ca            16.251       9       2.0741
TOTAL         19.876      36       1.9325
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCa210606 BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     258.031    258.031   61.59  0.0000
WITHIN    34     142.441    4.18945
TOTAL     35     400.472
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.12      1    0.1455
COCHRAN'S Q                    0.6735
LARGEST VAR / SMALLEST VAR     2.0629
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    14.1023
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            22.553      18       1.6540
VA            17.198      18       2.3756
TOTAL         19.876      36       2.0468
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCa210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     2.00187    1.00093    0.52  0.6173
WITHIN     6     11.4771    1.91286
TOTAL      8     13.4790
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.10      2    0.3505
COCHRAN'S Q                    0.7541
LARGEST VAR / SMALLEST VAR     8.9290
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.30397
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          23.580       3       2.0802
AmG2          23.413       3       0.9626
AmG3          22.507       3       0.6962
TOTAL         23.167       9       1.3831
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCa210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     3.23369    1.61684    0.42  0.6740
WITHIN     6     23.0090    3.83483
TOTAL      8     26.2427
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.35      2    0.8378
COCHRAN'S Q                    0.5215
LARGEST VAR / SMALLEST VAR     2.2347
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.73933
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          21.723       3       2.4493
BaG2          22.757       3       1.6385
BaG3          21.337       3       1.6795
TOTAL         21.939       9       1.9583
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCa210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     41.3630    20.6815   30.96  0.0007
WITHIN     6     4.00807    0.66801
TOTAL      8     45.3710
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.77      2    0.0919
COCHRAN'S Q                    0.8708
LARGEST VAR / SMALLEST VAR     40.867
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    6.67116
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          15.640       3       0.4651
BCG2          17.920       3       0.2066
BCG3          20.877       3       1.3210
TOTAL         18.146       9       0.8173
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCa210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     7.91016    3.95508    0.90  0.4568
WITHIN     6     26.5047    4.41746
TOTAL      8     34.4149
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.34      2    0.8445
COCHRAN'S Q                    0.4596
LARGEST VAR / SMALLEST VAR     2.5001
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.15413
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          17.250       3       2.4681
CaG2          16.507       3       2.1736
CaG3          14.997       3       1.5609
TOTAL         16.251       9       2.1018
CASES INCLUDED 9    MISSING CASES 0
```

Table 27- ANOVA calcium leaf average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR FlCa240706 BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3     170.305    56.7683    7.03  0.0009
WITHIN    32    258.379    8.07434
TOTAL     35    428.684
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.45     3    0.3277
COCHRAN'S Q                  0.3656
LARGEST VAR / SMALLEST VAR     2.9877
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    5.41044
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             18.604      9       3.3923
Ba             17.017      9       3.4362
BC             15.006      9       1.9879
Ca             12.807      9       2.2429
TOTAL          15.858     36       2.8415
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCa240706 BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1     137.202    137.202   16.00  0.0003
WITHIN    34    291.482    8.57299
TOTAL     35    428.684
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.26     1    0.1327
COCHRAN'S Q                  0.6788
LARGEST VAR / SMALLEST VAR     2.1136
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    7.14607
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             17.811     18       3.4116
VA             13.906     18       2.3467
TOTAL          15.858     36       2.9280
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCa240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     53.5118    26.7559    4.16  0.0734
WITHIN    6     38.5505    6.42508
TOTAL     8     92.0622
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.79     2    0.4089
COCHRAN'S Q                  0.5989
LARGEST VAR / SMALLEST VAR     9.8261
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    6.77693
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           20.690      3       2.5604
AmG2           15.183      3       3.3977
AmG3           19.940      3       1.0839
TOTAL          18.604      9       2.5348
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCa240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     27.7998    13.8999    1.25  0.3514
WITHIN    6     66.6578    11.1096
TOTAL     8     94.4576
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.18     2    0.3365
COCHRAN'S Q                  0.7586
LARGEST VAR / SMALLEST VAR     9.5038
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.93009
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           16.897      3       1.6310
BaG2           19.227      3       2.3209
BaG3           14.927      3       5.0281
TOTAL          17.017      9       3.3331
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCa240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     8.76242    4.38121    1.15  0.3777
WITHIN    6     22.8530    3.80883
TOTAL     8     31.6154
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.90     2    0.3866
COCHRAN'S Q                  0.5070
LARGEST VAR / SMALLEST VAR     9.7845
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.19079
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           15.027      3       2.2451
BCG2           16.203      3       2.4070
BCG3           13.787      3       0.7695
TOTAL          15.006      9       1.9516
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCa240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     11.0821    5.54103    1.14  0.3805
WITHIN    6     29.1615    4.86026
TOTAL     8     40.2436
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.22     2    0.8946
COCHRAN'S Q                  0.4176
LARGEST VAR / SMALLEST VAR     2.0348
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.22693
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           11.373      3       2.3450
CaG2           12.970      3       2.4676
CaG3           14.077      3       1.7299
TOTAL          12.807      9       2.2046
CASES INCLUDED 9    MISSING CASES 0
```

Table 28- ANOVA magnesium leaf average among plots, between vineyard installations and inside plots for 210606

```
ONE-WAY AOV FOR FlMg210606 BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    51.6636    17.2212    17.92  0.0000
WITHIN    32    30.7453    0.96079
TOTAL     35    82.4089
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   10.13      3    0.0175
COCHRAN'S Q                 0.5013
LARGEST VAR / SMALLEST VAR  8.2240
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.80671
EFlFeCTIVE CELL SIZE                            9.0
                       SAMPLE     GROUP
   Parc         MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
Am            5.5044      9       1.1397
Ba            2.4344      9       0.4840
BC            2.8556      9       0.6193
Ca            4.1156      9       1.3880
TOTAL         3.7275     36       0.9802
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMg210606 BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    2.10734    2.10734    0.89  0.3515
WITHIN    34    80.3015    2.36181
TOTAL     35    82.4089
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.32      1    0.1280
COCHRAN'S Q                 0.6809
LARGEST VAR / SMALLEST VAR  2.1338
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.01414
EFlFeCTIVE CELL SIZE                           18.0
                       SAMPLE     GROUP
   Inst         MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
Pt            3.9694     18       1.7934
VA            3.4856     18       1.2277
TOTAL         3.7275     36       1.5368
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMg210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    1.76276    0.88138    0.61  0.5725
WITHIN     6    8.62807    1.43801
TOTAL      8    10.3908
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.84      2    0.0888
COCHRAN'S Q                 0.8702
LARGEST VAR / SMALLEST VAR  43.298
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.18554
EFlFeCTIVE CELL SIZE                            3.0
                       SAMPLE     GROUP
  PaEtG3        MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          5.7800      3       0.2944
AmG2          5.8533      3       0.6881
AmG3          4.8800      3       1.9375
TOTAL         5.5044      9       1.1992
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMg210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.67629    0.33814    1.69  0.2611
WITHIN     6    1.19773    0.19962
TOTAL      8    1.87402
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.49      2    0.2884
COCHRAN'S Q                 0.4871
LARGEST VAR / SMALLEST VAR  14.003
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04617
EFlFeCTIVE CELL SIZE                            3.0
                       SAMPLE     GROUP
  PaEtG3        MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          2.2067      3       0.1443
BaG2          2.2767      3       0.5401
BaG3          2.8200      3       0.5351
TOTAL         2.4344      9       0.4468
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMg210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    1.68482    0.84241    3.65  0.0917
WITHIN     6    1.38360    0.23060
TOTAL      8    3.06842
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.23      2    0.5397
COCHRAN'S Q                 0.6617
LARGEST VAR / SMALLEST VAR  5.4470
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.20394
EFlFeCTIVE CELL SIZE                            3.0
                       SAMPLE     GROUP
  PaEtG3        MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          2.2767      3       0.2899
BCG2          3.3167      3       0.6766
BCG3          2.9733      3       0.3873
TOTAL         2.8556      9       0.4802
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMg210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    10.0248    5.01241    5.58  0.0427
WITHIN     6    5.38720    0.89787
TOTAL      8    15.4120
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.86      2    0.6509
COCHRAN'S Q                 0.4577
LARGEST VAR / SMALLEST VAR  4.1231
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.37151
EFlFeCTIVE CELL SIZE                            3.0
                       SAMPLE     GROUP
  PaEtG3        MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          2.7267      3       0.5468
CaG2          4.3367      3       1.1104
CaG3          5.2833      3       1.0778
TOTAL         4.1156      9       0.9476
CASES INCLUDED 9    MISSING CASES 0
```

Table 29- ANOVA magnesium leaf average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR FlMg240706 BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3     27.7554    9.25180    3.42  0.0288
WITHIN    32    86.5481    2.70463
TOTAL     35    114.303
                      CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.49     3    0.0369
COCHRAN'S Q                   0.4087
LARGEST VAR / SMALLEST VAR    9.3618
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.72746
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            5.7800      9       2.1028
Ba            3.5189      9       0.6872
BC            4.4200      9       1.5300
Ca            5.3833      9       1.8930
TOTAL         4.7756     36       1.6446
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMg240706 BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1     0.57254    0.57254    0.17  0.6817
WITHIN    34    113.731    3.34503
TOTAL     35    114.303
                      CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.14     1    0.7046
COCHRAN'S Q                   0.5465
LARGEST VAR / SMALLEST VAR    1.2053
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.15403
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            4.6494     18       1.9122
VA            4.9017     18       1.7417
TOTAL         4.7756     36       1.8289
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMg240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     24.1026    12.0513    6.42  0.0323
WITHIN    6     11.2710    1.87850
TOTAL     8     35.3736
                      CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.15     2    0.5622
COCHRAN'S Q                   0.6615
LARGEST VAR / SMALLEST VAR    4.7778
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    3.39093
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          5.2700      3       1.0616
AmG2          4.0800      3       0.8833
AmG3          7.9900      3       1.9308
TOTAL         5.7800      9       1.3706
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMg240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     0.42782    0.21391    0.38  0.6973
WITHIN    6     3.35067    0.55844
TOTAL     8     3.77849
                      CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.97     2    0.6162
COCHRAN'S Q                   0.6377
LARGEST VAR / SMALLEST VAR    4.1078
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.11484
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          3.5700      3       0.5100
BaG2          3.7567      3       1.0337
BaG3          3.2300      3       0.5889
TOTAL         3.5189      9       0.7473
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMg240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     10.5774    5.28870    3.89  0.0824
WITHIN    6     8.14980    1.35830
TOTAL     8     18.7272
                      CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.62     2    0.2702
COCHRAN'S Q                   0.7872
LARGEST VAR / SMALLEST VAR    12.333
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.31013
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          3.7400      3       0.7790
BCG2          5.9500      3       1.7911
BCG3          3.5700      3       0.5100
TOTAL         4.4200      9       1.1655
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMg240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     19.4786    9.73930    6.36  0.0329
WITHIN    6     9.19020    1.53170
TOTAL     8     28.6688
                      CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.66     2    0.7175
COCHRAN'S Q                   0.4717
LARGEST VAR / SMALLEST VAR    3.5714
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.73587
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          3.7400      3       0.7790
CaG2          5.1000      3       1.3493
CaG3          7.3100      3       1.4722
TOTAL         5.3833      9       1.2376
CASES INCLUDED 9    MISSING CASES 0
```

Table 30- ANOVA boron leaf average among plots, between vineyard installations and inside plots for 210606 data

```
ONE-WAY AOV FOR FlB210606 BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3     20597.2    6865.73  114.86  0.0000
WITHIN    32    1912.82    59.7756
TOTAL     35    22510.0
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   28.05     3    0.0000
COCHRAN'S Q                   0.8538
LARGEST VAR / SMALLEST VAR    19.527
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    756.217
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            15.136      9       3.2334
Ba            25.298      9       3.4002
BC            27.919      9       3.5972
Ca            76.912      9       14.288
TOTAL         36.316     36       7.7315
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlB210606 BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1     9330.92    9330.92   24.07  0.0000
WITHIN    34    13179.1    387.621
TOTAL     35    22510.0
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   27.86     1    0.0000
COCHRAN'S Q                   0.9514
LARGEST VAR / SMALLEST VAR    19.565
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    496.850
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            20.217     18       6.1398
VA            52.416     18       27.158
TOTAL         36.316     36       19.688
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlB210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     4.54282    2.27141    0.17  0.8457
WITHIN    6     79.0944    13.1824
TOTAL     8     83.6372
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.53     2    0.4660
COCHRAN'S Q                   0.6985
LARGEST VAR / SMALLEST VAR    6.4988
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -3.63700
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          15.153      3       2.7696
AmG2          14.257      3       2.0618
AmG3          15.997      3       5.2560
TOTAL         15.136      9       3.6308
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlB210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     37.4724    18.7362    2.04  0.2105
WITHIN    6     55.0174    9.16957
TOTAL     8     92.4898
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.57     2    0.2772
COCHRAN'S Q                   0.5627
LARGEST VAR / SMALLEST VAR    16.544
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    3.18887
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          22.707      3       3.3308
BaG2          25.493      3       0.9673
BaG3          27.693      3       3.9343
TOTAL         25.298      9       3.0281
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlB210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     84.0121    42.0060   12.92  0.0067
WITHIN    6     19.5040    3.25067
TOTAL     8     103.516
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.87     2    0.6479
COCHRAN'S Q                   0.5672
LARGEST VAR / SMALLEST VAR    4.5490
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    12.9185
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          27.057      3       1.1027
BCG2          24.683      3       2.3520
BCG3          32.017      3       1.7333
TOTAL         27.919      9       1.8030
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlB210606 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     1155.66    577.828    7.26  0.0250
WITHIN    6     477.519    79.5865
TOTAL     8     1633.18
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.61     2    0.0996
COCHRAN'S Q                   0.8947
LARGEST VAR / SMALLEST VAR    25.326
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    166.081
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          62.640      3       14.616
CaG2          77.737      3       4.0861
CaG3          90.360      3       2.9043
TOTAL         76.912      9       8.9211
CASES INCLUDED 9    MISSING CASES 0
```

Table 31- ANOVA boron leaf average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR FlB240706 BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    6570.13    2190.04   54.40  0.0000
WITHIN    32    1288.16    40.2550
TOTAL     35    7858.28
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.48     3    0.1399
COCHRAN'S Q                  0.5373
LARGEST VAR / SMALLEST VAR   4.4200
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    238.865
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Am             24.749      9       5.2376
Ba             25.457      9       4.4241
BC             30.952      9       5.2445
Ca             57.754      9       9.3011
TOTAL          34.728     36       6.3447
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlB240706 BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    3335.26    3335.26   25.07  0.0000
WITHIN    34    4523.03    133.030
TOTAL     35    7858.28
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   19.53     1    0.0000
COCHRAN'S Q                  0.9164
LARGEST VAR / SMALLEST VAR   10.956
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    177.901
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Pt             25.103     18       4.7173
VA             44.353     18       15.614
TOTAL          34.728     36       11.534
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlB240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    49.4161    24.7080    0.87  0.4652
WITHIN     6    170.041    28.3402
TOTAL      8    219.457
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.58     2    0.1013
COCHRAN'S Q                  0.7124
LARGEST VAR / SMALLEST VAR   62.147
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1.21072
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
AmG1           26.987      3       0.9872
AmG2           25.747      3       7.7827
AmG3           21.513      3       4.8451
TOTAL          24.749      9       5.3236
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlB240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    38.6461    19.3230    0.98  0.4273
WITHIN     6    117.936    19.6560
TOTAL      8    156.582
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.14     2    0.2075
COCHRAN'S Q                  0.5130
LARGEST VAR / SMALLEST VAR   22.543
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.11099
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
BaG1           22.757      3       1.1585
BaG2           27.793      3       5.2319
BaG3           25.820      3       5.5003
TOTAL          25.457      9       4.4335
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlB240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    60.8018    30.4009    1.15  0.3790
WITHIN     6    159.233    26.5388
TOTAL      8    220.035
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.94     2    0.6247
COCHRAN'S Q                  0.6249
LARGEST VAR / SMALLEST VAR   4.3149
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.28736
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
BCG1           27.277      3       4.2818
BCG2           32.827      3       7.0535
BCG3           32.753      3       3.3956
TOTAL          30.952      9       5.1516
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlB240706 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    321.675    160.837    2.61  0.1533
WITHIN     6    370.410    61.7350
TOTAL      8    692.085
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.66     2    0.4368
COCHRAN'S Q                  0.7195
LARGEST VAR / SMALLEST VAR   6.5946
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    33.0341
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
CaG1           52.167      3       4.4950
CaG2           55.053      3       5.6350
CaG3           66.043      3       11.543
TOTAL          57.754      9       7.8572
CASES INCLUDED 9    MISSING CASES 0
```

Table 32- ANOVA iron average among plots, between vineyard installations and inside plots for 210606 data

```
ONE-WAY AOV FOR FlFe210606 BY Parc
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     47859.0    15953.0   30.92  0.0000
WITHIN    32     16509.8    515.931
TOTAL     35     64368.8
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.53     3    0.0569
COCHRAN'S Q                  0.5488
LARGEST VAR / SMALLEST VAR   6.2225
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1715.23
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Am             141.78      9       16.200
Ba             192.33      9       33.653
BC             99.556      9       22.063
Ca             108.00      9       13.491
TOTAL          135.42     36       22.714
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlFe210606 BY Inst
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     36036.7    36036.7   43.25  0.0000
WITHIN    34     28332.1    833.296
TOTAL     35     64368.8
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.36     1    0.0067
COCHRAN'S Q                  0.7998
LARGEST VAR / SMALLEST VAR   3.9959
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1955.74
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Pt             167.06     18       36.510
VA             103.78     18       18.265
TOTAL          135.42     36       28.867
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlFe210606 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     644.222    322.111    1.33  0.3330
WITHIN     6     1455.33    242.556
TOTAL      8     2099.56
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.86     2    0.6489
COCHRAN'S Q                  0.4549
LARGEST VAR / SMALLEST VAR   4.1203
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    26.5185
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
AmG1           151.67      3       17.786
AmG2           142.67      3       8.9629
AmG3           131.00      3       18.193
TOTAL          141.78      9       15.574
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlFe210606 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     5604.67    2802.33    4.87  0.0555
WITHIN     6     3455.33    575.889
TOTAL      8     9060.00
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.92     2    0.6303
COCHRAN'S Q                  0.6303
LARGEST VAR / SMALLEST VAR   3.9988
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    742.148
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
BaG1           219.67      3       19.140
BaG2           198.00      3       33.000
BaG3           159.33      3       16.503
TOTAL          192.33      9       23.998
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlFe210606 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     1600.22    800.111    2.09  0.2044
WITHIN     6     2294.00    382.333
TOTAL      8     3894.22
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.33     2    0.8472
COCHRAN'S Q                  0.4589
LARGEST VAR / SMALLEST VAR   2.4788
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    139.259
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
BCG1           81.667      3       20.207
BCG2           103.33      3       14.572
BCG3           113.67      3       22.942
TOTAL          99.556      9       19.553
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlFe210606 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     800.667    400.333    3.67  0.0912
WITHIN     6     655.333    109.222
TOTAL      8     1456.00
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.77     2    0.4122
COCHRAN'S Q                  0.6480
LARGEST VAR / SMALLEST VAR   9.5075
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    97.0370
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
CaG1           121.33      3       4.7258
CaG2           101.67      3       14.572
CaG3           101.00      3       9.6437
TOTAL          108.00      9       10.451
CASES INCLUDED 9    MISSING CASES 0
```

Table 33- ANOVA iron average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR FlFe240706 BY Parc
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     35145.6    11715.2    8.51  0.0003
WITHIN    32     44030.0    1375.94
TOTAL     35     79175.6
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.56     3    0.3127
COCHRAN'S Q                 0.4603
LARGEST VAR / SMALLEST VAR    3.6939
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1148.81
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             190.56      9       50.334
Ba             272.00      9       35.472
BC             202.11      9       32.033
Ca             226.89      9       26.189
TOTAL          222.89     36       37.094
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlFe240706 BY Inst
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     2533.44    2533.44    1.12  0.2966
WITHIN    34     76642.1    2254.18
TOTAL     35     79175.6
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.50     1    0.0108
COCHRAN'S Q                 0.7853
LARGEST VAR / SMALLEST VAR    3.6567
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    15.5147
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             231.28     18       59.500
VA             214.50     18       31.115
TOTAL          222.89     36       47.478
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlFe240706 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     7296.22    3648.11    1.69  0.2622
WITHIN     6     12972.0    2162.00
TOTAL      8     20268.2
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.43     2    0.2962
COCHRAN'S Q                 0.7797
LARGEST VAR / SMALLEST VAR    10.707
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    495.370
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           188.67      3       30.925
AmG2           156.67      3       21.733
AmG3           226.33      3       71.115
TOTAL          190.56      9       46.497
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlFe240706 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     3552.00    1776.00    1.64  0.2710
WITHIN     6     6514.00    1085.67
TOTAL      8     10066.0
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.93     2    0.2305
COCHRAN'S Q                 0.7381
LARGEST VAR / SMALLEST VAR    19.868
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    230.111
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           288.00      3       49.031
BaG2           284.00      3       11.000
BaG3           244.00      3       27.055
TOTAL          272.00      9       32.949
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlFe240706 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     1824.22    912.111    0.86  0.4705
WITHIN     6     6384.67    1064.11
TOTAL      8     8208.89
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.65     2    0.2663
COCHRAN'S Q                 0.7657
LARGEST VAR / SMALLEST VAR    14.464
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -50.6667
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           211.33      3       49.440
BCG2           213.00      3       24.062
BCG3           182.00      3       13.000
TOTAL          202.11      9       32.621
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlFe240706 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     304.889    152.444    0.18  0.8424
WITHIN     6     5182.00    863.667
TOTAL      8     5486.89
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.64     2    0.4394
COCHRAN'S Q                 0.5258
LARGEST VAR / SMALLEST VAR    8.3922
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -237.074
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           231.33      3       36.910
CaG2           230.67      3       32.655
CaG3           218.67      3       12.741
TOTAL          226.89      9       29.388
CASES INCLUDED 9    MISSING CASES 0
```

Table 34- ANOVA copper average among plots, between vineyard installations and inside plots for 210606 data

```
ONE-WAY AOV FOR FlCu210606 BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     151.967    50.6558   36.76  0.0000
WITHIN    32     44.1000    1.37812
TOTAL     35     196.067
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.89     3    0.8271
COCHRAN'S Q                  0.3447
LARGEST VAR / SMALLEST VAR     1.7892
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    5.47530
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            7.2222      9       1.0305
Ba            10.489      9       1.0410
BC            11.367      9       1.3784
Ca            12.822      9       1.2112
TOTAL         10.475     36       1.1739
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCu210606 BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     94.4136    94.4136   31.58  0.0000
WITHIN    34     101.654    2.98982
TOTAL     35     196.068
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.37     1    0.2412
COCHRAN'S Q                  0.6412
LARGEST VAR / SMALLEST VAR     1.7874
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    5.07910
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            8.8556     18       1.9582
VA            12.094     18       1.4647
TOTAL         10.475     36       1.7291
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCu210606 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     1.84222    0.92111    0.83  0.4803
WITHIN     6     6.65333    1.10889
TOTAL      8     8.49556
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.10     2    0.5756
COCHRAN'S Q                  0.6142
LARGEST VAR / SMALLEST VAR     5.4732
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.06259
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          7.3000      3       0.9539
AmG2          7.7333      3       1.4295
AmG3          6.6333      3       0.6110
TOTAL         7.2222      9       1.0530
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCu210606 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     1.60222    0.80111    0.68  0.5417
WITHIN     6     7.06667    1.17778
TOTAL      8     8.66889
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.53     2    0.7679
COCHRAN'S Q                  0.5547
LARGEST VAR / SMALLEST VAR     2.9548
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.12556
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          9.9000      3       1.4000
BaG2          10.700      3       0.9539
BaG3          10.867      3       0.8145
TOTAL         10.489      9       1.0853
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCu210606 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     7.34000    3.67000    2.80  0.1383
WITHIN     6     7.86000    1.31000
TOTAL      8     15.2000
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.35     2    0.8404
COCHRAN'S Q                  0.4690
LARGEST VAR / SMALLEST VAR     2.5484
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.78667
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          11.233      3       1.3577
BCG2          12.533      3       0.8505
BCG3          10.333      3       1.1676
TOTAL         11.367      9       1.1446
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCu210606 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.32889    0.16444    0.09  0.9183
WITHIN     6     11.4067    1.90111
TOTAL      8     11.7356
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.18     2    0.5536
COCHRAN'S Q                  0.6669
LARGEST VAR / SMALLEST VAR     4.8143
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.57889
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          12.600      3       1.0536
CaG2          13.067      3       1.9502
CaG3          12.800      3       0.8888
TOTAL         12.822      9       1.3788
CASES INCLUDED 9    MISSING CASES 0
```

Table 35- ANOVA copper average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR FlCu240706 BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3    8.12083    2.70694    1.16  0.3396
WITHIN    32   74.5756    2.33049
TOTAL     35   82.6964
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.84     3    0.6068
COCHRAN'S Q                  0.4131
LARGEST VAR / SMALLEST VAR   2.2572
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04183
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            4.9778      9       1.3227
Ba            5.6889      9       1.9624
BC            4.5444      9       1.4196
Ca            4.5111      9       1.3062
TOTAL         4.9306     36       1.5266
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCu240706 BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1    5.84028    5.84028    2.58  0.1172
WITHIN    34   76.8561    2.26047
TOTAL     35   82.6964
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.86     1    0.3540
COCHRAN'S Q                  0.6126
LARGEST VAR / SMALLEST VAR   1.5811
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.19888
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            5.3333     18       1.6642
VA            4.5278     18       1.3235
TOTAL         4.9306     36       1.5035
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCu240706 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2    5.29556    2.64778    1.83  0.2402
WITHIN    6    8.70000    1.45000
TOTAL     8    13.9956
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.39     2    0.8224
COCHRAN'S Q                  0.5065
LARGEST VAR / SMALLEST VAR   2.6761
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.39926
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          4.2333      3       1.4844
AmG2          4.6667      3       1.1504
AmG3          6.0333      3       0.9074
TOTAL         4.9778      9       1.2042
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCu240706 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2    9.64222    4.82111    1.37  0.3243
WITHIN    6    21.1667    3.52778
TOTAL     8    30.8089
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.78     2    0.6783
COCHRAN'S Q                  0.4998
LARGEST VAR / SMALLEST VAR   4.1008
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.43111
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          6.7000      3       1.1358
BaG2          6.1000      3       2.3000
BaG3          4.2667      3       2.0008
TOTAL         5.6889      9       1.8782
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCu240706 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2    1.61556    0.80778    0.33  0.7285
WITHIN    6    14.5067    2.41778
TOTAL     8    16.1222
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.61     2    0.4466
COCHRAN'S Q                  0.6512
LARGEST VAR / SMALLEST VAR   8.2865
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.53667
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          5.0333      3       2.1733
BCG2          4.0000      3       0.7550
BCG3          4.6000      3       1.4000
TOTAL         4.5444      9       1.5549
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlCu240706 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2    6.93556    3.46778    3.10  0.1190
WITHIN    6    6.71333    1.11889
TOTAL     8    13.6489
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.64     2    0.1618
COCHRAN'S Q                  0.8381
LARGEST VAR / SMALLEST VAR   21.641
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.78296
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          5.5000      3       0.3606
CaG2          4.6667      3       1.6773
CaG3          3.3667      3       0.6429
TOTAL         4.5111      9       1.0578
CASES INCLUDED 9    MISSING CASES 0
```

Table 36- ANOVA zinc average among plots, between vineyard installations and inside plots for 210606 data

```
ONE-WAY AOV FOR FlZn210606 BY Parc
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     59.3333    19.7778    6.83  0.0011
WITHIN    32     92.6667    2.89583
TOTAL     35     152.000
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.52     3    0.3187
COCHRAN'S Q                    0.4484
LARGEST VAR / SMALLEST VAR     3.8163
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.87577
EFlFeCTIVE CELL SIZE                            9.0
                         SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            18.333      9       1.6583
Ba            17.444      9       1.5092
BC            15.778      9       2.2791
Ca            15.111      9       1.1667
TOTAL         16.667     36       1.7017
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlZn210606 BY Inst
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     53.7778    53.7778   18.62  0.0001
WITHIN    34     98.2222    2.88889
TOTAL     35     152.000
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.20     1    0.6580
COCHRAN'S Q                    0.5543
LARGEST VAR / SMALLEST VAR     1.2437
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.82716
EFlFeCTIVE CELL SIZE                           18.0
                         SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            17.889     18       1.6047
VA            15.444     18       1.7896
TOTAL         16.667     36       1.6997
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlZn210606 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.66667    0.33333    0.09  0.9118
WITHIN     6     21.3333    3.55556
TOTAL      8     22.0000
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.19     2    0.5527
COCHRAN'S Q                    0.6563
LARGEST VAR / SMALLEST VAR     5.2500
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1.07407
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          18.333      3       1.1547
AmG2          18.667      3       1.5275
AmG3          18.000      3       2.6458
TOTAL         18.333      9       1.8856
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlZn210606 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     8.22222    4.11111    2.47  0.1653
WITHIN     6     10.0000    1.66667
TOTAL      8     18.2222
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.18     2    0.9141
COCHRAN'S Q                    0.4667
LARGEST VAR / SMALLEST VAR     1.7500
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.81481
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          18.667      3       1.1547
BaG2          17.333      3       1.5275
BaG3          16.333      3       1.1547
TOTAL         17.444      9       1.2910
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlZn210606 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     9.55556    4.77778    0.90  0.4566
WITHIN     6     32.0000    5.33333
TOTAL      8     41.5556
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.34     2    0.1882
COCHRAN'S Q                    0.5833
LARGEST VAR / SMALLEST VAR     28.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.18519
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          16.333      3       3.0551
BCG2          14.333      3       0.5774
BCG3          16.667      3       2.5166
TOTAL         15.778      9       2.3094
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlZn210606 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     4.22222    2.11111    1.90  0.2295
WITHIN     6     6.66667    1.11111
TOTAL      8     10.8889
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.33333
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          16.000      3       0.0000
CaG2          14.333      3       1.5275
CaG3          15.000      3       1.0000
TOTAL         15.111      9       1.0541
CASES INCLUDED 9    MISSING CASES 0
```

Table 37- ANOVA zinc average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR FlZn240706 BY Parc
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    568.083    189.361    29.04  0.0000
WITHIN    32    208.667    6.52083
TOTAL     35    776.750
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.67     3    0.2997
COCHRAN'S Q                    0.4260
LARGEST VAR / SMALLEST VAR     3.2258
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    20.3156
EFlFeCTIVE CELL SIZE                            9.0
                         SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             12.000      9       1.9365
Ba             16.778      9       1.8559
BC             18.444      9       2.7889
Ca             23.111      9       3.3333
TOTAL          17.583     36       2.5536
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlZn240706 BY Inst
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    367.361    367.361    30.51  0.0000
WITHIN    34    409.389    12.0408
TOTAL     35    776.750
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.80     1    0.3722
COCHRAN'S Q                    0.6085
LARGEST VAR / SMALLEST VAR     1.5542
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    19.7400
EFlFeCTIVE CELL SIZE                           18.0
                         SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             14.389     18       3.0705
VA             20.778     18       3.8280
TOTAL          17.583     36       3.4700
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlZn240706 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    2.66667    1.33333     0.29  0.7563
WITHIN     6    27.3333    4.55556
TOTAL      8    30.0000
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.62     2    0.1635
COCHRAN'S Q                    0.7561
LARGEST VAR / SMALLEST VAR     31.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1.07407
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           12.000      3       1.7321
AmG2           11.333      3       3.2146
AmG3           12.667      3       0.5774
TOTAL          12.000      9       2.1344
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlZn240706 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    11.5556    5.77778     2.17  0.1958
WITHIN     6    16.0000    2.66667
TOTAL      8    27.5556
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.56     2    0.7564
COCHRAN'S Q                    0.5417
LARGEST VAR / SMALLEST VAR     3.2500
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.03704
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           16.333      3       1.5275
BaG2           15.667      3       1.1547
BaG3           18.333      3       2.0817
TOTAL          16.778      9       1.6330
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlZn240706 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    4.22222    2.11111     0.22  0.8099
WITHIN     6    58.0000    9.66667
TOTAL      8    62.2222
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.36     2    0.5070
COCHRAN'S Q                    0.5632
LARGEST VAR / SMALLEST VAR     7.0000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -2.51852
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           19.333      3       1.5275
BCG2           17.667      3       3.2146
BCG3           18.333      3       4.0415
TOTAL          18.444      9       3.1091
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlZn240706 BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    13.5556    6.77778     0.54  0.6087
WITHIN     6    75.3333    12.5556
TOTAL      8    88.8889
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.31     2    0.8569
COCHRAN'S Q                    0.4336
LARGEST VAR / SMALLEST VAR     2.3333
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1.92593
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           21.667      3       4.0415
CaG2           24.667      3       3.7859
CaG3           23.000      3       2.6458
TOTAL          23.111      9       3.5434
CASES INCLUDED 9    MISSING CASES 0
```

Table 38- ANOVA manganese average among plots, between vineyard installations and inside plots for 210606 data

```
ONE-WAY AOV FOR FlMn210606 BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    67947.3    22649.1   30.08  0.0000
WITHIN    32    24096.7    753.021
TOTAL     35    92044.0
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   13.92     3    0.0030
COCHRAN'S Q                  0.5515
LARGEST VAR / SMALLEST VAR   20.067
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2432.90
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            95.556      9       9.0982
Ba            131.22      9       21.649
BC            140.89      9       40.757
Ca            215.00      9       28.275
TOTAL         145.67     36       27.441
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMn210606 BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    37506.8    37506.8   23.38  0.0000
WITHIN    34    54537.2    1604.04
TOTAL     35    92044.0
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.29     1    0.0040
COCHRAN'S Q                  0.8141
LARGEST VAR / SMALLEST VAR   4.3804
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1994.60
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            113.39     18       24.418
VA            177.94     18       51.106
TOTAL         145.67     36       40.050
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMn210606 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    213.556    106.778    1.43  0.3110
WITHIN     6    448.667    74.7778
TOTAL      8    662.222
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.24     2    0.8873
COCHRAN'S Q                  0.4859
LARGEST VAR / SMALLEST VAR   2.0061
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    10.6667
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          97.000      3       7.8102
AmG2          100.67      3       7.3711
AmG3          89.000      3       10.440
TOTAL         95.556      9       8.6474
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMn210606 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    1017.56    508.778    1.12  0.3868
WITHIN     6    2732.00    455.333
TOTAL      8    3749.56
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.32     2    0.1155
COCHRAN'S Q                  0.7469
LARGEST VAR / SMALLEST VAR   50.180
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    17.8148
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          128.67      3       18.037
BaG2          119.67      3       4.5092
BaG3          145.33      3       31.943
TOTAL         131.22      9       21.339
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMn210606 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    11350.9    5675.44   17.57  0.0031
WITHIN     6    1938.00    323.000
TOTAL      8    13288.9
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.58     2    0.7493
COCHRAN'S Q                  0.5741
LARGEST VAR / SMALLEST VAR   2.7227
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1784.15
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          101.67      3       23.587
BCG2          133.33      3       14.295
BCG3          187.67      3       14.434
TOTAL         140.89      9       17.972
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMn210606 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    242.667    121.333    0.12  0.8904
WITHIN     6    6153.33    1025.56
TOTAL      8    6396.00
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.19     2    0.9090
COCHRAN'S Q                  0.4395
LARGEST VAR / SMALLEST VAR   1.9917
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -301.407
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          215.67      3       36.774
CaG2          208.33      3       32.332
CaG3          221.00      3       26.058
TOTAL         215.00      9       32.024
CASES INCLUDED 9    MISSING CASES 0
```

Table 39- ANOVA manganese average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR FlMn240706 BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3     61739.4    20579.8    22.65  0.0000
WITHIN    32    29080.9    908.778
TOTAL     35    90820.3
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.33     3    0.2283
COCHRAN'S Q                   0.3464
LARGEST VAR / SMALLEST VAR    4.4694
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2185.67
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            98.667      9       16.785
Ba            139.00      9       30.948
BC            145.00      9       35.486
Ca            213.89      9       33.710
TOTAL         149.14     36       30.146
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMn240706 BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1     33063.4    33063.4    19.46  0.0001
WITHIN    34    57756.9    1698.73
TOTAL     35    90820.3
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.93     1    0.0870
COCHRAN'S Q                   0.7016
LARGEST VAR / SMALLEST VAR    2.3509
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1742.48
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            118.83     18       31.842
VA            179.44     18       48.822
TOTAL         149.14     36       41.216
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMn240706 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     888.667    444.333    1.95   0.2223
WITHIN    6     1365.33    227.556
TOTAL     8     2254.00
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.03     2    0.3620
COCHRAN'S Q                   0.5879
LARGEST VAR / SMALLEST VAR    11.689
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    72.2593
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          110.67      3       20.033
AmG2          86.333      3       5.8595
AmG3          99.000      3       15.716
TOTAL         98.667      9       15.085
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMn240706 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     992.000    496.000    0.45   0.6597
WITHIN    6     6670.00    1111.67
TOTAL     8     7662.00
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.94     2    0.6250
COCHRAN'S Q                   0.6328
LARGEST VAR / SMALLEST VAR    4.0557
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -205.222
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          129.67      3       22.811
BaG2          133.67      3       26.539
BaG3          153.67      3       45.938
TOTAL         139.00      9       33.342
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMn240706 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     2322.00    1161.00    0.90   0.4557
WITHIN    6     7752.00    1292.00
TOTAL     8     10074.0
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.95     2    0.2286
COCHRAN'S Q                   0.7874
LARGEST VAR / SMALLEST VAR    16.862
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -43.6667
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          124.00      3       25.357
BCG2          163.00      3       55.245
BCG3          148.00      3       13.454
TOTAL         145.00      9       35.944
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR FlMn240706 BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     2290.89    1145.44    1.01   0.4185
WITHIN    6     6800.00    1133.33
TOTAL     8     9090.89
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.31     2    0.8585
COCHRAN'S Q                   0.4954
LARGEST VAR / SMALLEST VAR    2.3350
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4.03704
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          193.67      3       26.858
CaG2          215.33      3       41.041
CaG3          232.67      3       31.533
TOTAL         213.89      9       33.665
CASES INCLUDED 9    MISSING CASES 0
```

Table 40- Spectrometer different data for different plots and installations forms

DESCRIESTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PRI	27	0.3222	0.0351	0.2880	0.3940
NDVI1	27	0.6699	0.0320	0.6510	0.7500
WI	27	0.4995	0.0626	0.4270	0.6960
WI/NDVI1	27	0.7469	0.0943	0.6550	1.0320
NDVI2	27	0.8997	4.284E-03	0.8840	0.9090
WI/NDVI2	27	0.5550	0.0679	0.4740	0.7670
SIPI	27	0.0509	0.3578	-0.7150	0.7930
ChLNDI	27	0.2161	0.0244	0.1540	0.3010

DESCRIESTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PRI	27	0.3025	4.933E-03	0.2880	0.3050
NDVI1	27	0.6615	0.0136	0.6510	0.6900
WI	27	0.5550	0.0961	0.4270	0.6960
WI/NDVI1	27	0.8371	0.1311	0.6560	1.0320
NDVI2	27	0.9034	4.413E-03	0.9000	0.9130
WI/NDVI2	27	0.6139	0.1039	0.4740	0.7670
SIPI	27	0.3850	0.3560	-0.1230	0.7960
ChLNDI	27	0.2190	0.0000	0.2190	0.2190

DESCRIESTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PRI	27	0.3339	0.0351	0.2870	0.3880
NDVI1	27	0.6877	0.0365	0.6510	0.7590
WI	27	0.5390	0.0984	0.4270	0.7140
WI/NDVI1	27	0.7874	0.1571	0.6330	1.0490
NDVI2	27	0.8988	8.242E-03	0.8840	0.9170
WI/NDVI2	27	0.5991	0.1061	0.4740	0.7850
SIPI	27	0.0484	0.5285	-0.7020	0.7830
ChLNDI	27	0.1692	0.0627	0.0680	0.2210

DESCRIESTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PRI	27	0.3333	0.0409	0.3050	0.3970
NDVI1	27	0.6753	0.0370	0.6510	0.7500
WI	27	0.4688	0.0288	0.4280	0.5130
WI/NDVI1	27	0.6952	0.0394	0.6420	0.7890
NDVI2	27	0.8982	4.764E-03	0.8840	0.9050
WI/NDVI2	27	0.5221	0.0331	0.4760	0.5710
SIPI	27	-0.1363	0.2996	-0.8510	0.3220
ChLNDI	27	0.2177	0.0312	0.1220	0.3210

DESCRIESTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PRI	54	0.3123	0.0267	0.2880	0.3940
NDVI1	54	0.6657	0.0247	0.6510	0.7500
WI	54	0.5273	0.0851	0.4270	0.6960
WI/NDVI1	54	0.7920	0.1220	0.6550	1.0320
NDVI2	54	0.9016	4.681E-03	0.8840	0.9130
WI/NDVI2	54	0.5844	0.0919	0.4740	0.7670
SIPI	54	0.2180	0.3916	-0.7150	0.7960
ChLNDI	54	0.2175	0.0172	0.1540	0.3010

DESCRIESTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PRI	54	0.3336	0.0377	0.2870	0.3970
NDVI1	54	0.6815	0.0369	0.6510	0.7590
WI	54	0.5039	0.0801	0.4270	0.7140
WI/NDVI1	54	0.7413	0.1226	0.6330	1.0490
NDVI2	54	0.8985	6.675E-03	0.8840	0.9170
WI/NDVI2	54	0.5606	0.0870	0.4740	0.7850
SIPI	54	-0.0439	0.4356	-0.8510	0.7830
ChLNDI	54	0.1934	0.0548	0.0680	0.3210

Table 41- ANOVA PRI average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR PRI   BY Parc
SOURCE    DF        SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.01745    0.00582    5.60  0.0013
WITHIN   104     0.10808    0.00104
TOTAL    107     0.12553
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   75.26     3    0.0000
COCHRAN'S Q                  0.4018
LARGEST VAR / SMALLEST VAR   68.634
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.769E-04
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.3222     27        0.0351
Ba             0.3025     27     4.933E-03
BC             0.3339     27        0.0351
Ca             0.3333     27        0.0409
TOTAL          0.3230    108        0.0322
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR PRI   BY Inst
SOURCE    DF        SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.01220    0.01220   11.41  0.0010
WITHIN   106     0.11333    0.00107
TOTAL    107     0.12553
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.14     1    0.0132
COCHRAN'S Q                  0.6661
LARGEST VAR / SMALLEST VAR   1.9953
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  2.062E-04
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             0.3123     54        0.0267
VA             0.3336     54        0.0377
TOTAL          0.3230    108        0.0327
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR PRI   BY PaEt
SOURCE    DF        SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.03158    0.00395  185.67  0.0000
WITHIN    18   3.827E-04  2.126E-05
TOTAL     26     0.03196
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00131
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           0.3840      3     9.165E-03
AmE2           0.3880      3     5.568E-03
AmE3           0.3050      3        0.0000
AmE4           0.3050      3        0.0000
AmE5           0.3050      3        0.0000
AmE6           0.3050      3        0.0000
AmE7           0.2977      3     8.737E-03
AmE8           0.3050      3        0.0000
AmE9           0.3050      3        0.0000
TOTAL          0.3222     27     4.611E-03
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR PRI   BY PaEt
SOURCE    DF        SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8   3.061E-04  3.826E-05    2.11  0.0900
WITHIN    18   3.267E-04  1.815E-05
TOTAL     26   6.327E-04
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  6.704E-06
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           0.3023      3     2.082E-03
BaE2           0.3050      3        0.0000
BaE3           0.3050      3        0.0000
BaE4           0.2957      3     8.083E-03
BaE5           0.3017      3     4.163E-03
BaE6           0.3050      3        0.0000
BaE7           0.2977      3     8.737E-03
BaE8           0.3050      3        0.0000
BaE9           0.3050      3        0.0000
TOTAL          0.3025     27     4.260E-03
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR PRI   BY PaEt
SOURCE    DF        SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.03140    0.00393  107.48  0.0000
WITHIN    18   6.573E-04  3.652E-05
TOTAL     26     0.03206
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00130
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           0.3733      3     4.509E-03
BCE2           0.3683      3     3.215E-03
BCE3           0.3707      3     5.033E-03
BCE4           0.3033      3     2.887E-03
BCE5           0.3050      3        0.0000
BCE6           0.3050      3        0.0000
BCE7           0.2990      3        0.0104
BCE8           0.3753      3        0.0125
BCE9           0.3050      3        0.0000
TOTAL          0.3339     27     6.043E-03
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR PRI   BY PaEt
SOURCE    DF        SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.04327    0.00541  608.45  0.0000
WITHIN    18   1.600E-04  8.889E-06
TOTAL     26     0.04343
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00180
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           0.3050      3        0.0000
CaE2           0.3050      3        0.0000
CaE3           0.3050      3        0.0000
CaE4           0.3050      3        0.0000
CaE5           0.3050      3        0.0000
CaE6           0.3907      3     4.163E-03
CaE7           0.3873      3     6.351E-03
CaE8           0.3050      3        0.0000
CaE9           0.3917      3     4.726E-03
TOTAL          0.3333     27     2.981E-03
CASES INCLUDED 27    MISSING CASES 0
```

Table 42- ANOVA NDVI1 average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR NDVI1   BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3     0.00977    0.00326    3.33  0.0225
WITHIN   104    0.10176  9.785E-04
TOTAL    107    0.11153
                      CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    24.74      3    0.0000
COCHRAN'S Q                     0.3502
LARGEST VAR / SMALLEST VAR      7.3598
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  8.436E-05
EFlFeCTIVE CELL SIZE                             27.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.6699     27       0.0320
Ba             0.6615     27       0.0136
BC             0.6877     27       0.0365
Ca             0.6753     27       0.0370
TOTAL          0.6736    108       0.0313
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR NDVI1   BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1     0.00675    0.00675    6.83  0.0103
WITHIN   106    0.10478  9.885E-04
TOTAL    107    0.11153
                      CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     8.21      1    0.0042
COCHRAN'S Q                     0.6903
LARGEST VAR / SMALLEST VAR      2.2287
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.067E-04
EFlFeCTIVE CELL SIZE                             54.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             0.6657     54       0.0247
VA             0.6815     54       0.0369
TOTAL          0.6736    108       0.0314
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR NDVI1   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   8     0.02575    0.00322   63.03  0.0000
WITHIN    18   9.193E-04  5.107E-05
TOTAL     26    0.02667
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00106
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           0.7393      3       0.0101
AmE2           0.7100      3       0.0182
AmE3           0.6510      3       0.0000
AmE4           0.6510      3       0.0000
AmE5           0.6510      3       0.0000
AmE6           0.6510      3       0.0000
AmE7           0.6733      3    5.033E-03
AmE8           0.6510      3       0.0000
AmE9           0.6510      3       0.0000
TOTAL          0.6699     27    7.147E-03
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR NDVI1   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   8     0.00350  4.381E-04    5.89  0.0009
WITHIN    18    0.00134  7.433E-05
TOTAL     26    0.00484
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.212E-04
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           0.6687      3       0.0153
BaE2           0.6510      3       0.0000
BaE3           0.6580      3       0.0121
BaE4           0.6840      3    8.718E-03
BaE5           0.6657      3       0.0137
BaE6           0.6510      3       0.0000
BaE7           0.6733      3    5.033E-03
BaE8           0.6510      3       0.0000
BaE9           0.6510      3       0.0000
TOTAL          0.6615     27    8.622E-03
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR NDVI1   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   8     0.03061    0.00383   17.24  0.0000
WITHIN    18    0.00399  2.219E-04
TOTAL     26    0.03461
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00120
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           0.6953      3    3.512E-03
BCE2           0.7073      3       0.0191
BCE3           0.7470      3       0.0137
BCE4           0.6703      3       0.0181
BCE5           0.6527      3    2.887E-03
BCE6           0.6510      3       0.0000
BCE7           0.6823      3       0.0240
BCE8           0.7323      3       0.0227
BCE9           0.6510      3       0.0000
TOTAL          0.6877     27       0.0149
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR NDVI1   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   8     0.03436    0.00429   60.30  0.0000
WITHIN    18    0.00128  7.122E-05
TOTAL     26    0.03564
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00141
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           0.6510      3       0.0000
CaE2           0.6510      3       0.0000
CaE3           0.6510      3       0.0000
CaE4           0.6510      3       0.0000
CaE5           0.6510      3       0.0000
CaE6           0.7187      3       0.0241
CaE7           0.7067      3    6.658E-03
CaE8           0.6510      3       0.0000
CaE9           0.7463      3    4.041E-03
TOTAL          0.6753     27    8.439E-03
CASES INCLUDED 27    MISSING CASES 0
```

Table 43- ANOVA WI average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR WI   BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.12294    0.04098    6.93  0.0003
WITHIN   104     0.61536    0.00592
TOTAL    107     0.73830
                  CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   36.76     3    0.0000
COCHRAN'S Q                   0.4093
LARGEST VAR / SMALLEST VAR     11.649
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00130
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.4995     27       0.0626
Ba             0.5550     27       0.0961
BC             0.5390     27       0.0984
Ca             0.4688     27       0.0288
TOTAL          0.5156    108       0.0769
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI   BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.01470    0.01470    2.15  0.1452
WITHIN   106     0.72360    0.00683
TOTAL    107     0.73830
                  CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.19     1    0.6628
COCHRAN'S Q                   0.5301
LARGEST VAR / SMALLEST VAR     1.1280
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.458E-04
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             0.5273     54       0.0851
VA             0.5039     54       0.0801
TOTAL          0.5156    108       0.0826
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.09417    0.01177   27.22  0.0000
WITHIN    18     0.00778  4.325E-04
TOTAL     26     0.10195
                  CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   14.12     8    0.0786
COCHRAN'S Q                   0.3640
LARGEST VAR / SMALLEST VAR     472.33
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00378
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           0.4913      3    7.638E-03
AmE2           0.4930      3    1.732E-03
AmE3           0.4780      3       0.0165
AmE4           0.4713      3       0.0156
AmE5           0.4743      3    7.024E-03
AmE6           0.4520      3       0.0217
AmE7           0.6630      3       0.0376
AmE8           0.4910      3       0.0173
AmE9           0.4813      3       0.0329
TOTAL          0.4995     27       0.0208
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.22220    0.02777   28.18  0.0000
WITHIN    18     0.01774  9.855E-04
TOTAL     26     0.23993
                  CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   11.83     8    0.1591
COCHRAN'S Q                   0.4241
LARGEST VAR / SMALLEST VAR     705.25
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00893
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           0.6420      3       0.0191
BaE2           0.4283      3    2.309E-03
BaE3           0.5363      3       0.0613
BaE4           0.6493      3       0.0232
BaE5           0.6520      3       0.0305
BaE6           0.4520      3       0.0217
BaE7           0.6630      3       0.0376
BaE8           0.4910      3       0.0173
BaE9           0.4813      3       0.0329
TOTAL          0.5550     27       0.0314
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.24777    0.03097  136.62  0.0000
WITHIN    18     0.00408  2.267E-04
TOTAL     26     0.25185
                  CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   19.04     8    0.0147
COCHRAN'S Q                   0.4504
LARGEST VAR / SMALLEST VAR     689.25
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01025
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           0.4967      3    4.509E-03
BCE2           0.4907      3    3.215E-03
BCE3           0.4960      3       0.0155
BCE4           0.6643      3       0.0170
BCE5           0.6483      3       0.0186
BCE6           0.4277      3    1.154E-03
BCE7           0.6960      3       0.0303
BCE8           0.4903      3    4.041E-03
BCE9           0.4413      3       0.0140
TOTAL          0.5390     27       0.0151
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.01746    0.00218    9.45  0.0000
WITHIN    18     0.00416  2.310E-04
TOTAL     26     0.02162
                  CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   17.75     8    0.0232
COCHRAN'S Q                   0.5085
LARGEST VAR / SMALLEST VAR     243.92
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  6.506E-04
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           0.4890      3       0.0325
CaE2           0.4820      3    7.211E-03
CaE3           0.4377      3    8.505E-03
CaE4           0.4297      3    2.082E-03
CaE5           0.4357      3    9.815E-03
CaE6           0.4910      3    4.583E-03
CaE7           0.4947      3    4.933E-03
CaE8           0.4690      3       0.0257
CaE9           0.4907      3    9.504E-03
TOTAL          0.4688     27       0.0152
CASES INCLUDED 27    MISSING CASES 0
```

Table 44- ANOVA WI / NDVI1 average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR WI/NDVI1  BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.29402    0.09801    7.50  0.0001
WITHIN   104     1.35983    0.01308
TOTAL    107     1.65385
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   41.20      3    0.0000
COCHRAN'S Q                      0.4716
LARGEST VAR / SMALLEST VAR      15.924
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00315
EFlFeCTIVE CELL SIZE                           27.0
                         SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Am             0.7469     27       0.0943
Ba             0.8371     27       0.1311
BC             0.7874     27       0.1571
Ca             0.6952     27       0.0394
TOTAL          0.7666    108       0.1143
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI/NDVI1  BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.06931    0.06931    4.64  0.0336
WITHIN   106     1.58454    0.01495
TOTAL    107     1.65385
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.00      1    0.9707
COCHRAN'S Q                      0.5025
LARGEST VAR / SMALLEST VAR      1.0102
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00101
EFlFeCTIVE CELL SIZE                           54.0
                         SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Pt             0.7920     54       0.1220
VA             0.7413     54       0.1226
TOTAL          0.7666    108       0.1223
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI/NDVI1  BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.21261    0.02658   25.73  0.0000
WITHIN    18     0.01860    0.00103
TOTAL     26     0.23120
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.60      8    0.3775
COCHRAN'S Q                      0.3466
LARGEST VAR / SMALLEST VAR      32.116
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00851
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
AmE1           0.6647      3       0.0100
AmE2           0.6947      3       0.0167
AmE3           0.7343      3       0.0257
AmE4           0.7240      3       0.0241
AmE5           0.7287      3       0.0111
AmE6           0.6943      3       0.0333
AmE7           0.9867      3       0.0568
AmE8           0.7547      3       0.0263
AmE9           0.7397      3       0.0503
TOTAL          0.7469     27       0.0321
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI/NDVI1  BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.41722    0.05215   31.45  0.0000
WITHIN    18     0.02985    0.00166
TOTAL     26     0.44707
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   11.99      8    0.1515
COCHRAN'S Q                      0.3891
LARGEST VAR / SMALLEST VAR      355.49
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01683
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
BaE1           0.9597      3       0.0215
BaE2           0.6583      3    4.041E-03
BaE3           0.8133      3       0.0762
BaE4           0.9487      3       0.0210
BaE5           0.9787      3       0.0253
BaE6           0.6943      3       0.0333
BaE7           0.9867      3       0.0568
BaE8           0.7547      3       0.0263
BaE9           0.7397      3       0.0503
TOTAL          0.8371     27       0.0407
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI/NDVI1  BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.62999    0.07875  125.48  0.0000
WITHIN    18     0.01130  6.276E-04
TOTAL     26     0.64128
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   11.36      8    0.1821
COCHRAN'S Q                      0.3846
LARGEST VAR / SMALLEST VAR      407.31
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.02604
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
BCE1           0.7173      3    7.506E-03
BCE2           0.6947      3       0.0180
BCE3           0.6637      3       0.0267
BCE4           0.9923      3       0.0466
BCE5           0.9933      3       0.0240
BCE6           0.6573      3    2.309E-03
BCE7           1.0200      3       0.0251
BCE8           0.6700      3       0.0265
BCE9           0.6780      3       0.0215
TOTAL          0.7874     27       0.0251
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI/NDVI1  BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.02952    0.00369    6.17  0.0007
WITHIN    18     0.01076  5.976E-04
TOTAL     26     0.04027
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   14.48      8    0.0700
COCHRAN'S Q                      0.4735
LARGEST VAR / SMALLEST VAR      246.42
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00103
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
CaE1           0.7513      3       0.0505
CaE2           0.7407      3       0.0114
CaE3           0.6727      3       0.0131
CaE4           0.6603      3    3.215E-03
CaE5           0.6697      3       0.0150
CaE6           0.6837      3       0.0204
CaE7           0.7007      3       0.0105
CaE8           0.7207      3       0.0397
CaE9           0.6573      3       0.0139
TOTAL          0.6952     27       0.0244
CASES INCLUDED 27    MISSING CASES 0
```

Table 45- ANOVA NDVI2 average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR NDVI2    BY Parc
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3   4.353E-04  1.451E-04    4.52  0.0051
WITHIN   104     0.00334  3.211E-05
TOTAL    107     0.00377
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    16.83     3    0.0008
COCHRAN'S Q                    0.5288
LARGEST VAR / SMALLEST VAR     3.7010
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  4.185E-06
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.8997     27    4.284E-03
Ba             0.9034     27    4.413E-03
BC             0.8988     27    8.242E-03
Ca             0.8982     27    4.764E-03
TOTAL          0.9000    108    5.667E-03
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR NDVI2    BY Inst
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1   2.521E-04  2.521E-04    7.59  0.0069
WITHIN   106     0.00352  3.323E-05
TOTAL    107     0.00377
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     6.48     1    0.0109
COCHRAN'S Q                    0.6703
LARGEST VAR / SMALLEST VAR     2.0334
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  4.053E-06
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             0.9016     54    4.681E-03
VA             0.8985     54    6.675E-03
TOTAL          0.9000    108    5.765E-03
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR NDVI2    BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8   2.865E-04  3.581E-05    3.38  0.0151
WITHIN    18   1.907E-04  1.059E-05
TOTAL     26   4.772E-04
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  8.407E-06
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           0.8967      3    4.041E-03
AmE2           0.8940      3    8.660E-03
AmE3           0.9000      3       0.0000
AmE4           0.9000      3       0.0000
AmE5           0.9000      3       0.0000
AmE6           0.9000      3       0.0000
AmE7           0.9070      3    2.000E-03
AmE8           0.9000      3       0.0000
AmE9           0.9000      3       0.0000
TOTAL          0.8997     27    3.255E-03
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR NDVI2    BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8   3.596E-04  4.495E-05    5.52  0.0013
WITHIN    18   1.467E-04  8.148E-06
TOTAL     26   5.063E-04
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.226E-05
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           0.9057      3    4.726E-03
BaE2           0.9000      3       0.0000
BaE3           0.9023      3    4.041E-03
BaE4           0.9107      3    3.215E-03
BaE5           0.9047      3    4.509E-03
BaE6           0.9000      3       0.0000
BaE7           0.9070      3    2.000E-03
BaE8           0.9000      3       0.0000
BaE9           0.9000      3       0.0000
TOTAL          0.9034     27    2.854E-03
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR NDVI2    BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.00136  1.697E-04    7.47  0.0002
WITHIN    18   4.087E-04  2.270E-05
TOTAL     26     0.00177
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  4.899E-05
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           0.8860      3    2.646E-03
BCE2           0.8900      3    3.464E-03
BCE3           0.9027      3    7.506E-03
BCE4           0.9060      3    5.568E-03
BCE5           0.9007      3    1.154E-03
BCE6           0.9000      3       0.0000
BCE7           0.9097      3    7.506E-03
BCE8           0.8943      3    6.351E-03
BCE9           0.9000      3       0.0000
TOTAL          0.8988     27    4.765E-03
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR NDVI2    BY PaEt
SOURCE    DF       SS          MS          F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8   3.021E-04  3.776E-05    2.36  0.0621
WITHIN    18   2.880E-04  1.600E-05
TOTAL     26   5.901E-04
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  7.253E-06
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           0.9000      3       0.0000
CaE2           0.9000      3       0.0000
CaE3           0.9000      3       0.0000
CaE4           0.9000      3       0.0000
CaE5           0.9000      3       0.0000
CaE6           0.8967      3       0.0112
CaE7           0.8893      3    3.786E-03
CaE8           0.9000      3       0.0000
CaE9           0.8977      3    2.309E-03
TOTAL          0.8982     27    4.000E-03
CASES INCLUDED 27    MISSING CASES 0
```

Table 46- ANOVA WI / NDVI2 average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR WI/NDVI2  BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.14233    0.04744    6.83  0.0003
WITHIN   104     0.72218    0.00694
TOTAL    107     0.86451
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    34.07      3    0.0000
COCHRAN'S Q                    0.4056
LARGEST VAR / SMALLEST VAR     10.304
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00150
EFlFeCTIVE CELL SIZE                           27.0
                      SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.5550     27       0.0679
Ba             0.6139     27       0.1039
BC             0.5991     27       0.1061
Ca             0.5221     27       0.0331
TOTAL          0.5725    108       0.0833
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI/NDVI2  BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.01534    0.01534    1.91  0.1694
WITHIN   106     0.84917    0.00801
TOTAL    107     0.86451
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.16      1    0.6925
COCHRAN'S Q                    0.5273
LARGEST VAR / SMALLEST VAR     1.1153
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.357E-04
EFlFeCTIVE CELL SIZE                           54.0
                      SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             0.5844     54       0.0919
VA             0.5606     54       0.0870
TOTAL          0.5725    108       0.0895
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI/NDVI2  BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.11049    0.01381   26.01  0.0000
WITHIN    18     0.00956  5.311E-04
TOTAL     26     0.12005
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    12.41      8    0.1340
COCHRAN'S Q                    0.3578
LARGEST VAR / SMALLEST VAR     98.673
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00443
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           0.5480      3    6.000E-03
AmE2           0.5513      3    4.163E-03
AmE3           0.5313      3       0.0188
AmE4           0.5233      3       0.0176
AmE5           0.5273      3    8.021E-03
AmE6           0.5017      3       0.0240
AmE7           0.7313      3       0.0414
AmE8           0.5457      3       0.0193
AmE9           0.5347      3       0.0366
TOTAL          0.5550     27       0.0230
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI/NDVI2  BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.26086    0.03261   29.42  0.0000
WITHIN    18     0.01995    0.00111
TOTAL     26     0.28081
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    11.59      8    0.1706
COCHRAN'S Q                    0.4249
LARGEST VAR / SMALLEST VAR     508.68
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01050
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           0.7087      3       0.0181
BaE2           0.4757      3    2.887E-03
BaE3           0.5940      3       0.0651
BaE4           0.7130      3       0.0229
BaE5           0.7203      3       0.0296
BaE6           0.5017      3       0.0240
BaE7           0.7313      3       0.0414
BaE8           0.5457      3       0.0193
BaE9           0.5347      3       0.0366
TOTAL          0.6139     27       0.0333
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI/NDVI2  BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.28785    0.03598  128.45  0.0000
WITHIN    18     0.00504  2.801E-04
TOTAL     26     0.29289
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    15.72      8    0.0465
COCHRAN'S Q                    0.3064
LARGEST VAR / SMALLEST VAR     257.44
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01190
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           0.5603      3    5.132E-03
BCE2           0.5517      3    3.055E-03
BCE3           0.5493      3       0.0220
BCE4           0.7330      3       0.0223
BCE5           0.7197      3       0.0201
BCE6           0.4750      3    1.732E-03
BCE7           0.7647      3       0.0278
BCE8           0.5480      3    8.185E-03
BCE9           0.4903      3       0.0160
TOTAL          0.5991     27       0.0167
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR WI/NDVI2  BY PaEt
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.02325    0.00291   10.10  0.0000
WITHIN    18     0.00518  2.876E-04
TOTAL     26     0.02842
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    17.88      8    0.0221
COCHRAN'S Q                    0.5193
LARGEST VAR / SMALLEST VAR     252.06
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  8.727E-04
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           0.5437      3       0.0367
CaE2           0.5357      3    7.767E-03
CaE3           0.4863      3    9.018E-03
CaE4           0.4773      3    2.309E-03
CaE5           0.4843      3       0.0110
CaE6           0.5473      3    5.508E-03
CaE7           0.5560      3    6.245E-03
CaE8           0.5213      3       0.0287
CaE9           0.5467      3    9.018E-03
TOTAL          0.5221     27       0.0170
CASES INCLUDED 27    MISSING CASES 0
```

Table 47- ANOVA SIPI average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR SIPI   BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    3.81968    1.27323    8.16  0.0001
WITHIN   104    16.2175    0.15594
TOTAL    107    20.0372
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    9.58     3    0.0224
COCHRAN'S Q                   0.4477
LARGEST VAR / SMALLEST VAR    3.1116
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04138
EFlFeCTIVE CELL SIZE                           27.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.0509     27      0.3578
Ba             0.3850     27      0.3560
BC             0.0484     27      0.5285
Ca            -0.1363     27      0.2996
TOTAL          0.0870    108      0.3949
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SIPI   BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    1.85208    1.85208   10.80  0.0014
WITHIN   106    18.1851    0.17156
TOTAL    107    20.0372
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.59     1    0.4414
COCHRAN'S Q                   0.5530
LARGEST VAR / SMALLEST VAR    1.2370
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.03112
EFlFeCTIVE CELL SIZE                           54.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             0.2180     54      0.3916
VA            -0.0439     54      0.4356
TOTAL          0.0870    108      0.4142
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR SIPI   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    3.09715    0.38714   30.22  0.0000
WITHIN    18    0.23058    0.01281
TOTAL     26    3.32773
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    9.41     8    0.3092
COCHRAN'S Q                   0.3087
LARGEST VAR / SMALLEST VAR    66.729
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.12478
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1          -0.3627      3      0.0696
AmE2          -0.5120      3      0.1829
AmE3           0.0560      3      0.1887
AmE4           0.1257      3      0.1066
AmE5           0.1143      3      0.1112
AmE6           0.0100      3      0.0981
AmE7           0.7663      3      0.0231
AmE8           0.1963      3      0.0782
AmE9           0.0643      3      0.0372
TOTAL          0.0509     27      0.1132
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SIPI   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    3.17353    0.39669   58.82  0.0000
WITHIN    18    0.12140    0.00674
TOTAL     26    3.29493
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   21.60     8    0.0057
COCHRAN'S Q                   0.6298
LARGEST VAR / SMALLEST VAR    606.78
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.12998
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaE1           0.7317      3      0.0556
BaE2          -0.0853      3      0.0385
BaE3           0.2680      3      0.1955
BaE4           0.7867      3      0.0129
BaE5           0.7270      3   7.937E-03
BaE6           0.0100      3      0.0981
BaE7           0.7663      3      0.0231
BaE8           0.1963      3      0.0782
BaE9           0.0643      3      0.0372
TOTAL          0.3850     27      0.0821
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SIPI   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    7.01735    0.87717   64.73  0.0000
WITHIN    18    0.24393    0.01355
TOTAL     26    7.26128
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   22.47     8    0.0041
COCHRAN'S Q                   0.3245
LARGEST VAR / SMALLEST VAR    4397.5
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.28787
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1          -0.6113      3      0.0787
BCE2          -0.4933      3      0.1438
BCE3          -0.2267      3      0.1533
BCE4           0.7390      3      0.0504
BCE5           0.6920      3   3.000E-03
BCE6          -0.1180      3      0.0829
BCE7           0.7523      3   7.767E-03
BCE8          -0.2947      3      0.1502
BCE9       -3.333E-03      3      0.1989
TOTAL          0.0484     27      0.1164
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR SIPI   BY PaEt
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8    1.98971    0.24871   13.02  0.0000
WITHIN    18    0.34390    0.01911
TOTAL     26    2.33360
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    9.75     8    0.2827
COCHRAN'S Q                   0.2887
LARGEST VAR / SMALLEST VAR    20.062
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.07654
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           0.1803      3      0.2020
CaE2           0.1613      3      0.0497
CaE3        6.667E-04      3      0.0977
CaE4          -0.0393      3      0.1185
CaE5          -0.0387      3      0.0647
CaE6          -0.6107      3      0.2228
CaE7          -0.5457      3      0.0536
CaE8          -0.0223      3      0.2134
CaE9          -0.3127      3      0.0533
TOTAL         -0.1363     27      0.1382
CASES INCLUDED 27    MISSING CASES 0
```

Table 48- ANOVA CHLNDI average among plots, between vineyard installations and inside plots for 240706 data

```
ONE-WAY AOV FOR ChLNDI   BY Parc
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.04747    0.01582   11.52  0.0000
WITHIN   104     0.14286    0.00137
TOTAL    107     0.19033
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  5.352E-04
EFlFeCTIVE CELL SIZE                           27.0
                           SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.2161     27       0.0244
Ba             0.2190     27    2.591E-17
BC             0.1692     27       0.0627
Ca             0.2177     27       0.0312
TOTAL          0.2055    108       0.0371
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR ChLNDI   BY Inst
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.01567    0.01567    9.51  0.0026
WITHIN   106     0.17465    0.00165
TOTAL    107     0.19033
                          CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   58.87      1    0.0000
COCHRAN'S Q                      0.9105
LARGEST VAR / SMALLEST VAR     10.176
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  2.597E-04
EFlFeCTIVE CELL SIZE                           54.0
                           SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             0.2175     54       0.0172
VA             0.1934     54       0.0548
TOTAL          0.2055    108       0.0406
CASES INCLUDED 108    MISSING CASES 0
```

```
ONE-WAY AOV FOR ChLNDI   BY PaEt
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.00376  4.696E-04    0.72  0.6728
WITHIN    18     0.01175  6.530E-04
TOTAL     26     0.01551
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -6.113E-05
EFlFeCTIVE CELL SIZE                            3.0
                           SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmE1           0.2280      3       0.0635
AmE2           0.1837      3       0.0430
AmE3           0.2190      3       0.0000
AmE4           0.2190      3       0.0000
AmE5           0.2190      3       0.0000
AmE6           0.2190      3       0.0000
AmE7           0.2190      3       0.0000
AmE8           0.2190      3       0.0000
AmE9           0.2190      3       0.0000
TOTAL          0.2161     27       0.0256
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ChLNDI   BY PaEt
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.09295    0.01162   22.92  0.0000
WITHIN    18     0.00913  5.070E-04
TOTAL     26     0.10207
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00370
EFlFeCTIVE CELL SIZE                            3.0
                           SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCE1           0.1003      3       0.0248
BCE2           0.0823      3       0.0132
BCE3           0.0913      3       0.0201
BCE4           0.2190      3       0.0000
BCE5           0.2190      3       0.0000
BCE6           0.2190      3       0.0000
BCE7           0.2190      3       0.0000
BCE8           0.1540      3       0.0580
BCE9           0.2190      3       0.0000
TOTAL          0.1692     27       0.0225
CASES INCLUDED 27    MISSING CASES 0
```

```
ONE-WAY AOV FOR ChLNDI   BY PaEt
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    8     0.01590    0.00199    3.82  0.0087
WITHIN    18     0.00937  5.204E-04
TOTAL     26     0.02527
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  4.891E-04
EFlFeCTIVE CELL SIZE                            3.0
                           SAMPLE     GROUP
   PaEt         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaE1           0.2190      3       0.0000
CaE2           0.2190      3       0.0000
CaE3           0.2190      3       0.0000
CaE4           0.2190      3       0.0000
CaE5           0.2190      3       0.0000
CaE6           0.1993      3       0.0292
CaE7           0.1733      3       0.0445
CaE8           0.2190      3       0.0000
CaE9           0.2723      3       0.0431
TOTAL          0.2177     27       0.0228
CASES INCLUDED 27    MISSING CASES 0
```

Table 49- Average weigh wood, according plots and installations forms for 080306 data**.**

DESCRIESTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd06	9	324.00	66.494	200.00	408.00

DESCRIESTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd06	9	374.89	98.454	258.00	550.00

DESCRIESTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd06	9	443.56	77.681	292.00	558.00

DESCRIESTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd06	9	486.78	128.80	300.00	680.00

DESCRIESTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd06	18	349.44	85.602	200.00	550.00

DESCRIESTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd06	18	465.17	105.55	292.00	680.00

Table 50- Average weigh wood, according plots and installations forms for 150107 data**.**

DESCRIESTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd07	9	760.19	275.86	508.30	1416.7

DESCRIESTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd07	9	608.34	211.69	258.30	1000.0

DESCRIESTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd07	9	553.71	186.07	350.00	900.00

DESCRIESTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd07	9	608.34	169.15	383.30	950.00

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd07	18	684.27	251.01	258.30	1416.7

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PlPd07	18	581.03	174.78	350.00	950.00

Table 51- ANOVA weigh wood average among plots, between vineyard installations and inside plots for 080306 data

```
ONE-WAY AOV FOR PlPd06   BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3      140585    46861.7    5.10  0.0053
WITHIN    32      293913    9184.77
TOTAL     35      434498
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.85     3    0.2784
COCHRAN'S Q                   0.4516
LARGEST VAR / SMALLEST VAR     3.7522
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4186.32
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            324.00       9       66.494
Ba            374.89       9       98.454
BC            443.56       9       77.681
Ca            486.78       9       128.80
TOTAL         407.31      36       95.837
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlPd06   BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1      120525     120525   13.05  0.0010
WITHIN    34      313973    9234.50
TOTAL     35      434498
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.72     1    0.3963
COCHRAN'S Q                   0.6032
LARGEST VAR / SMALLEST VAR     1.5204
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    6182.79
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            349.44      18       85.602
VA            465.17      18       105.55
TOTAL         407.31      36       96.096
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlPd06   BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     4142.00    2071.00    0.40  0.6882
WITHIN     6     31230.0    5205.00
TOTAL      8     35372.0
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.53     2    0.4655
COCHRAN'S Q                   0.7106
LARGEST VAR / SMALLEST VAR     5.7723
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1044.67
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          294.33       3       105.34
AmG2          344.33       3       50.954
AmG3          333.33       3       43.844
TOTAL         324.00       9       72.146
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlPd06   BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     45081.6    22540.8    4.17  0.0734
WITHIN     6     32463.3    5410.56
TOTAL      8     77544.9
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.97     2    0.1373
COCHRAN'S Q                   0.8407
LARGEST VAR / SMALLEST VAR     27.907
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    5710.07
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          275.00       3       22.113
BaG2          419.33       3       116.82
BaG3          430.33       3       45.786
TOTAL         374.89       9       73.556
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlPd06   BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     9786.89    4893.44    0.76  0.5068
WITHIN     6     38487.3    6414.56
TOTAL      8     48274.2
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.79     2    0.4084
COCHRAN'S Q                   0.5305
LARGEST VAR / SMALLEST VAR     9.3740
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -507.037
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          480.33       3       89.142
BCG2          400.33       3       101.04
BCG3          450.00       3       33.000
TOTAL         443.56       9       80.091
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlPd06   BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2      108488    54244.1   13.43  0.0061
WITHIN     6     24233.3    4038.89
TOTAL      8      132722
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.26     2    0.8788
COCHRAN'S Q                   0.4722
LARGEST VAR / SMALLEST VAR     2.2242
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    16735.1
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          380.67       3       75.639
CaG2          638.00       3       61.830
CaG3          441.67       3       50.718
TOTAL         486.78       9       63.552
CASES INCLUDED 9    MISSING CASES 0
```

Table 52- ANOVA weigh wood average among plots, between vineyard installations and inside plots for 150107 data

```
ONE-WAY AOV FOR PlPd07    BY Parc
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     213111     71037.1    1.54  0.2224
WITHIN    32    1473183     46037.0
TOTAL     35    1686294
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.17      3    0.5386
COCHRAN'S Q                    0.4133
LARGEST VAR / SMALLEST VAR     2.6597
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2777.79
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            760.19       9       275.86
Ba            608.34       9       211.69
BC            553.71       9       186.07
Ca            608.34       9       169.15
TOTAL         632.65      36       214.56
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlPd07    BY Inst
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     95924.4    95924.4    2.05  0.1613
WITHIN    34     1590370    46775.6
TOTAL     35     1686294
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.12      1    0.1456
COCHRAN'S Q                    0.6735
LARGEST VAR / SMALLEST VAR     2.0625
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2730.49
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            684.27      18       251.01
VA            581.03      18       174.78
TOTAL         632.65      36       216.28
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlPd07    BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     21487.9    10744.0    0.11  0.8978
WITHIN     6      587315    97885.8
TOTAL      8      608803
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.42      2    0.0148
COCHRAN'S Q                    0.8880
LARGEST VAR / SMALLEST VAR     402.08
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -29047.3
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          827.77       3       510.64
AmG2          713.90       3       179.59
AmG3          738.90       3       25.466
TOTAL         760.19       9       312.87
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlPd07    BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     50609.8    25304.9    0.49  0.6335
WITHIN     6      307903    51317.2
TOTAL      8      358513
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.13      2    0.5673
COCHRAN'S Q                    0.5870
LARGEST VAR / SMALLEST VAR     5.7996
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -8670.75
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          688.90       3       300.62
BaG2          627.80       3       124.83
BaG3          508.33       3       219.09
TOTAL         608.34       9       226.53
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlPd07    BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     92797.2    46398.6    1.51  0.2940
WITHIN     6      184172    30695.4
TOTAL      8      276969
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   12.40      2    0.0020
COCHRAN'S Q                    0.9912
LARGEST VAR / SMALLEST VAR     246.94
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    5234.40
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          697.23       3       302.12
BCG2          486.10       3       20.941
BCG3          477.80       3       19.226
TOTAL         553.71       9       175.20
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR PlPd07    BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     87558.1    43779.1    1.86  0.2354
WITHIN     6      141340    23556.6
TOTAL      8      228898
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.16      2    0.5607
COCHRAN'S Q                    0.5279
LARGEST VAR / SMALLEST VAR     5.8206
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    6740.82
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          566.67       3       164.17
CaG2          744.47       3       193.15
CaG3          513.90       3       80.060
TOTAL         608.34       9       153.48
CASES INCLUDED 9    MISSING CASES 0
```

Table 53- Regression analysis for 1905055 data SPAD

```
Dependent variable.. SPAD1905          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .27124
R Square             .07357
Adjusted R Square   -.23524
Standard Error       .70416

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         .2362690        .11813452
Residuals      6        2.9750890        .49584816

F =        .23825       Signif F =  .7951

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .151082     .411405    .653047      .367  .7260
Pt**2             -.019553     .040124   -.866578     -.487  .6433
(Constant)       39.411905     .895992               43.987  .0000
```

```
Dependent variable.. SPAD1905          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .73384
R Square             .53852
Adjusted R Square    .38469
Standard Error      1.82352

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        23.281937        11.640968
Residuals      6        19.951397         3.325233

F =       3.50080       Signif F =  .0983

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                1.259762    1.065383   1.484071     1.182  .2818
Pt**2             -.065476     .103905   -.790897     -.630  .5518
(Constant)       32.663492    2.320282               14.077  .0000
```

```
Dependent variable.. SPAD1905          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .48998
R Square             .24008
Adjusted R Square   -.01323
Standard Error       .73435

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1.0221953        .51109764
Residuals      6        3.2355825        .53926375

F =        .94777       Signif F =  .4388

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                -.037980     .429038   -.142573     -.089  .9323
Pt**2             -.009091     .041843   -.349914     -.217  .8352
(Constant)       40.222222     .934395               43.046  .0000
```

```
Dependent variable.. SPAD1905          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .57453
R Square             .33009
Adjusted R Square    .10678
Standard Error      1.57373

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         7.321880        3.6609402
Residuals      6        14.859848        2.4766413

F =       1.47819       Signif F =  .3006

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                1.526248     .919446   2.510170     1.660  .1480
Pt**2             -.136291     .089672  -2.298354    -1.520  .1793
(Constant)       36.692063    2.002449               18.324  .0000
```

Table 54- Regression analysis for 170605 data SPAD

```
Dependent variable.. SPAD1706          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .55986
R Square             .31344
Adjusted R Square    .08459
Standard Error       .81332

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2       1.8120189        .90600946
Residuals      6       3.9689687        .66149479

F =       1.36964       Signif F =  .3236

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.761623     .475180  -2.453663    -1.603  .1601
Pt**2               .068218     .046343   2.253425     1.472  .1914
(Constant)        46.818254    1.034887               45.240  .0000
```

```
Dependent variable.. SPAD1706          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .42398
R Square             .17976
Adjusted R Square   -.09366
Standard Error      1.33149

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        2.331151        1.1655756
Residuals      6       10.637244        1.7728740

F =        .65745       Signif F =  .5519

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .713456     .777918   1.534616      .917  .3944
Pt**2              -.079401     .075869  -1.751175    -1.047  .3356
(Constant)        41.806349    1.694216               24.676  .0000
```

```
Dependent variable.. SPAD1706          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .51347
R Square             .26365
Adjusted R Square    .01820
Standard Error      2.33121

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2       11.675126        5.8375631
Residuals      6       32.607343        5.4345572

F =       1.07416       Signif F =  .3993

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.965289    1.361999  -1.123613     -.709  .5051
Pt**2               .129473     .132833   1.545291      .975  .3673
(Constant)        42.774603    2.966278               14.420  .0000
```

```
Dependent variable.. SPAD1706          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .73882
R Square             .54585
Adjusted R Square    .39447
Standard Error      1.69168

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2       20.637797        10.318898
Residuals      6       17.170598         2.861766

F =       3.60578       Signif F =  .0937

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 2.653846     .988353   3.343160     2.685  .0363
Pt**2              -.251551     .096392  -3.249213    -2.610  .0401
(Constant)        37.970635    2.152519               17.640  .0000
```

Table 55- Regression analysis for 250705 data SPAD

```
Dependent variable.. SPAD2507          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .28529
R Square             .08139
Adjusted R Square   -.22481
Standard Error      1.67680

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         1.494732         .7473659
Residuals      6        16.869960        2.8116599

F =        .26581       Signif F =  .7752

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .714293     .979662   1.291101      .729  .4934
Pt**2             -.067929     .095545  -1.258958     -.711  .5038
(Constant)       41.027778    2.133591               19.229  .0000
```

```
Dependent variable.. SPAD2507          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .66628
R Square             .44393
Adjusted R Square    .25857
Standard Error      1.57653

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        11.905105        5.9525527
Residuals      6        14.912672        2.4854454

F =       2.39496       Signif F =  .1719

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                1.558377     .921079   2.330970     1.692  .1416
Pt**2             -.120671     .089831  -1.850706    -1.343  .2277
(Constant)       37.818254    2.006005               18.853  .0000
```

```
Dependent variable.. SPAD2507          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .23584
R Square             .05562
Adjusted R Square   -.25917
Standard Error      2.35470

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         1.959326         .9796631
Residuals      6        33.267587        5.5445979

F =        .17669       Signif F =  .8422

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                -.562143    1.375719   -.733643     -.409  .6970
Pt**2              .066270     .134171    .886798      .494  .6389
(Constant)       38.260317    2.996159               12.770  .0000
```

```
Dependent variable.. SPAD2507          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .77059
R Square             .59381
Adjusted R Square    .45841
Standard Error      2.09352

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        38.443052        19.221526
Residuals      6        26.296948         4.382825

F =       4.38565       Signif F =  .0670

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                3.389163    1.223128   3.262735     2.771  .0324
Pt**2             -.294805     .119289  -2.910011    -2.471  .0484
(Constant)       33.134127    2.663832               12.439  .0000
```

Table 56- Regression analysis for 210606 data SPAD

```
Dependent variable.. SPAD2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .64407
R Square             .41483
Adjusted R Square    .21977
Standard Error      1.52647

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        9.911004        4.9555018
Residuals      6       13.980663        2.3301105

F =       2.12672       Signif F =  .2004

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt               1.819037     .891832   2.882663     2.040  .0875
Pt**2            -.167154     .086979  -2.716055    -1.922  .1030
(Constant)      44.503571    1.942308               22.913  .0000
```

```
Dependent variable.. SPAD2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .72601
R Square             .52709
Adjusted R Square    .36946
Standard Error      1.32697

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2       11.775596        5.8877982
Residuals      6       10.565021        1.7608368

F =       3.34375       Signif F =  .1058

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt              -1.909260     .775273  -3.128911    -2.463  .0489
Pt**2             .194787     .075611   3.273095     2.576  .0420
(Constant)      49.470635    1.688455               29.299  .0000
```

```
Dependent variable.. SPAD2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .74945
R Square             .56167
Adjusted R Square    .41557
Standard Error      1.73087

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2       23.033990       11.516995
Residuals      6       17.975516        2.995919

F =       3.84423       Signif F =  .0842

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt              -2.253092    1.011253  -2.725287    -2.228  .0674
Pt**2             .178337     .098626   2.211795     1.808  .1206
(Constant)      51.160714    2.202393               23.230  .0000
```

```
Dependent variable.. SPAD2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .69124
R Square             .47781
Adjusted R Square    .30375
Standard Error      1.04553

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2       6.0014068        3.0007034
Residuals      6       6.5588401        1.0931400

F =       2.74503       Signif F =  .1424

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt               1.415934     .610847   3.094708     2.318  .0596
Pt**2            -.130177     .059575  -2.917294    -2.185  .0716
(Constant)      42.561111    1.330355               31.992  .0000
```

Table 57- Regression analysis for 240706 data SPAD

```
Dependent variable.. SPAD2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .37290
R Square             .13906
Adjusted R Square   -.14792
Standard Error      1.93484

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         3.627906        1.8139530
Residuals      6        22.461538        3.7435897

F =        .48455       Signif F =  .6382

------------------- Variables in the Equation -------------------

Variable                 B        SE B       Beta         T  Sig T

Pt               -1.010653    1.130418  -1.532658     -.894  .4057
Pt**2              .086093     .110248   1.338695      .781  .4645
(Constant)       50.610317    2.461920               20.557  .0000
```

```
Dependent variable.. SPAD2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .31497
R Square             .09921
Adjusted R Square   -.20106
Standard Error      1.61711

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         1.727978         .8639889
Residuals      6        15.690232        2.6150387

F =        .33039       Signif F =  .7309

------------------- Variables in the Equation -------------------

Variable                 B        SE B       Beta         T  Sig T

Pt                 .762825     .944787   1.415789      .807  .4502
Pt**2             -.074477     .092143  -1.417313     -.808  .4498
(Constant)       43.714683    2.057638               21.245  .0000
```

```
Dependent variable.. SPAD2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .62488
R Square             .39047
Adjusted R Square    .18730
Standard Error      1.78598

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        12.260274        6.1301370
Residuals      6        19.138306        3.1897177

F =       1.92184       Signif F =  .2265

------------------- Variables in the Equation -------------------

Variable                 B        SE B       Beta         T  Sig T

Pt               -1.411158    1.043448  -1.950726    -1.352  .2250
Pt**2              .166144     .101766   2.354910     1.633  .1537
(Constant)       47.213095    2.272511               20.776  .0000
```

```
Dependent variable.. SPAD2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .53688
R Square             .28824
Adjusted R Square    .05099
Standard Error      1.87189

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         8.514058        4.2570288
Residuals      6        21.023782        3.5039636

F =       1.21492       Signif F =  .3606

------------------- Variables in the Equation -------------------

Variable                 B        SE B       Beta         T  Sig T

Pt                1.240891    1.093641   1.768560     1.135  .2998
Pt**2             -.092839     .106661  -1.356711     -.870  .4175
(Constant)       43.709524    2.381824               18.351  .0000
```

Table 58- Regression analysis for average data 170605 leaves area

```
Dependent variable.. FlAr170605          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .41463
R Square             .17192
Adjusted R Square   -.10411
Standard Error     12.35660

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        190.19559         95.09780
Residuals      6        916.11288        152.68548

F =        .62283       Signif F =  .5678

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt               7.352382    7.219277   1.712244     1.018  .3478
Pt**2            -.770372     .704082  -1.839535    -1.094  .3159
(Constant)     287.501151   15.722756                18.286  .0000
```

```
Dependent variable.. FlAr170605          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .62388
R Square             .38922
Adjusted R Square    .18563
Standard Error     27.97843

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        2993.0514        1496.5257
Residuals      6        4696.7558         782.7926

F =       1.91178       Signif F =  .2278

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt             -12.873353   16.346253  -1.137129     -.788  .4609
Pt**2              .593988    1.594219    .537980      .373  .7223
(Constant)      329.586587   35.600260                 9.258  .0001
```

```
Dependent variable.. FLAR1706          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .39646
R Square             .15718
Adjusted R Square    .08694
Standard Error    113.82983

 Analysis of Variance:
               DF   Sum of Squares      Mean Square

Regression      2         57994.15        28997.075
Residuals      24        310973.54        12957.231

F =       2.23791       Signif F =  .1285

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

PAETN           23.099423   38.396384    .510203      .602  .5531
Pt**2            -.518831    3.744727   -.117500     -.139  .8910
(Constant)     208.843651   83.622911                2.497  .0198
```

```
Dependent variable.. FlAr170605          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .19810
R Square             .03924
Adjusted R Square   -.28101
Standard Error     19.87513

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2          96.8089         48.40446
Residuals      6        2370.1250        395.02084

F =        .12254       Signif F =  .8868

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt              -4.274427   11.611942   -.666614     -.368  .7254
Pt**2             .489407    1.132491    .782595      .432  .6807
(Constant)     349.126111   25.289475                13.805  .0000
```

Table 59- Regression analysis for average data 210606 leaves area

```
Dependent variable.. FlAr2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .83633
R Square             .69944
Adjusted R Square    .59926
Standard Error     15.74911

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        3463.2889        1731.6445
Residuals      6        1488.2060         248.0343

F =       6.98147       Signif F =  .0272

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 5.076450    9.201333    .558814      .552  .6011
Pt**2               .249987     .897389    .282160      .279  .7899
(Constant)       210.751564   20.039446                10.517  .0000
```

```
Dependent variable.. FlAr2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .66629
R Square             .44394
Adjusted R Square    .25859
Standard Error     15.20883

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1108.0228        554.01140
Residuals      6        1387.8514        231.30856

F =       2.39512       Signif F =  .1719

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 6.646163    8.885681   1.030470      .748  .4828
Pt**2             -1.026042     .866604  -1.631172    -1.184  .2812
(Constant)       297.591418   19.351992                15.378  .0000
```

```
Dependent variable.. FlAr2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .75350
R Square             .56776
Adjusted R Square    .42368
Standard Error     21.38478

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        3604.1417        1802.0708
Residuals      6        2743.8525         457.3087

F =       3.94060       Signif F =  .0808

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 9.510980   12.493946    .924661      .761  .4754
Pt**2             -1.632222    1.218511  -1.627073    -1.340  .2289
(Constant)       300.596161   27.210377                11.047  .0000
```

```
Dependent variable.. FlAr2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .12530
R Square             .01570
Adjusted R Square   -.31240
Standard Error     16.49928

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2          26.0515         13.02577
Residuals      6        1633.3565        272.22608

F =        .04785       Signif F =  .9536

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.787578    9.639616   -.149759     -.082  .9375
Pt**2               .012930     .940133    .025209      .014  .9895
(Constant)       267.314316   20.993975                12.733  .0000
```

Table 60- Regression analysis for average data 240706 leaves area

```
Dependent variable.. FlAr2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .61667
R Square             .38028
Adjusted R Square    .17371
Standard Error     17.79901

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1166.4300        583.21500
Residuals      6        1900.8285        316.80476

F =       1.84093       Signif F =  .2380

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 1.151161   10.398979    .161004      .111  .9155
Pt**2               .319803    1.014193    .458621      .315  .7632
(Constant)       227.113016   22.647781               10.028  .0001
```

```
Dependent variable.. FlAr2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .40897
R Square             .16726
Adjusted R Square   -.11032
Standard Error     19.28107

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         448.0155        224.00777
Residuals      6        2230.5590        371.75984

F =        .60256       Signif F =  .5775

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.273269   11.264868   -.040899     -.024  .9814
Pt**2               .292430    1.098641    .448761      .266  .7990
(Constant)       231.785516   24.533587                9.448  .0001
```

```
Dependent variable.. FlAr2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .23006
R Square             .05293
Adjusted R Square   -.26277
Standard Error     17.44172

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         102.0032         51.00160
Residuals      6        1825.2819        304.21365

F =        .16765       Signif F =  .8495

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 3.070847   10.190235    .541827      .301  .7733
Pt**2              -.400676     .993834   -.724881     -.403  .7008
(Constant)       244.647183   22.193161               11.024  .0000
```

```
Dependent variable.. FlAr2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .34121
R Square             .11642
Adjusted R Square   -.17810
Standard Error     12.02238

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        114.26769         57.13384
Residuals      6        867.22529        144.53755

F =        .39529       Signif F =  .6898

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 6.021485    7.024011   1.488797      .857  .4242
Pt**2              -.608460     .685039  -1.542531     -.888  .4086
(Constant)       211.139167   15.297489               13.802  .0000
```

Table 61- Regression analysis for average data 170605 leaves dry weight

```
Dependent variable.. FlPS170605          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .87466
R Square             .76503
Adjusted R Square    .68671
Standard Error       .05100

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .05080452        .02540226
Residuals      6        .01560412        .00260069

F =       9.76752       Signif F =  .0130

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .131609     .029795   3.955929     4.417  .0045
Pt**2              -.012420     .002906  -3.827832    -4.274  .0052
(Constant)         1.548428     .064889               23.863  .0000
```

```
Dependent variable.. FlPS170605          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .47876
R Square             .22921
Adjusted R Square   -.02772
Standard Error       .15522

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .04299038        .02149519
Residuals      6        .14456844        .02409474

F =        .89211       Signif F =  .4579

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.076761     .090689  -1.372925     -.846  .4298
Pt**2               .005282     .008845    .968616      .597  .5722
(Constant)         1.928226     .197511                9.763  .0001
```

```
Dependent variable.. FlPS170605          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .70779
R Square             .50096
Adjusted R Square    .33461
Standard Error       .20770

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .25982662        .12991331
Residuals      6        .25882983        .04313831

F =       3.01155       Signif F =  .1243

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .118831     .121346   1.278097      .979  .3653
Pt**2              -.005418     .011835   -.597504     -.458  .6632
(Constant)         1.971115     .264278                7.458  .0003
```

```
Dependent variable.. FlPS170605          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .58540
R Square             .34269
Adjusted R Square    .12359
Standard Error       .13435

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .05646678        .02823339
Residuals      6        .10830612        .01805102

F =       1.56409       Signif F =  .2840

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .136893     .078496   2.612247     1.744  .1318
Pt**2              -.012523     .007656  -2.450166    -1.636  .1530
(Constant)         1.584713     .170955                9.270  .0001
```

Table 62- Regression analysis for average data 210606 leaves dry weight

```
Dependent variable.. FlPS2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .76516
R Square             .58546
Adjusted R Square    .44728
Standard Error       .22544

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .43069432        .21534716
Residuals      6        .30495212        .05082535

F =       4.23700       Signif F =  .0712

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .230069     .131715   2.077775     1.747  .1313
Pt**2             -.015273     .012846  -1.414311    -1.189  .2794
(Constant)         1.395470     .286860                4.865  .0028
```

```
Dependent variable.. FlPS2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .31499
R Square             .09922
Adjusted R Square   -.20104
Standard Error       .28494

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .05365895        .02682948
Residuals      6        .48715745        .08119291

F =        .33044       Signif F =  .7309

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                -.040219     .166477   -.423626     -.242  .8171
Pt**2              .006610     .016236    .713913      .407  .6980
(Constant)         2.011775     .362567                5.549  .0014
```

```
Dependent variable.. FlPS2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .14053
R Square             .01975
Adjusted R Square   -.30700
Standard Error       .20710

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00518465        .00259232
Residuals      6        .25734786        .04289131

F =        .06044       Signif F =  .9419

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .029016     .120998    .438655      .240  .8185
Pt**2             -.002104     .011801   -.326060     -.178  .8644
(Constant)         2.014229     .263521                7.644  .0003
```

```
Dependent variable.. FlPS2106          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .64550
R Square             .41667
Adjusted R Square    .22222
Standard Error       .15447

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .10226632        .05113316
Residuals      6        .14317254        .02386209

F =       2.14286       Signif F =  .1985

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .047902     .090250    .748958      .531  .6146
Pt**2             -.008448     .008802  -1.354366     -.960  .3742
(Constant)         2.133191     .196555               10.853  .0000
```

Table 63- Regression analysis for average data 240706 leaves dry weight

```
Dependent variable.. FlPS2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .48088
R Square             .23124
Adjusted R Square   -.02501
Standard Error       .18575

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .06227165        .03113583
Residuals      6        .20701923        .03450321

F =        .90240       Signif F =  .4543

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .019415     .108524    .289798      .179  .8639
Pt**2               .001267     .010584    .193960      .120  .9086
(Constant)         1.767203     .236352                7.477  .0003
```

```
Dependent variable.. FlPS2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .40481
R Square             .16387
Adjusted R Square   -.11484
Standard Error       .15441

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .02803733        .01401867
Residuals      6        .14306000        .02384333

F =        .58795       Signif F =  .5846

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .021270     .090215    .398313      .236  .8215
Pt**2       3.46572872E-05     .008798    .006655      .004  .9970
(Constant)         1.808389     .196478                9.204  .0001
```

```
Dependent variable.. FlPS2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .15563
R Square             .02422
Adjusted R Square   -.30104
Standard Error       .14149

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00298136        .00149068
Residuals      6        .12011140        .02001857

F =        .07446       Signif F =  .9291

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .002206     .082663    .048697      .027  .9796
Pt**2              -.000896     .008062   -.202750     -.111  .9152
(Constant)         1.970540     .180031               10.946  .0000
```

```
Dependent variable.. FlPS2407          Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .29935
R Square             .08961
Adjusted R Square   -.21385
Standard Error       .08307

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00407565        .00203783
Residuals      6        .04140594        .00690099

F =        .29529       Signif F =  .7545

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.032543     .048534  -1.182007     -.671  .5275
Pt**2               .002703     .004733   1.006525      .571  .5887
(Constant)         1.769917     .105703               16.744  .0000
```

Table 64- Regression analysis for average data 170605 leaves nitrogen

```
Dependent variable.. FlN170605          Method.. QUADRATI
Multiple R           .86415
R Square             .74675
Adjusted R Square    .66234
Standard Error      1.09601

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        21.252615        10.626307
Residuals      6         7.207385         1.201231

F =       8.84618       Signif F =  .0162

-------------------- Variables in the Equation --------------------

Variable              B        SE B       Beta         T  Sig T
Pt             1.658463     .640336   2.408042     2.590  .0412
Pt**2          -.112013     .062451  -1.667619    -1.794  .1230
(Constant)    31.354762    1.394579               22.483  .0000
```

```
Dependent variable.. FlN170605          Method.. QUADRATI
Multiple R           .45087
R Square             .20329
Adjusted R Square   -.06229
Standard Error       .87624

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1.1754430        .58772150
Residuals      6        4.6067792        .76779654

F =        .76547       Signif F =  .5057

-------------------- Variables in the Equation --------------------

Variable              B        SE B       Beta         T  Sig T
Pt             -.576645     .511939  -1.857534    -1.126  .3030
Pt**2           .060498     .049928   1.998197     1.212  .2712
(Constant)    36.111905    1.114944               32.389  .0000
```

```
Dependent variable.. FlN170605          Method.. QUADRATI
Multiple R           .76301
R Square             .58219
Adjusted R Square    .44292
Standard Error      1.35112

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        15.262421        7.6312107
Residuals      6        10.953134        1.8255224

F =       4.18029       Signif F =  .0729

-------------------- Variables in the Equation --------------------

Variable              B        SE B       Beta         T  Sig T
Pt            -2.121580     .789384  -3.209634    -2.688  .0362
Pt**2           .183658     .076987   2.848893     2.386  .0544
(Constant)    34.214286    1.719188               19.901  .0000
```

```
Dependent variable.. FlN170605          Method.. QUADRATI
Multiple R           .89685
R Square             .80434
Adjusted R Square    .73912
Standard Error      1.70331

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        71.561201        35.780600
Residuals      6        17.407688         2.901281

F =      12.33269       Signif F =  .0075

-------------------- Variables in the Equation --------------------

Variable              B        SE B       Beta         T  Sig T
Pt             3.931948     .995153   3.228972     3.951  .0075
Pt**2          -.438528     .097055  -3.692532    -4.518  .0040
(Constant)    26.238095    2.167328               12.106  .0000
```

Table 65- Regression analysis for average data 210506 leaves nitrogen

Dependent variable.. FlN210606 Method.. QUADRATI

Multiple R .76332
R Square .58266
Adjusted R Square .44354
Standard Error 1.15173

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	11.111651	5.5558257
Residuals	6	7.958959	1.3264931

F = 4.18836 Signif F = .0727

-------------------- Variables in the Equation --------------------

Variable	B	SE B	Beta	T	Sig T
Pt	1.799567	.672895	3.191989	2.674	.0368
Pt**2	-.155123	.065626	-2.821245	-2.364	.0560
(Constant)	22.632405	1.465488		15.444	.0000

Dependent variable.. FlN210606 Method.. QUADRATI

Multiple R .77833
R Square .60580
Adjusted R Square .47440
Standard Error .95453

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	8.4013029	4.2106515
Residuals	6	5.4667666	.9111278

F = 4.61039 Signif F = .0613

-------------------- Variables in the Equation --------------------

Variable	B	SE B	Beta	T	Sig T
Pt	.130033	.557679	.270471	.233	.8234
Pt**2	.024018	.054389	.512250	.442	.6742
(Constant)	22.726476	1.214561		18.712	.0000

Dependent variable.. FlN210606 Method.. QUADRATI

Multiple R .16289
R Square .02653
Adjusted R Square -.29796
Standard Error 2.05987

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	.693899	.3469493
Residuals	6	25.458497	4.2430829

F = .08177 Signif F = .9225

-------------------- Variables in the Equation --------------------

Variable	B	SE B	Beta	T	Sig T
Pt	-.343227	1.203471	-.519878	-.285	.7851
Pt**2	.025211	.117372	.391544	.215	.8370
(Constant)	23.586119	2.621021		8.999	.0001

Dependent variable.. FlN210606 Method.. QUADRATI

Multiple R .43810
R Square .19194
Adjusted R Square -.07742
Standard Error 1.08091

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	1.6651014	.8325507
Residuals	6	7.0102306	1.1683718

F = .71257 Signif F = .5276

-------------------- Variables in the Equation --------------------

Variable	B	SE B	Beta	T	Sig T
Pt	.749419	.631517	1.970868	1.187	.2802
Pt**2	-.073052	.061591	-1.969857	-1.186	.2804
(Constant)	21.798214	1.375373		15.849	.0000

Table 66- Regression analysis for average data 240706 leaves nitrogen

```
MODependent variable.. FlN240706          Method.. QUADRATI

Multiple R           .40789
R Square             .16637
Adjusted R Square   -.11150
Standard Error      1.66743

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         3.329387        1.6646937
Residuals      6        16.681957        2.7803262

F =        .59874       Signif F =  .5793

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .911593     .974188   1.578478      .936  .3855
Pt**2              -.074798     .095011  -1.327992     -.787  .4611
(Constant)        20.609738    2.121669                9.714  .0001
```

```
Dependent variable.. FlN240706          Method.. QUADRATI

Multiple R           .62461
R Square             .39013
Adjusted R Square    .18685
Standard Error       .76720

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        2.2591913        1.1295956
Residuals      6        3.5316167         .5886028

F =       1.91911       Signif F =  .2268

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .026765     .448235    .086155      .060  .9543
Pt**2               .016370     .043716    .540292      .374  .7209
(Constant)        21.932119     .976205               22.467  .0000
```

```
Dependent variable.. FlN240706          Method.. QUADRATI

Multiple R           .30623
R Square             .09377
Adjusted R Square   -.20830
Standard Error       .84465

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         .4429510        .22147550
Residuals      6        4.2806092        .71343487

F =        .31044       Signif F =  .7442

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.084698     .493483   -.301868     -.172  .8694
Pt**2               .016235     .048128    .593280      .337  .7474
(Constant)        20.946833    1.074749               19.490  .0000
```

```
Dependent variable.. FlN240706          Method.. QUADRATI

Multiple R           .42072
R Square             .17700
Adjusted R Square   -.09733
Standard Error      1.38368

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         2.470591        1.2352954
Residuals      6        11.487355        1.9145592

F =        .64521       Signif F =  .5574

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.251567     .808406   -.521577     -.311  .7662
Pt**2               .004895     .078842    .104061      .062  .9525
(Constant)        22.592381    1.760614               12.832  .0000
```

Table 67- Regression analysis for average data 170005 leaves phosphorous

```
Dependent variable.. FlP170605          Method.. QUADRATI

Multiple R           .85056
R Square             .72345
Adjusted R Square    .63127
Standard Error       .07941

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .09898439        .04949219
Residuals      6        .03783784        .00630631

F =       7.84805       Signif F =  .0211

------------------- Variables in the Equation -------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 .172647     .046396   3.615404     3.721  .0098
Pt**2             -.017781     .004525  -3.817975    -3.930  .0077
(Constant)        1.434286     .101046               14.194  .0000
```

```
Dependent variable.. FlP170605          Method.. QUADRATI

Multiple R           .81298
R Square             .66093
Adjusted R Square    .54791
Standard Error       .09704

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .11012586        .05506293
Residuals      6        .05649636        .00941606

F =       5.84777       Signif F =  .0390

------------------- Variables in the Equation -------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                -.193288     .056693  -3.667869    -3.409  .0143
Pt**2              .018712     .005529   3.640847     3.384  .0148
(Constant)        2.208333     .123471               17.885  .0000
```

```
Dependent variable.. FlP170605          Method.. QUADRATI

Multiple R           .86552
R Square             .74912
Adjusted R Square    .66549
Standard Error       .21128

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .79975654        .39987827
Residuals      6        .26784346        .04464058

F =       8.95773       Signif F =  .0158

------------------- Variables in the Equation -------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 .519160     .123441   3.891999     4.206  .0056
Pt**2             -.050649     .012039  -3.893278    -4.207  .0056
(Constant)        1.068095     .268841                3.973  .0073
```

```
Dependent variable.. FlP170605          Method.. QUADRATI

Multiple R           .94645
R Square             .89576
Adjusted R Square    .86102
Standard Error       .05113

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .13480257        .06740128
Residuals      6        .01568632        .00261439

F =      25.78092       Signif F =  .0011

------------------- Variables in the Equation -------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                -.048459     .029873   -.967602    -1.622  .1559
Pt**2              .009113     .002913   1.865665     3.128  .0204
(Constant)        1.652619     .065060               25.401  .0000
```

Table 68- Regression analysis for average data 210606 leaves phosphorous

```
Dependent variable.. FlP210606          Method.. QUADRATI

Multiple R           .36539
R Square             .13351
Adjusted R Square   -.15532
Standard Error       .14197

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .01863208        .00931604
Residuals      6        .12092681        .02015447

F =        .46223       Signif F =  .6506

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .070150     .082943   1.454532      .846  .4301
Pt**2              -.005855     .008089  -1.244779     -.724  .4964
(Constant)         1.642548     .180641                9.093  .0001
```

```
Dependent variable.. FlP210606          Method.. QUADRATI

Multiple R           .36645
R Square             .13429
Adjusted R Square   -.15428
Standard Error       .10073

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00944390        .00472195
Residuals      6        .06088210        .01014702

F =        .46535       Signif F =  .6488

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .045249     .058852   1.321691      .769  .4711
Pt**2              -.003565     .005740  -1.067676     -.621  .5574
(Constant)         1.535643     .128174               11.981  .0000
```

```
Dependent variable.. FlP210606          Method.. QUADRATI

Multiple R           .78190
R Square             .61137
Adjusted R Square    .48182
Standard Error       .13417

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .16990948        .08495474
Residuals      6        .10800741        .01800123

F =       4.71938       Signif F =  .0587

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .193889     .078387   2.848861     2.473  .0482
Pt**2              -.021521     .007645  -3.242216    -2.815  .0306
(Constant)         1.479929     .170719                8.669  .0001
```

```
Dependent variable.. FlP210606          Method.. QUADRATI

Multiple R           .49161
R Square             .24168
Adjusted R Square   -.01110
Standard Error       .16769

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .05377269        .02688635
Residuals      6        .16872420        .02812070

F =        .95611       Signif F =  .4361

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .135394     .097973   2.223369     1.382  .2162
Pt**2              -.012983     .009555  -2.185991    -1.359  .2231
(Constant)         1.361262     .213375                6.380  .0007
```

Table 69- Regression analysis for average data 240706 leaves phosphorous

```
Dependent variable.. FlP240706          Method.. QUADRATI

Multiple R           .63659
R Square             .40524
Adjusted R Square    .20699
Standard Error       .10291

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .04329209        .02164605
Residuals      6        .06353813        .01058969

F =       2.04407       Signif F =  .2104

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .085279     .060122   2.021025     1.418  .2059
Pt**2              -.006245     .005864  -1.517409    -1.065  .3279
(Constant)         1.221905     .130940                9.332  .0001
```

```
Dependent variable.. FlP240706          Method.. QUADRATI

Multiple R           .67601
R Square             .45700
Adjusted R Square    .27599
Standard Error       .05885

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .01748739        .00874370
Residuals      6        .02077861        .00346310

F =       2.52482       Signif F =  .1601

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .077208     .034382   3.057253     2.246  .0658
Pt**2              -.007282     .003353  -2.956772    -2.172  .0729
(Constant)         1.311571     .074879               17.516  .0000
```

```
Dependent variable.. FlP240706          Method.. QUADRATI

Multiple R           .74168
R Square             .55009
Adjusted R Square    .40013
Standard Error       .17503

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .22475772        .11237886
Residuals      6        .18382250        .03063708

F =       3.66807       Signif F =  .0911

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .233171     .102263   2.825605     2.280  .0628
Pt**2              -.025400     .009974  -3.156082    -2.547  .0437
(Constant)         1.244048     .222717                5.586  .0014
```

```
Dependent variable.. FlP240706          Method.. QUADRATI

Multiple R           .40410
R Square             .16330
Adjusted R Square   -.11560
Standard Error       .12914

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .01952830        .00976415
Residuals      6        .10005970        .01667662

F =        .58550       Signif F =  .5858

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.012828     .075448   -.287335     -.170  .8706
Pt**2               .002958     .007358    .679313      .402  .7016
(Constant)         1.484143     .164317                9.032  .0001
```

Table 70- Regression analysis for average data 170605 leaves potassium

```
Dependent variable.. FlK170605          Method.. QUADRATI

Multiple R           .47277
R Square             .22352
Adjusted R Square   -.03531
Standard Error       .83303

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1.1985426        .59927128
Residuals      6        4.1636797        .69394661

F =        .86357       Signif F =  .4682

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 .166126     .486696    .555699      .341  .7445
Pt**2             -.029113     .047467   -.998513     -.613  .5622
(Constant)        7.835714    1.059968                7.392  .0003
```

```
Dependent variable.. FlK170605          Method.. QUADRATI

Multiple R           .56806
R Square             .32270
Adjusted R Square    .09693
Standard Error      1.06188

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        3.2233911        1.6116955
Residuals      6        6.7654978        1.1275830

F =       1.42934       Signif F =  .3107

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 .470671     .620396   1.153545      .759  .4768
Pt**2             -.024567     .060506   -.617364     -.406  .6988
(Constant)        7.035714    1.351152                5.207  .0020
```

```
Dependent variable.. FlK170605          Method.. QUADRATI

Multiple R           .67348
R Square             .45357
Adjusted R Square    .27143
Standard Error       .84066

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        3.5197143        1.7598571
Residuals      6        4.2402857         .7067143

F =       2.49020       Signif F =  .1632

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -.808571     .491153  -2.248346    -1.646  .1508
Pt**2              .092857     .047901   2.647465     1.939  .1006
(Constant)        8.535714    1.069675                7.980  .0002
```

```
Dependent variable.. FlK170605          Method.. QUADRATI

Multiple R           .70167
R Square             .49234
Adjusted R Square    .32312
Standard Error      1.05663

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        6.4967417        3.2483709
Residuals      6        6.6988139        1.1164690

F =       2.90950       Signif F =  .1308

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -.424654     .617331   -.905517     -.688  .5172
Pt**2              .009632     .060207    .210596      .160  .8781
(Constant)        9.440476    1.344476                7.022  .0004
```

Table 71- Regression analysis for average data 21060606 leaves potassium

```
Dependent variable.. FlK210606          Method.. QUADRATI

Multiple R           .28785
R Square             .08286
Adjusted R Square   -.22285
Standard Error      1.27066

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         .8752118         .4376059
Residuals      6        9.6874329        1.6145722

F =        .27104       Signif F =  .7715

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.454933     .742375  -1.084269     -.613  .5625
Pt**2               .036743     .072402    .897917      .507  .6299
(Constant)         6.166790    1.616808                3.814  .0088
```

```
Dependent variable.. FlK210606          Method.. QUADRATI

Multiple R           .57866
R Square             .33484
Adjusted R Square    .11312
Standard Error      1.21013

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        4.4231494        2.2115747
Residuals      6        8.7864486        1.4644081

F =       1.51022       Signif F =  .2943

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .472588     .707011   1.007194      .668  .5287
Pt**2              -.020508     .068953   -.448152     -.297  .7762
(Constant)         3.397703    1.539788                2.207  .0695
```

```
Dependent variable.. FlK210606          Method.. QUADRATI

Multiple R           .87994
R Square             .77430
Adjusted R Square    .69907
Standard Error       .58233

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        6.9802854        3.4901427
Residuals      6        2.0346582         .3391097

F =      10.29208       Signif F =  .0115

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -1.539450     .340224  -3.971548    -4.525  .0040
Pt**2               .148862     .033181   3.937763     4.486  .0042
(Constant)         8.250029     .740969               11.134  .0000
```

```
Dependent variable.. FlK210606          Method.. QUADRATI

Multiple R           .98230
R Square             .96492
Adjusted R Square    .95322
Standard Error       .25663

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        10.868528        5.4342642
Residuals      6          .395165         .0658609

F =      82.51124       Signif F =  .0000

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -1.357018     .149937  -3.131993    -9.051  .0001
Pt**2               .099619     .014623   2.357469     6.812  .0005
(Constant)         8.041685     .326545               24.627  .0000
```

Table 72- Regression analysis for average data 240706 leaves potassium

```
Dependent variable.. FlK240706          Method.. QUADRATI

Multiple R           .62772
R Square             .39404
Adjusted R Square    .19205
Standard Error      1.58869

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         9.847379        4.9236894
Residuals      6        15.143621        2.5239368

F =       1.95080       Signif F =  .2225

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt               -1.682382     .928184  -2.606804    -1.813  .1199
Pt**2              .144321     .090524   2.292893     1.594  .1620
(Constant)        8.625173    2.021478                4.267  .0053
```

```
Dependent variable.. FlK240706          Method.. QUADRATI

Multiple R           .62341
R Square             .38864
Adjusted R Square    .18486
Standard Error      1.73083

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        11.426578        5.7132891
Residuals      6        17.974598        2.9957663

F =       1.90712       Signif F =  .2285

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                1.437453    1.011227   2.053463     1.421  .2050
Pt**2             -.165912     .098623  -2.430202    -1.682  .1435
(Constant)        3.433402    2.202337                1.559  .1700
```

```
Dependent variable.. FlK240706          Method.. QUADRATI

Multiple R           .70675
R Square             .49949
Adjusted R Square    .33266
Standard Error       .35018

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .73428695        .36714347
Residuals      6        .73577185        .12262864

F =       2.99395       Signif F =  .1254

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                -.333567     .204593  -2.131041    -1.630  .1541
Pt**2              .039774     .019954   2.605389     1.993  .0933
(Constant)        2.508384     .445580                5.629  .0013
```

```
Dependent variable.. FlK240706          Method.. QUADRATI

Multiple R           .87914
R Square             .77289
Adjusted R Square    .69718
Standard Error       .53426

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        5.8282281        2.9141140
Residuals      6        1.7126291         .2854382

F =      10.20926       Signif F =  .0117

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt               -1.036990     .312141  -2.925095    -3.322  .0160
Pt**2              .078032     .030443   2.256875     2.563  .0427
(Constant)        5.241772     .679807                7.711  .0002
```

Table 73- Regression analysis for average data 210606 leaves calcium

```
Dependent variable.. FlCa210606          Method.. QUADRATI

Multiple R           .54967
R Square             .30213
Adjusted R Square    .06951
Standard Error      1.25148

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        4.0684507        2.0342254
Residuals      6        9.3972855        1.5662143

F =       1.29882       Signif F =  .3399

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 .993912     .731174   2.098015     1.359  .2229
Pt**2             -.108183     .071310  -2.341474    -1.517  .1800
(Constant)       21.622786    1.592412               13.579  .0000
```

```
Dependent variable.. FlCa210606          Method.. QUADRATI

Multiple R           .17424
R Square             .03036
Adjusted R Square   -.29285
Standard Error      2.05824

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2          .795856         .3979278
Residuals      6        25.418092        4.2363487

F =        .09393       Signif F =  .9117

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                -.481949    1.202516   -.729140     -.401  .7025
Pt**2              .041565     .117279    .644773      .354  .7352
(Constant)       23.032857    2.618941                8.795  .0001
```

```
Dependent variable.. FlCa210606          Method.. QUADRATI

Multiple R           .93644
R Square             .87691
Adjusted R Square    .83588
Standard Error       .96464

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        39.776804        19.888402
Residuals      6         5.583223          .930537

F =      21.37303       Signif F =  .0019

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 .070072     .563588    .080591      .124  .9051
Pt**2              .072729     .054966    .857668     1.323  .2340
(Constant)       15.491429    1.227430               12.621  .0000
```

```
Dependent variable.. FlCa210606          Method.. QUADRATI

Multiple R           .64450
R Square             .41538
Adjusted R Square    .22050
Standard Error      1.83267

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        14.318238        7.1591191
Residuals      6        20.152176        3.3586960

F =       2.13152       Signif F =  .1998

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                1.101202    1.070731   1.452845     1.028  .3434
Pt**2             -.146055     .104426  -1.975785    -1.399  .2114
(Constant)       15.369071    2.331928                6.591  .0006
```

Table 74- Regression analysis for average data 240706 leaves calcium

```
Dependent variable.. FlCa240706          Method.. QUADRATI

Multiple R           .79095
R Square             .62560
Adjusted R Square    .50080
Standard Error      2.39764

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        57.634092        28.817046
Residuals      6        34.492172         5.748695

F =       5.01280       Signif F =  .0525

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt               -4.378538    1.400811  -3.533564    -3.126  .0204
Pt**2              .431734     .136618   3.572483     3.160  .0196
(Constant)       26.824786    3.050805                8.793  .0001
```

```
Dependent variable.. FlCa240706          Method.. QUADRATI

Multiple R           .70065
R Square             .49091
Adjusted R Square    .32122
Standard Error      2.83084

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        46.365602        23.182801
Residuals      6        48.081910         8.013652

F =       2.89291       Signif F =  .1319

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                2.831030    1.653903   2.256445     1.712  .1378
Pt**2             -.329513     .161302  -2.692918    -2.043  .0871
(Constant)       13.296429    3.602011                3.691  .0102
```

```
Dependent variable.. FlCa240706          Method.. QUADRATI

Multiple R           .55683
R Square             .31006
Adjusted R Square    .08007
Standard Error      1.90642

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         9.799666        4.8998332
Residuals      6        21.806530        3.6344216

F =       1.34817       Signif F =  .3284

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T

Pt                1.717144    1.113814   2.365898     1.542  .1741
Pt**2             -.176899     .108628  -2.499113    -1.628  .1545
(Constant)       12.021429    2.425758                4.956  .0026
```

```
Dependent variable.. FlCa240706          Method.. QUADRATI

Multiple R           .66754
R Square             .44561
Adjusted R Square    .26082
Standard Error      1.92836

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        17.933658        8.9668289
Residuals      6        22.311326        3.7185544

F =       2.41137       Signif F =  .1704

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T

Pt                1.086256    1.126632   1.326331      .964  .3722
Pt**2             -.055416     .109878   -.693780     -.504  .6320
(Constant)        9.130214    2.453674                3.721  .0098
```

Table 75- Regression analysis for average data 210606 leaves magnesium

```
Dependent variable.. FlMg210606          Method.. QUADRATI

Multiple R           .78289
R Square             .61292
Adjusted R Square    .48389
Standard Error       .81989

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        6.3863615        3.1931808
Residuals      6        4.0332885         .6722147

F =       4.75024       Signif F =  .0580

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 .997363     .479015   2.393327     2.082  .0825
Pt**2             -.118328     .046717  -2.911431    -2.533  .0445
(Constant)        4.263571    1.043239                4.087  .0065
```

```
Dependent variable.. FlMg210606          Method.. QUADRATI

Multiple R           .56746
R Square             .32201
Adjusted R Square    .09601
Standard Error       .45673

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         .5944333        .29721664
Residuals      6        1.2515909        .20859849

F =       1.42483       Signif F =  .3117

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 .216711     .266840   1.235489      .812  .4477
Pt**2             -.012103     .026024   -.707479     -.465  .6583
(Constant)        1.735143     .581146                2.986  .0245
```

```
Dependent variable.. FlMg210606          Method.. QUADRATI

Multiple R           .62313
R Square             .38830
Adjusted R Square    .18439
Standard Error       .55843

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1.1877112        .59385559
Residuals      6        1.8710648        .31184414

F =       1.90433       Signif F =  .2289

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 .474068     .326260   2.099629     1.453  .1964
Pt**2             -.035932     .031820  -1.631741    -1.129  .3019
(Constant)        1.623500     .710556                2.285  .0624
```

```
Dependent variable.. FlMg210606          Method.. QUADRATI

Multiple R           .69575
R Square             .48406
Adjusted R Square    .31208
Standard Error      1.15092

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        7.4567096        3.7283548
Residuals      6        7.9477404        1.3246234

F =       2.81465       Signif F =  .1373

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 .980609     .672421   1.935301     1.458  .1950
Pt**2             -.066153     .065580  -1.338658    -1.009  .3520
(Constant)        1.306786    1.464455                 .892  .4066
```

Table 76- Regression analysis for average data 240706 leaves magnesium

```
Dependent variable.. FlMg240706          Method.. QUADRATI

Multiple R           .75337
R Square             .56756
Adjusted R Square    .42342
Standard Error      1.59671

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        20.076792        10.038396
Residuals      6        15.296808         2.549468

F =       3.93745       Signif F =  .0809

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                -1.355253     .932867  -1.765048    -1.453  .1965
Pt**2               .177175     .090981   2.365971     1.947  .0994
(Constant)         6.945714    2.031677                3.419  .0142
```

```
Dependent variable.. FlMg240706          Method.. QUADRATI

Multiple R           .33125
R Square             .10973
Adjusted R Square   -.18703
Standard Error       .74858

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         .4144102        .20720512
Residuals      6        3.3622418        .56037363

F =        .36976       Signif F =  .7056

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .269605     .437355   1.074606      .616  .5602
Pt**2              -.031295     .042654  -1.279009     -.734  .4908
(Constant)         3.162000     .952508                3.320  .0160
```

```
Dependent variable.. FlMg240706          Method.. QUADRATI

Multiple R           .76614
R Square             .58696
Adjusted R Square    .44929
Standard Error      1.13541

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        10.992209        5.4961044
Residuals      6         7.734991        1.2891652

F =       4.26330       Signif F =  .0705

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 1.904662     .663360   3.409237     2.871  .0284
Pt**2              -.188766     .064696  -3.464445    -2.918  .0267
(Constant)          .874286    1.444721                 .605  .5672
```

```
Dependent variable.. FlMg240706          Method.. QUADRATI

Multiple R           .93116
R Square             .86705
Adjusted R Square    .82274
Standard Error       .79702

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        24.857378        12.428689
Residuals      6         3.811422          .635237

F =      19.56544       Signif F =  .0023

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .245617     .465653    .355328      .527  .6168
Pt**2               .039188     .045414    .581296      .863  .4213
(Constant)         2.914286    1.014140                2.874  .0283
```

Table 77- Regression analysis for average data 210606 leaves boron

Dependent variable.. FlB210606 Method.. QUADRATI

Multiple R	.24961
R Square	.06230
Adjusted R Square	-.25026
Standard Error	3.61637

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	5.213676	2.606838
Residuals	6	78.468855	13.078143

F = .19933 Signif F = .8245

------------------- Variables in the Equation -------------------

Variable	B	SE B	Beta	T	Sig T
Pt	-1.325425	2.112846	-1.122311	-.627	.5536
Pt**2	.122810	.206062	1.066257	.596	.5730
(Constant)	17.874535	4.601536		3.884	.0081

Dependent variable.. FlB210606 Method.. QUADRATI

Multiple R	.67860
R Square	.46049
Adjusted R Square	.28066
Standard Error	2.88462

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	42.614208	21.307104
Residuals	6	49.926137	8.321023

F = 2.56064 Signif F = .1570

------------------- Variables in the Equation -------------------

Variable	B	SE B	Beta	T	Sig T
Pt	.786606	1.685323	.633384	.467	.6572
Pt**2	.005605	.164366	.046279	.034	.9739
(Constant)	21.186614	3.670440		5.772	.0012

Dependent variable.. FlB210606 Method.. QUADRATI

Multiple R	.65051
R Square	.42317
Adjusted R Square	.23089
Standard Error	3.15467

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	43.805105	21.902552
Residuals	6	59.711616	9.951936

F = 2.20083 Signif F = .1919

------------------- Variables in the Equation -------------------

Variable	B	SE B	Beta	T	Sig T
Pt	-1.624170	1.843099	-1.236522	-.881	.4121
Pt**2	.230112	.179754	1.796307	1.280	.2478
(Constant)	28.752940	4.014058		7.163	.0004

Dependent variable.. FlB210606 Method.. QUADRATI

Multiple R	.93398
R Square	.87231
Adjusted R Square	.82975
Standard Error	5.89559

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	1424.7195	712.35976
Residuals	6	208.5477	34.75795

F = 20.49487 Signif F = .0021

------------------- Variables in the Equation -------------------

Variable	B	SE B	Beta	T	Sig T
Pt	10.287213	3.444466	1.971718	2.987	.0244
Pt**2	-.558123	.335932	-1.096849	-1.661	.1477
(Constant)	43.150381	7.501652		5.752	.0012

Table 78- Regression analysis for average data 240706 leaves boron

```
Dependent variable.. FlB240706          Method.. QUADRATI

Multiple R           .39581
R Square             .15667
Adjusted R Square   -.12444
Standard Error      5.55515

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         34.39761        17.198805
Residuals      6        185.15847        30.859746

F =        .55732       Signif F =  .5998

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .907881    3.245570    .474604      .280  .7891
Pt**2              -.157561     .316534  -.844541     -.498  .6364
(Constant)        25.199763    7.068479                3.565  .0119
```

```
Dependent variable.. FlB240706          Method.. QUADRATI

Multiple R           .68344
R Square             .46709
Adjusted R Square    .28945
Standard Error      3.72870

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        73.116052        36.558026
Residuals      6        83.419106        13.903184

F =       2.62947       Signif F =  .1513

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 4.839408    2.178472   2.996138     2.221  .0681
Pt**2              -.433588     .212462  -2.752434    -2.041  .0874
(Constant)        14.988417    4.744462                3.159  .0196
```

```
Dependent variable.. FlB240706          Method.. QUADRATI

Multiple R           .34232
R Square             .11719
Adjusted R Square   -.17709
Standard Error      5.68950

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         25.78123        12.890616
Residuals      6        194.22219        32.370364

F =        .39822       Signif F =  .6880

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 1.141023    3.324058    .595875      .343  .7431
Pt**2              -.049519     .324189   -.265157     -.153  .8836
(Constant)        26.815648    7.239417                3.704  .0100
```

```
Dependent variable.. FlB240706          Method.. QUADRATI

Multiple R           .72406
R Square             .52426
Adjusted R Square    .36568
Standard Error      7.40808

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        362.86272        181.43136
Residuals      6        329.27767         54.87961

F =       3.30599       Signif F =  .1077

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -1.679944    4.328131   -.494622     -.388  .7113
Pt**2               .396886     .422114   1.198158      .940  .3834
(Constant)        53.586711    9.426171                5.685  .0013
```

Table 79- Regression analysis for average data 210606 leaves iron

```
Dependent variable.. FlFe210606         Method.. QUADRATI

Multiple R           .41393
R Square             .17134
Adjusted R Square   -.10488
Standard Error     17.02851

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         359.7348        179.86739
Residuals      6        1739.8208        289.97013

F =        .62030       Signif F =  .5690

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -4.861688    9.948818   -.821862     -.489  .6424
Pt**2               .247835     .970289    .429582      .255  .8069
(Constant)       158.238095   21.667382                7.303  .0003
```

```
Dependent variable.. FlFe210606         Method.. QUADRATI

Multiple R           .85334
R Square             .72819
Adjusted R Square    .63759
Standard Error     20.25919

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        6597.3913        3298.6957
Residuals      6        2462.6087         410.4348

F =       8.03708       Signif F =  .0201

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt               -16.844372   11.836326  -1.370776    -1.423  .2046
Pt**2               .646104    1.154374    .539118      .560  .5959
(Constant)       256.095238   25.778158                9.935  .0001
```

```
Dependent variable.. FlFe210606         Method.. QUADRATI

Multiple R           .49993
R Square             .24993
Adjusted R Square   -.00009
Standard Error     22.06401

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         973.2984        486.64921
Residuals      6        2920.9238        486.82063

F =        .99965       Signif F =  .4220

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 5.326190   12.890784    .661123      .413  .6938
Pt**2              -.130952    1.257214   -.166667     -.104  .9204
(Constant)        77.071429   28.074647                2.745  .0335
```

```
Dependent variable.. FlFe210606         Method.. QUADRATI

Multiple R           .81519
R Square             .66453
Adjusted R Square    .55270
Standard Error      9.02263

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        967.55238        483.77619
Residuals      6        488.44762         81.40794

F =       5.94262       Signif F =  .0378

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -7.504762    5.271427  -1.523463    -1.424  .2044
Pt**2               .357143     .514112    .743374      .695  .5132
(Constant)       134.214286   11.480563               11.691  .0000
```

Table 80- Regression analysis for average data 240706 leaves iron

```
Dependent variable.. FlFe240706          Method.. QUADRATI

Multiple R           .94118
R Square             .88583
Adjusted R Square    .84777
Standard Error     19.63872

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        17954.147        8977.0734
Residuals      6         2314.075         385.6792

F =      23.27601       Signif F =  .0015

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt               -61.091342   11.473819  -3.323896    -5.324  .0018
Pt**2              6.865801    1.119020   3.830268     6.136  .0009
(Constant)       278.595238   24.988658               11.149  .0000
```

```
Dependent variable.. FlFe240706          Method.. QUADRATI

Multiple R           .69690
R Square             .48566
Adjusted R Square    .31422
Standard Error     29.37491

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        4888.6883        2444.3442
Residuals      6        5177.3117         862.8853

F =       2.83276       Signif F =  .1361

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt               -12.051948   17.162138   -.930474     -.702  .5088
Pt**2               .305195    1.673791    .241599      .182  .8613
(Constant)       322.595238   37.377164                8.631  .0001
```

```
Dependent variable.. FlFe240706          Method.. QUADRATI

Multiple R           .62935
R Square             .39608
Adjusted R Square    .19478
Standard Error     28.74452

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        3251.4058        1625.7029
Residuals      6        4957.4831         826.2472

F =       1.96757       Signif F =  .2203

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                28.188528   16.793834   2.409938     1.679  .1443
Pt**2             -3.063853    1.637871  -2.685787    -1.871  .1106
(Constant)       158.190476   36.575040                4.325  .0050
```

```
Dependent variable.. FlFe240706          Method.. QUADRATI

Multiple R           .42174
R Square             .17786
Adjusted R Square   -.09618
Standard Error     27.41952

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         975.9088        487.95440
Residuals      6        4510.9801        751.83001

F =        .64902       Signif F =  .5557

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                17.537229   16.019711   1.833891     1.095  .3156
Pt**2             -1.777056    1.562372  -1.905390    -1.137  .2987
(Constant)       195.476190   34.889090                5.603  .0014
```

Table 81- Regression analysis for average data 210606 leaves copper

```
Dependent variable.. FlCu210606          Method.. QUADRATI

Multiple R           .62055
R Square             .38508
Adjusted R Square    .18010
Standard Error       .93311

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        3.2714430        1.6357215
Residuals      6        5.2241126         .8706854

F =       1.87866       Signif F =  .2325

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 .677597     .545162   1.800742     1.243  .2603
Pt**2             -.081926     .053169  -2.232409    -1.541  .1743
(Constant)        6.428571    1.187300                5.414  .0016
```

```
Dependent variable.. FlCu210606          Method.. QUADRATI

Multiple R           .50759
R Square             .25765
Adjusted R Square    .01019
Standard Error      1.03565

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        2.2335036        1.1167518
Residuals      6        6.4353853        1.0725642

F =       1.04120       Signif F =  .4091

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 .468463     .605071   1.232450      .774  .4682
Pt**2             -.028680     .059011   -.773638     -.486  .6442
(Constant)        9.054762    1.317776                6.871  .0005
```

```
Dependent variable.. FlCu210606          Method.. QUADRATI

Multiple R           .67504
R Square             .45568
Adjusted R Square    .27424
Standard Error      1.17428

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        6.9263810        3.4631905
Residuals      6        8.2736190        1.3789365

F =       2.51149       Signif F =  .1613

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                1.325238     .686068   2.632981     1.932  .1016
Pt**2             -.142857     .066911  -2.910221    -2.135  .0767
(Constant)        9.264286    1.494177                6.200  .0008
```

```
Dependent variable.. FlCu210606          Method.. QUADRATI

Multiple R           .42718
R Square             .18248
Adjusted R Square   -.09003
Standard Error      1.26452

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        2.1415036        1.0707518
Residuals      6        9.5940519        1.5990087

F =        .66963       Signif F =  .5464

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 .843918     .738789   1.908200     1.142  .2969
Pt**2             -.083225     .072053  -1.929516    -1.155  .2920
(Constant)       11.238095    1.608997                6.985  .0004
```

Table 82- Regression analysis for average data 240706 leaves copper

```
Dependent variable.. FlCu240706          Method.. QUADRATI

Multiple R           .76889
R Square             .59119
Adjusted R Square    .45492
Standard Error       .97652

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        8.2740577        4.1370289
Residuals      6        5.7214978         .9535830

F =       4.33840       Signif F =  .0683

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                  -.150996     .570524   -.312640     -.265  .8001
Pt**2                .050433     .055642   1.070692      .906  .3997
(Constant)          4.135714    1.242536                3.328  .0158
```

```
Dependent variable.. FlCu240706          Method.. QUADRATI

Multiple R           .66244
R Square             .43882
Adjusted R Square    .25177
Standard Error      1.69751

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        13.519685        6.7598427
Residuals      6        17.289203        2.8815339

F =       2.34592       Signif F =  .1767

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                   .457446     .991760    .638377      .461  .6609
Pt**2               -.088745     .096725  -1.269842     -.917  .3943
(Constant)          6.211905    2.159940                2.876  .0282
```

```
Dependent variable.. FlCu240706          Method.. QUADRATI

Multiple R           .38411
R Square             .14754
Adjusted R Square   -.13662
Standard Error      1.51347

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         2.378646        1.1893232
Residuals      6        13.743576        2.2905960

F =        .51922       Signif F =  .6195

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                   .811061     .884238   1.564647      .917  .3944
Pt**2               -.085606     .086238  -1.693316     -.993  .3592
(Constant)          3.200000    1.925768                1.662  .1476
```

```
Dependent variable.. FlCu240706          Method.. QUADRATI

Multiple R           .63822
R Square             .40732
Adjusted R Square    .20976
Standard Error      1.16114

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        5.5594690        2.7797345
Residuals      6        8.0894199        1.3482367

F =       2.06176       Signif F =  .2082

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                   .004199     .678388    .008804      .006  .9953
Pt**2               -.030087     .066162   -.646800     -.455  .6653
(Constant)          5.442857    1.477450                3.684  .0103
```

Table 83- Regression analysis for average data 210606 leaves zinco

```
Dependent variable.. FlZn210606         Method.. QUADRATI

Multiple R           .37812
R Square             .14298
Adjusted R Square   -.14270
Standard Error      1.77269

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         3.145455        1.5727273
Residuals      6        18.854545        3.1424242

F =        .50048       Signif F =  .6295

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .809091    1.035684   1.336170      .781  .4644
Pt**2              -.090909     .101008  -1.539366     -.900  .4028
(Constant)        17.166667    2.255601                7.611  .0003
```

```
Dependent variable.. FlZn210606         Method.. QUADRATI

Multiple R           .81237
R Square             .65995
Adjusted R Square    .54659
Standard Error      1.01625

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        12.025685        6.0128427
Residuals      6         6.196537        1.0327561

F =       5.82213       Signif F =  .0393

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -1.287446     .593737  -2.336167    -2.168  .0732
Pt**2               .088745     .057906   1.651152     1.533  .1763
(Constant)        21.071429    1.293090               16.295  .0000
```

```
Dependent variable.. FlZn210606         Method.. QUADRATI

Multiple R           .79872
R Square             .63795
Adjusted R Square    .51727
Standard Error      1.58351

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        26.510534        13.255267
Residuals      6        15.045022         2.507504

F =       5.28624       Signif F =  .0475

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -2.916234     .925157  -3.504156    -3.152  .0198
Pt**2               .293290     .090229   3.613505     3.251  .0175
(Constant)        21.071429    2.014887               10.458  .0000
```

```
Dependent variable.. FlZn210606         Method.. QUADRATI

Multiple R           .53899
R Square             .29051
Adjusted R Square    .05402
Standard Error      1.13472

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        3.1633478        1.5816739
Residuals      6        7.7255411        1.2875902

F =       1.22840       Signif F =  .3571

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.552165     .662954  -1.296141     -.833  .4368
Pt**2               .033550     .064657    .807502      .519  .6224
(Constant)        16.809524    1.443839               11.642  .0000
```

Table 84- Regression analysis for average data 240706 leaves zinc

```
Dependent variable.. FlZn240706          Method.. QUADRATI

Multiple R           .38259
R Square             .14638
Adjusted R Square   -.13816
Standard Error      2.06594

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         4.391342        2.1956710
Residuals      6        25.608658        4.2681097

F =        .51444       Signif F =  .6220

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.905628    1.207015  -1.280751     -.750  .4814
Pt**2               .103896     .117718   1.506553      .883  .4114
(Constant)        13.238095    2.628740                5.036  .0024
```

```
Dependent variable.. FlZn240706          Method.. QUADRATI

Multiple R           .44557
R Square             .19853
Adjusted R Square   -.06862
Standard Error      1.91854

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         5.470707        2.7353535
Residuals      6        22.084848        3.6808081

F =        .74314       Signif F =  .5148

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .451515    1.120899    .666259      .403  .7010
Pt**2              -.015152     .109319   -.229244     -.139  .8943
(Constant)        15.000000    2.441189                6.145  .0009
```

```
Dependent variable.. FlZn240706          Method.. QUADRATI

Multiple R           .37451
R Square             .14026
Adjusted R Square   -.14633
Standard Error      2.98595

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         8.726984        4.3634921
Residuals      6        53.495238        8.9158730

F =        .48941       Signif F =  .6355

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 1.397619    1.744523   1.372435      .801  .4536
Pt**2              -.154762     .170140  -1.558250     -.910  .3981
(Constant)        16.357143    3.799371                4.305  .0051
```

```
Dependent variable.. FlZn240706          Method.. QUADRATI

Multiple R           .62301
R Square             .38815
Adjusted R Square    .18419
Standard Error      3.01073

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        34.501876        17.250938
Residuals      6        54.387013         9.064502

F =       1.90313       Signif F =  .2291

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 3.357792    1.759004   2.758708     1.909  .1049
Pt**2              -.304113     .171552  -2.561866    -1.773  .1266
(Constant)        15.952381    3.830909                4.164  .0059
```

Table 85- Regression analysis for average data 210606 leaves manganese

```
Dependent variable.. FlMn210606          Method.. QUADRATI

Multiple R           .42612
R Square             .18158
Adjusted R Square   -.09123
Standard Error      9.50420

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        120.24387        60.121934
Residuals      6        541.97835        90.329726

F =        .66558       Signif F =  .5482

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt               -3.432900    5.552777  -1.033320     -.618  .5591
Pt**2              .209957     .541552    .647998      .388  .7116
(Constant)      106.071429   12.093309                8.771  .0001
```

```
Dependent variable.. FlMn210606          Method.. QUADRATI

Multiple R           .82234
R Square             .67625
Adjusted R Square    .56833
Standard Error     14.22392

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        2535.6361        1267.8180
Residuals      6        1213.9195         202.3199

F =       6.26640       Signif F =  .0339

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt              -21.658442    8.310252  -2.739763    -2.606  .0403
Pt**2             2.489177     .810483   3.228582     3.071  .0219
(Constant)      160.690476   18.098773                8.879  .0001
```

```
Dependent variable.. FlMn210606          Method.. QUADRATI

Multiple R           .92791
R Square             .86102
Adjusted R Square    .81469
Standard Error     17.54477

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        11441.975        5720.9877
Residuals      6         1846.913         307.8189

F =      18.58556       Signif F =  .0027

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt               -2.532468   10.250440   -.170167     -.247  .8131
Pt**2             1.586580     .999706   1.093109     1.587  .1636
(Constant)      103.309524   22.324280                4.628  .0036
```

```
Dependent variable.. FlMn210606          Method.. QUADRATI

Multiple R           .29326
R Square             .08600
Adjusted R Square   -.21866
Standard Error     31.21413

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         550.0675        275.03377
Residuals      6        5845.9325        974.32208

F =        .28228       Signif F =  .7635

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt              -12.846753   18.236695  -1.244270     -.704  .5076
Pt**2             1.324675    1.778590   1.315531      .745  .4845
(Constant)      237.285714   39.717425                5.974  .0010
```

Table 86- Regression analysis for average data 240706 leaves manganese

```
Dependent variable.. FlMn240706          Method.. QUADRATI

Multiple R           .85509
R Square             .73118
Adjusted R Square    .64157
Standard Error     10.04921

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1648.0805        824.04026
Residuals      6         605.9195        100.98658

F =       8.15990       Signif F =  .0194

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt               -23.458442    5.871198  -3.827347    -3.996  .0072
Pt**2              2.155844     .572607   3.606503     3.765  .0093
(Constant)       147.690476   12.786793               11.550  .0000
```

```
Dependent variable.. FlMn240706          Method.. QUADRATI

Multiple R           .41983
R Square             .17625
Adjusted R Square   -.09833
Standard Error     32.43336

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1350.4615         675.2307
Residuals      6        6311.5385        1051.9231

F =        .64190       Signif F =  .5590

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                13.422511   18.949024   1.187786      .708  .5053
Pt**2             -.915584    1.848062   -.830755     -.495  .6379
(Constant)       100.880952   41.268797                2.444  .0502
```

```
Dependent variable.. FlMn240706          Method.. QUADRATI

Multiple R           .47086
R Square             .22171
Adjusted R Square   -.03772
Standard Error     36.14896

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        2233.5169        1116.7584
Residuals      6        7840.4831        1306.7472

F =        .85461       Signif F =  .4714

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                21.423377   21.119841   1.653342     1.014  .3495
Pt**2             -1.662338    2.059778  -1.315419     -.807  .4504
(Constant)        90.523810   45.996586                1.968  .0966
```

```
Dependent variable.. FlMn240706          Method.. QUADRATI

Multiple R           .68692
R Square             .47186
Adjusted R Square    .29582
Standard Error     28.28794

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        4289.6439        2144.8219
Residuals      6        4801.2450         800.2075

F =       2.68033       Signif F =  .1473

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt               -12.367100   16.527081  -1.004709     -.748  .4826
Pt**2              1.956710    1.611855   1.629931     1.214  .2704
(Constant)       213.761905   35.994084                5.939  .0010
```

Table 87- Regression analysis for average data 240706 leaves PRI

```
Dependent variable.. PRI              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .90074
R Square             .81134
Adjusted R Square    .74845
Standard Error       .01824

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00858104        .00429052
Residuals      6        .00199540        .00033257

F =      12.90125       Signif F =  .0067

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.040644     .010655  -3.061272    -3.815  .0088
Pt**2               .003096     .001039   2.390823     2.979  .0247
(Constant)          .427102     .023204               18.406  .0000
```

```
Dependent variable.. PRI              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .38330
R Square             .14692
Adjusted R Square   -.13745
Standard Error       .00370

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00001411        .00000705
Residuals      6        .00008192        .00001365

F =        .51665       Signif F =  .6208

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.002012     .002159  -1.590249     -.932  .3873
Pt**2               .000210     .000211   1.704032      .999  .3565
(Constant)          .305629     .004702               65.003  .0000
```

```
Dependent variable.. PRI              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .66829
R Square             .44661
Adjusted R Square    .26215
Standard Error       .03120

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00471434        .00235717
Residuals      6        .00584147        .00097358

F =       2.42114       Signif F =  .1695

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.032710     .018230  -2.466090    -1.794  .1229
Pt**2               .002611     .001778   2.018264     1.468  .1924
(Constant)          .414643     .039702               10.444  .0000
```

```
Dependent variable.. PRI              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .64366
R Square             .41429
Adjusted R Square    .21906
Standard Error       .03762

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00600605        .00300303
Residuals      6        .00849109        .00141518

F =       2.12201       Signif F =  .2009

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .006590     .021979    .423976      .300  .7744
Pt**2               .000339     .002144    .223305      .158  .8797
(Constant)          .289381     .047867                6.046  .0009
```

Table 88- Regression analysis for average data 240706 leaves NDVI1

```
Dependent variable.. NDVI1              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .87530
R Square             .76615
Adjusted R Square    .68820
Standard Error       .01836

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00662861        .00331431
Residuals      6        .00202326        .00033721

F =       9.82859       Signif F =  .0128

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.037540     .010729  -3.126167    -3.499  .0128
Pt**2               .002941     .001046   2.511336     2.811  .0307
(Constant)          .764312     .023366               32.711  .0000
```

```
Dependent variable.. NDVI1              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .42929
R Square             .18429
Adjusted R Square   -.08762
Standard Error       .01269

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00021813        .00010907
Residuals      6        .00096553        .00016092

F =        .67777       Signif F =  .5428

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .005224     .007411   1.176134      .705  .5073
Pt**2              -.000645     .000723  -1.488742     -.892  .4066
(Constant)          .655687     .016141               40.622  .0000
```

```
Dependent variable.. NDVI1              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .35474
R Square             .12584
Adjusted R Square   -.16555
Standard Error       .03862

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00128846        .00064423
Residuals      6        .00895055        .00149176

F =        .43186       Signif F =  .6680

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.013019     .022565   -.996590     -.577  .5850
Pt**2               .000884     .002201    .693848      .402  .7018
(Constant)          .724723     .049145               14.747  .0000
```

```
Dependent variable.. NDVI1              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .70150
R Square             .49210
Adjusted R Square    .32280
Standard Error       .03119

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00565506        .00282753
Residuals      6        .00583669        .00097278

F =       2.90664       Signif F =  .1310

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.002234     .018222   -.161440     -.123  .9064
Pt**2               .001158     .001777    .858038      .652  .5388
(Constant)          .649654     .039686               16.370  .0000
```

Table 89- Regression analysis for average data 240706 leaves WI

```
Dependent variable.. WI               Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .22309
R Square             .04977
Adjusted R Square   -.26697
Standard Error       .07066

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00156902        .00078451
Residuals      6        .02995596        .00499266

F =        .15713       Signif F =  .8580

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .007120     .041282    .310627      .172  .8687
Pt**2              -.000203     .004026   -.090677     -.050  .9615
(Constant)          .470226     .089907                5.230  .0020
```

```
Dependent variable.. WI               Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .30699
R Square             .09424
Adjusted R Square   -.20768
Standard Error       .10587

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00699691        .00349846
Residuals      6        .06724665        .01120778

F =        .31215       Signif F =  .7431

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .030978     .061852    .880638      .501  .6343
Pt**2              -.003761     .006032 -1.096306     -.623  .5559
(Constant)          .519219     .134707                3.854  .0084
```

```
Dependent variable.. WI               Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .52511
R Square             .27574
Adjusted R Square    .03432
Standard Error       .09989

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .02279351        .01139676
Residuals      6        .05986942        .00997824

F =       1.14216       Signif F =  .3799

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .084928     .058361   2.288074     1.455  .1959
Pt**2              -.008592     .005692  -2.373353    -1.509  .1819
(Constant)          .386425     .127103                3.040  .0228
```

```
Dependent variable.. WI               Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .61262
R Square             .37531
Adjusted R Square    .16707
Standard Error       .02456

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00217398        .00108699
Residuals      6        .00361857        .00060310

F =       1.80235       Signif F =  .2438

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.022072     .014348  -2.246357    -1.538  .1749
Pt**2               .002443     .001399   2.549884     1.746  .1314
(Constant)          .501743     .031248               16.057  .0000
```

Table 90- Regression analysis for average data 240706 leaves WI / NDVI1

```
Dependent variable.. WINDVI01          Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .50939
R Square             .25948
Adjusted R Square    .01264
Standard Error       .09353

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .01838988        .00919494
Residuals      6        .05248300        .00874717

F =       1.05119       Signif F =  .4061

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .048314     .054642   1.405739      .884  .4106
Pt**2             -.003242     .005329   -.967271     -.608  .5652
(Constant)         .607850     .119005                5.108  .0022
```

```
Dependent variable.. WINDVI01          Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .28466
R Square             .08103
Adjusted R Square   -.22529
Standard Error       .14613

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .01129844        .00564922
Residuals      6        .12813110        .02135518

F =        .26454       Signif F =  .7761

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .039843     .085378    .826504      .467  .6572
Pt**2             -.004816     .008327  -1.024430     -.578  .5840
(Constant)         .790306     .185944                4.250  .0054
```

```
Dependent variable.. WINDVI01          Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .53009
R Square             .28100
Adjusted R Square    .04133
Standard Error       .15860

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .05898671        .02949335
Residuals      6        .15093255        .02515542

F =       1.17245       Signif F =  .3717

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .140397     .092664   2.373601     1.515  .1805
Pt**2             -.013798     .009037  -2.391788    -1.527  .1777
(Constant)         .522331     .201811                2.588  .0413
```

```
Dependent variable.. WINDVI01          Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .66028
R Square             .43597
Adjusted R Square    .24796
Standard Error       .03040

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00428508        .00214254
Residuals      6        .00554368        .00092395

F =       2.31890       Signif F =  .1794

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                -.032574     .017759  -2.545020    -1.834  .1163
Pt**2              .002666     .001732   2.136110     1.539  .1746
(Constant)         .773609     .038677               20.002  .0000
```

Table 91- Regression analysis for average data 240706 leaves NDVI2

```
Dependent variable.. NDVI2            Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .68782
R Square             .47309
Adjusted R Square    .29746
Standard Error       .00291

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00004569        .00002284
Residuals      6        .00005088        .00000848

F =       2.69359       Signif F =  .1463

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .002760     .001701   2.175732     1.622  .1559
Pt**2             -.000202     .000166  -1.630062    -1.215  .2698
(Constant)         .892298     .003705              240.805  .0000
```

```
Dependent variable.. NDVI2            Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .42944
R Square             .18442
Adjusted R Square   -.08744
Standard Error       .00411

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00002291        .00001145
Residuals      6        .00010132        .00001689

F =        .67837       Signif F =  .5425

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .001699     .002401   1.181036      .708  .5056
Pt**2             -.000210     .000234  -1.492894     -.895  .4054
(Constant)         .901463     .005229              172.407  .0000
```

```
Dependent variable.. NDVI2            Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .78765
R Square             .62040
Adjusted R Square    .49386
Standard Error       .00536

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00028140        .00014070
Residuals      6        .00017218        .00002870

F =       4.90299       Signif F =  .0547

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .008992     .003130   3.270329     2.873  .0283
Pt**2             -.000771     .000305  -2.876136    -2.527  .0449
(Constant)         .878328     .006816              128.858  .0000
```

```
MDependent variable.. NDVI2            Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .47201
R Square             .22279
Adjusted R Square   -.03628
Standard Error       .00356

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00002184        .00001092
Residuals      6        .00007617        .00001270

F =        .85997       Signif F =  .4695

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                -.001363     .002082  -1.066718     -.655  .5368
Pt**2       7.87041418E-05     .000203    .631410      .388  .7116
(Constant)         .902394     .004534              199.041  .0000
```

Table 92- Regression analysis for average data 240706 leaves WI / NDVI2

```
Dependent variable.. WINDVI02          Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .20850
R Square             .04347
Adjusted R Square   -.27537
Standard Error       .07658

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00159919        .00079960
Residuals      6        .03518626        .00586438

F =        .13635       Signif F =  .8752

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .006064     .044741    .244907      .136  .8966
Pt**2       -9.05462537E-05     .004364   -.037495     -.021  .9841
(Constant)           .527476     .097441                5.413  .0016
```

```
Dependent variable.. WINDVI02          Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .30206
R Square             .09124
Adjusted R Square   -.21168
Standard Error       .11467

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00792106        .00396053
Residuals      6        .07889352        .01314892

F =        .30121       Signif F =  .7505

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .033053     .066995    .868937      .493  .6393
Pt**2              -.004009     .006534  -1.080641     -.614  .5620
(Constant)           .575618     .145907                3.945  .0076
```

```
Dependent variable.. WINDVI02          Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .51313
R Square             .26331
Adjusted R Square    .01774
Standard Error       .10852

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .02525286        .01262643
Residuals      6        .07065437        .01177573

F =       1.07224       Signif F =  .3998

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .088141     .063400   2.204601     1.390  .2138
Pt**2              -.009012     .006183  -2.311330    -1.458  .1952
(Constant)           .443851     .138078                3.214  .0183
```

```
Dependent variable.. WINDVI02          Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .59302
R Square             .35168
Adjusted R Square    .13557
Standard Error       .02893

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00272428        .00136214
Residuals      6        .00502230        .00083705

F =       1.62731       Signif F =  .2725

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.023681     .016903  -2.084115    -1.401  .2108
Pt**2               .002667     .001649   2.406221     1.618  .1569
(Constant)           .556006     .036813               15.103  .0000
```

Table 93- Regression analysis for average data 240706 leaves SIPI

```
Dependent variable.. SIPI              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .76886
R Square             .59115
Adjusted R Square    .45486
Standard Error       .26525

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .61036750        .30518375
Residuals      6        .42214934        .07035822

F =       4.33757       Signif F =  .0683

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .320815     .154972   2.445576     2.070  .0839
Pt**2             -.023518     .015114  -1.838205    -1.556  .1707
(Constant)         -.808522     .337510                -2.396  .0536
```

```
Dependent variable.. SIPI              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .31744
R Square             .10077
Adjusted R Square   -.19897
Standard Error       .39818

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .10660483        .05330242
Residuals      6        .95129993        .15854999

F =        .33619       Signif F =  .7271

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .117090     .232637    .881807      .503  .6327
Pt**2             -.014383     .022689  -1.110615     -.634  .5495
(Constant)          .254910     .506656                  .503  .6328
```

```
Dependent variable.. SIPI              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .72654
R Square             .52786
Adjusted R Square    .37048
Standard Error       .42895

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1.2342819        .61714095
Residuals      6        1.1039806        .18399676

F =       3.35409       Signif F =  .1052

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 .624282     .250611   3.162348     2.491  .0471
Pt**2             -.055550     .024442  -2.885251    -2.273  .0634
(Constant)        -1.313743     .545802                -2.407  .0528
```

```
Dependent variable.. SIPI              Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .73414
R Square             .53896
Adjusted R Square    .38528
Standard Error       .22575

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .35746568        .17873284
Residuals      6        .30578281        .05096380

F =       3.50705       Signif F =  .0980

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                -.215371     .131894  -2.048448    -1.633  .1536
Pt**2              .014559     .012863   1.419819     1.132  .3009
(Constant)          .479527     .287250                 1.669  .1461
```

Table 94- Regression analysis for average data 240706 leaves ChINDI

```
Dependent variable.. ChLNDI           Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .24919
R Square             .06210
Adjusted R Square   -.25054
Standard Error       .01397

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00007750        .00003875
Residuals      6        .00117065        .00019511

F =        .19862       Signif F =  .8250

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .000974     .008161    .213518      .119  .9089
Pt**2          1.62103212E-05     .000796    .036442      .020  .9844
(Constant)          .210584     .017773               11.848  .0000
```

```
Dependent variable.. ChLNDI           Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .11791
R Square             .01390
Adjusted R Square   -.31479
Standard Error       .00000

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00000000        .00000000
Residuals      6        .00000000        .00000000

F =        .04230       Signif F =  .9589

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt        -4.55187585E-08  1.6297E-07   -.512445     -.279  .7894
Pt**2      4.61457703E-09  1.5894E-08    .532671      .290  .7813
(Constant)          .218836  3.5492E-07            616576.09  .0000
```

```
Dependent variable.. ChLNDI           Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .80062
R Square             .64099
Adjusted R Square    .52133
Standard Error       .04300

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .01981135        .00990567
Residuals      6        .01109588        .00184931

F =       5.35641       Signif F =  .0463

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                  .055843     .025125   2.460470     2.223  .0679
Pt**2              -.004011     .002450  -1.811943    -1.637  .1528
(Constant)          .016918     .054719                 .309  .7676
```

```
Dependent variable.. ChLNDI           Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .60119
R Square             .36143
Adjusted R Square    .14857
Standard Error       .02361

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00189255        .00094628
Residuals      6        .00334372        .00055729

F =       1.69801       Signif F =  .2604

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T

Pt                 -.021884     .013792  -2.342520    -1.587  .1637
Pt**2               .002360     .001345   2.590391     1.755  .1299
(Constant)          .252254     .030038                8.398  .0002
```

Table 95- Regression analysis for average data 080306 weight wood for different plots

```
Dependent variable.. PlPd06           Method.. QUADRATI

Multiple R           .64167
R Square             .41174
Adjusted R Square    .21566
Standard Error     58.88943

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        14564.212        7282.1061
Residuals      6        20807.788        3467.9646

F =       2.09982       Signif F =  .2036

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                55.492424   34.405842   2.285491     1.613  .1579
Pt**2             -4.340909    3.355537  -1.833145    -1.294  .2434
(Constant)       184.000000   74.931969                2.456  .0494
```

```
Dependent variable.. PlPd06           Method.. QUADRATI

Multiple R           .57015
R Square             .32507
Adjusted R Square    .10009
Standard Error     93.39638

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        25207.588        12603.794
Residuals      6        52337.301         8722.884

F =       1.44491       Signif F =  .3074

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                63.861255   54.566349   1.776383     1.170  .2862
Pt**2             -4.624459    5.321753  -1.318956     -.869  .4183
(Constant)       202.023810  118.839235                1.700  .1400
```

```
Dependent variable.. PlPd06           Method.. QUADRATI

Multiple R           .15820
R Square             .02503
Adjusted R Square   -.29997
Standard Error     88.56836

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         1208.098         604.0492
Residuals      6        47066.124        7844.3540

F =        .07700       Signif F =  .9268

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt               -12.676190   51.745603   -.446896     -.245  .8146
Pt**2              1.547619    5.046651    .559438      .307  .7695
(Constant)       457.928571  112.695974                4.063  .0066
```

```
Dependent variable.. PlPd06           Method.. QUADRATI

Multiple R           .62807
R Square             .39448
Adjusted R Square    .19263
Standard Error    115.73399

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        52355.411        26177.705
Residuals      6        80366.145        13394.357

F =       1.95438       Signif F =  .2220

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt               131.649784   67.616985   2.799143     1.947  .0995
Pt**2            -12.021645    6.594556  -2.620831    -1.823  .1181
(Constant)       209.214286  147.262020                1.421  .2052
```

Table 96- Regression analysis for average data 150107 weight wood different plots

```
Dependent variable.. PlPd 1601          Method.. QUADRATI

Listwise Deletion of Missing Data

Multiple R           .28221
R Square             .07964
Adjusted R Square   -.22715
Standard Error    305.57069

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         48478.46        24239.228
Residuals      6        560240.68        93373.447

F =        .25959       Signif F =  .7796

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T

PaEtN           128.167388  178.528088   1.272462      .718  .4998
PaEtN**2        -12.427850   17.411506  -1.265125     -.714  .5022
(Constant)      512.896825  388.813653                1.319  .2352
```

```
Dependent variable.. PlPd 1601          Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .55024
R Square             .30277
Adjusted R Square    .07036
Standard Error    204.09918

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        108533.37        54266.685
Residuals      6        249938.85        41656.475

F =       1.30272       Signif F =  .3389

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T

PaEtN             4.475108  119.243886    .057896      .038  .9713
PaEtN**2         -4.572511   11.629630   -.606559     -.393  .7078
(Constant)      730.753968  259.699475                2.814  .0306
```

```
Dependent variable.. PlPd 1601          Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .37866
R Square             .14339
Adjusted R Square   -.14215
Standard Error    198.84993

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         39712.10        19856.051
Residuals      6        237247.78        39541.296

F =        .50216       Signif F =  .6286

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T

PaEtN            21.482684  116.177040    .316196      .185  .8594
PaEtN**2         -4.509380   11.330527   -.680541     -.398  .7044
(Constant)      589.087302  253.020238                2.328  .0588
```

```
Dependent variable.. PlPd 1601          Method.. QUADRATI
Listwise Deletion of Missing Data

Multiple R           .36204
R Square             .13107
Adjusted R Square   -.15857
Standard Error    182.06570

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         30001.38        15000.691
Residuals      6        198887.51        33147.918

F =        .45254       Signif F =  .6561

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T

PaEtN            84.754690  106.370937   1.372230      .797  .4559
PaEtN**2         -9.253247   10.374156  -1.536129     -.892  .4068
(Constant)      477.579365  231.663673                2.062  .0849
```

Figure 1- Spacial and cartographic distribution of 1905055 SPAD

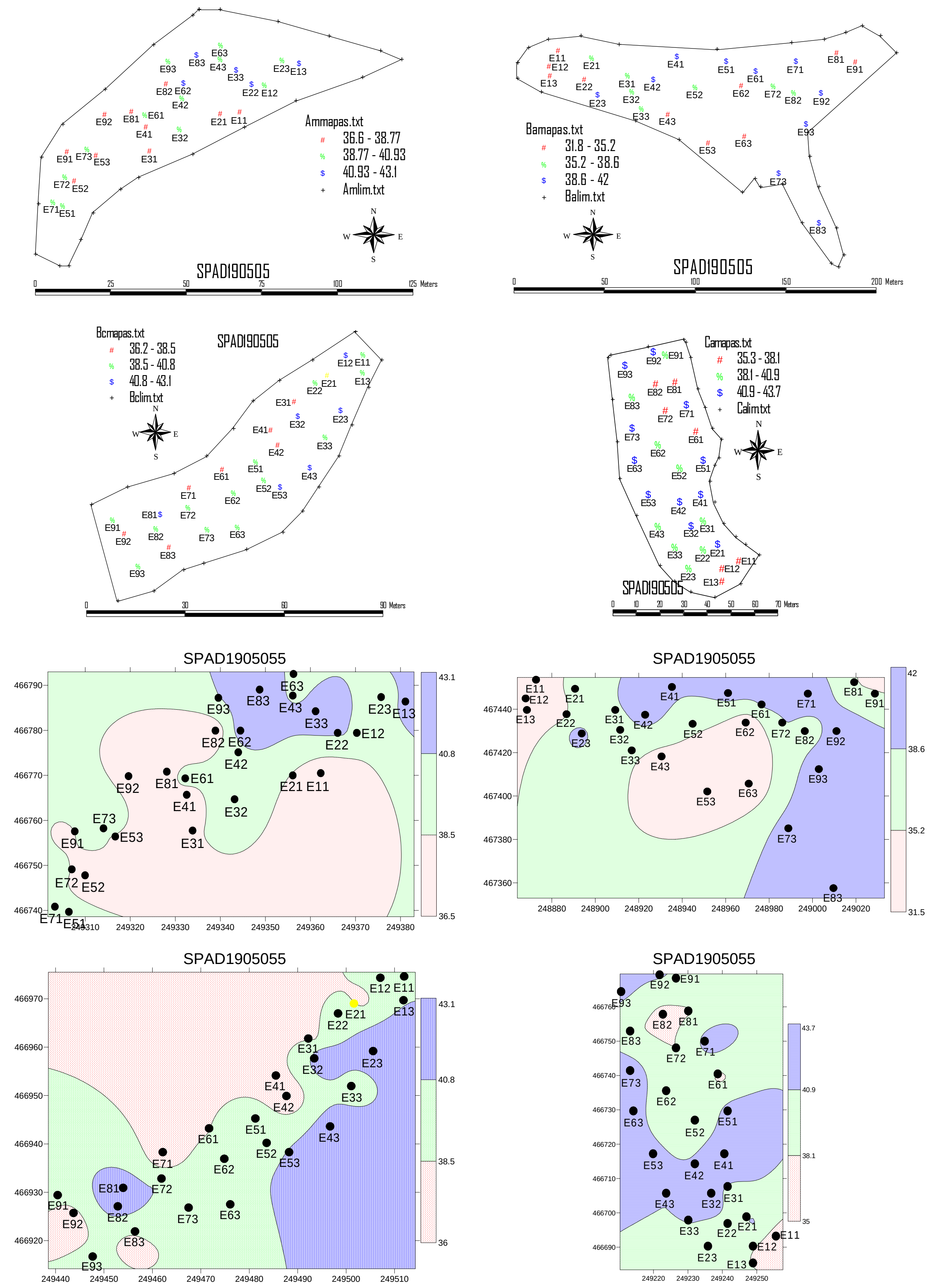


Figure 2- Spacial and cartographic distribution of 170605 SPAD

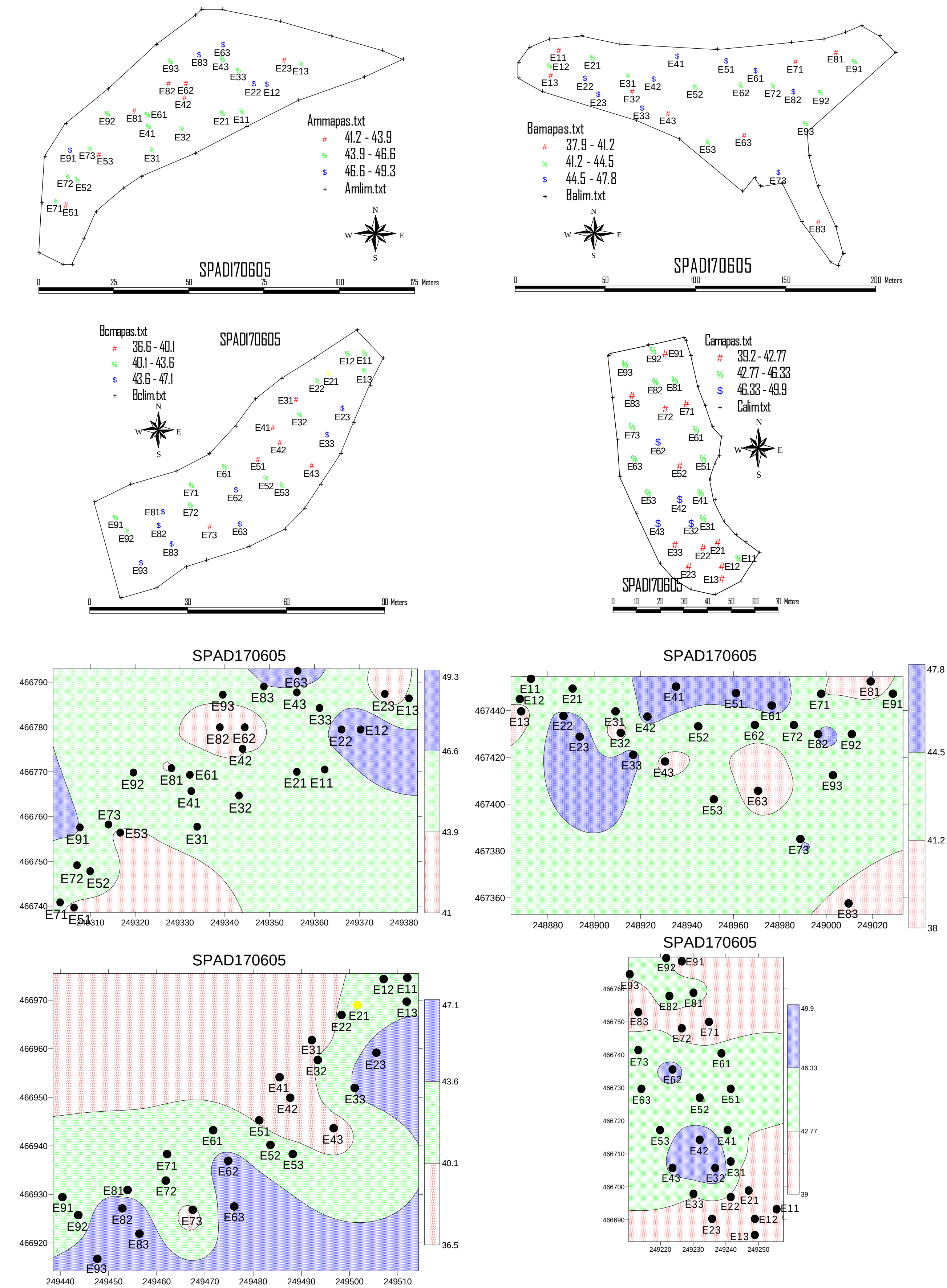


Figure 3- Spacial and cartographic distribution of 250705 SPAD

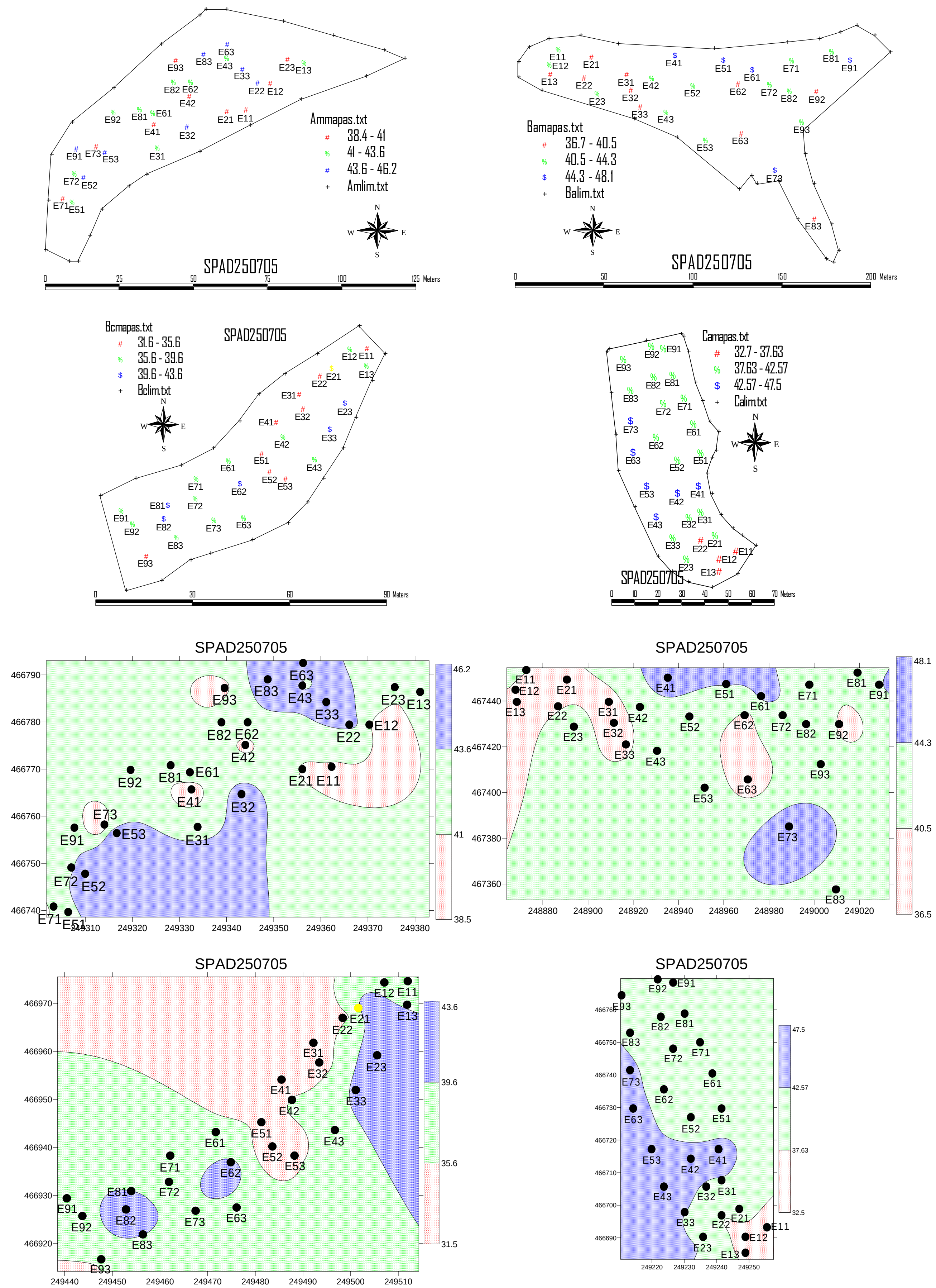


Figure 4- Spacial and cartographic distribution of 210606 SPAD

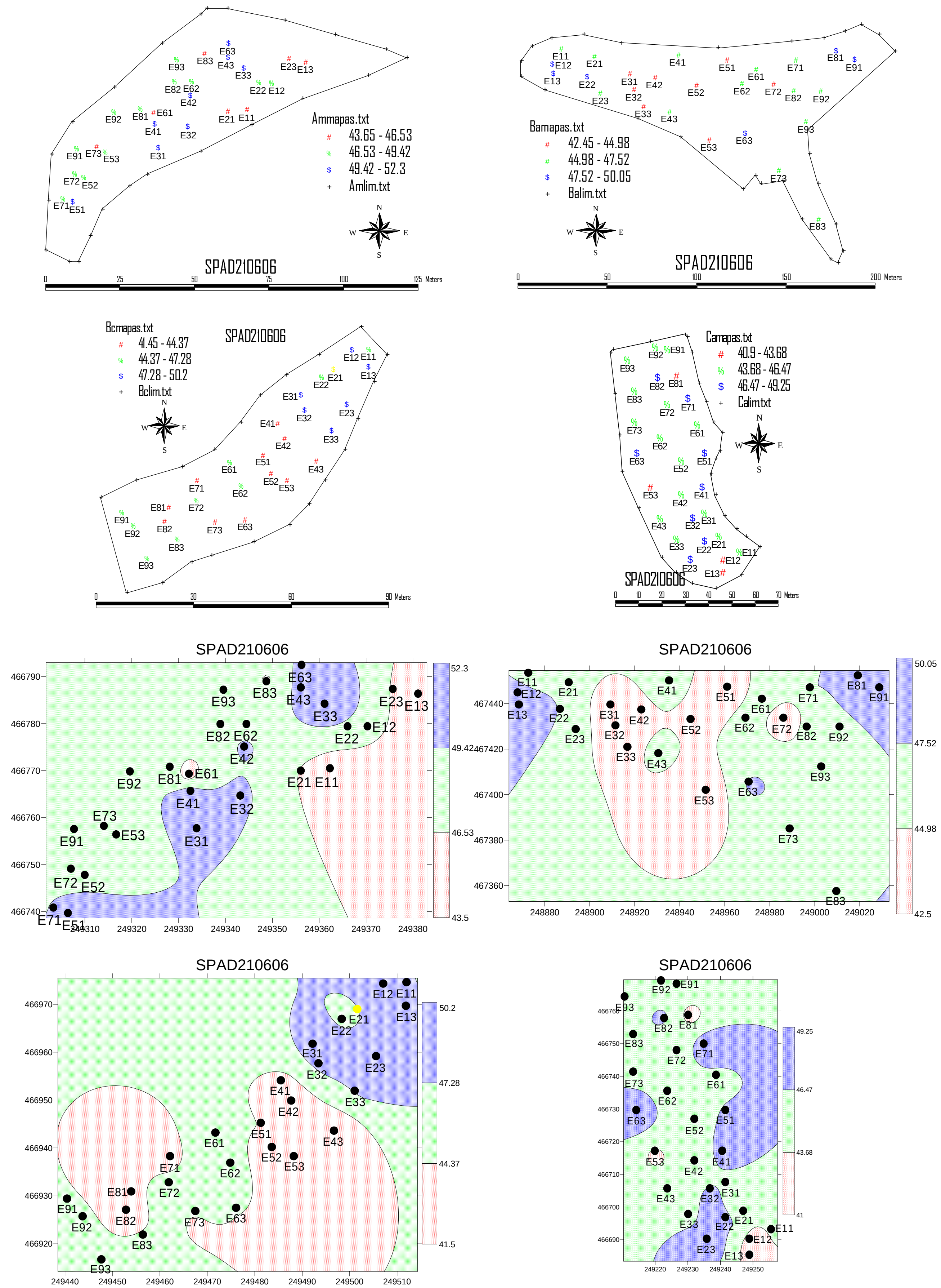


Figure 5- Spacial and cartographic distribution of 240706 SPAD

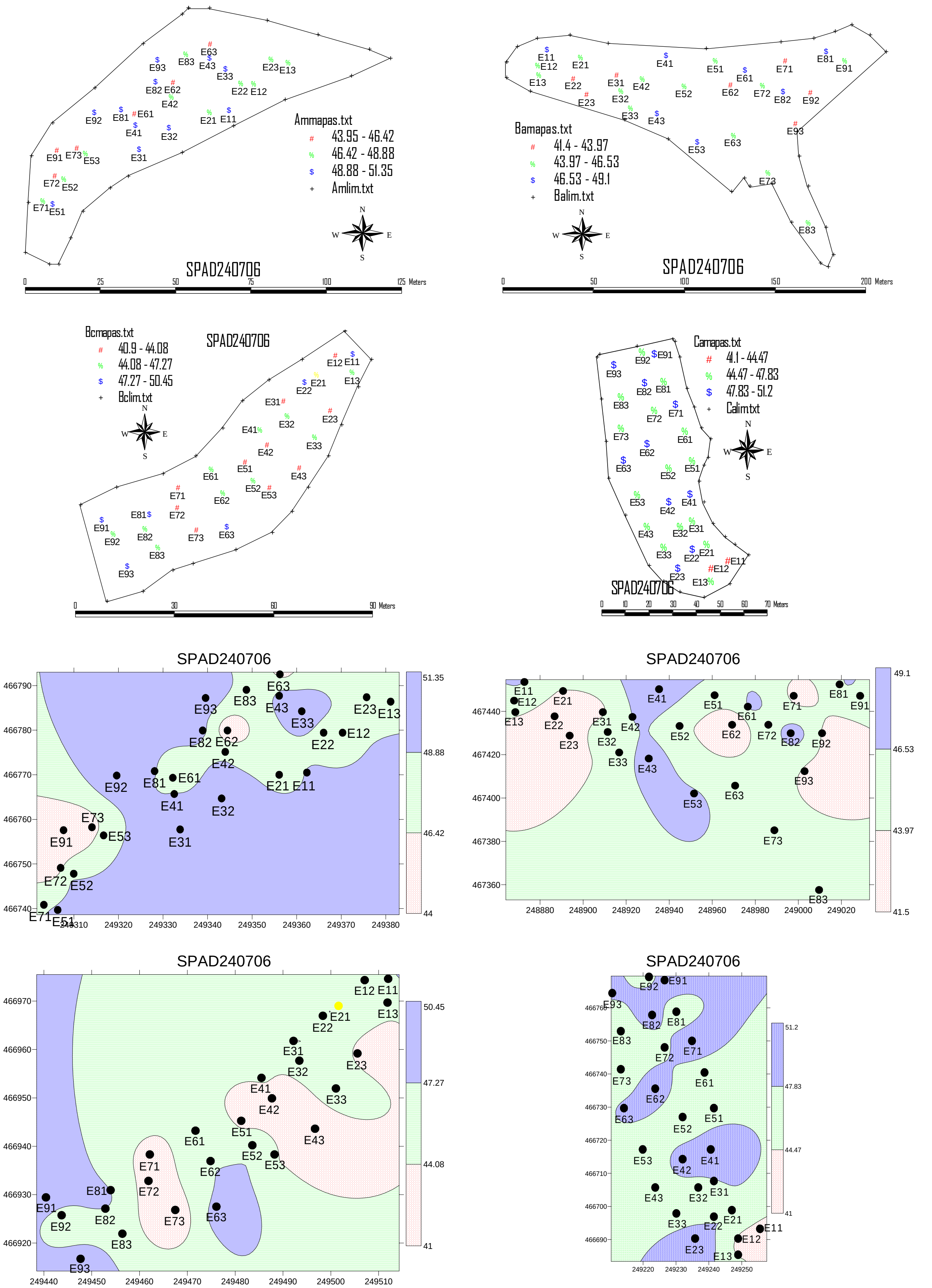


Figure 6- Spacial and cartographic distribution of 170605 leaf area data

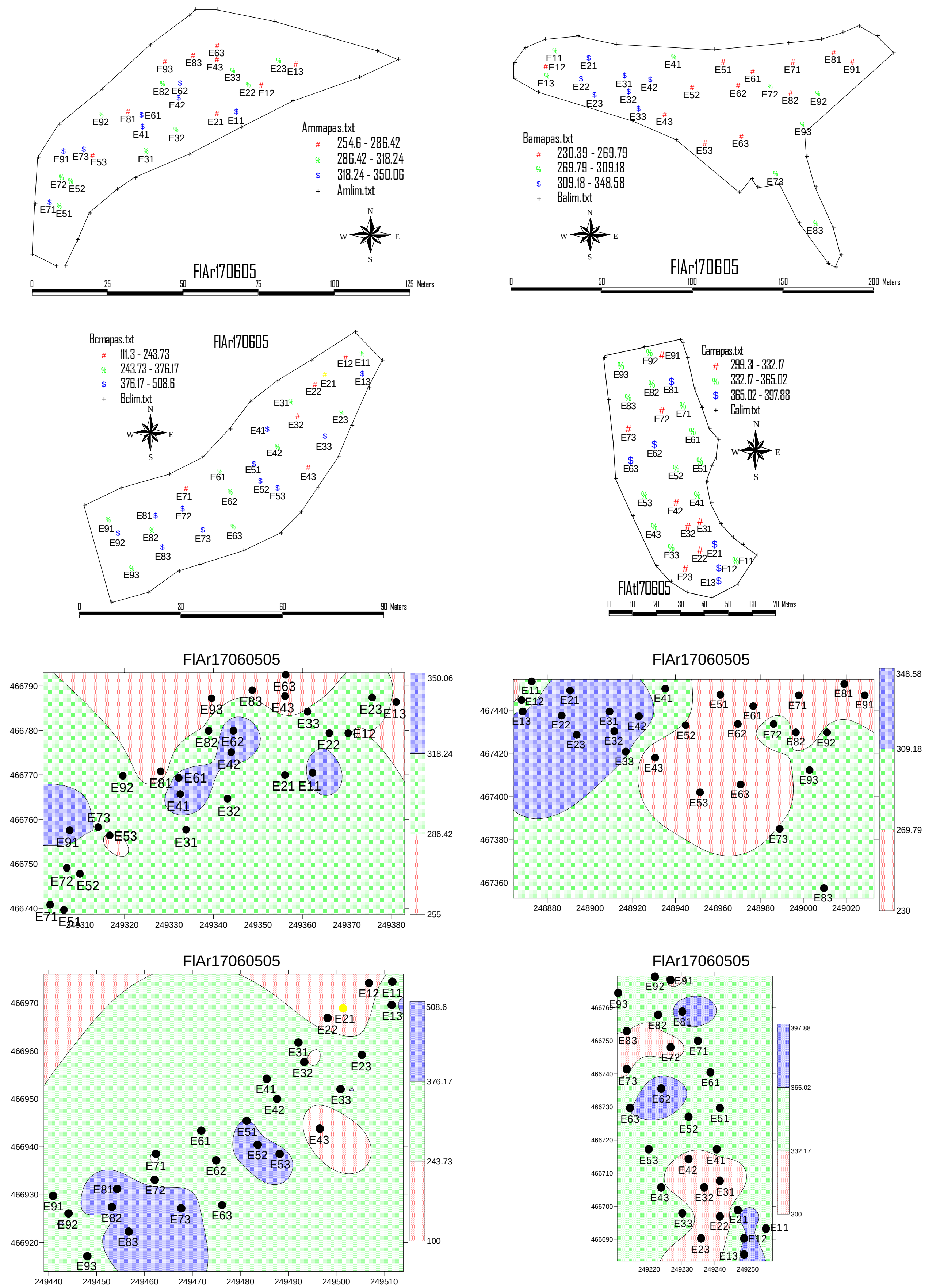


Figure 7- Spacial and cartographic distribution of 210606 leaf area data

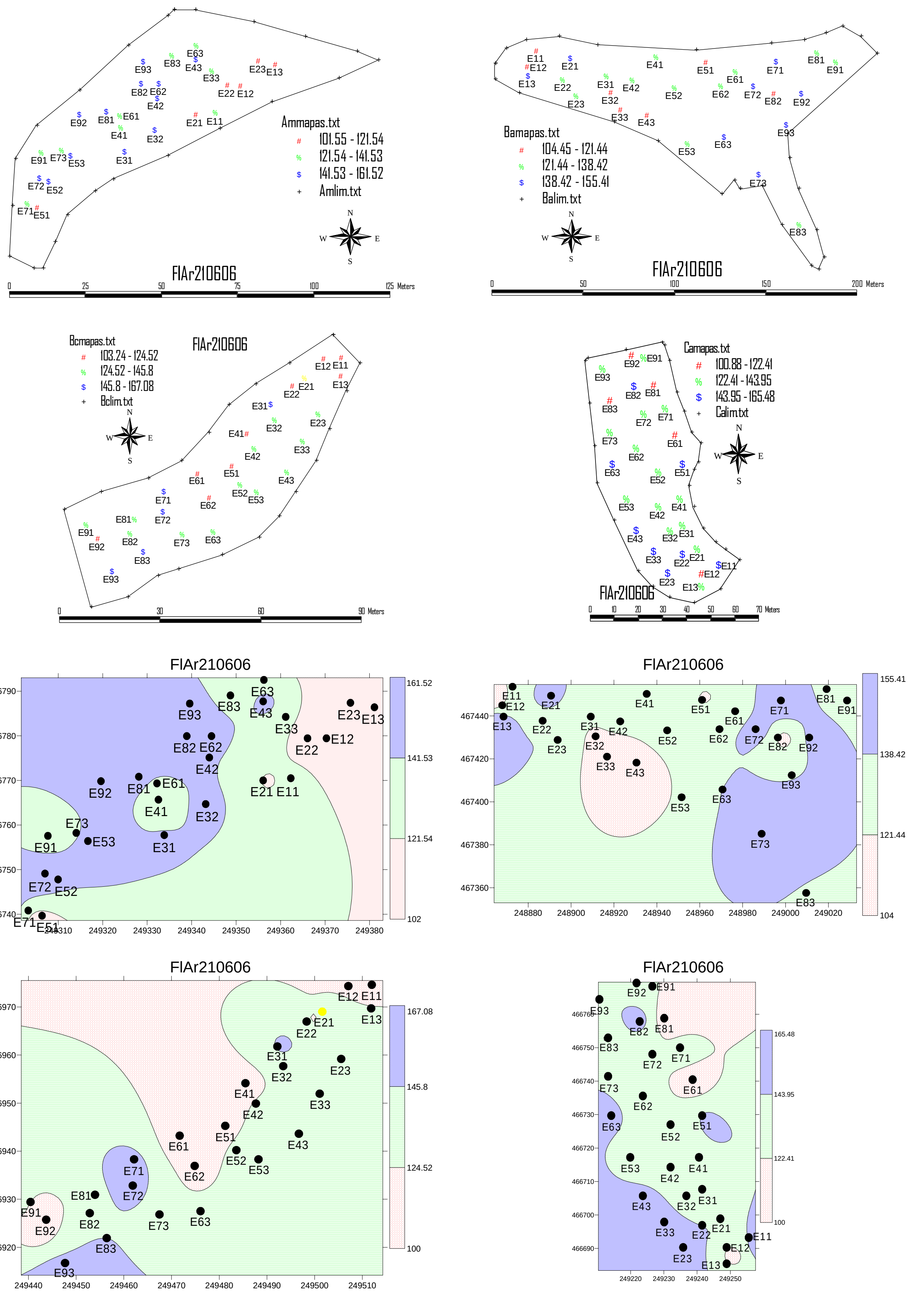


Figure 8- Spacial and cartographic distribution of 240706 leaf area data

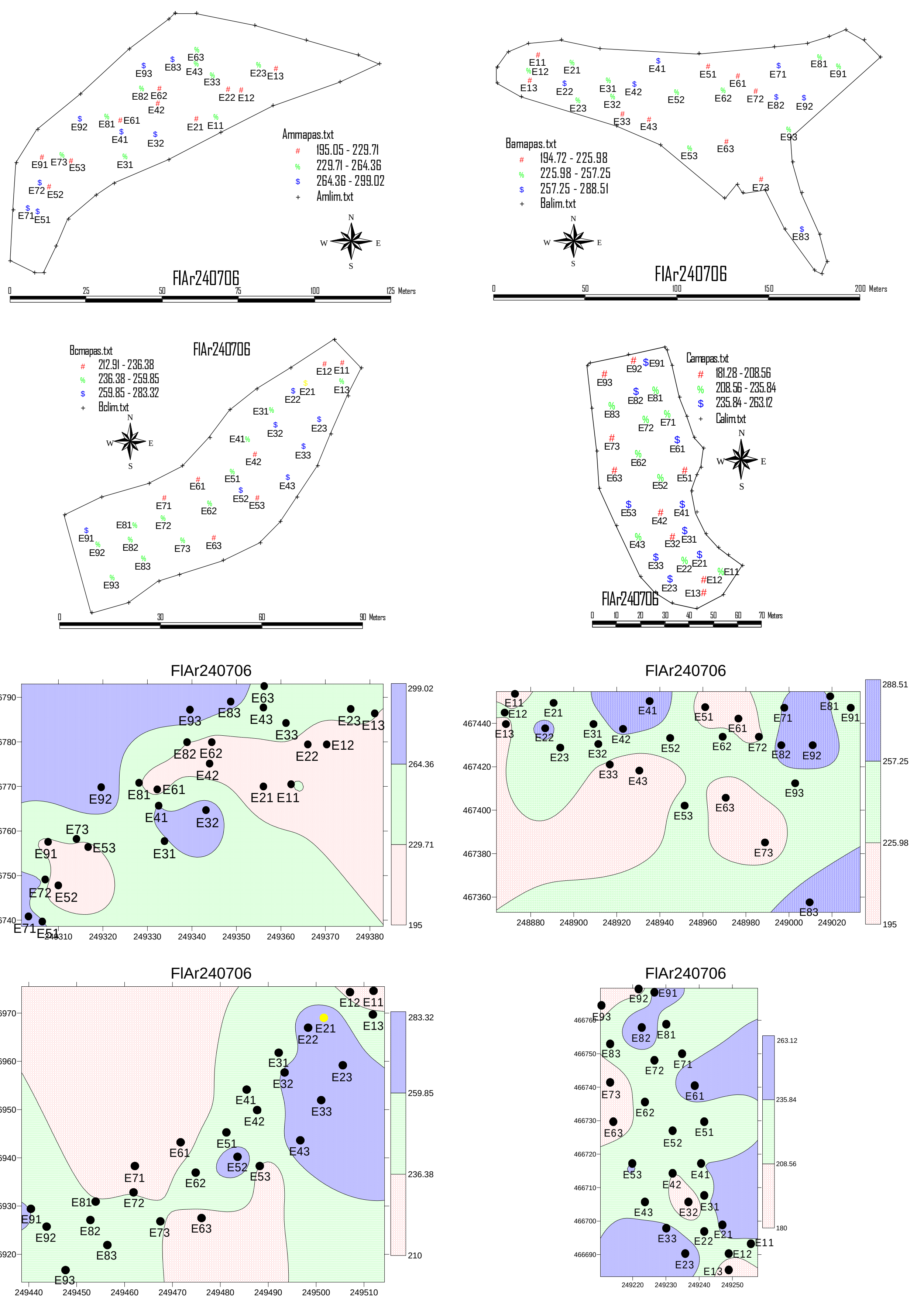


Figure 9- Spacial and cartographic distribution of 170605 leaf dry weight data

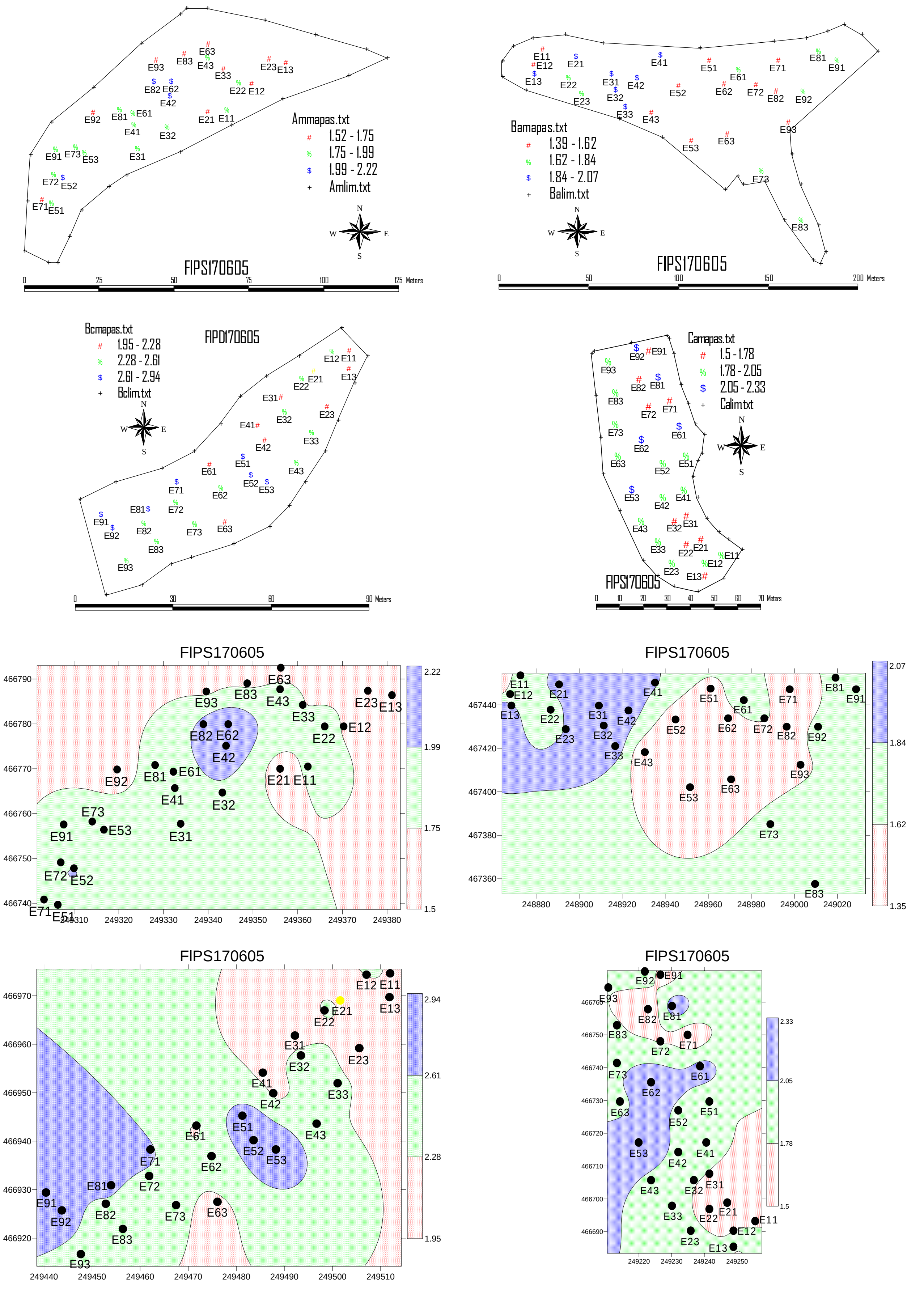


Figure 10- Spacial and cartographic distribution of 210606 leaf dry weight data

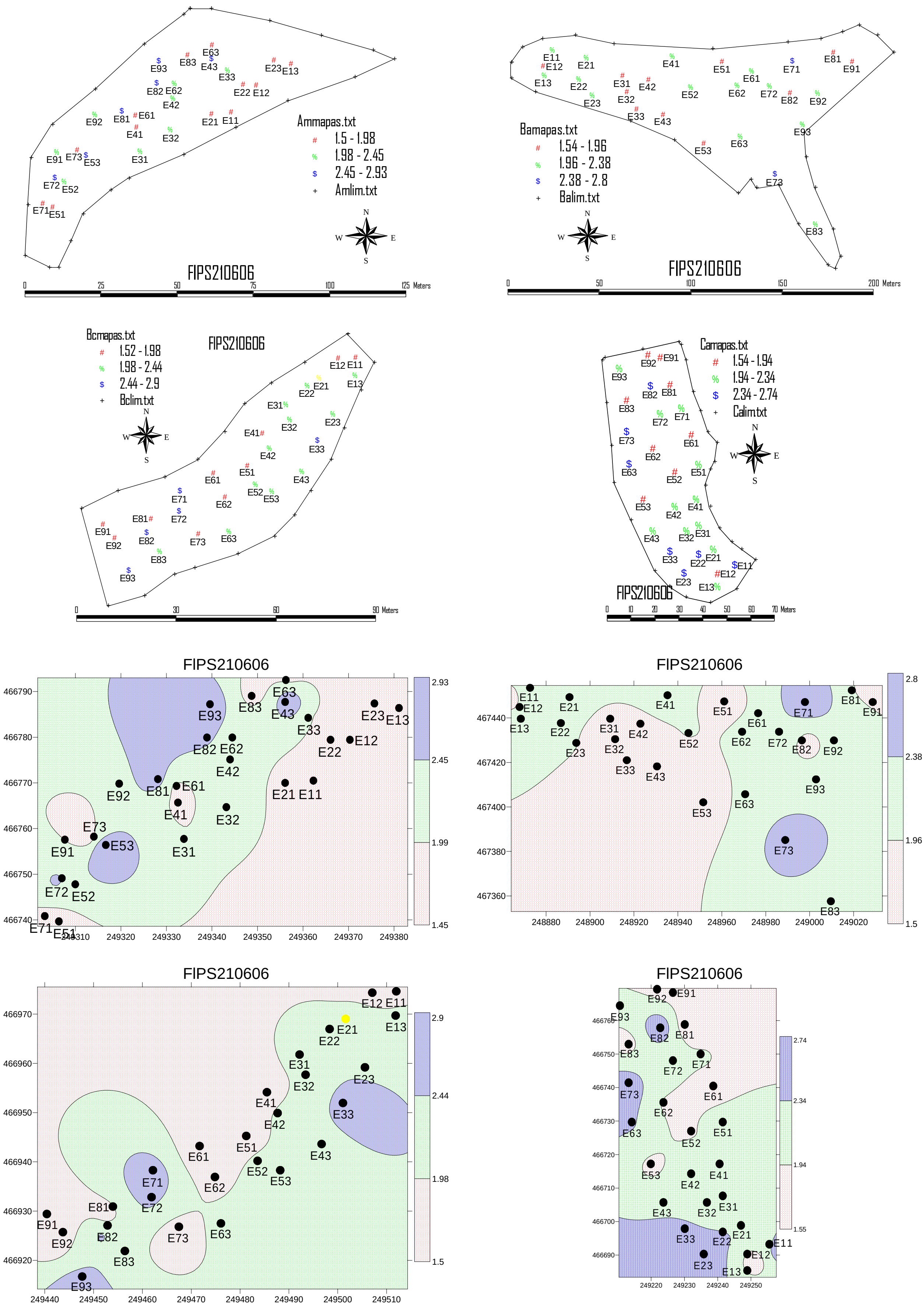


Figure 11- Spacial and cartographic distribution of 240706 leaf dry weight data

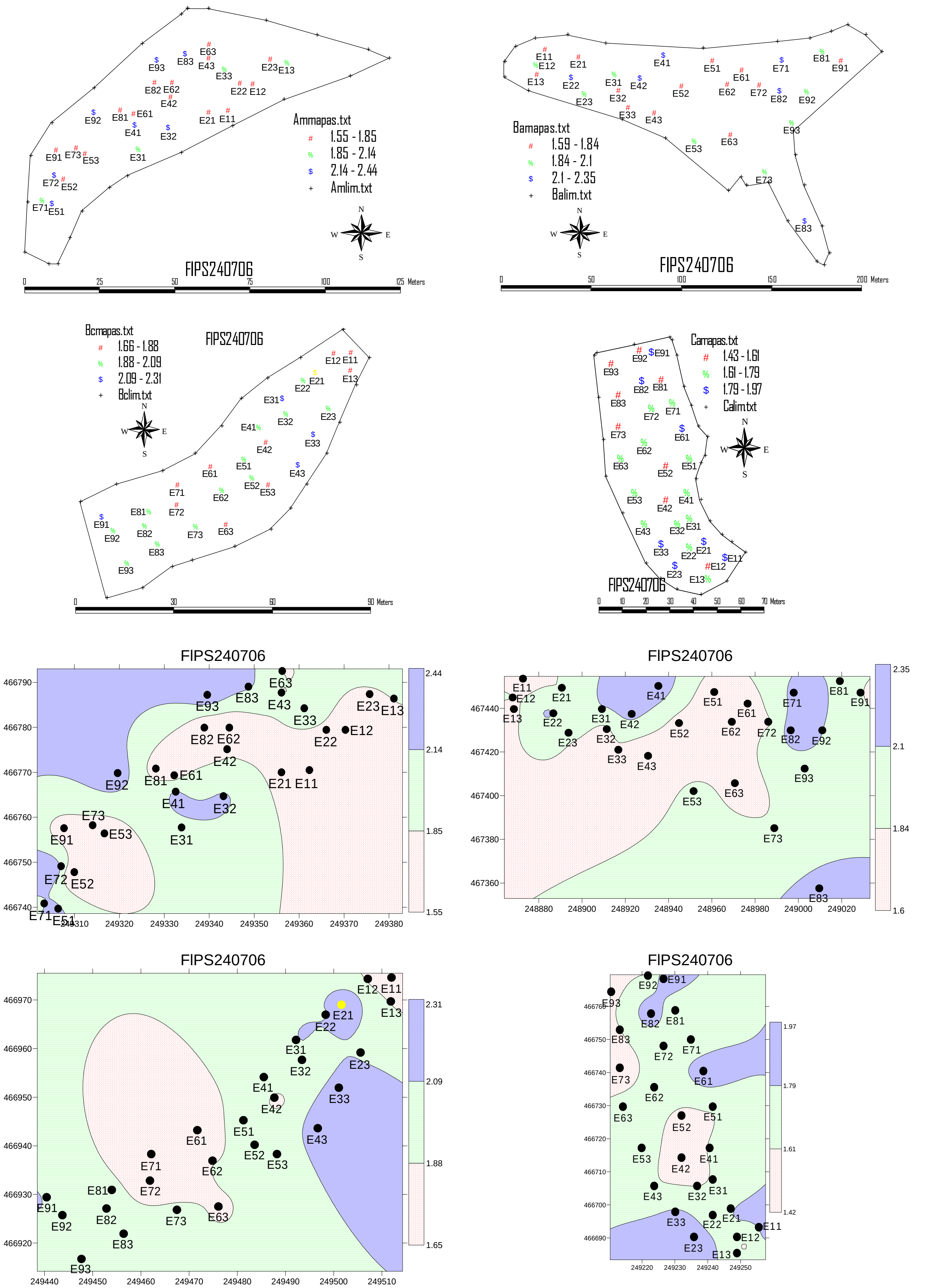


Figure 12- Spacial and cartographic distribution of 170605 leaf nitrogen data

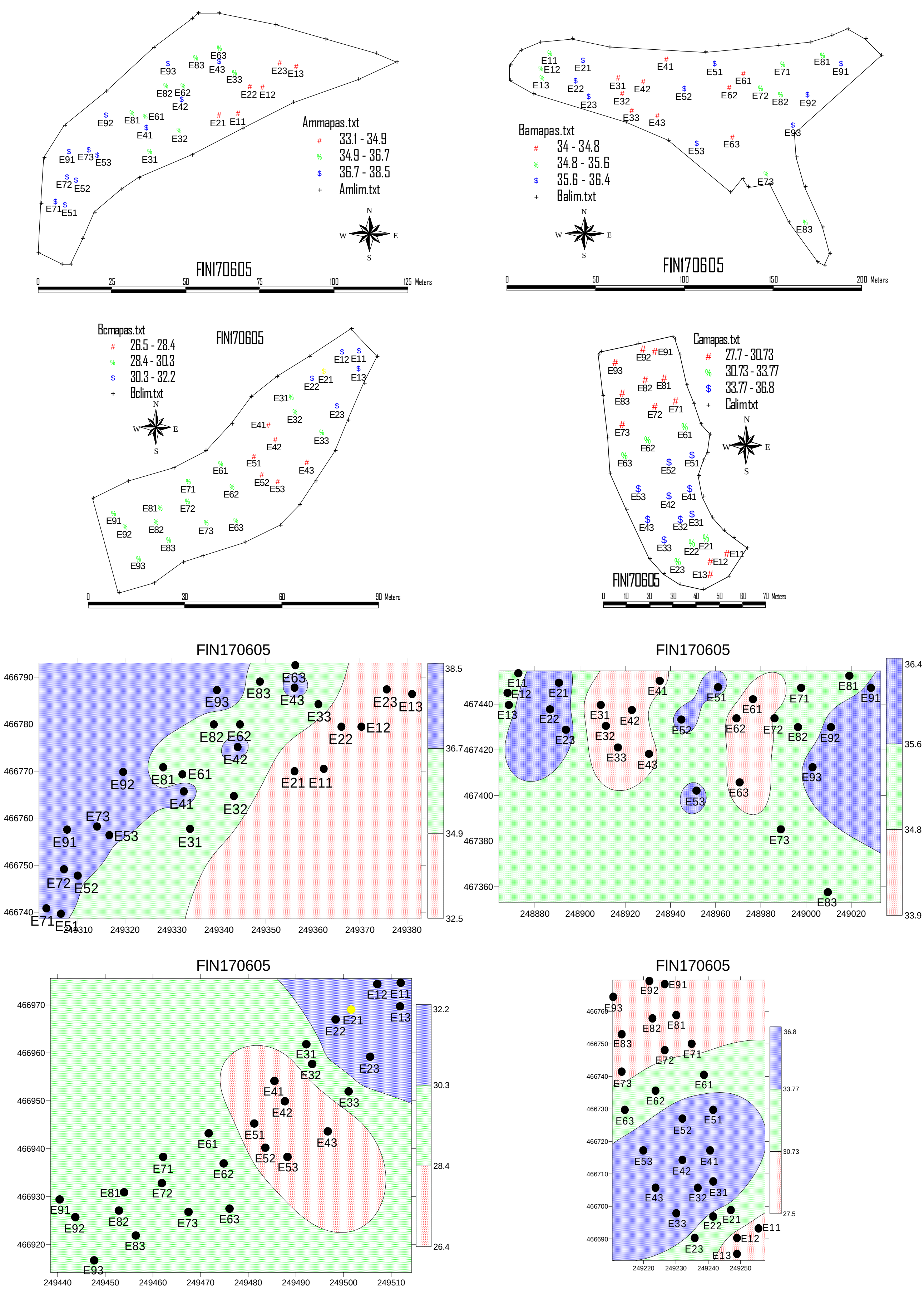


Figure 13- Spacial and cartographic distribution of 210606 leaf nitrogen data

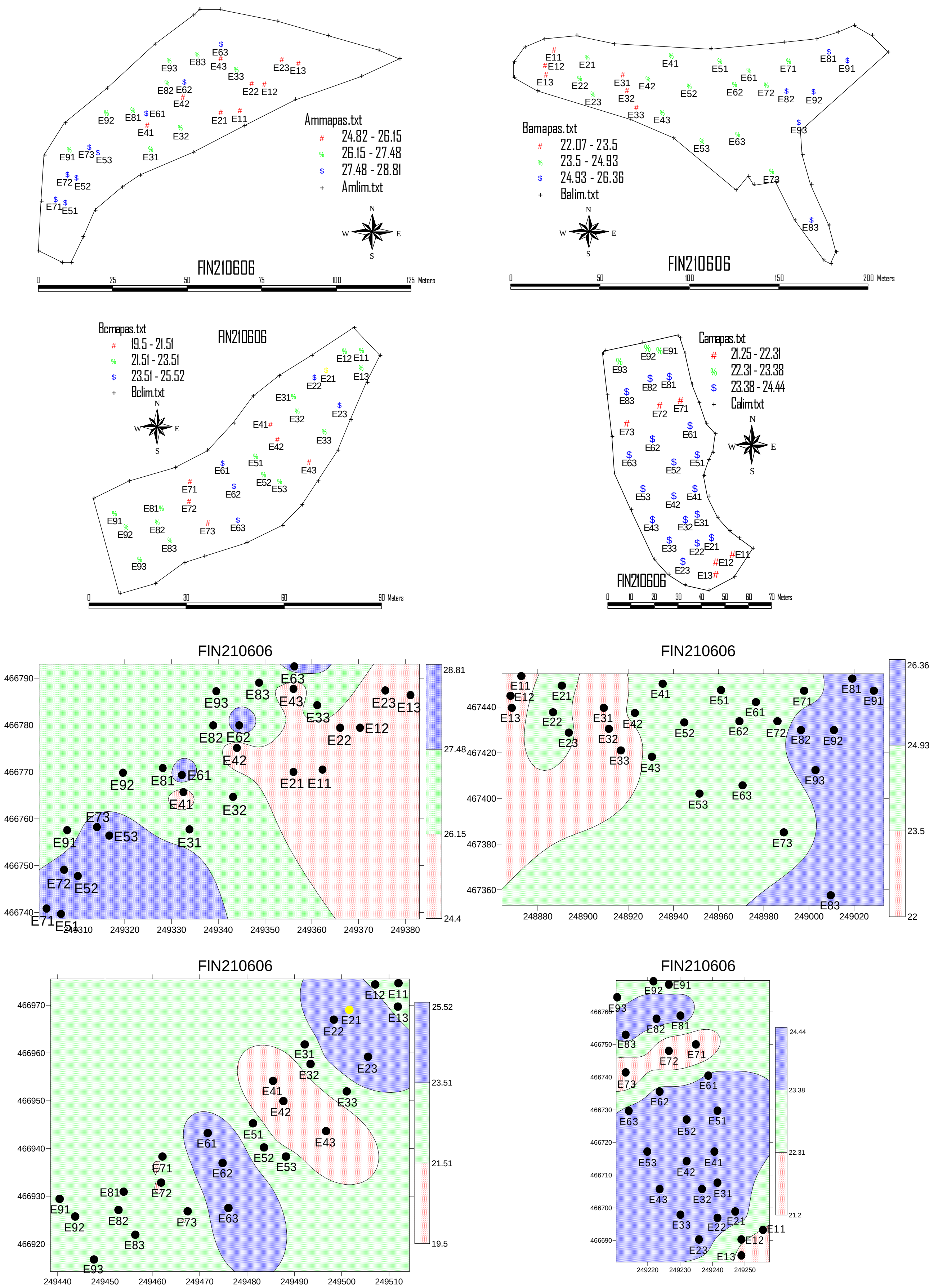


Figure 14- Spacial and cartographic distribution of 240706 leaf nitrogen data

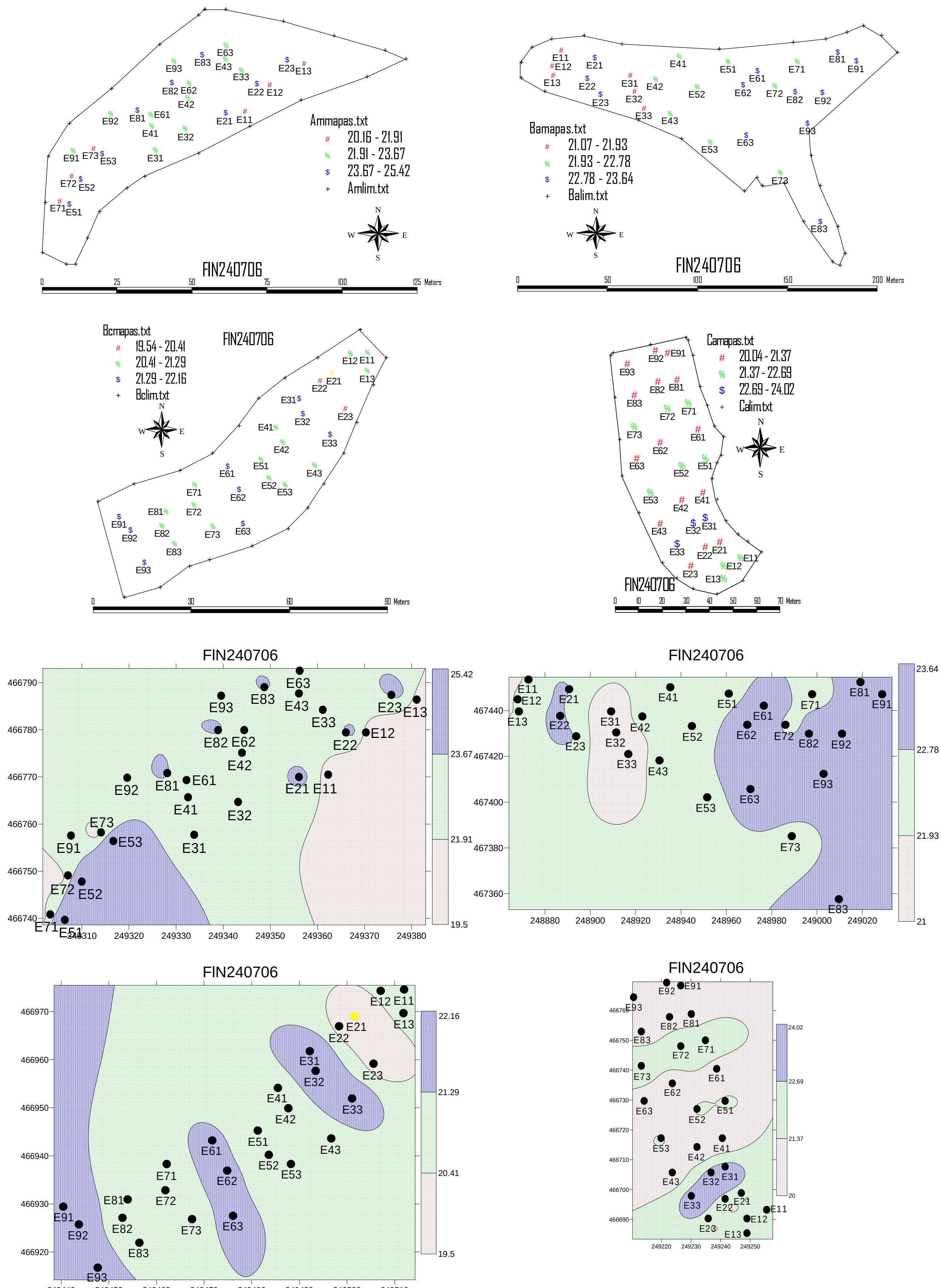


Figure 15- Spacial and cartographic distribution of 170605 leaf phosphorous data

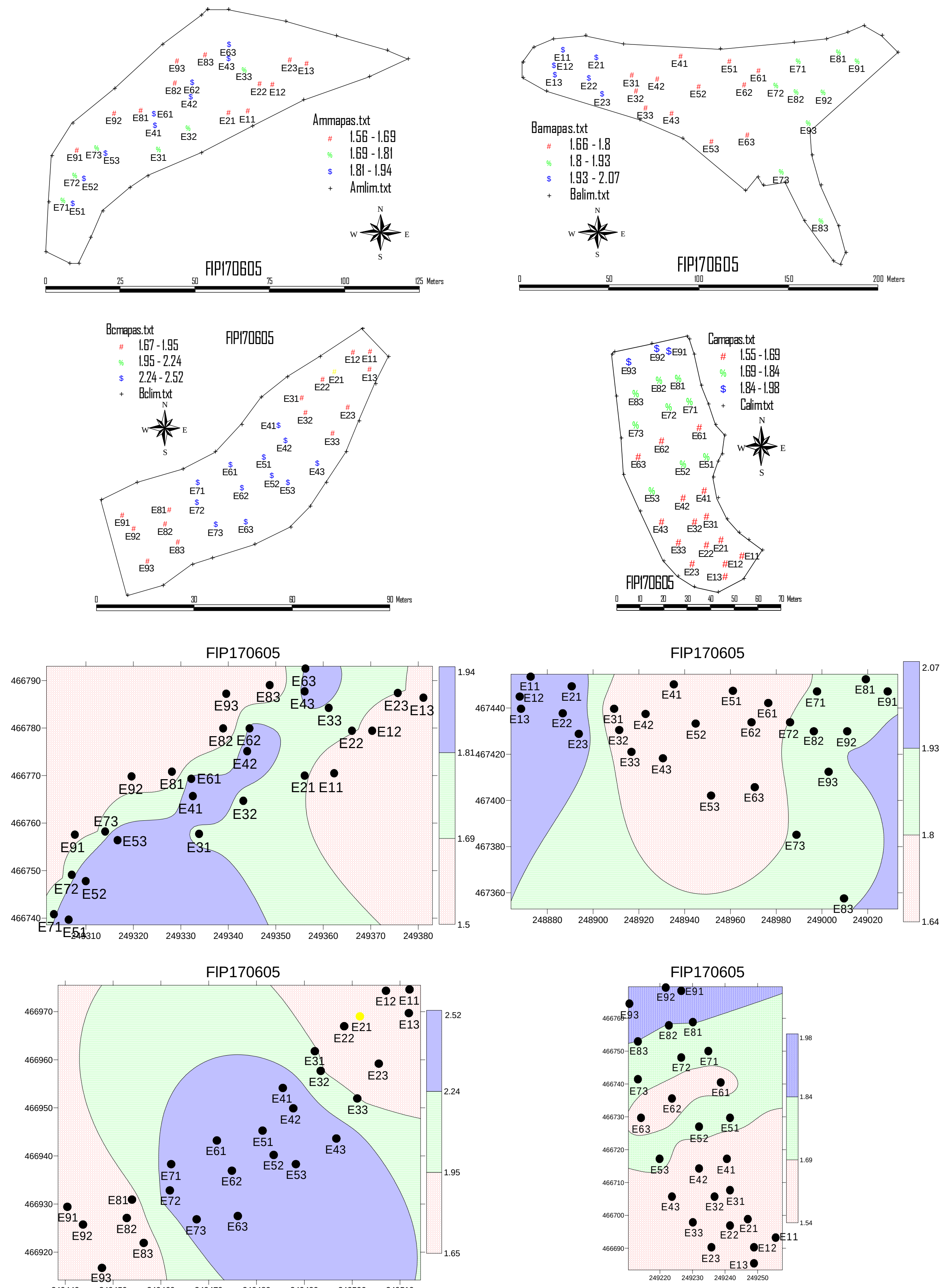


Figure 16- Spacial and cartographic distribution of 210606 leaf phosphorous data

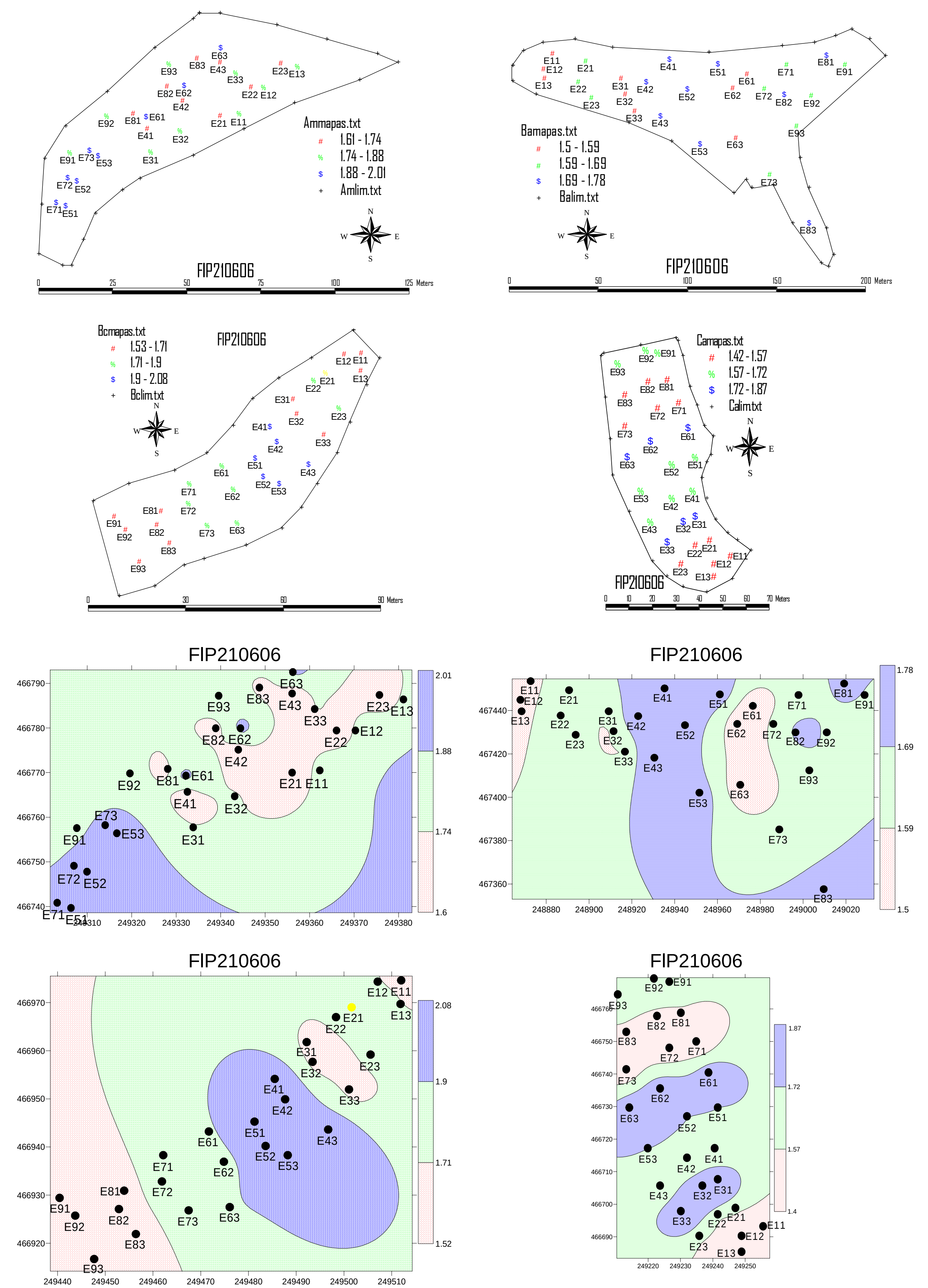


Figure 17- Spacial and cartographic distribution of 240706 leaf phosphorous data

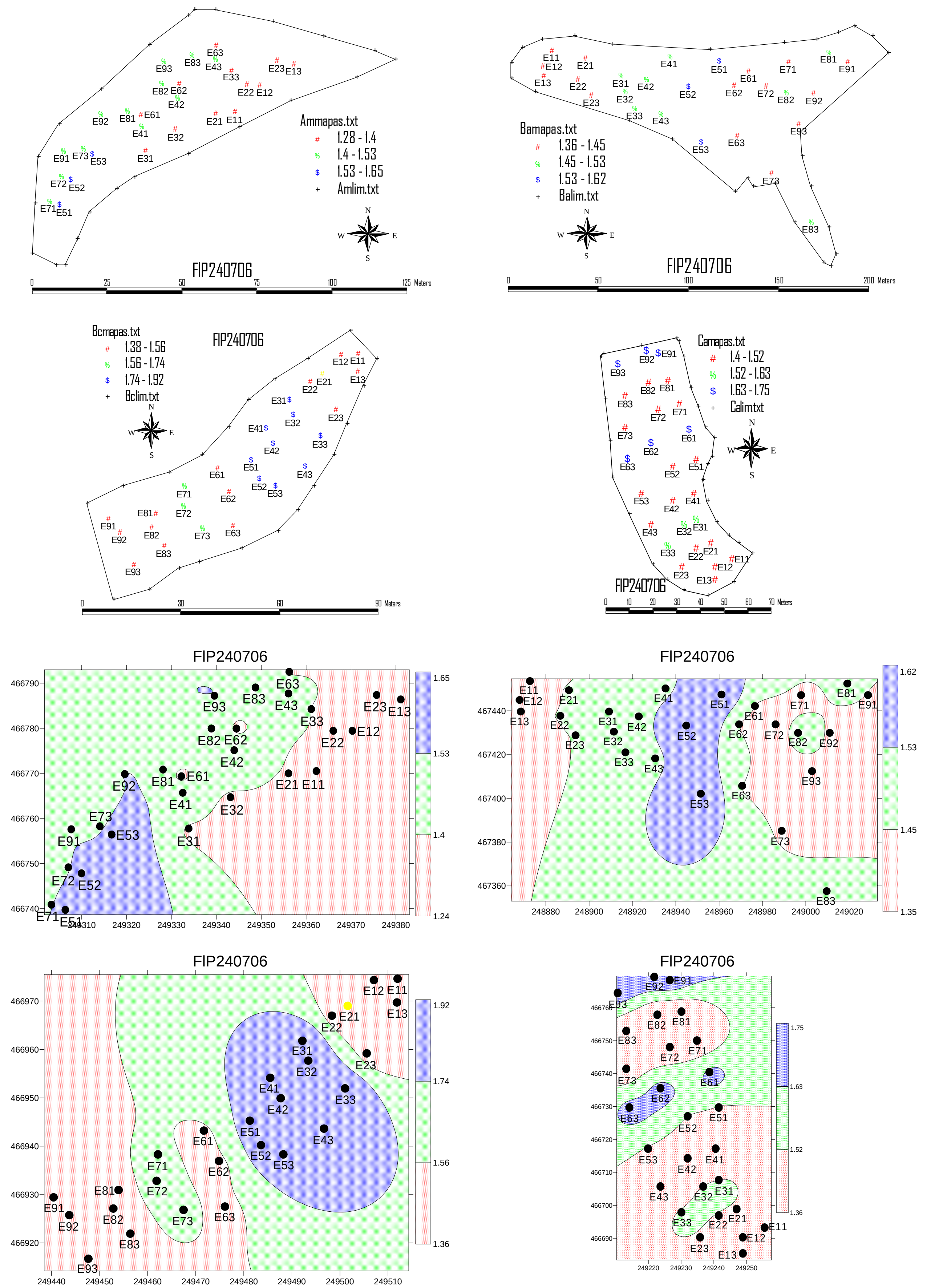


Figure 18- Spacial and cartographic distribution of 170605 leaf potassium data

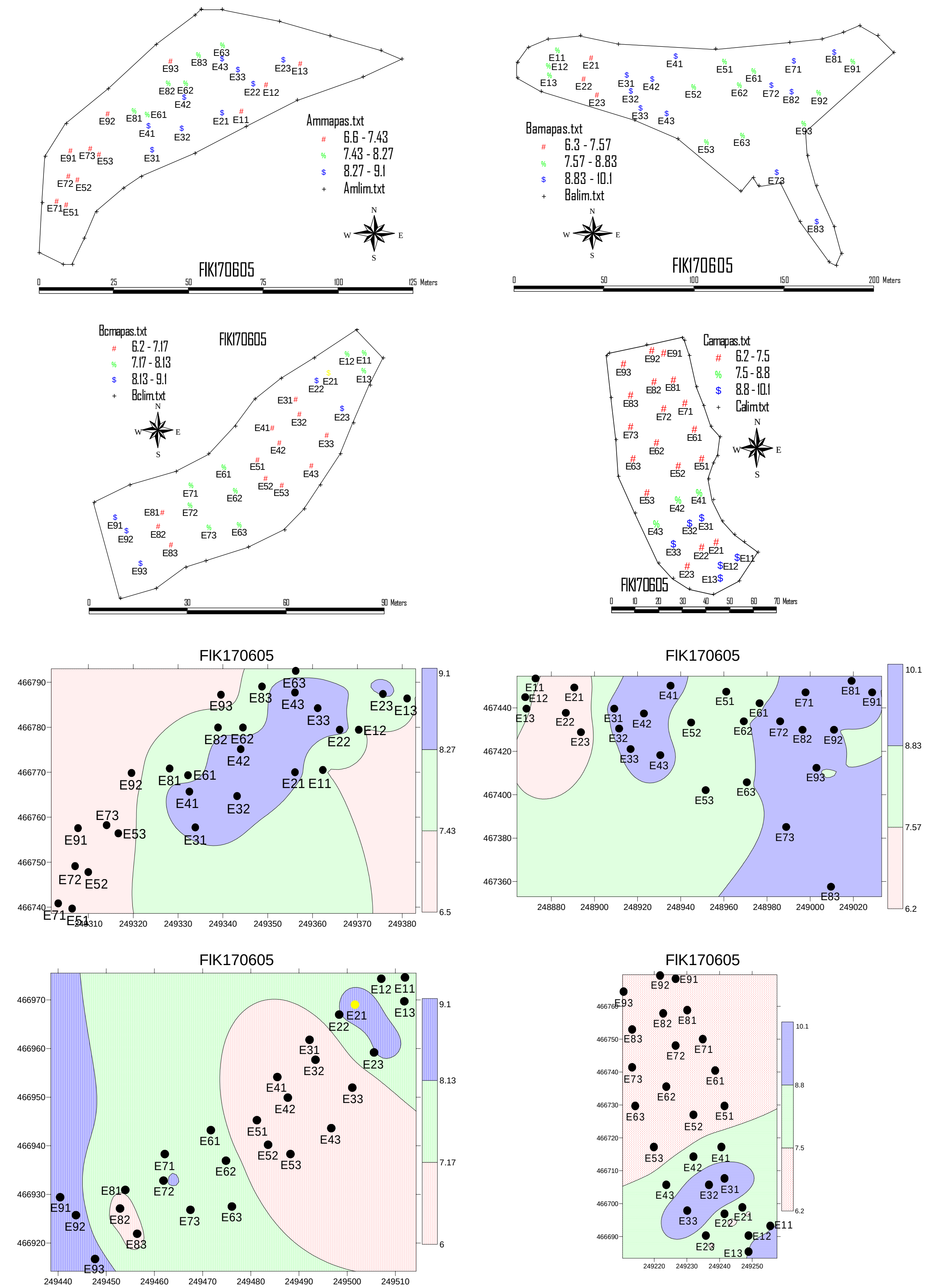


Figure 19- Spacial and cartographic distribution of 210606 leaf potassium data

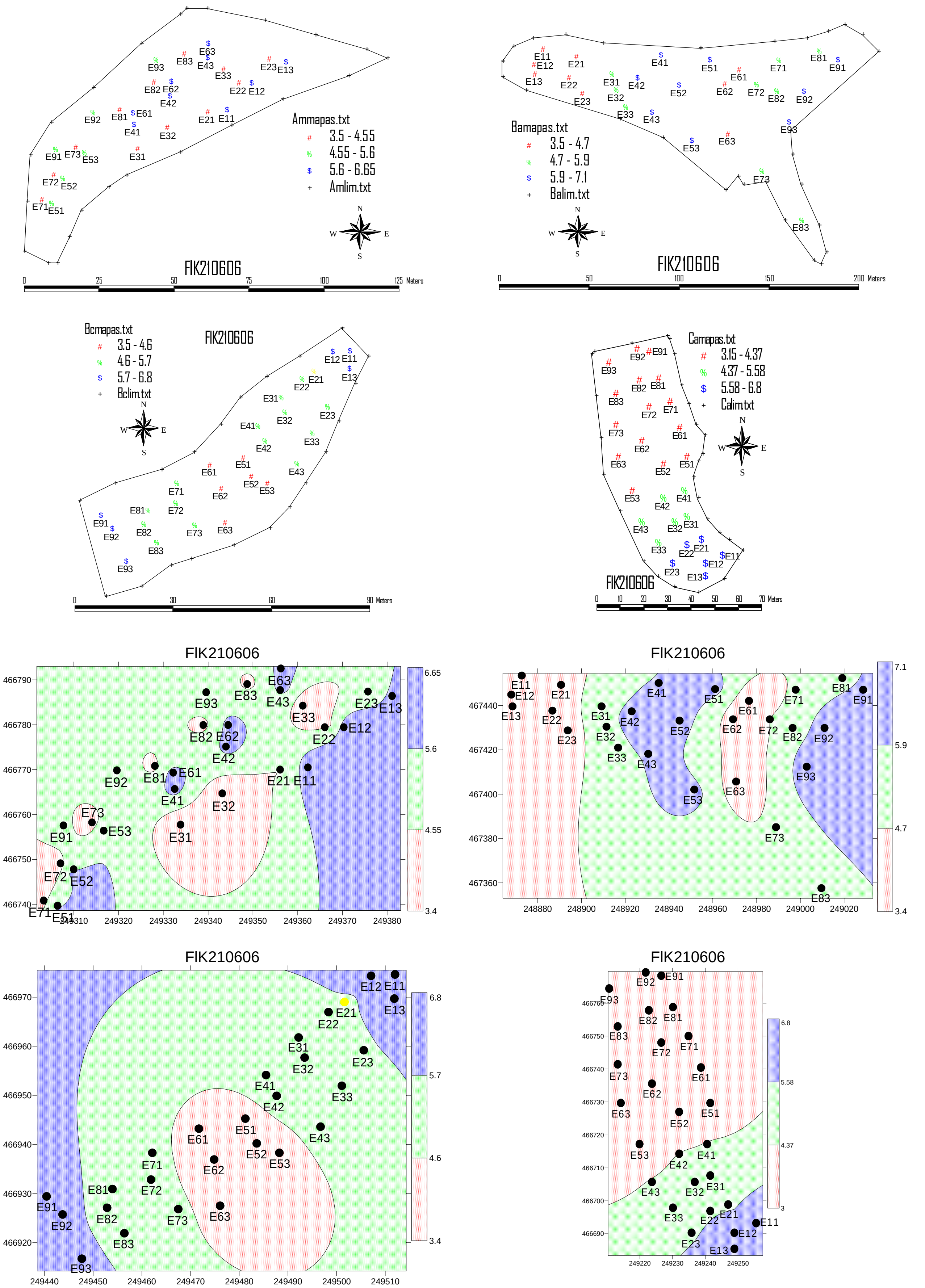


Figure 20- Spacial and cartographic distribution of 240706 leaf potassium data

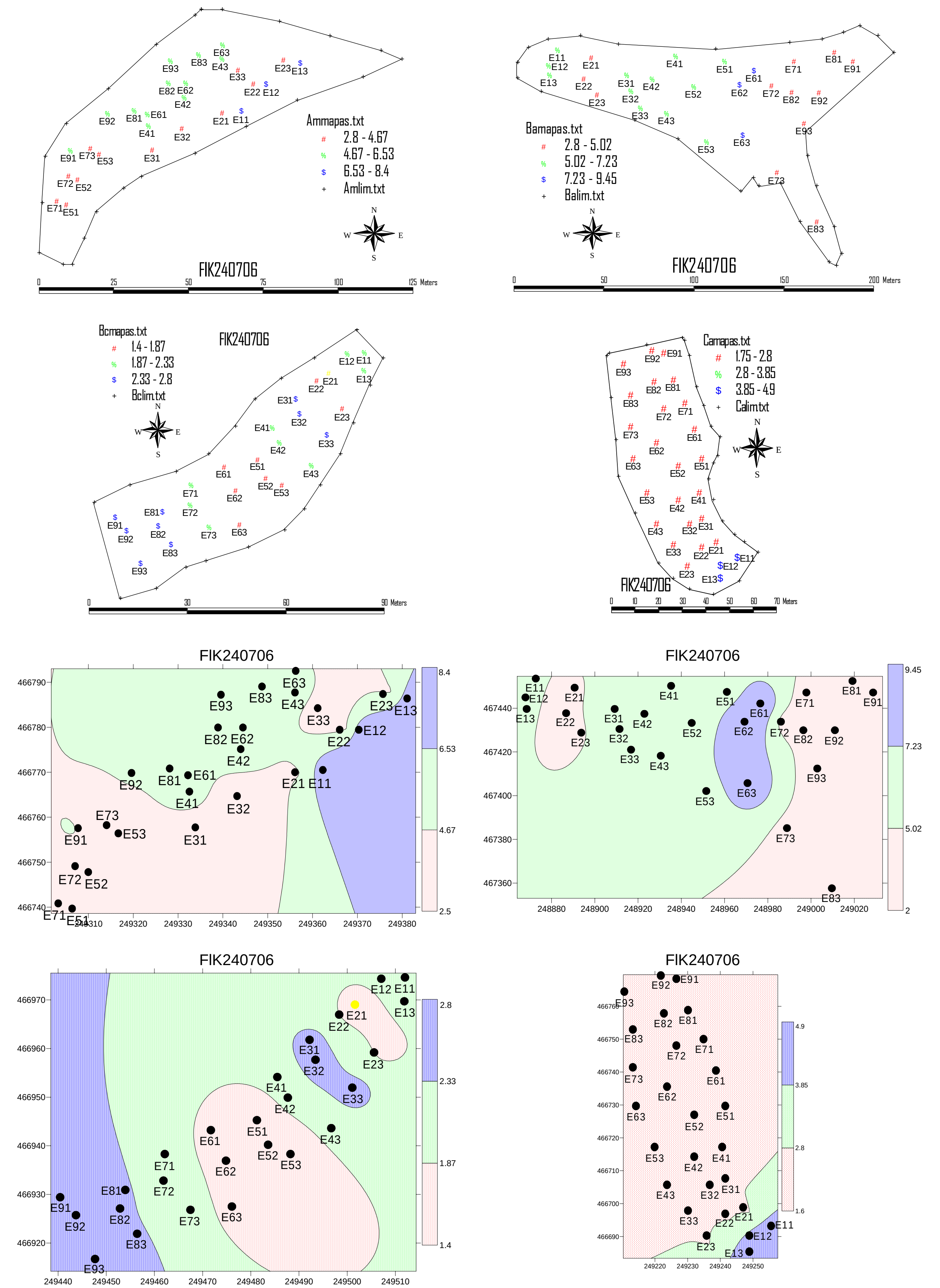


Figure 21- Spacial and cartographic distribution of 210606 leaf calcium data

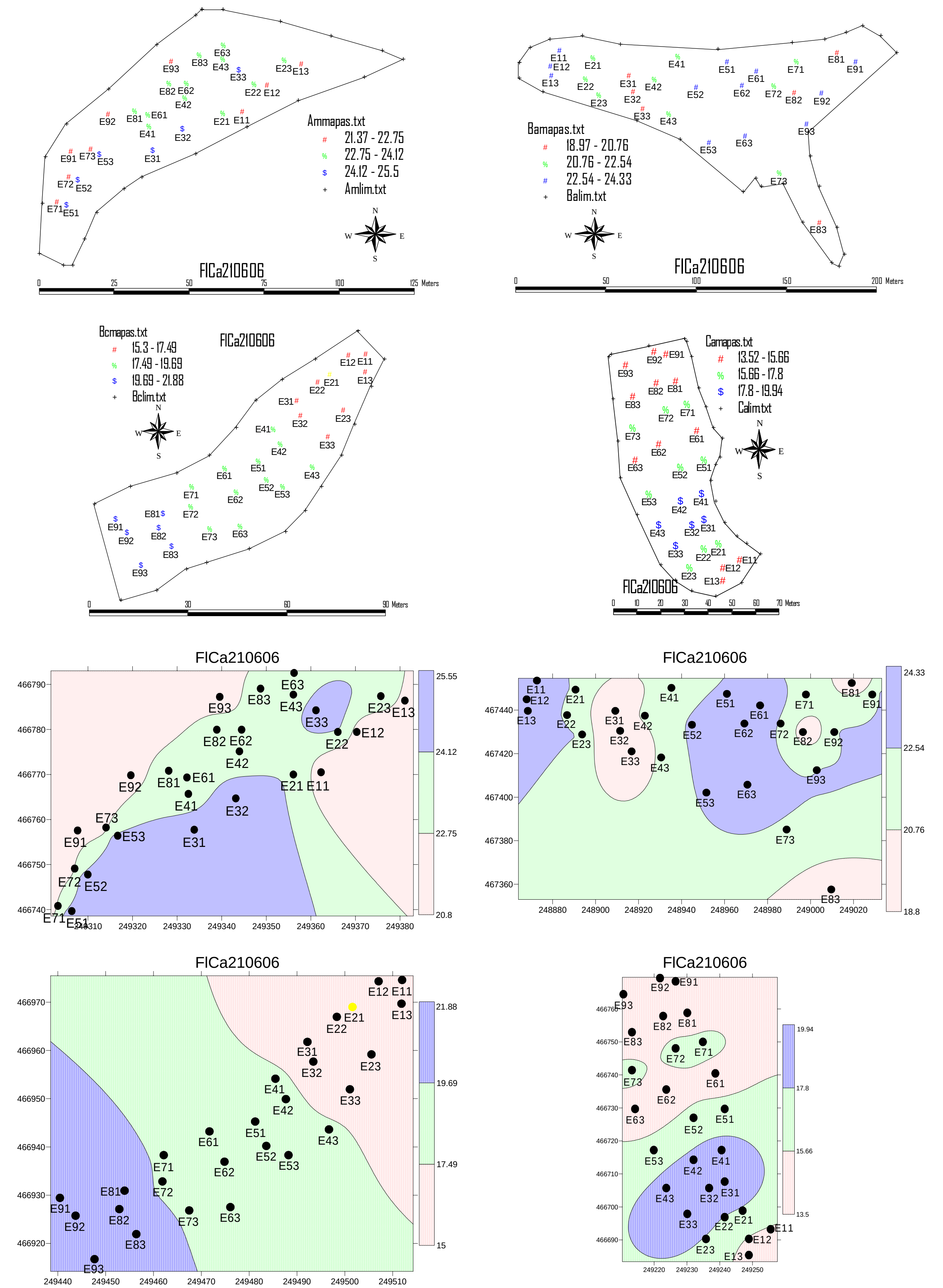


Figure 22- Spacial and cartographic distribution of 240706 leaf calcium data

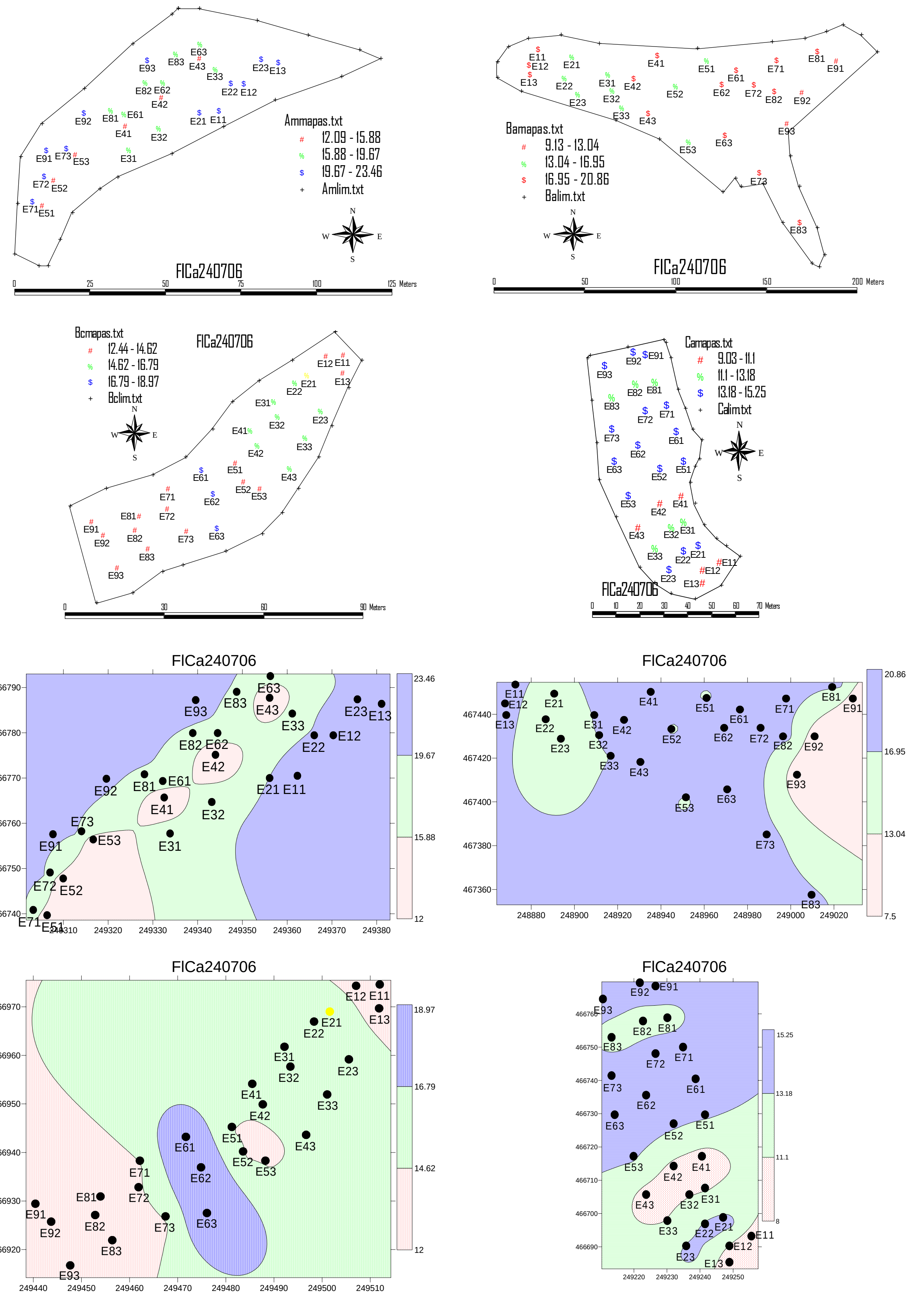


Figure 23- Spacial and cartographic distribution of 210606 leaf magnesium data

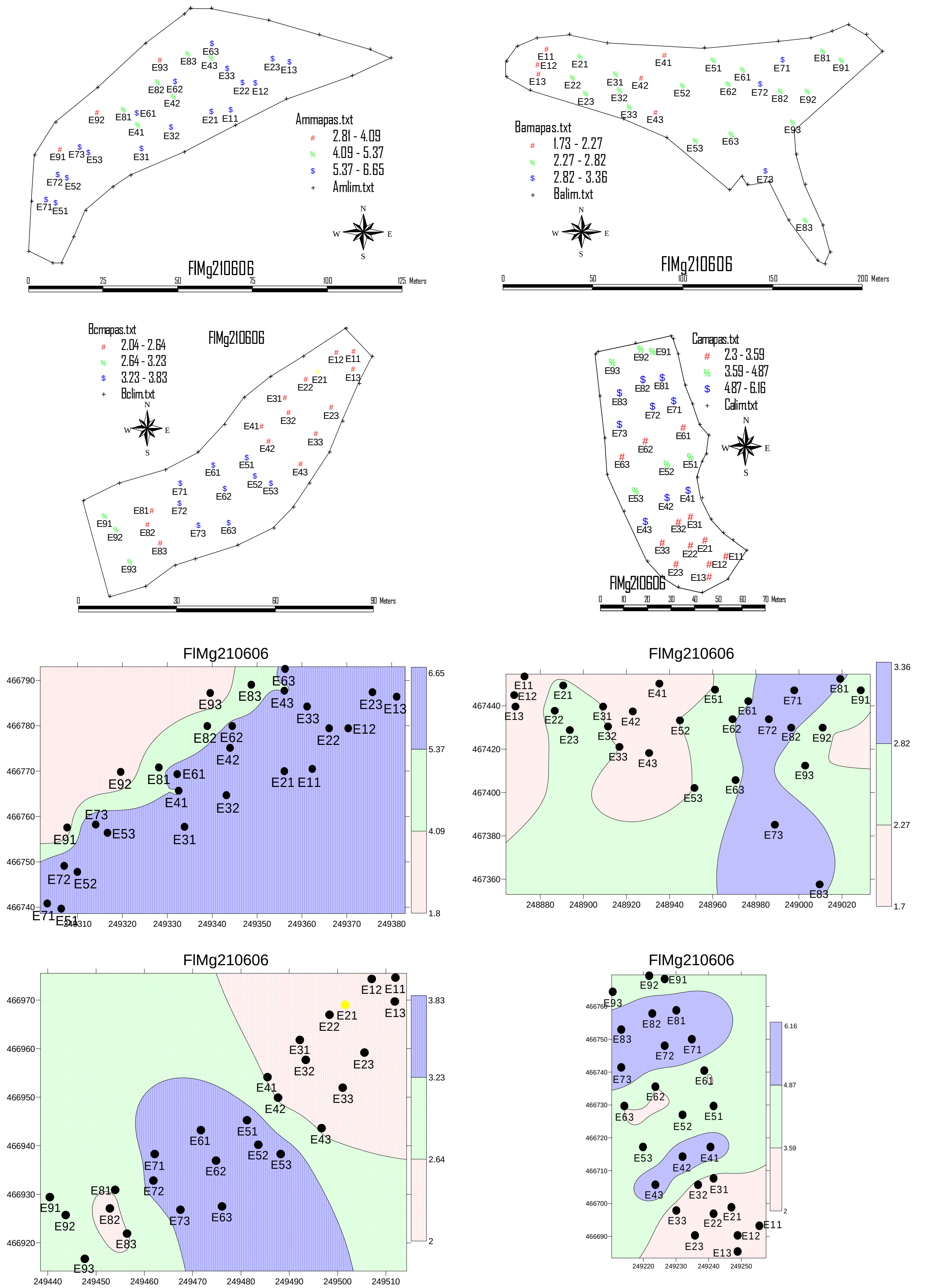


Figure 24- Spacial and cartographic distribution of 240706 leaf magnesium data

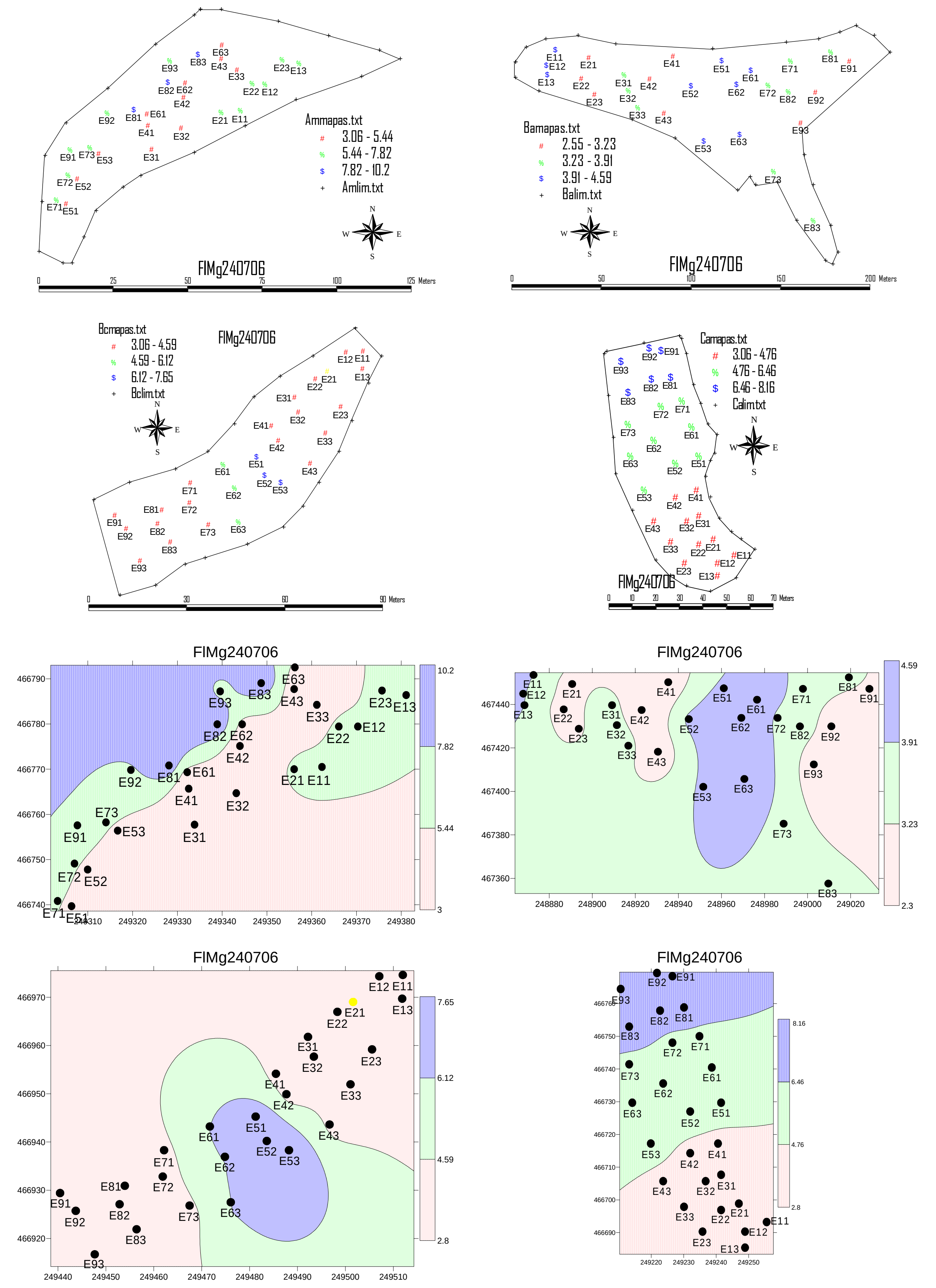


Figure 25- Spacial and cartographic distribution of 210606 leaf boron data

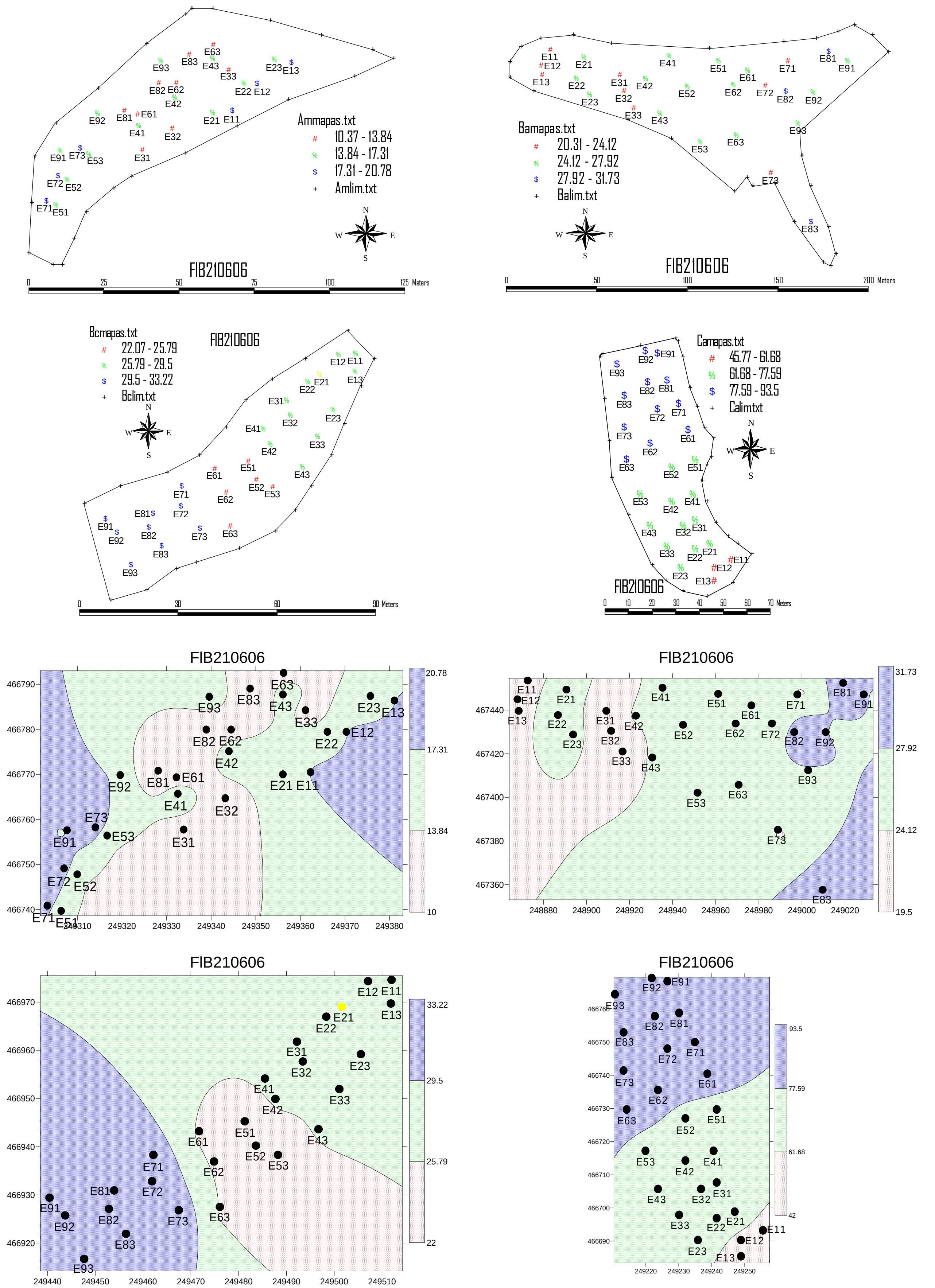


Figure 26- Spacial and cartographic distribution of 240706 leaf boron data

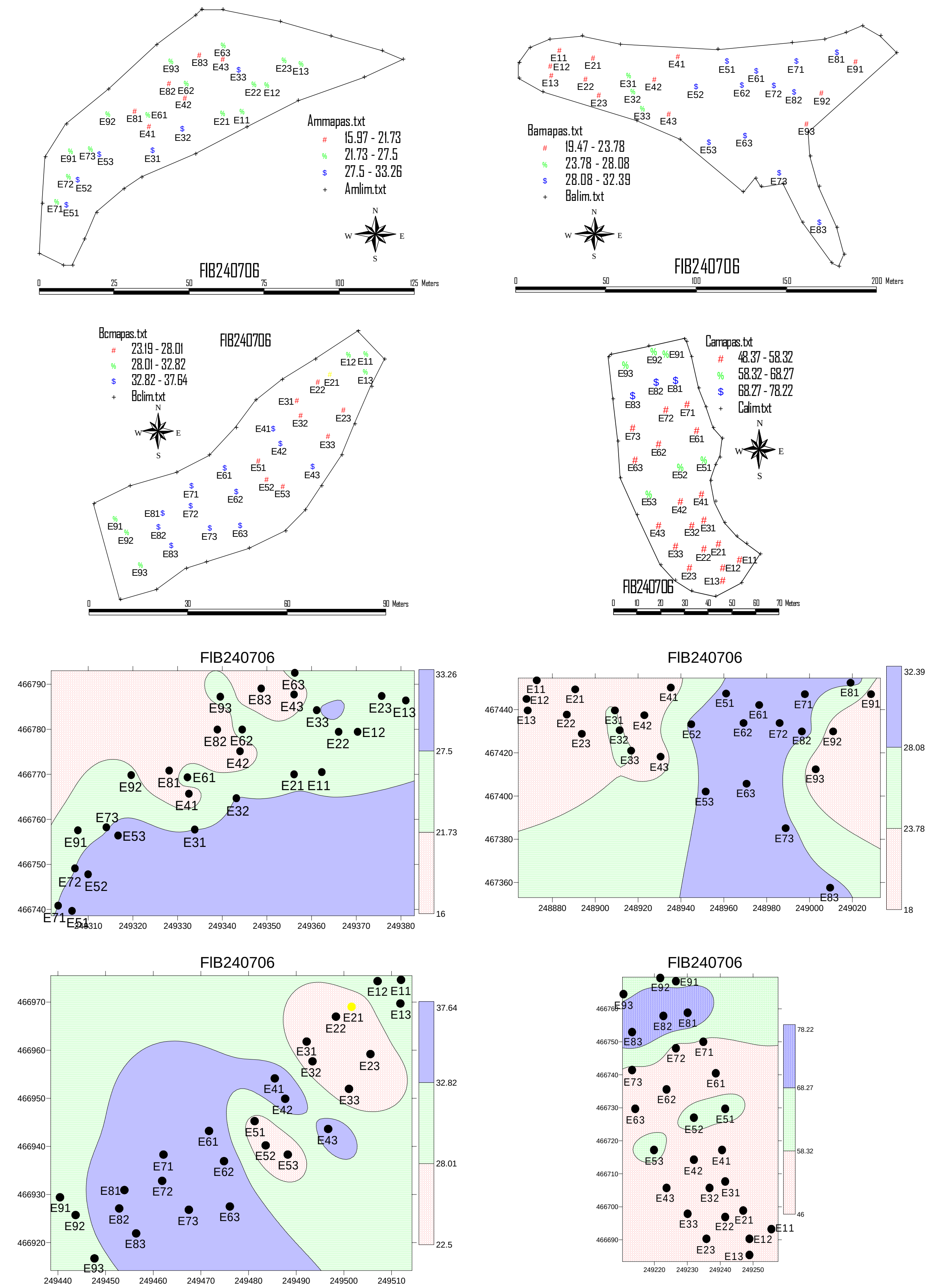


Figure 27- Spacial and cartographic distribution of 210606 leaf iron data

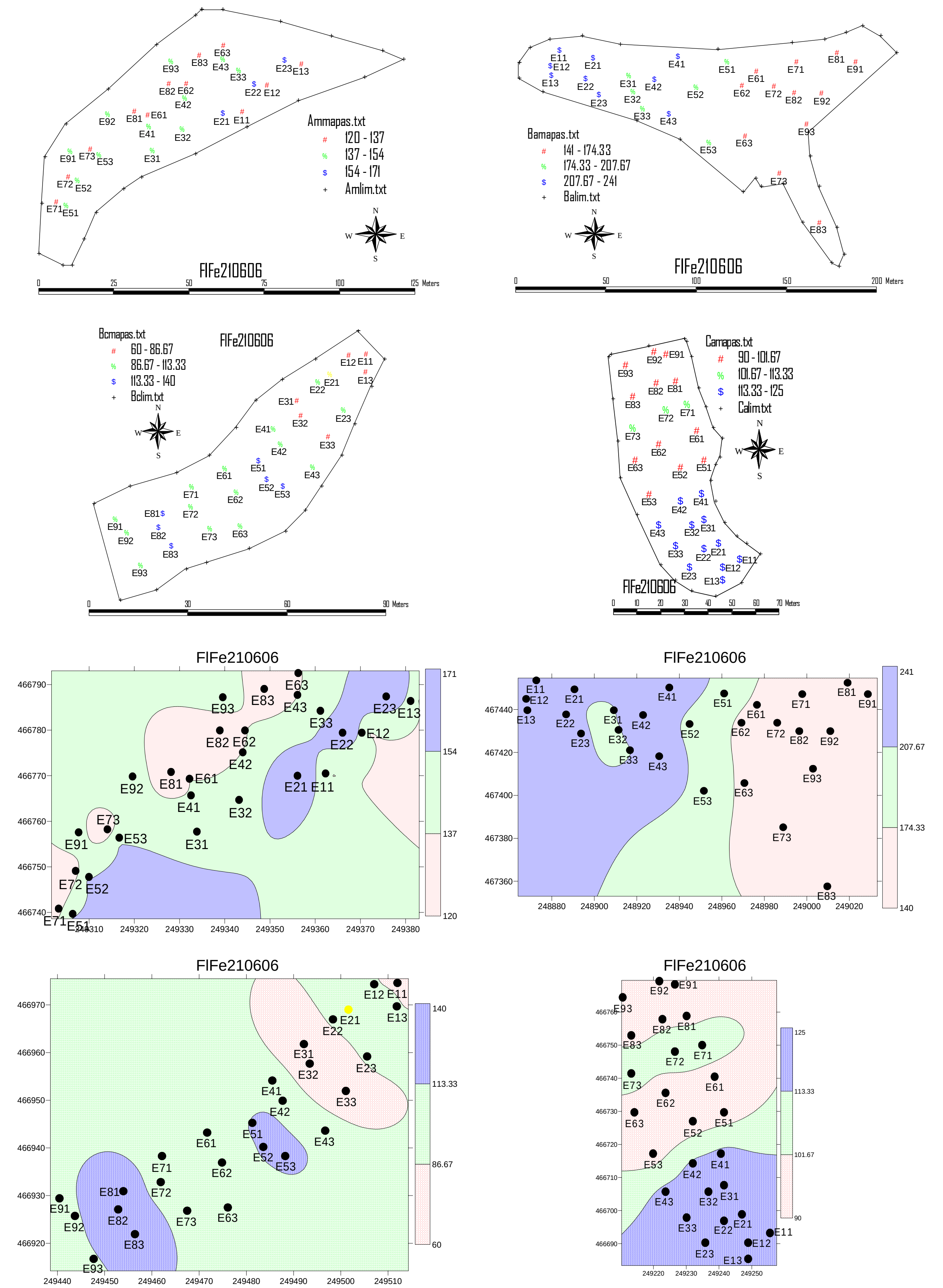


Figure 28- Spacial and cartographic distribution of 240706 leaf iron data

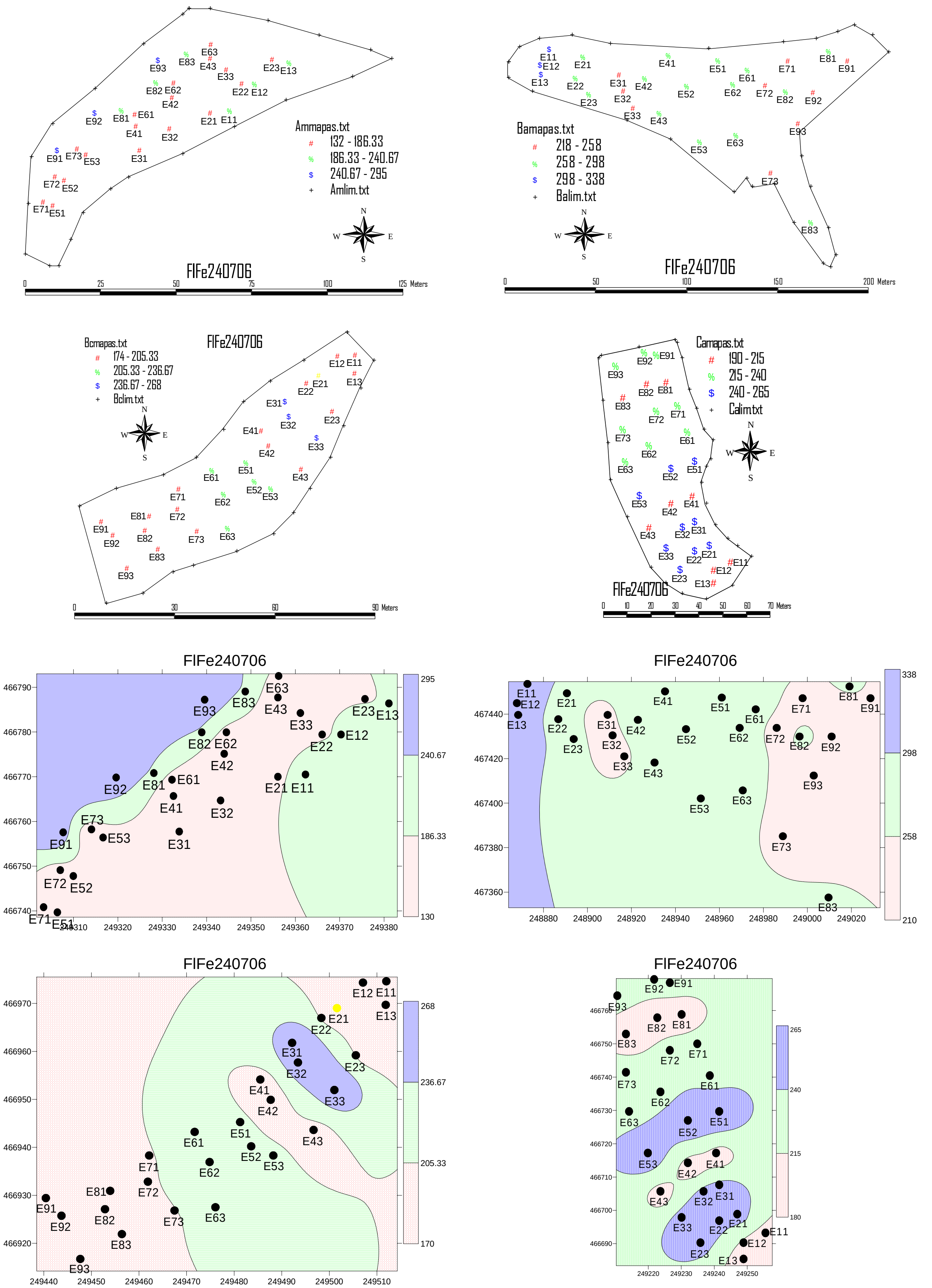


Figure 29- Spacial and cartographic distribution of 210606 leaf copper data

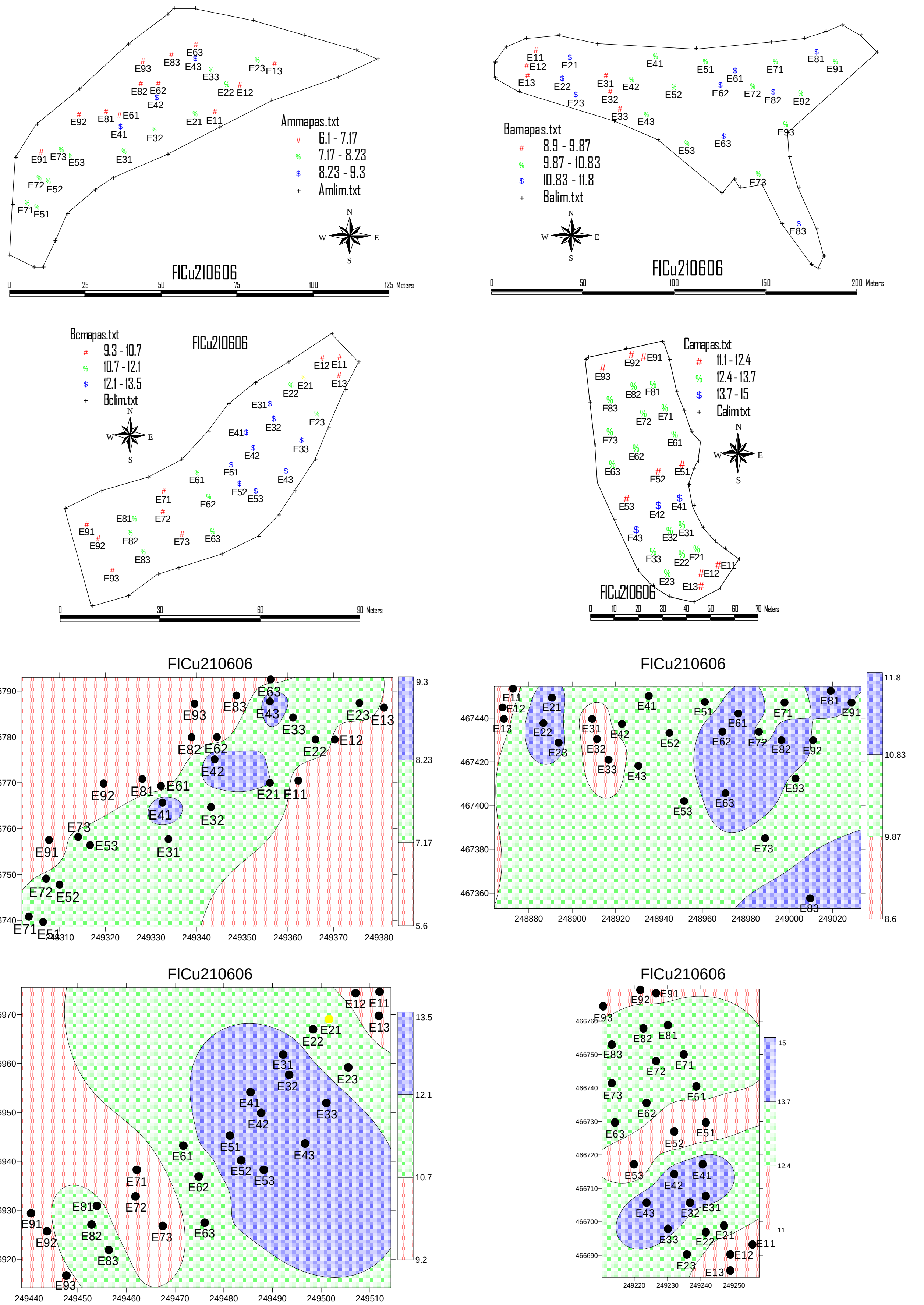


Figure 30- Spacial and cartographic distribution of 240706 leaf copper data

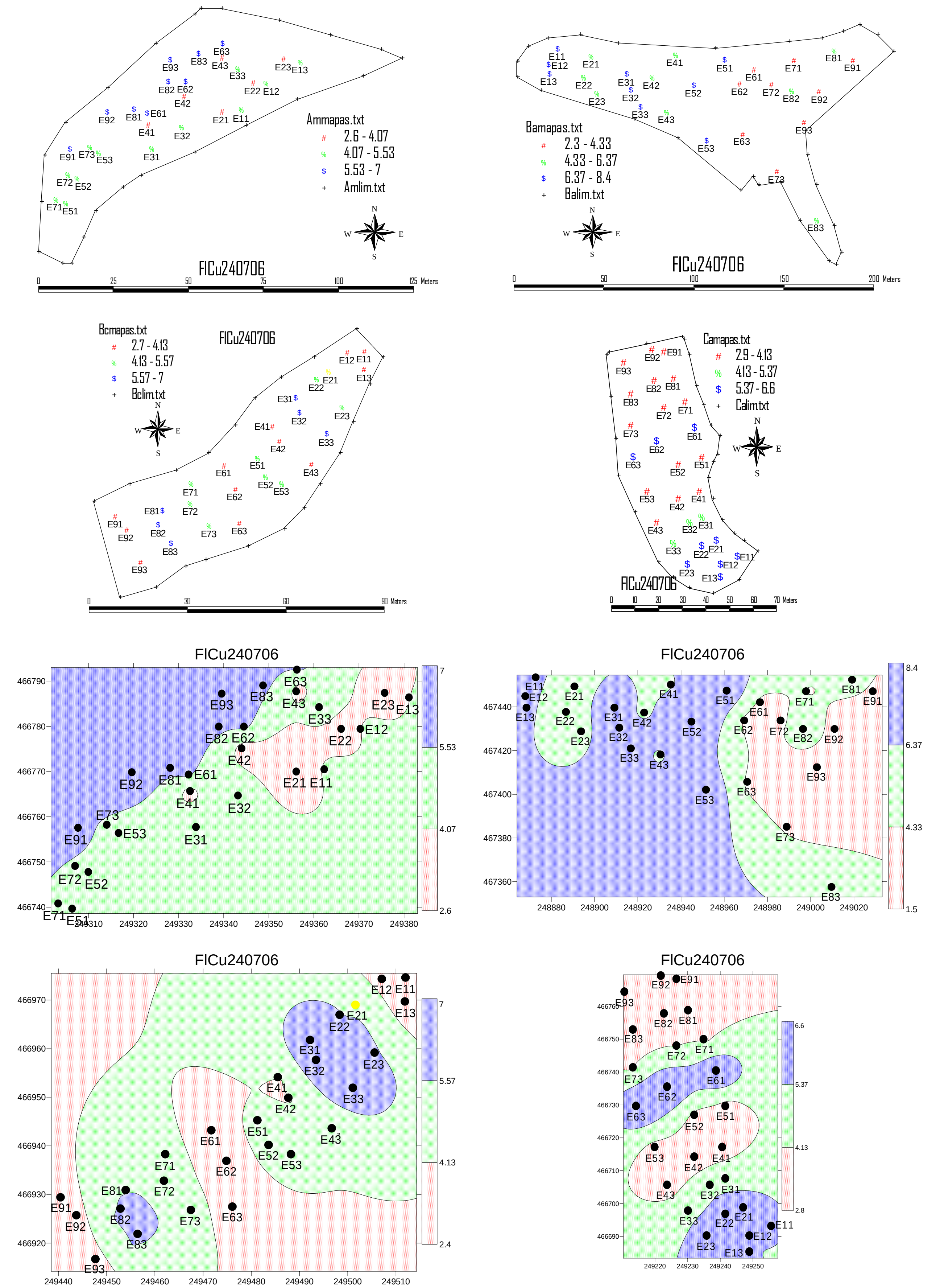


Figure 31- Spacial and cartographic distribution of 210606 leaf zinc data

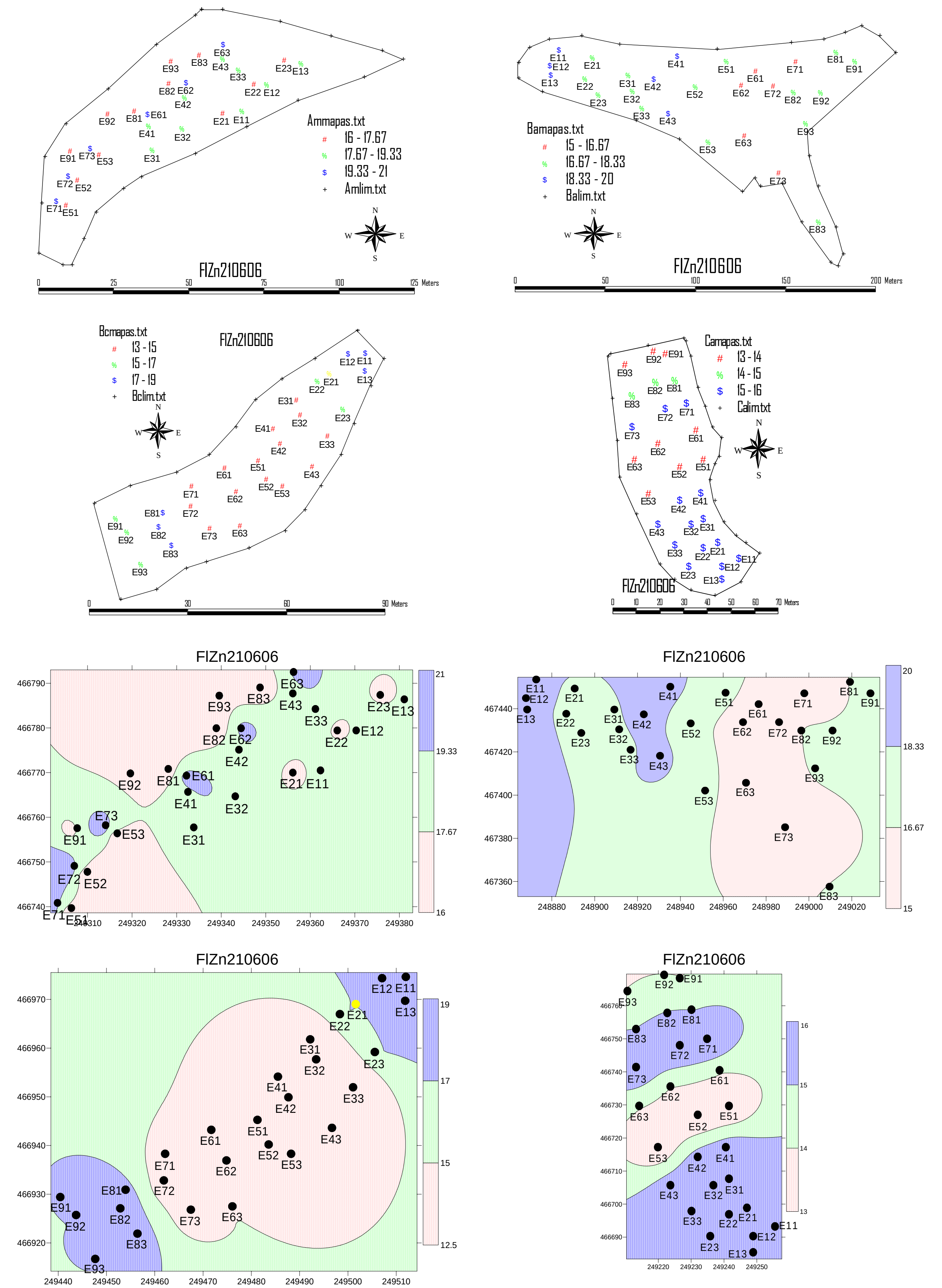


Figure 32- Spacial and cartographic distribution of 240706 leaf zinc data

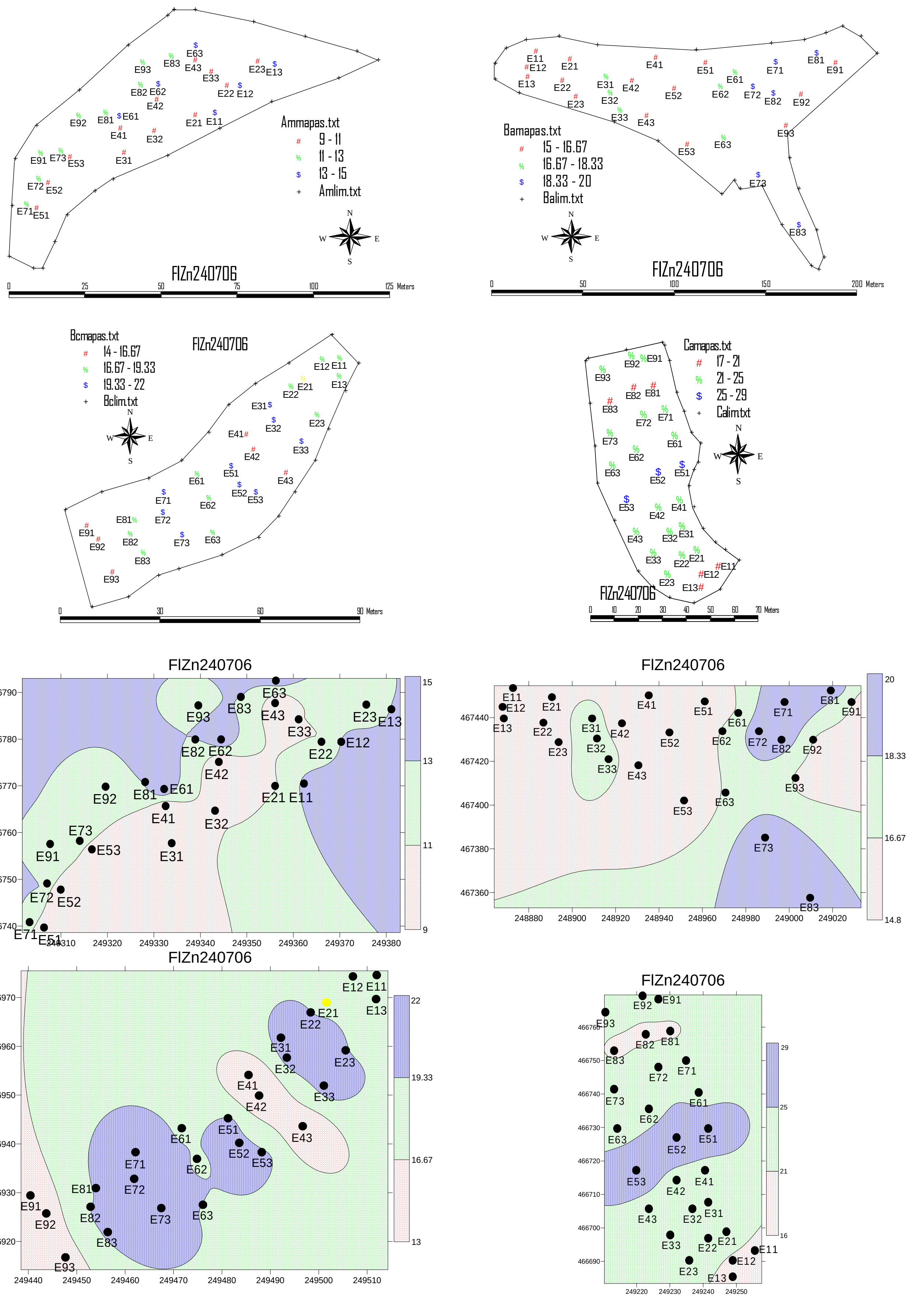


Figure 33- Spacial and cartographic distribution of 210606 leaf manganese data

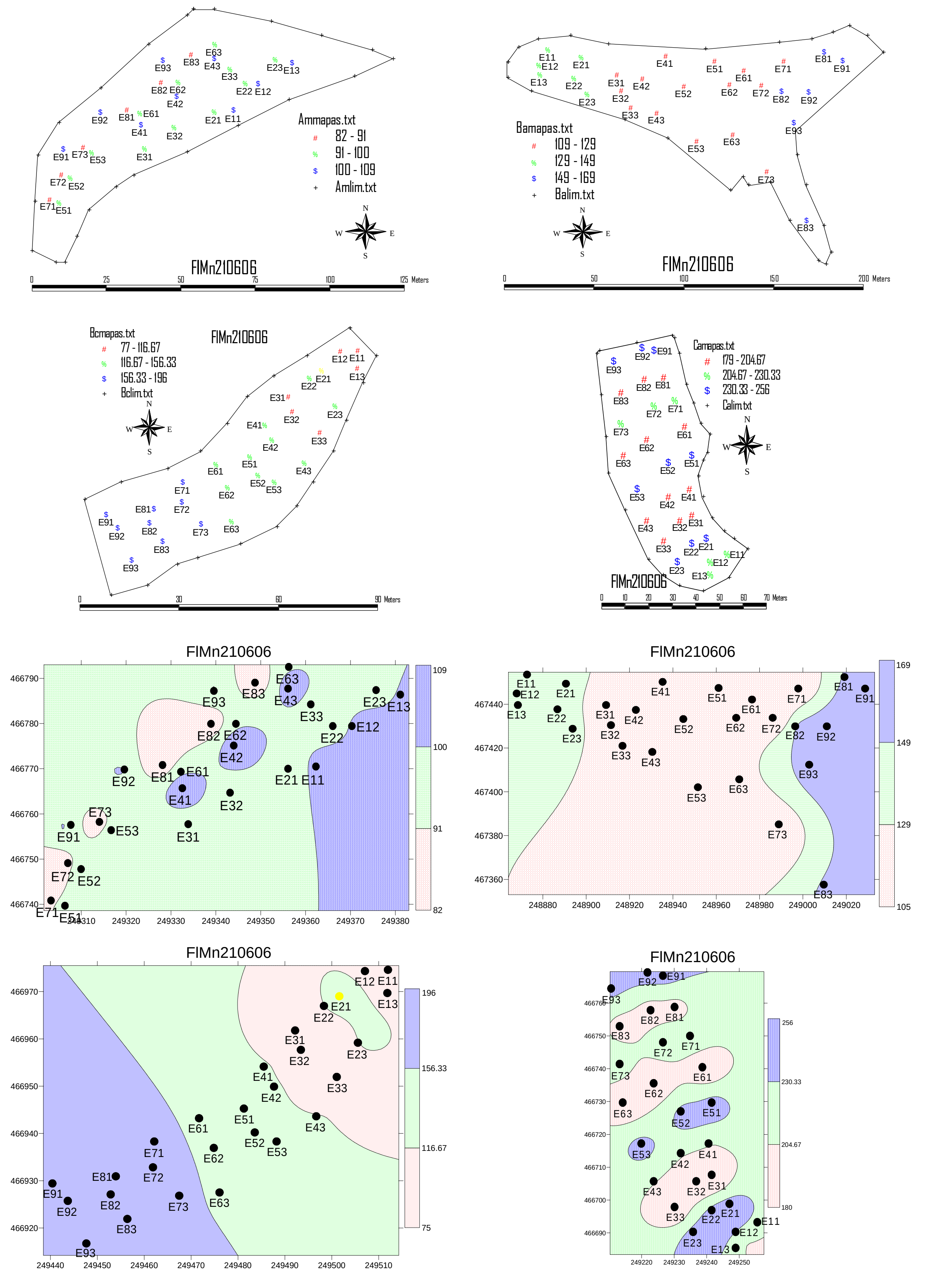


Figure 34- Spacial and cartographic distribution of 240706 leaf manganese data

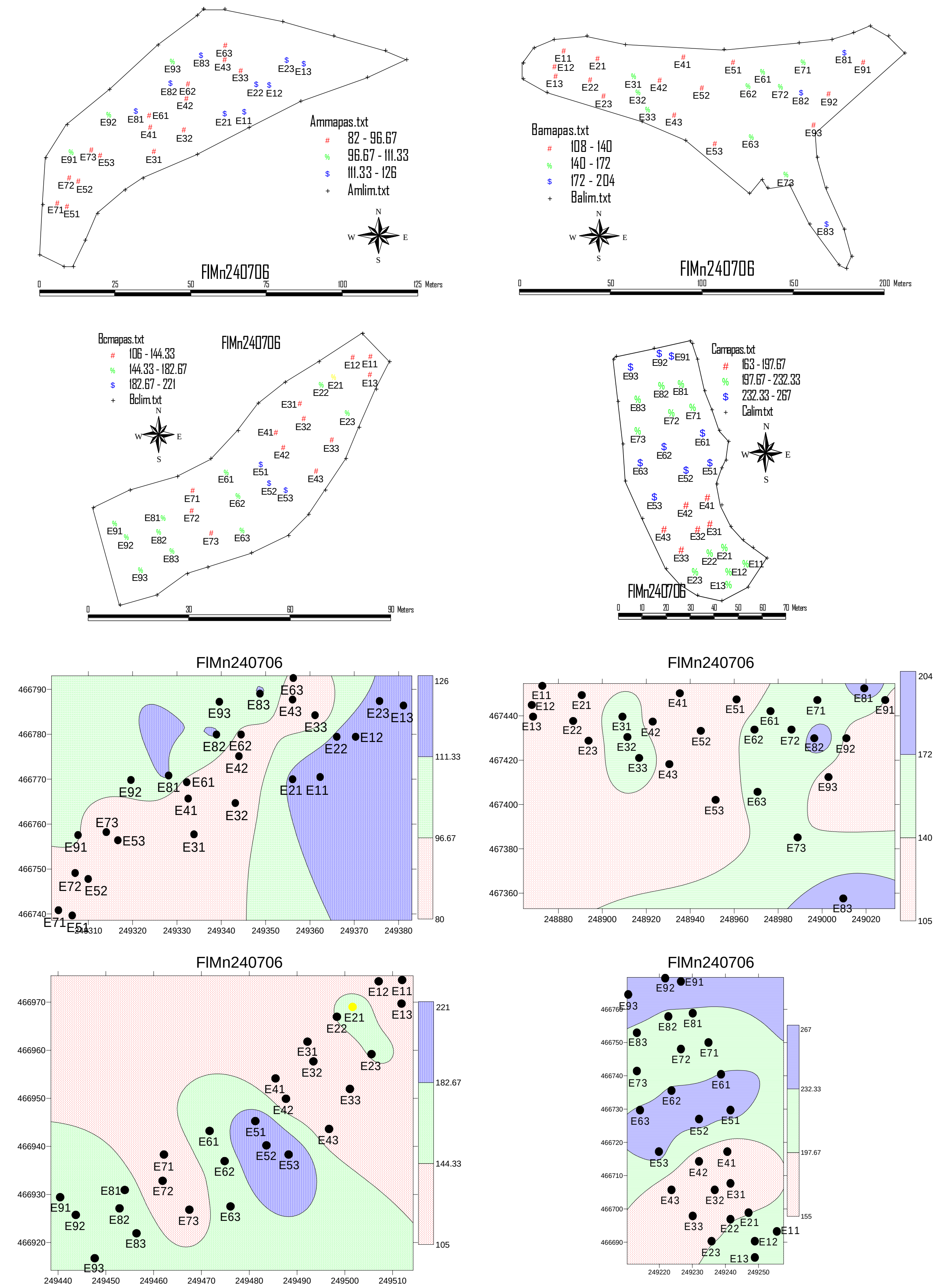


Figure 35- Spacial and cartographic distribution of 080306 weight wood

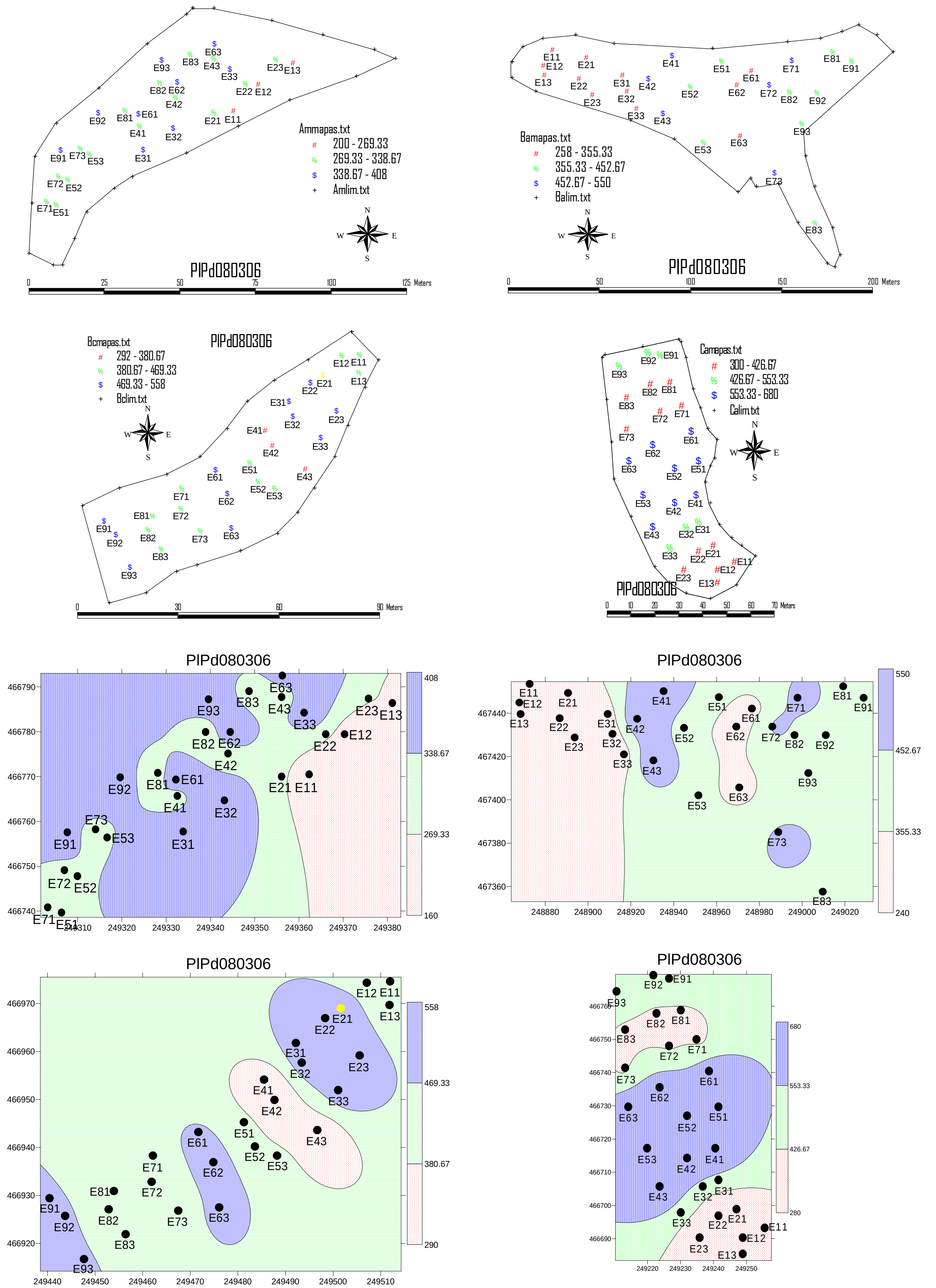
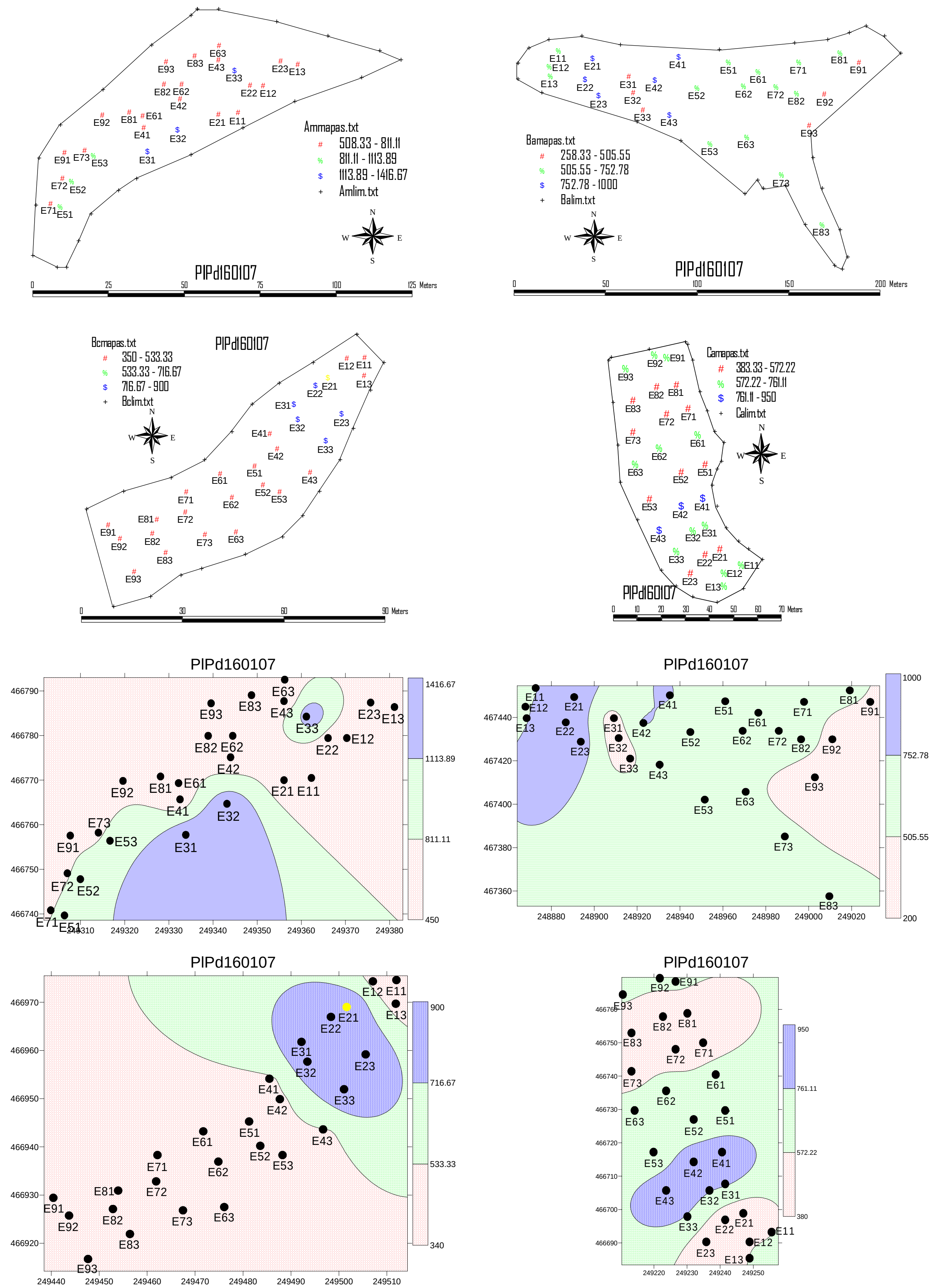


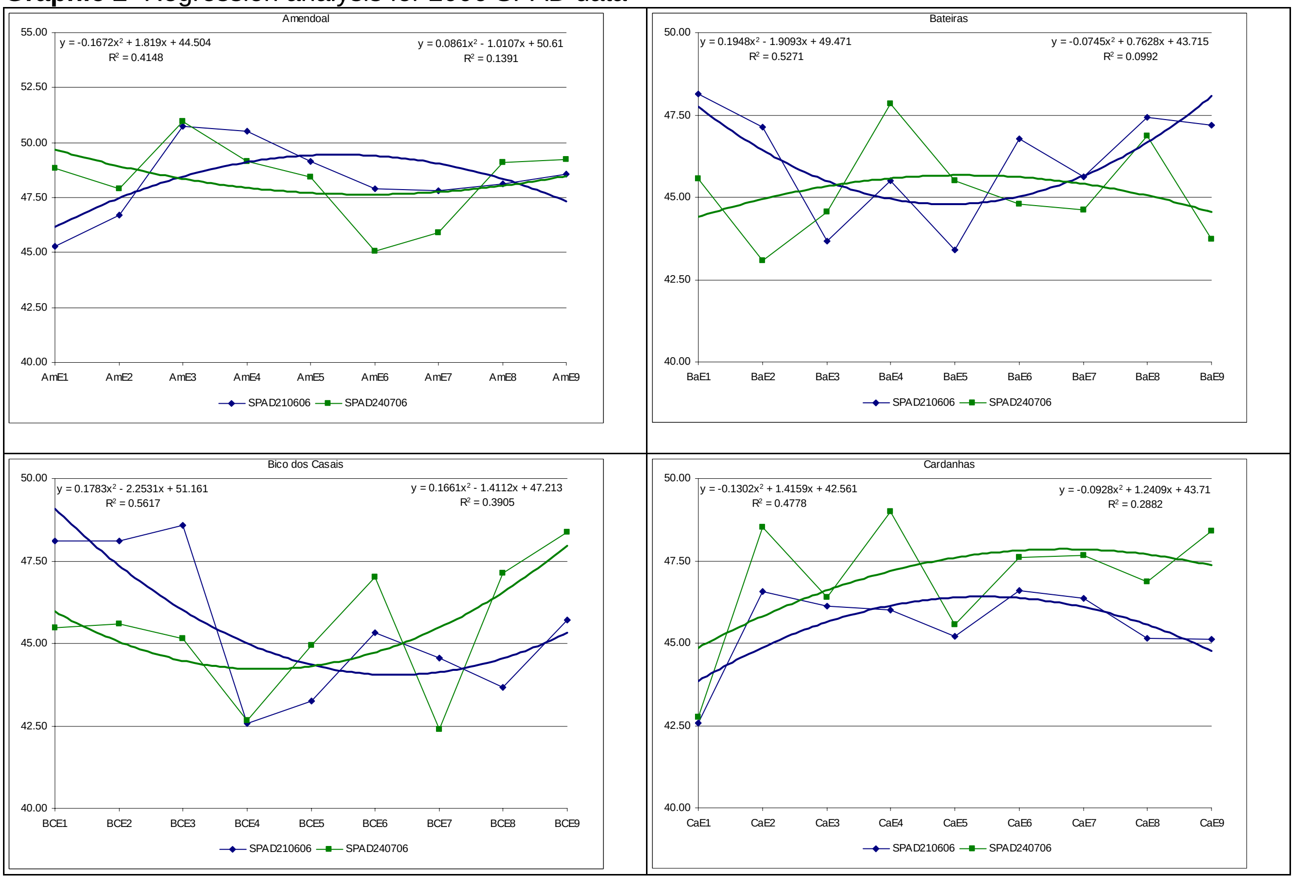
Figure 36- Spacial and cartographic distribution of 150107 weight wood



Graphic 1- Regression analysis for 2005 SPAD data

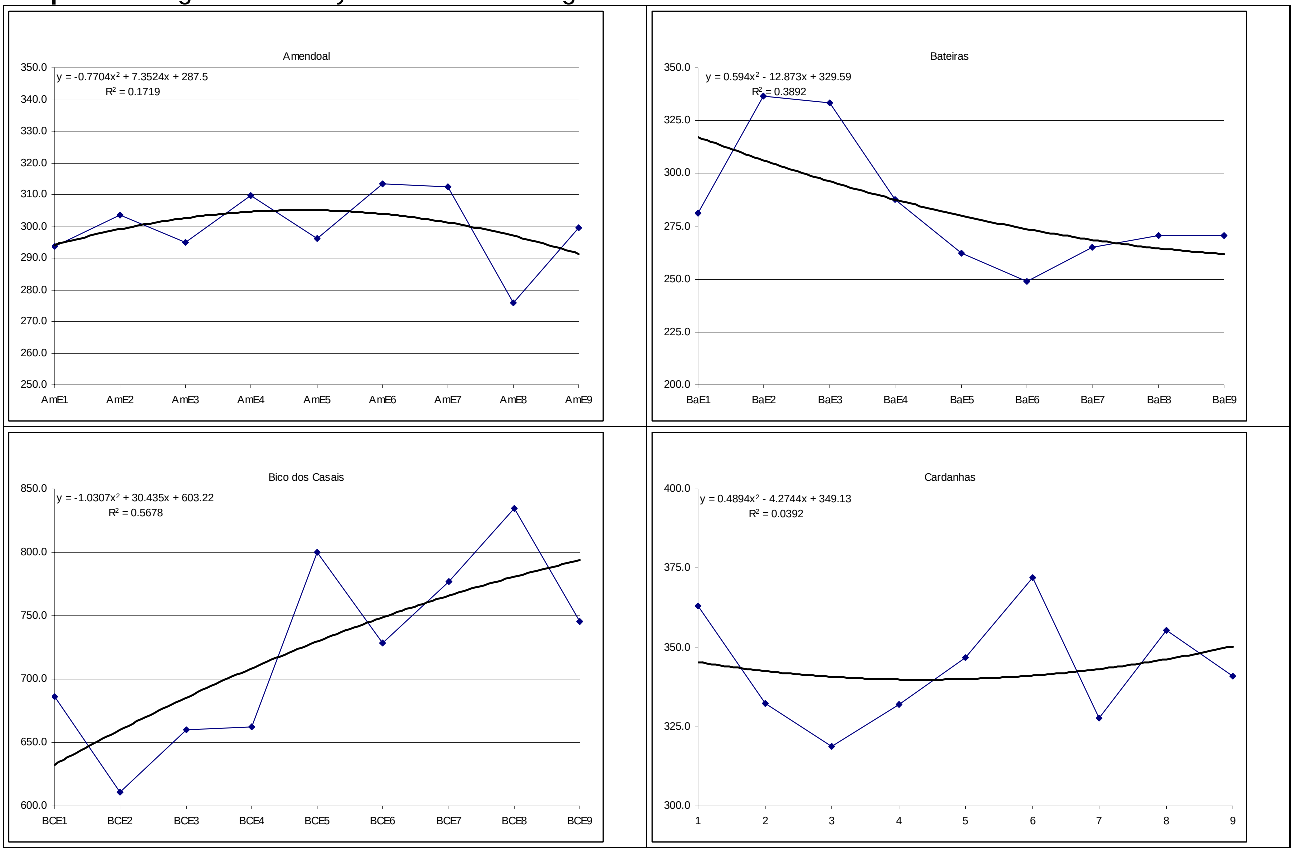
1905055- NS, NS, NS, S   170605- NS, NS, S, S   250705- NS, NS, NS, S

Graphic 2- Regression analysis for 2006 SPAD data



210606- S, S, S, NS   240706- S, NS, S, S

Graphic 3- Regression analysis for 2005 average data leaves area

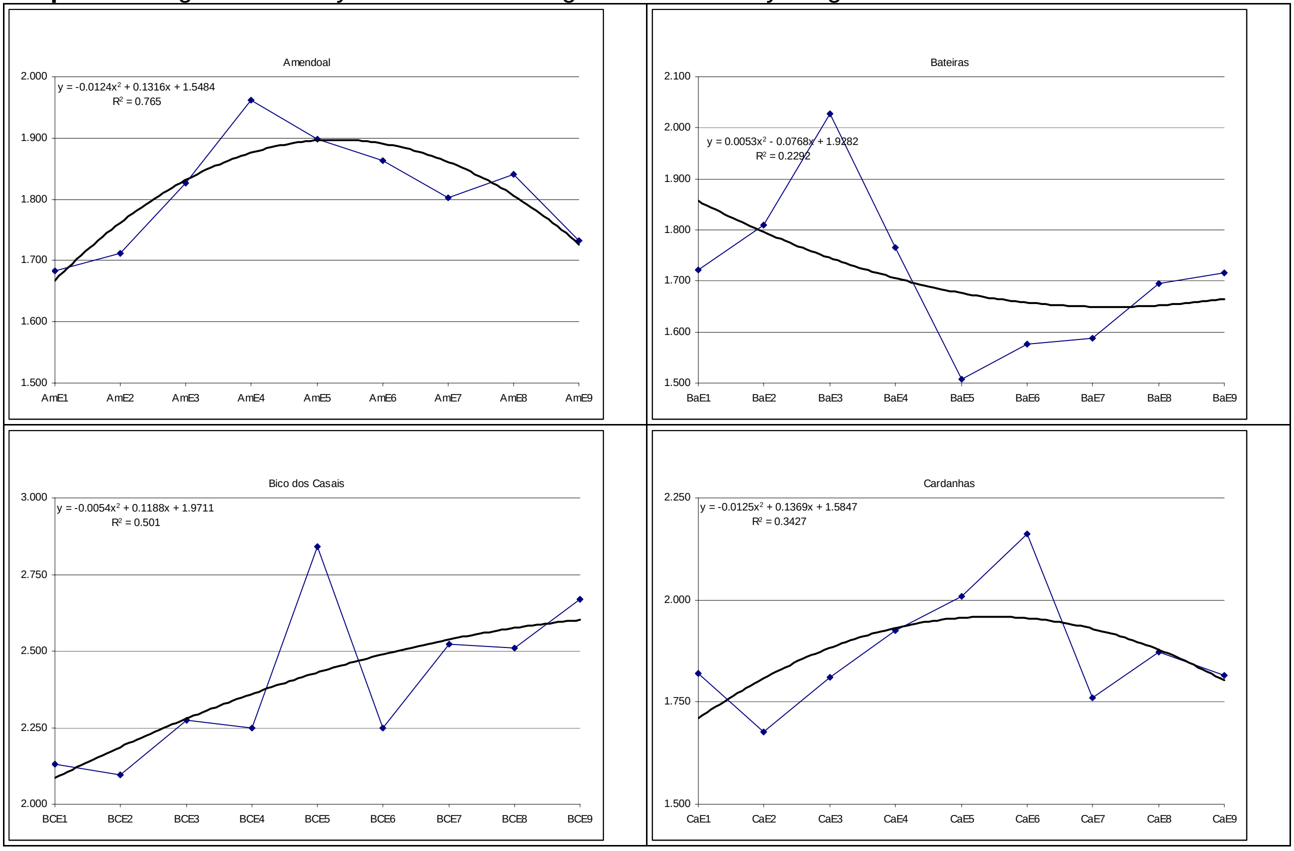


170605- NS, S, NS, NS

Graphic 4- Regression analysis for 2006 average data leaves area

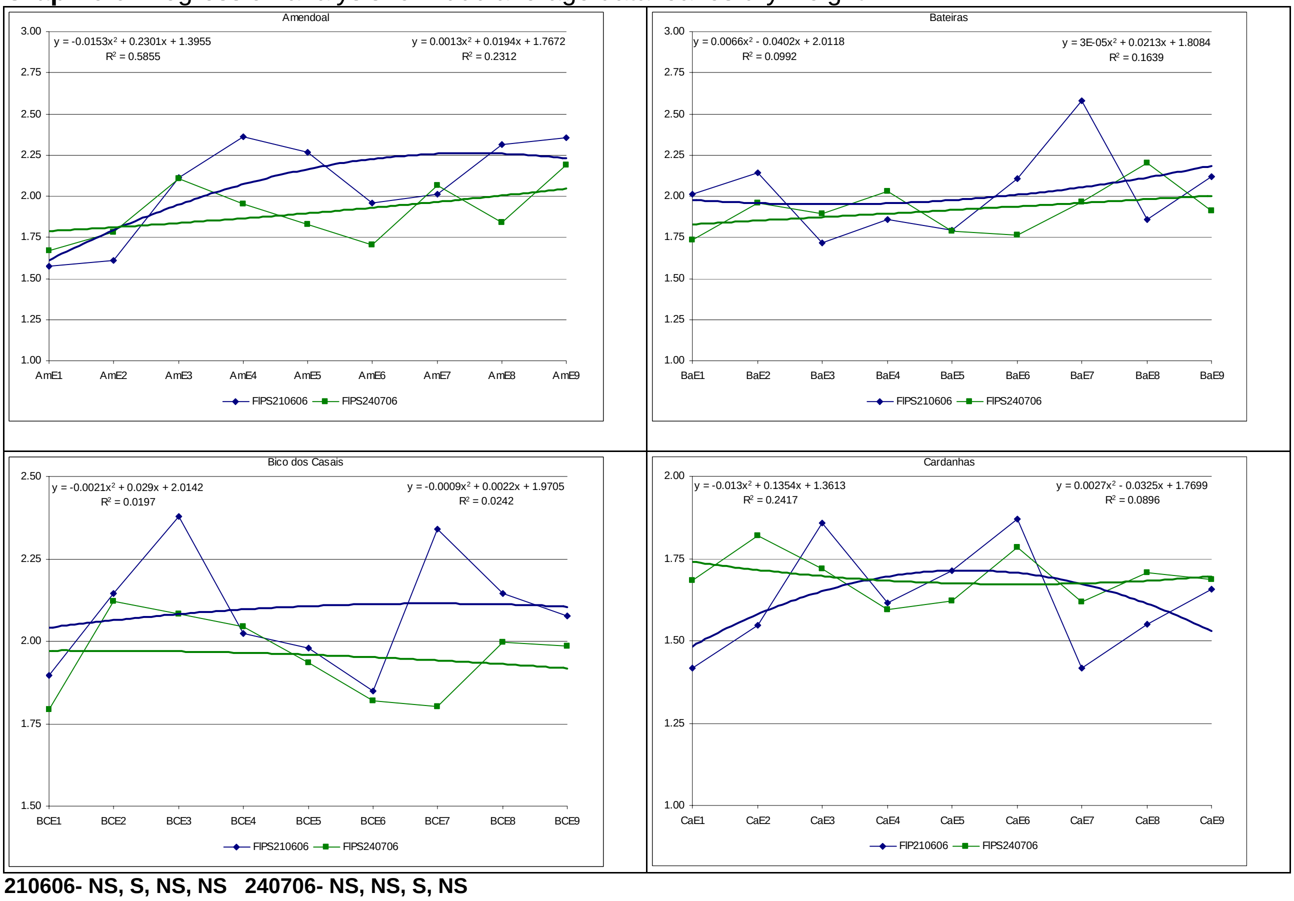
210606- NS, NS, NS, NS 240706- NS, NS, NS, NS

Graphic 5- Regression analysis for 2005 average data leaves dry weight



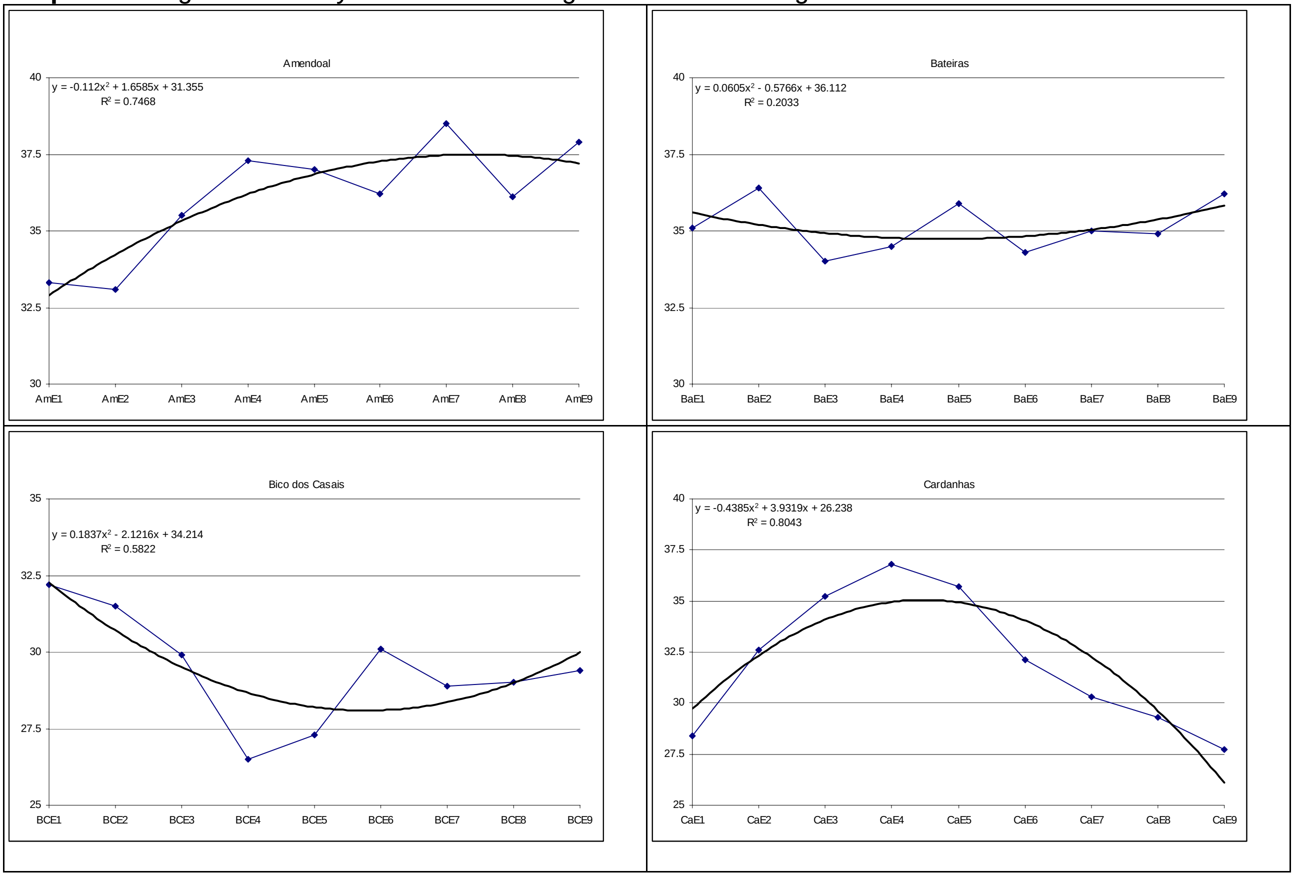
170605- NS, S, S, NS

Graphic 6- Regression analysis for 2006 average data leaves dry weight



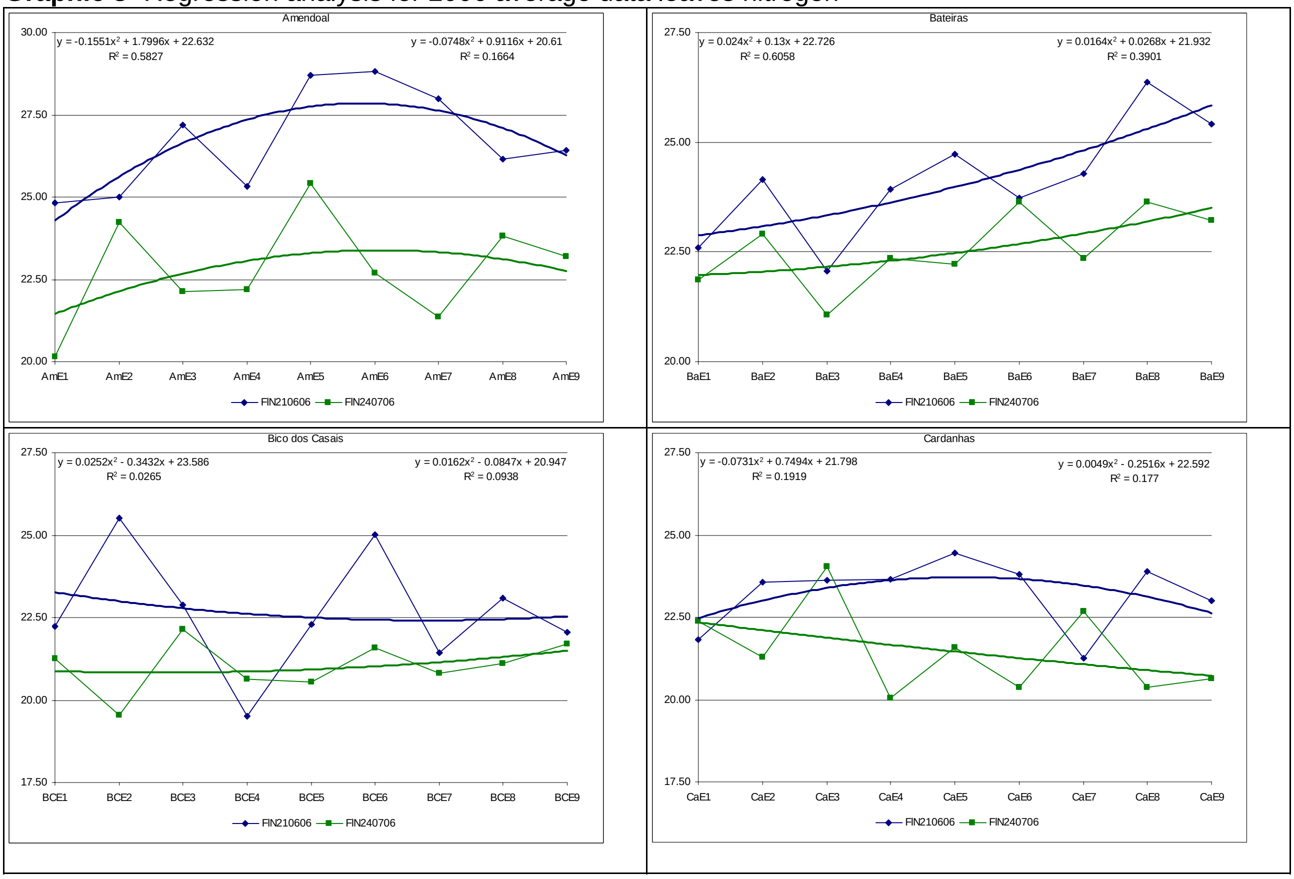
210606- NS, S, NS, NS   240706- NS, NS, S, NS

Graphic 7- Regression analysis for 2005 average data leaves nitrogen



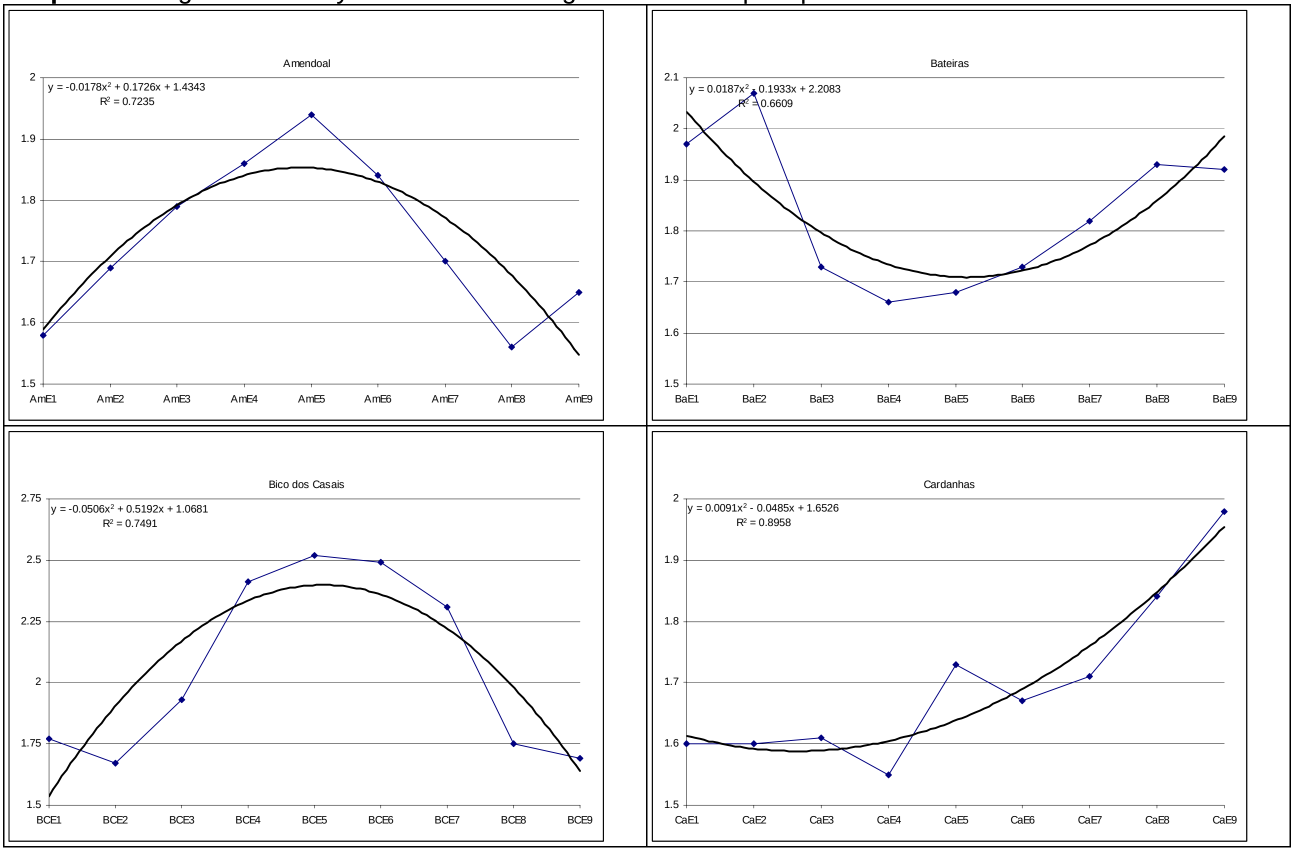
170605- S, NS, NS, NS

Graphic 8- Regression analysis for 2006 average data leaves nitrogen



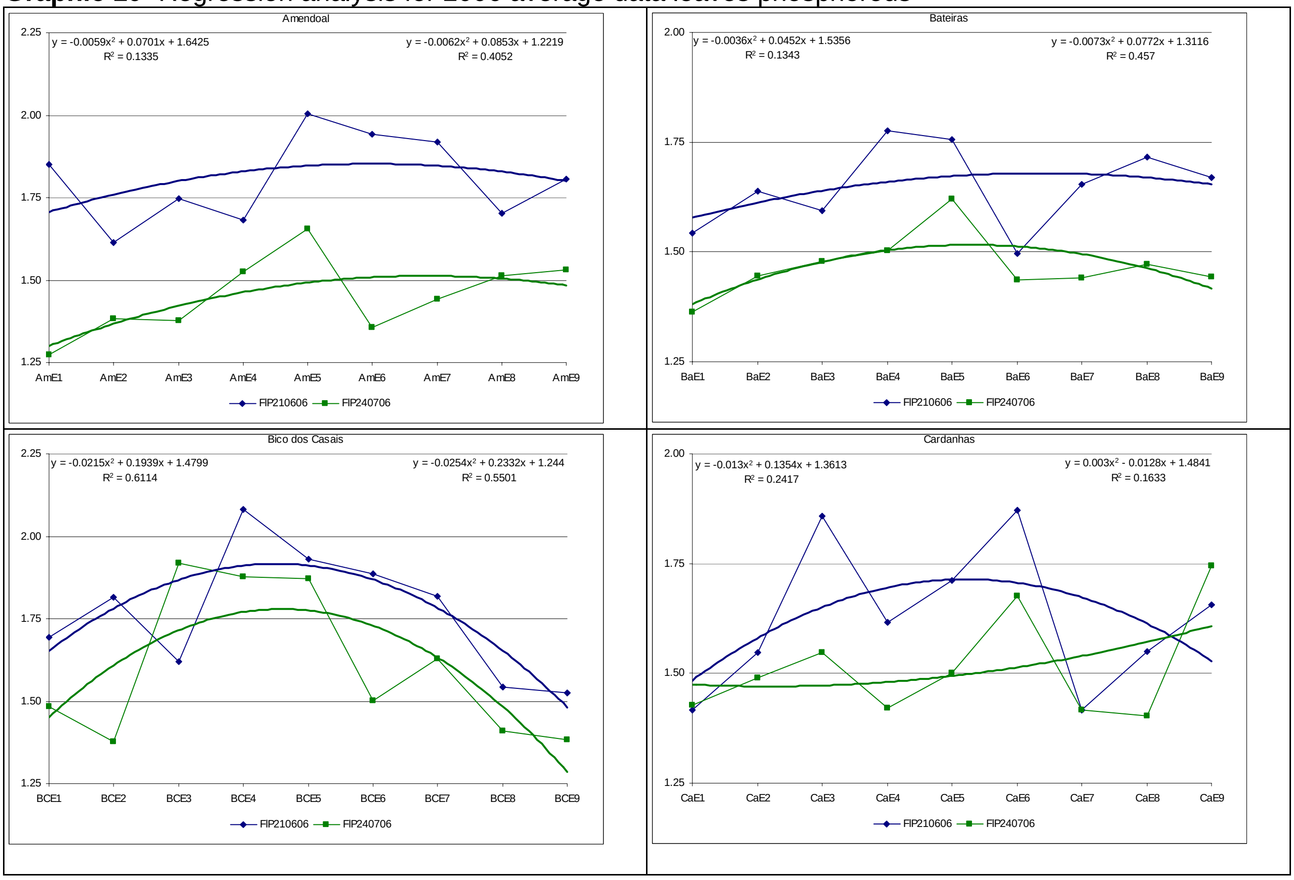
210606- NS, S, NS, NS 240706- NS, NS, NS, NS

Graphic 9- Regression analysis for 2005 average data leaves phosphorous



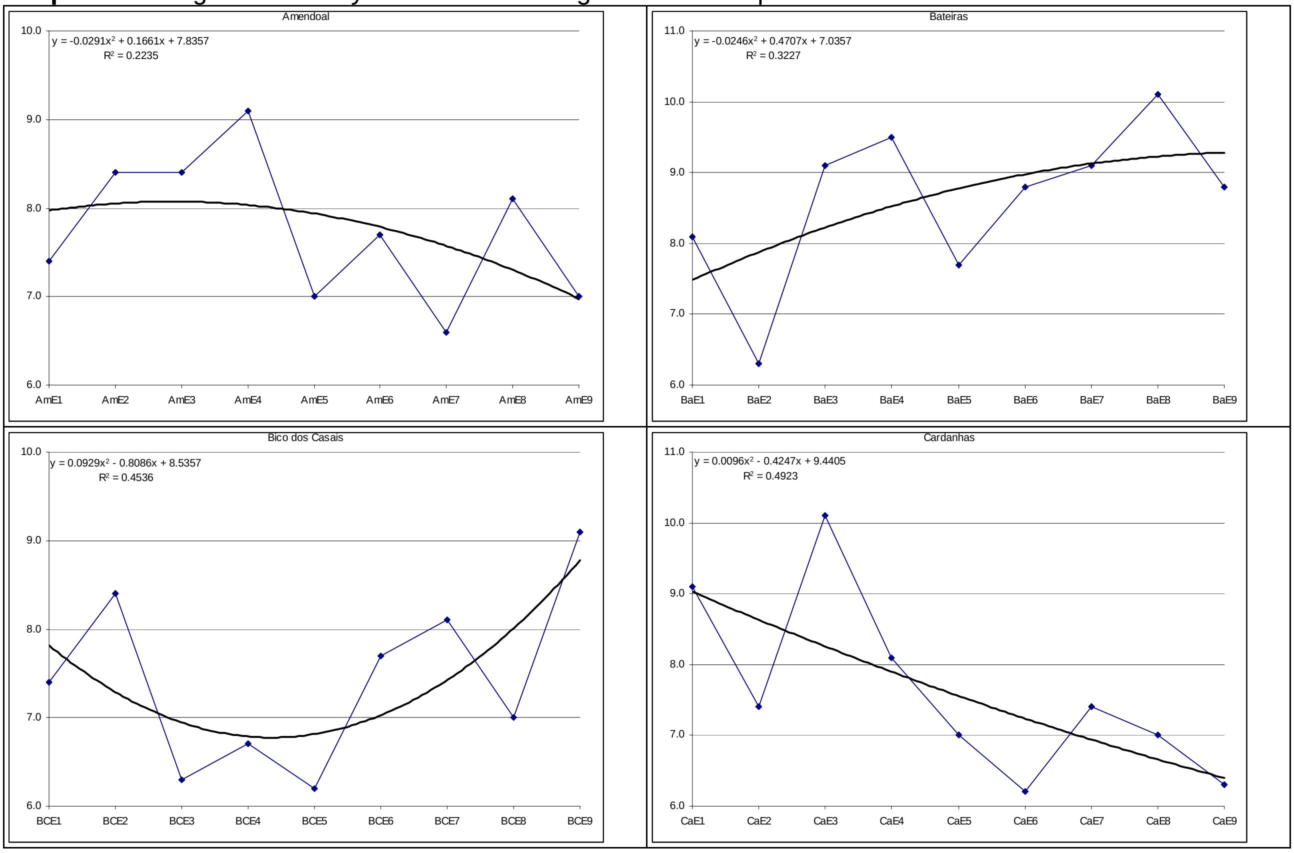
170605- NS, NS, S, S

Graphic 10- Regression analysis for 2006 average data leaves phosphorous



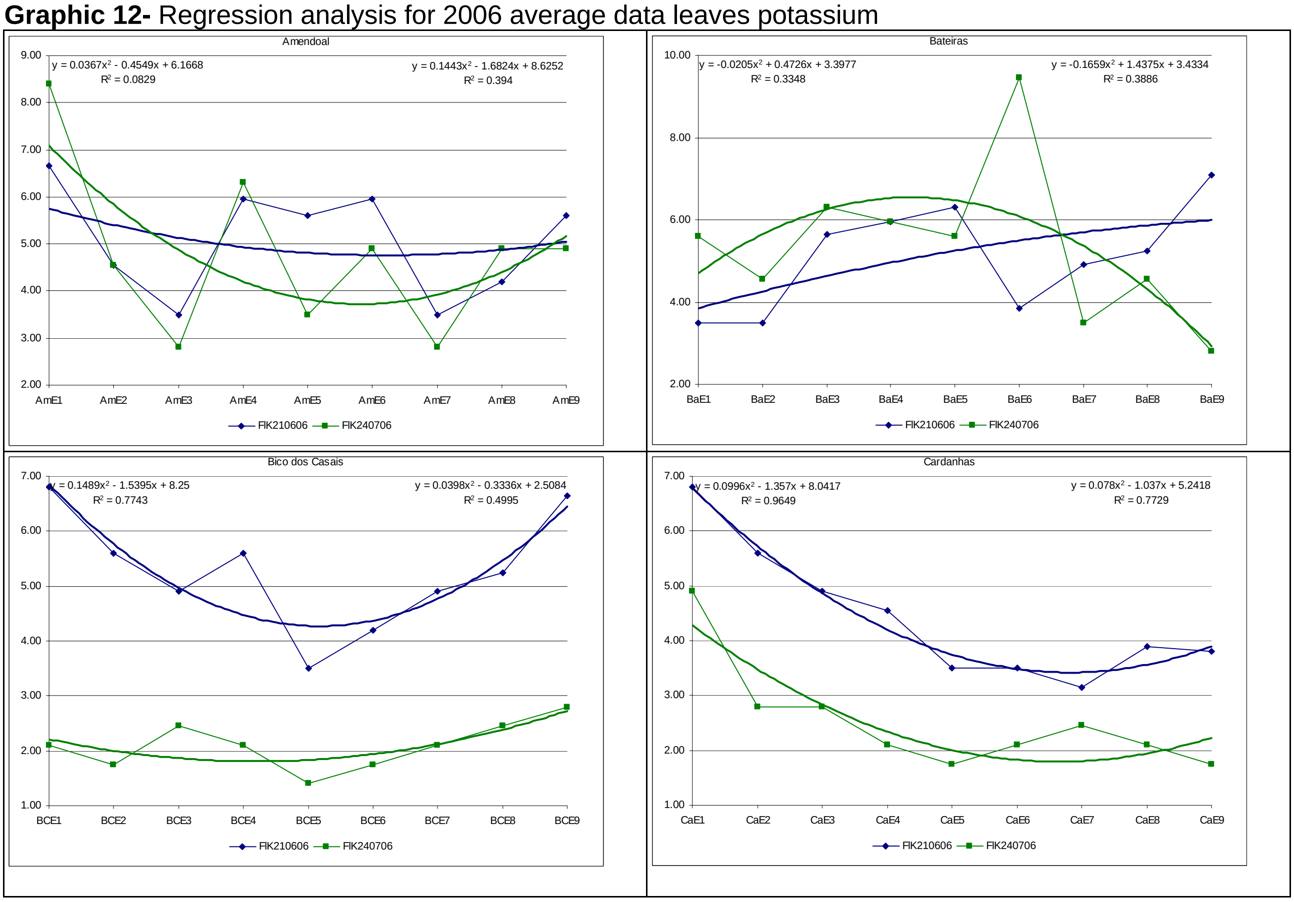
210606- NS, NS, S, N   240706- NS, NS, NS, NS

Graphic 11- Regression analysis for 2005 average data leaves potassium



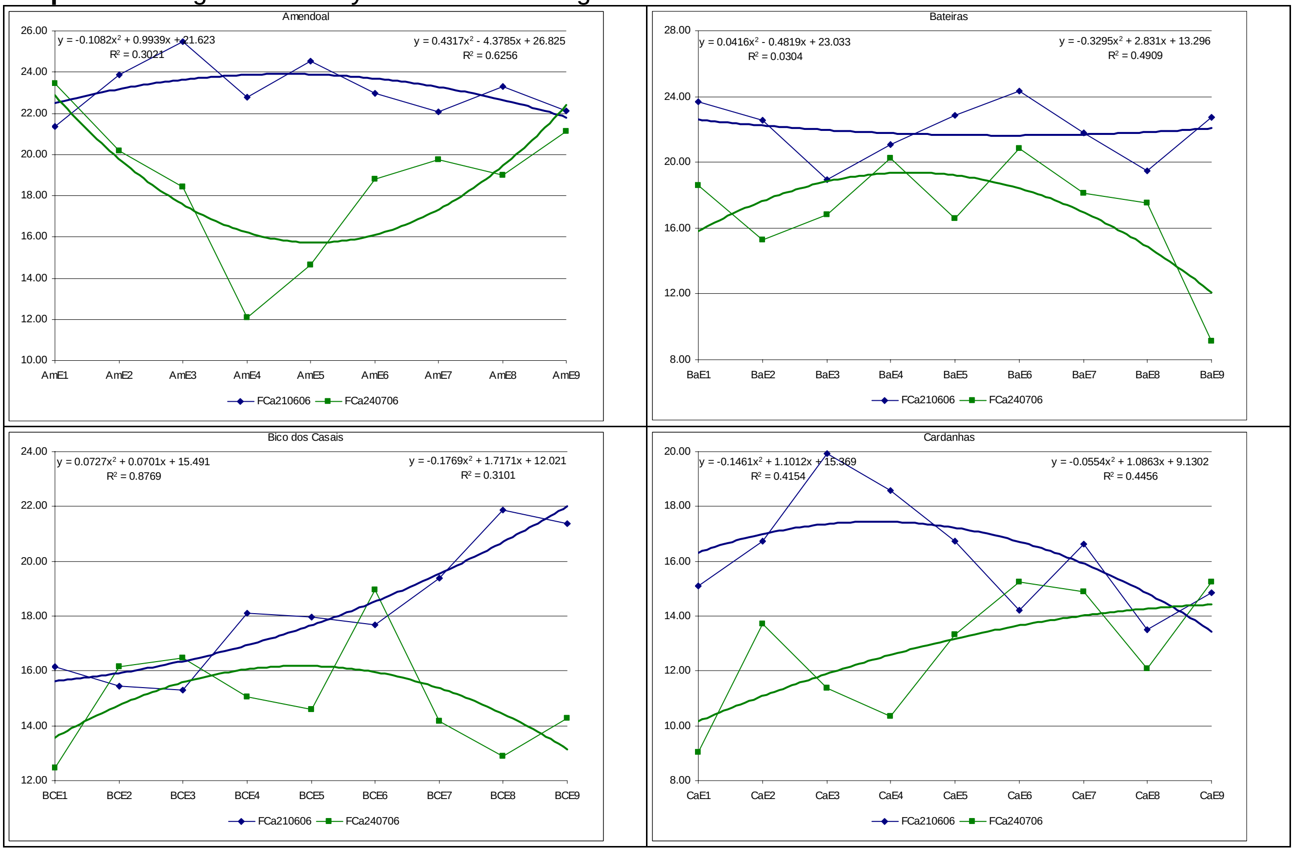
170605- NS, NS, NS, NS

Graphic 12- Regression analysis for 2006 average data leaves potassium



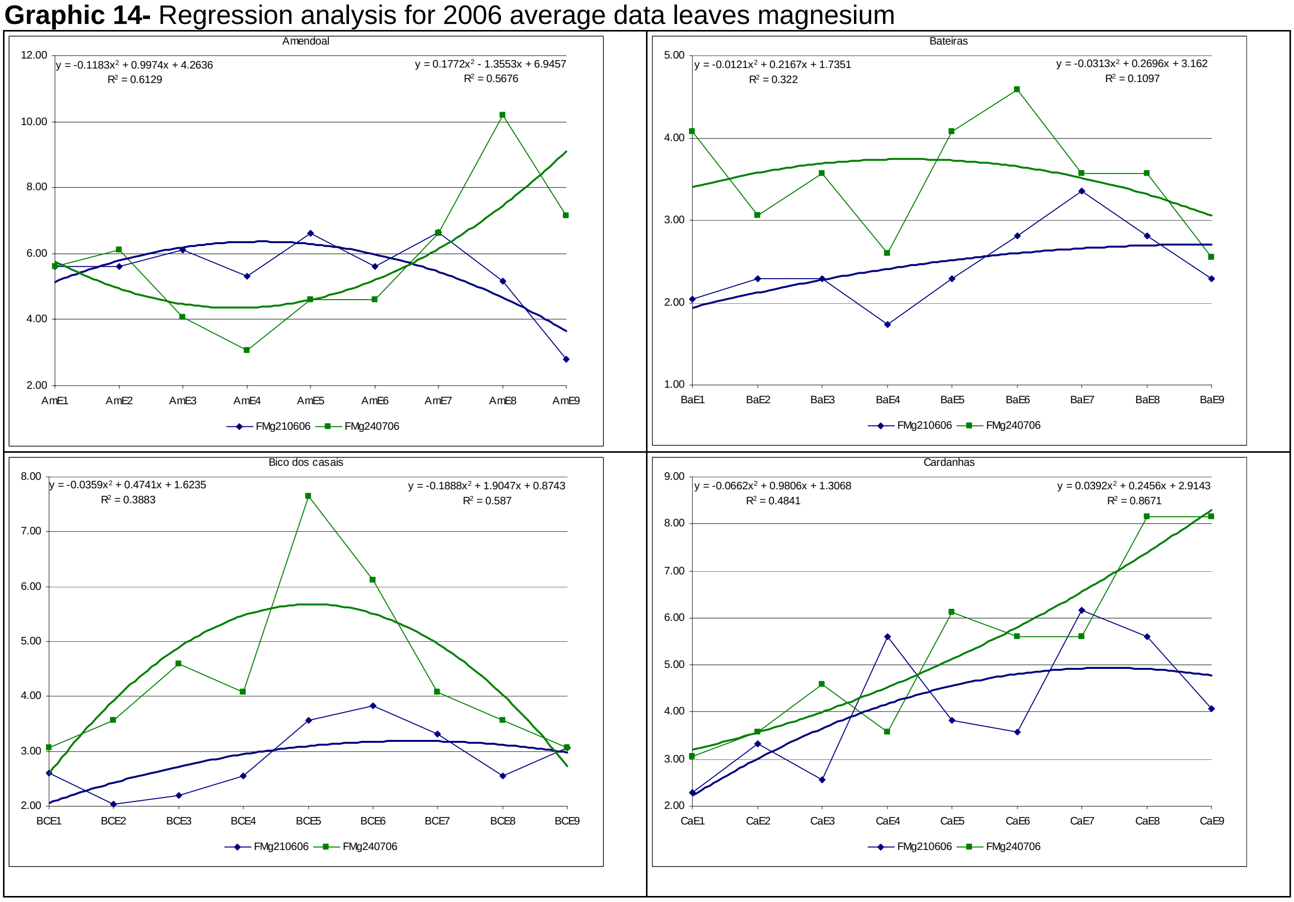
210606- NS, NS, NS, S 240706- NS, NS, NS, NS

Graphic 13- Regression analysis for 2006 average data leaves calcium



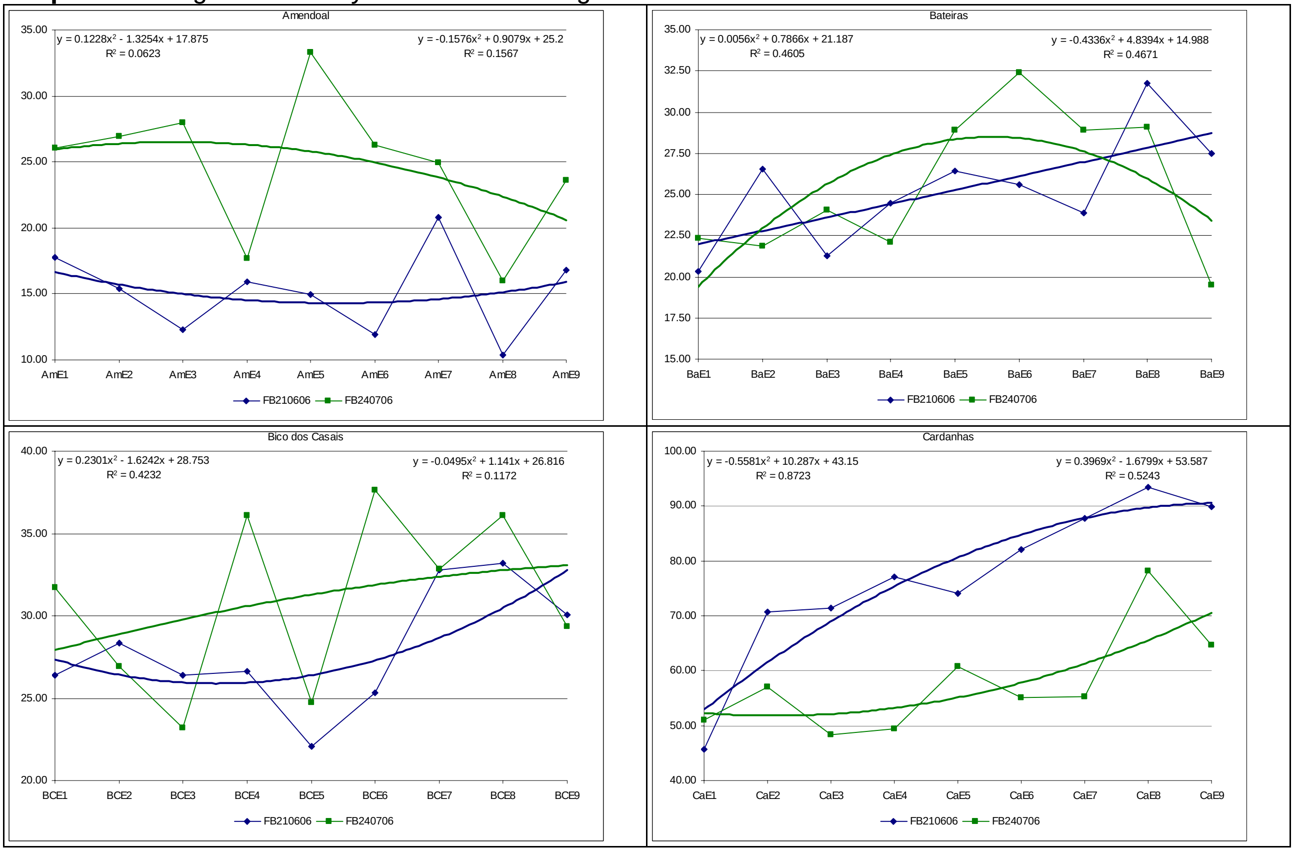
210606- NS, NS, S, N   240706- NS, NS, NS, NS

Graphic 14- Regression analysis for 2006 average data leaves magnesium



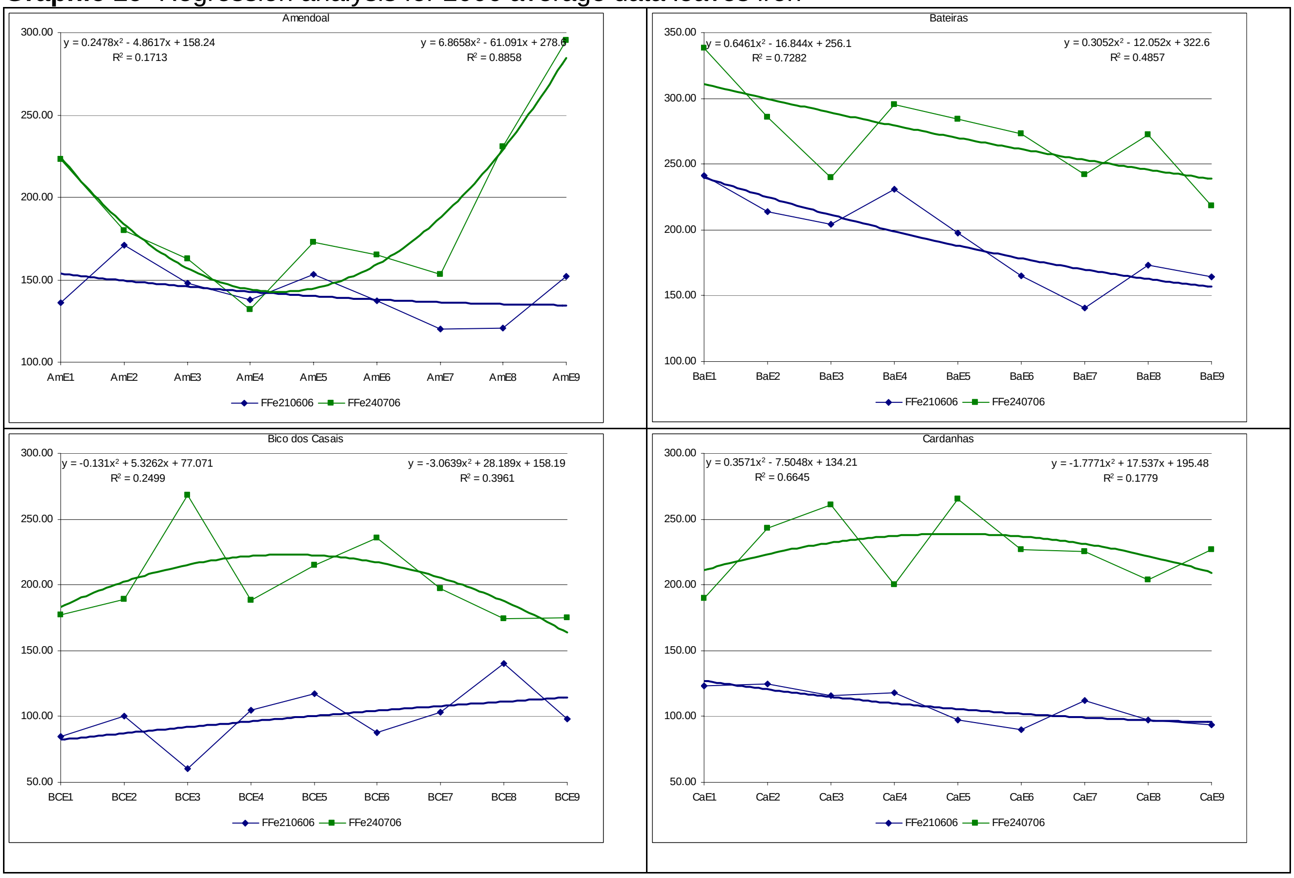
210606- NS, NS, NS, S   240706- S, NS, NS, S

Graphic 15- Regression analysis for 2006 average data leaves boron



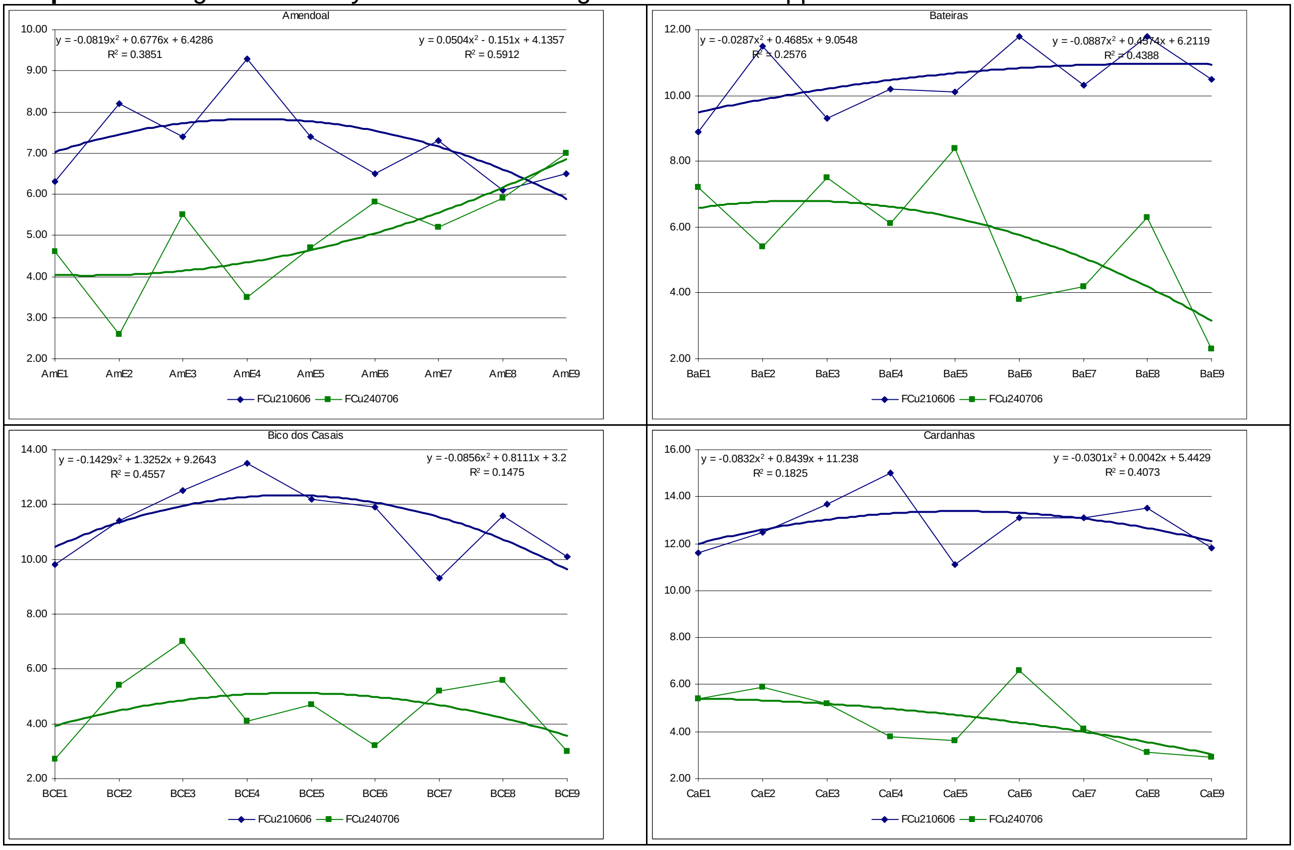
210606- NS, NS, S, S   240706- NS, NS, NS, NS

Graphic 16- Regression analysis for 2006 average data leaves iron



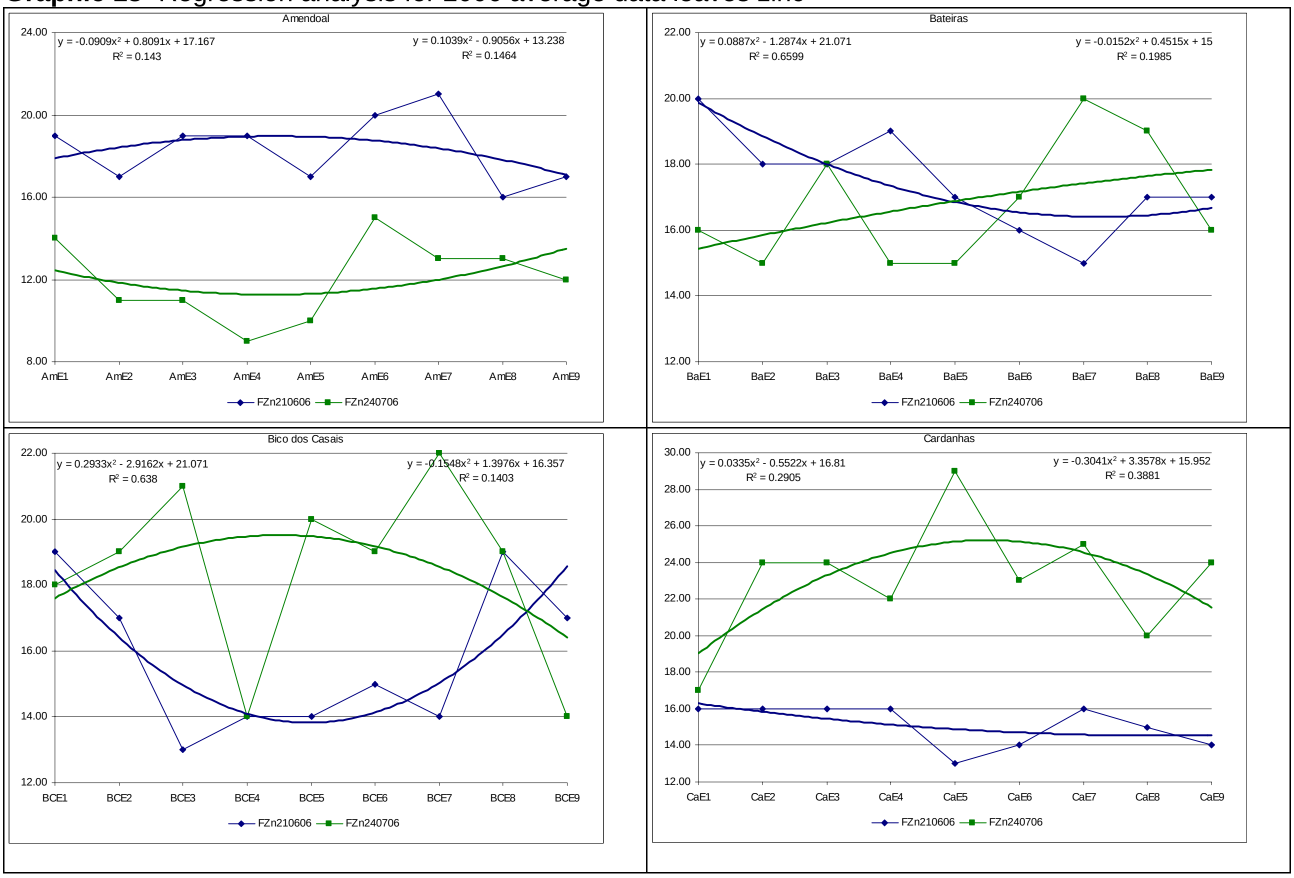
210606- NS, NS, NS, NS   240706- NS, NS, NS, NS

Graphic 17- Regression analysis for 2006 average data leaves copper



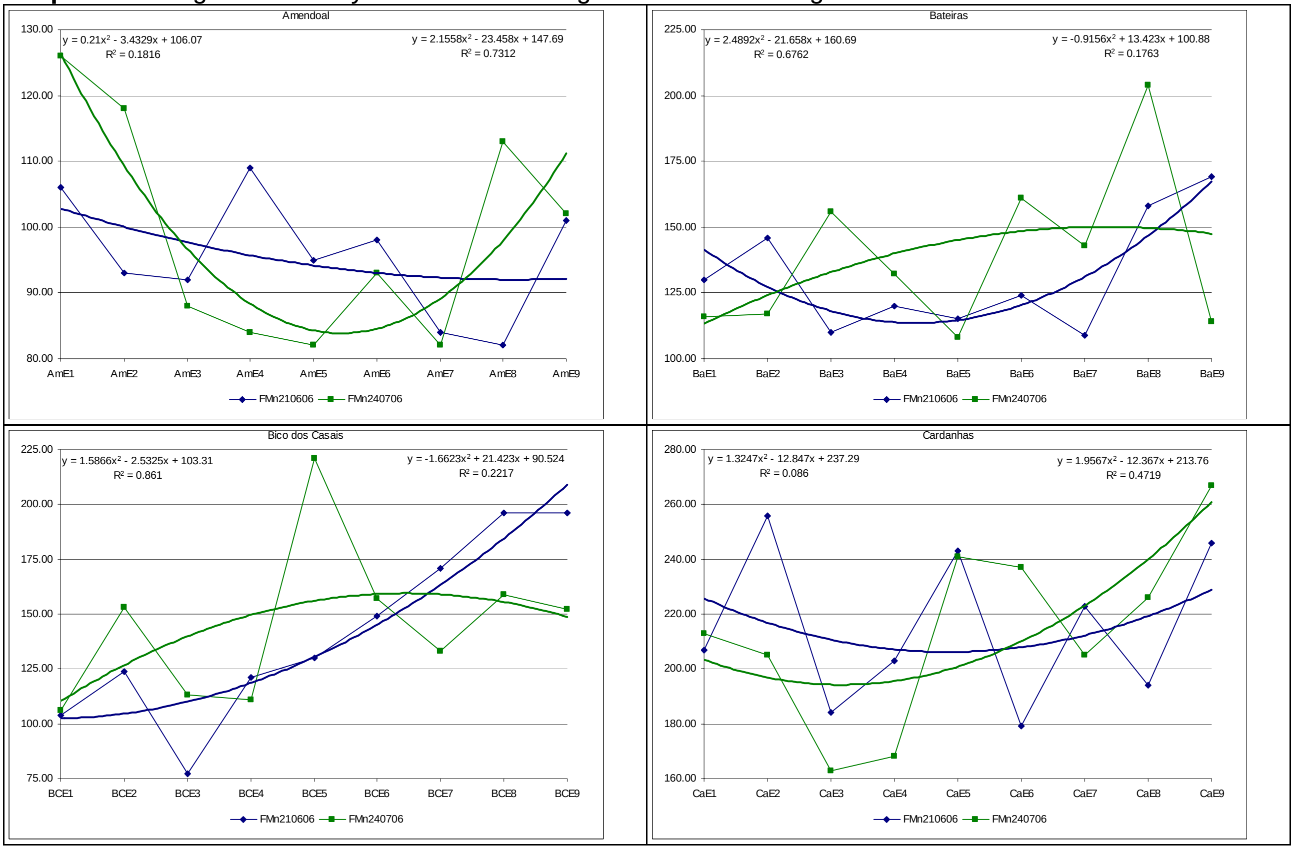
210606- NS, NS, NS, NS   240706- NS, NS, NS, NS

Graphic 18- Regression analysis for 2006 average data leaves zinc



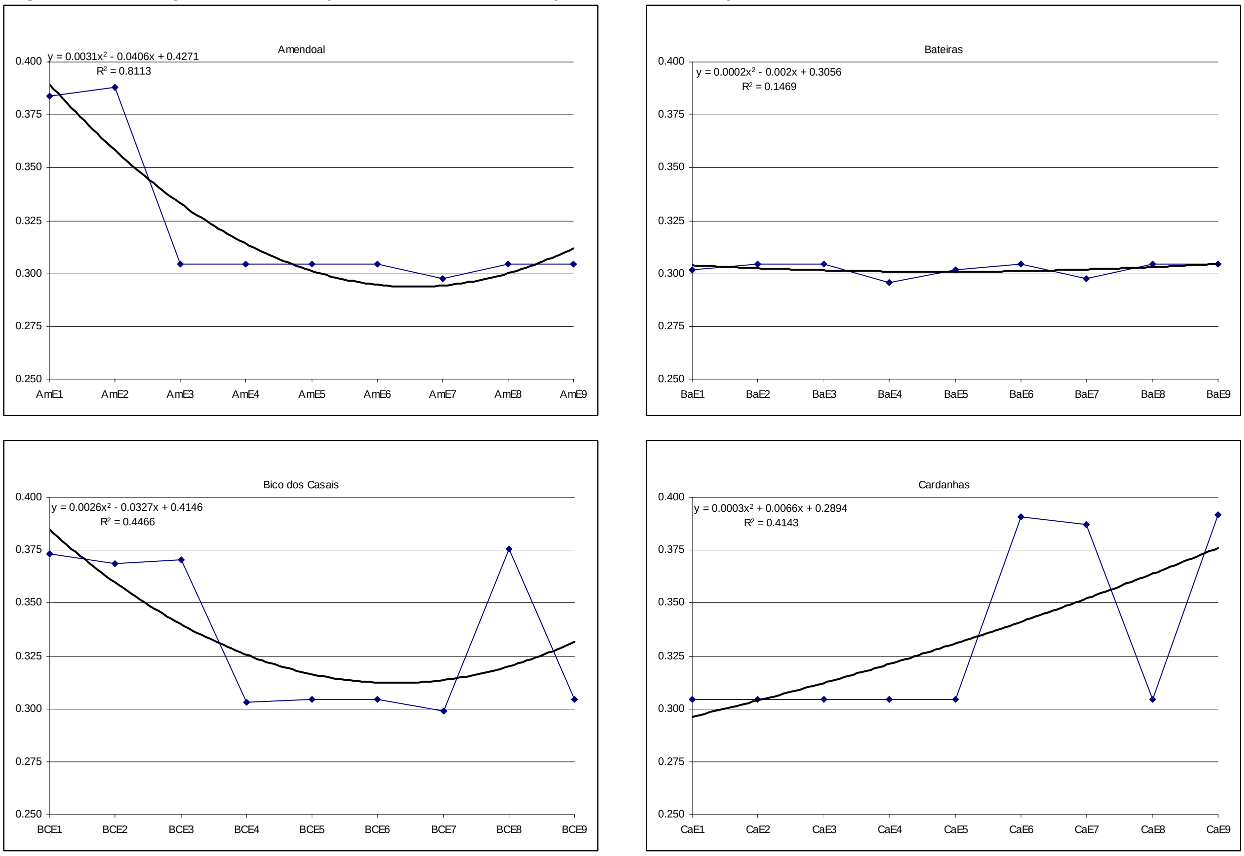
210606- NS, NS, NS, NS   240706- NS, NS, NS, NS

Graphic 19- Regression analysis for 2006 average data leaves manganese



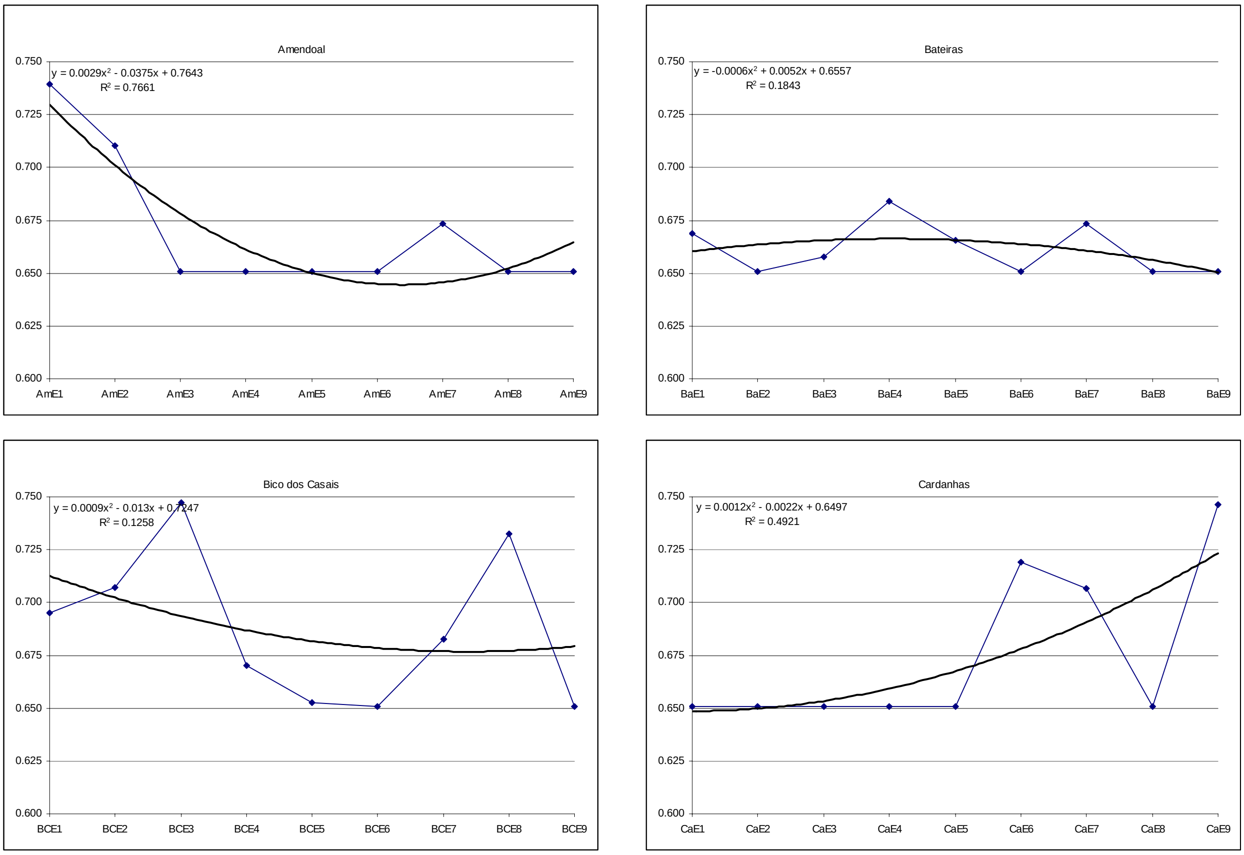
210606- NS, NS, S, NS   240706- NS, NS, NS, NS

Graphic 20- Regression analysis of PRI relatively to the inside plots stations



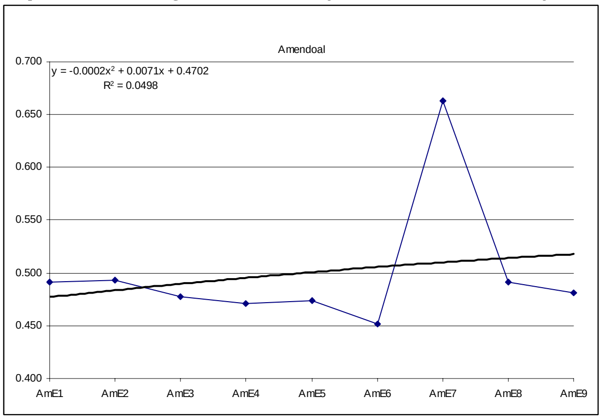
240706- S, NS, S, S

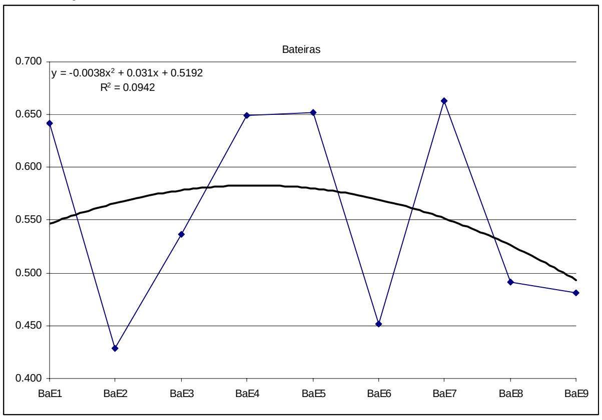
Graphic 21- Regression analysis of NDVI1 relatively to the inside plots stations

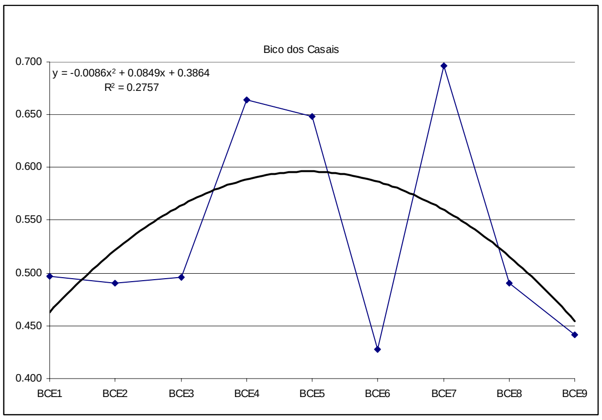


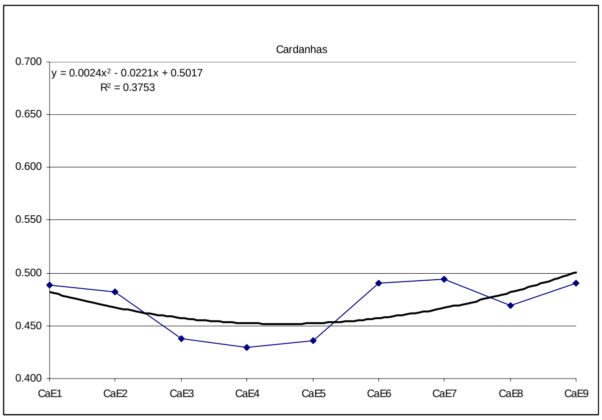
240706- S, S, S, S

Graphic 22- Regression analysis of WI relatively to the inside plots stations



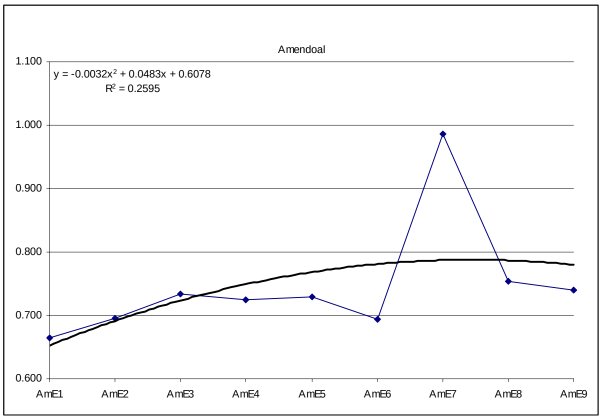


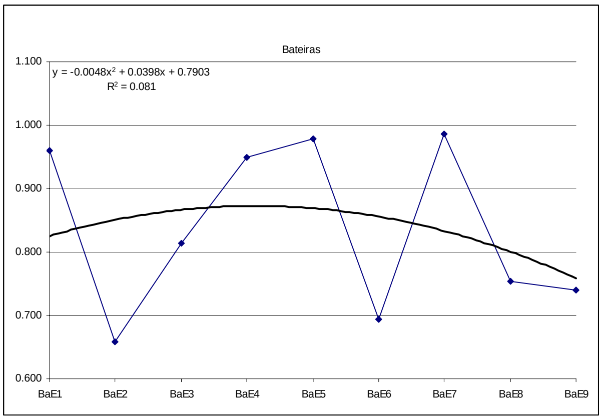


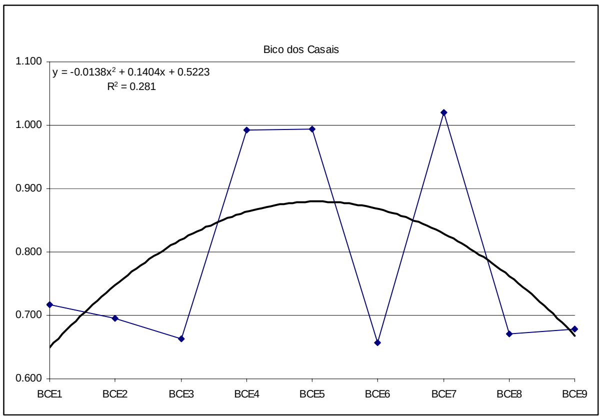


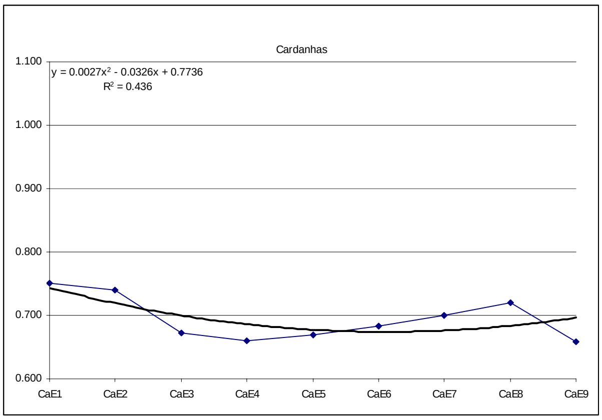
240706- S, S, S, S

Graphic 23- Regression analysis of WI / NDVI1 relatively to the inside plots stations



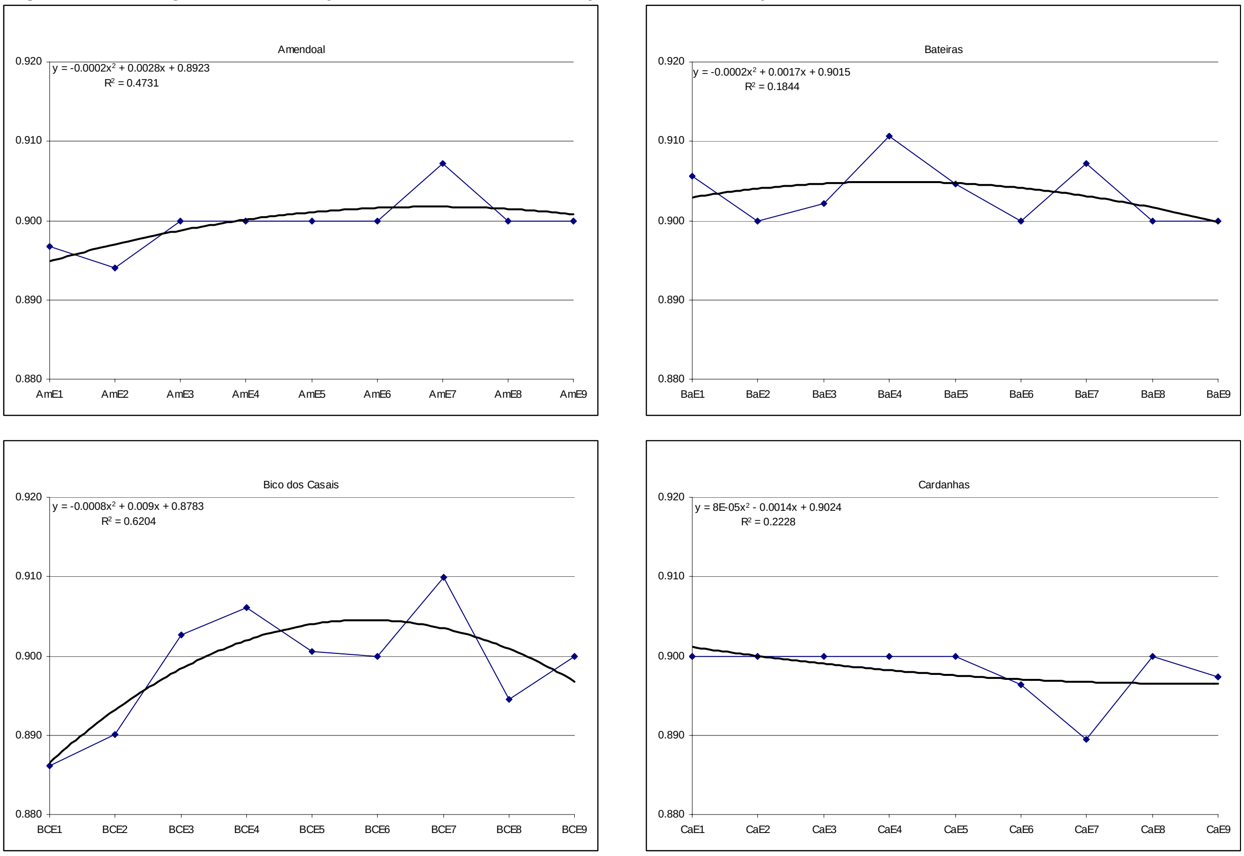






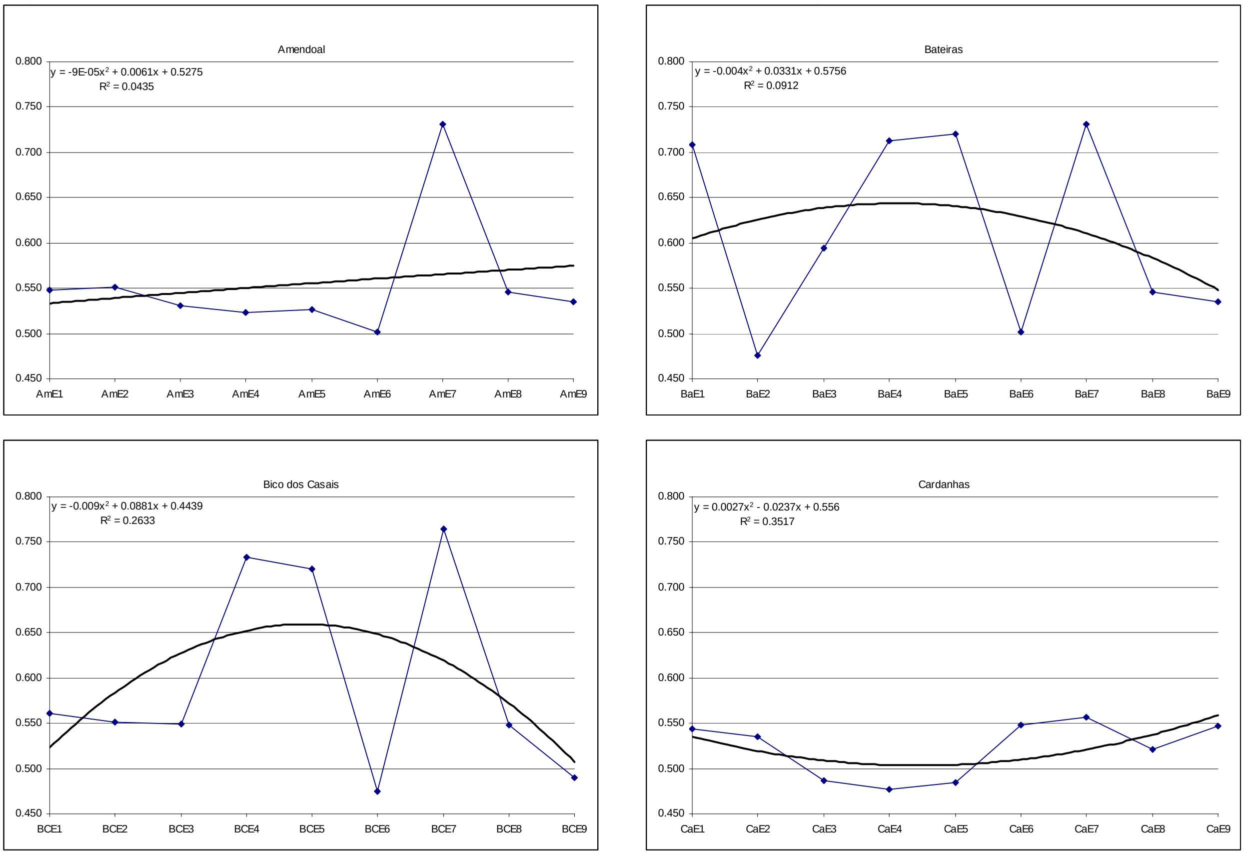
240706-S, S, S, S

Graphic 24- Regression analysis of NDVI2 relatively to the inside plots stations



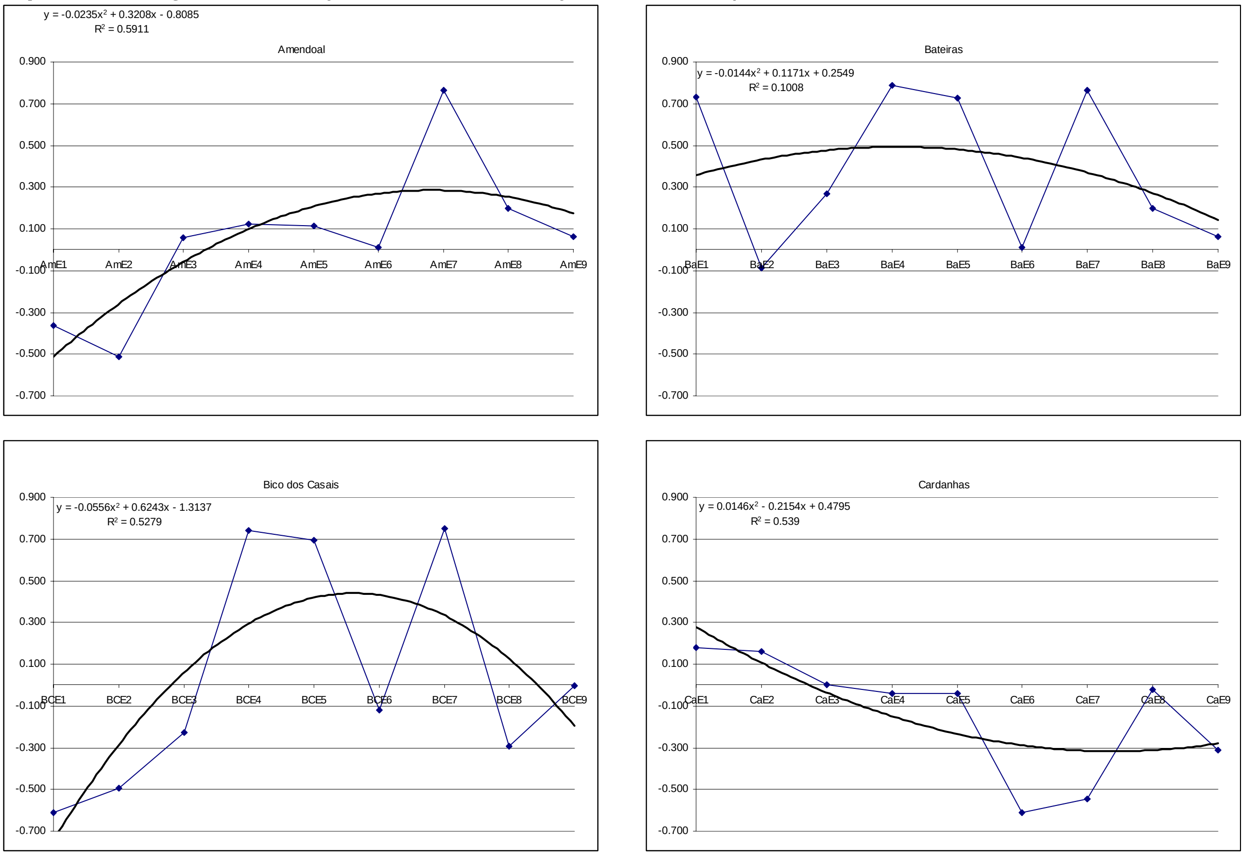
240706- S, S, S, NS

Graphic 25- Regression analysis of WI / NDVI2 relatively to the inside plots stations



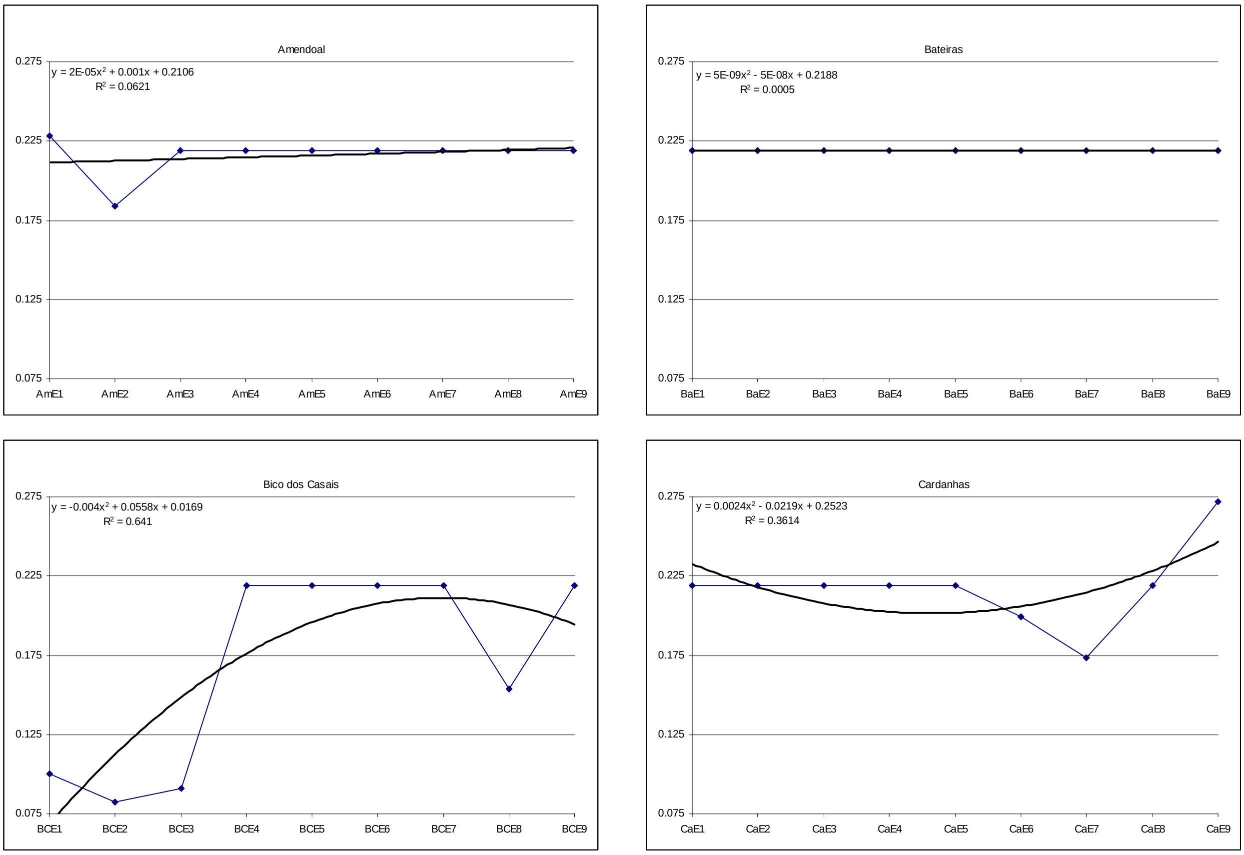
240706- S, S, S, S

Graphic 26- Regression analysis of SIPI relatively to the inside plots stations



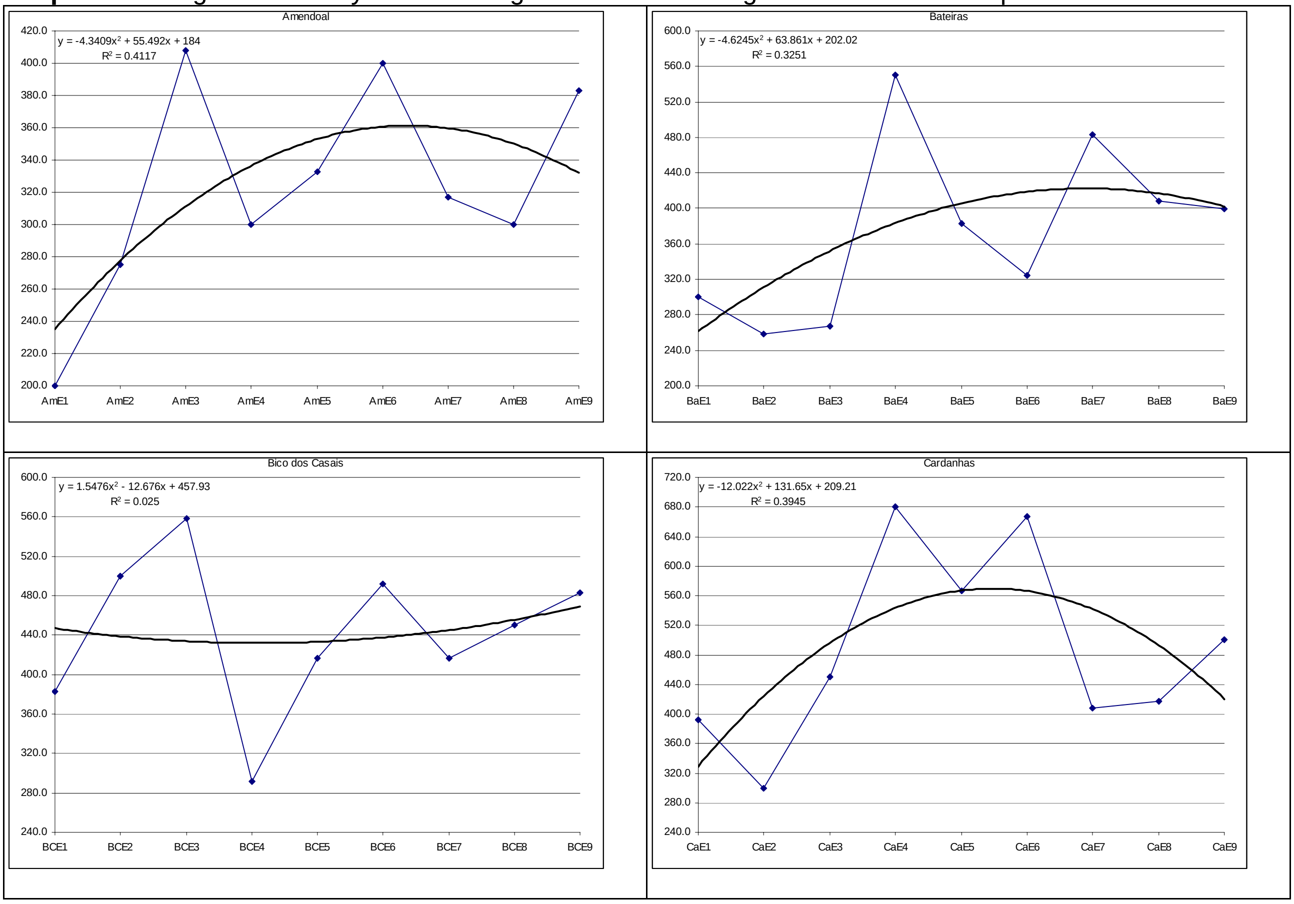
240706- S, S, S, S

Graphic 27- Regression analysis of ChINDI relatively to the inside plots stations



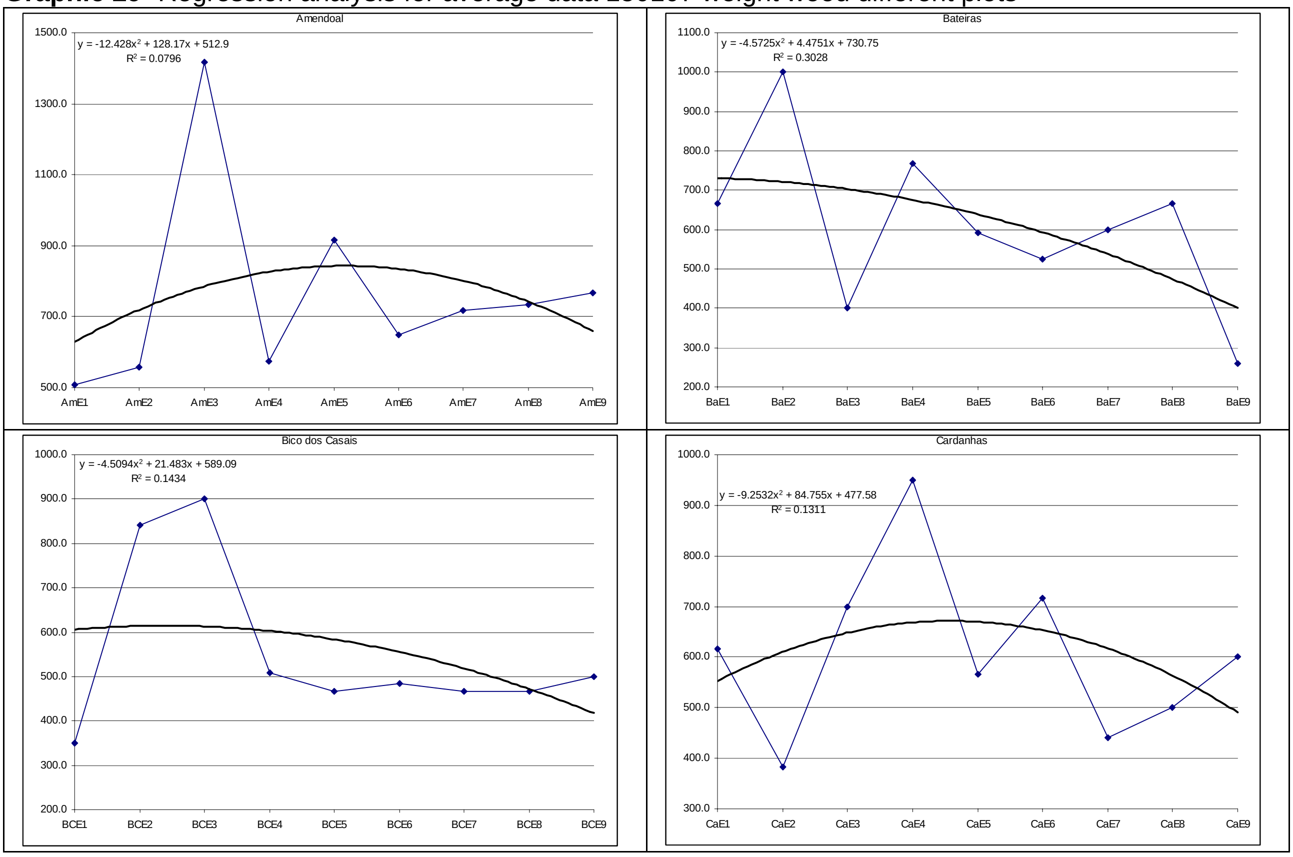
240706- NS, -, S, S

Graphic 28- Regression analysis for average data 080306 weight wood for different plots



080306- NS, NS, NS, S

Graphic 29- Regression analysis for average data 150107 weight wood different plots



150107- NS, NS, NS, NS

Annex - Soil

Tables, graphics and figures

Table 1- Soil pH in H_2O and KCl determined, in the first 20 cm soil depth and between 20 and 40 cm, for different plots and vineyard instalations

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20pHH2O	9	6.1778	0.2167	5.8000	6.5000
Sl40pHH2O	9	6.4222	0.2333	6.0000	6.8000
Sl20pHKCl	9	4.1667	0.2291	3.7000	4.4000
Sl40pHKCl	9	4.3000	0.2449	3.8000	4.6000

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20pHH2O	9	5.7333	0.4031	5.2000	6.5000
Sl40pHH2O	9	5.7222	0.4024	5.1000	6.3000
Sl20pHKCl	9	3.3444	0.3395	2.9000	4.1000
Sl40pHKCl	9	3.3222	0.3528	2.6000	3.8000

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20pHH2O	9	5.8444	0.5247	4.8000	6.6000
Sl40pHH2O	9	6.0000	0.3841	5.2000	6.6000
Sl20pHKCl	9	3.5111	0.2472	3.0000	3.8000
Sl40pHKCl	9	3.5667	0.1871	3.3000	3.8000

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20pHH2O	9	5.0000	0.3391	4.5000	5.4000
Sl40pHH2O	9	4.9889	0.3887	4.3000	5.4000
Sl20pHKCl	9	3.2000	0.4583	2.8000	4.2000
Sl40pHKCl	9	3.1889	0.4622	2.8000	4.2000

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20pHH2O	18	5.9556	0.3884	5.2000	6.5000
Sl40pHH2O	18	6.0722	0.4812	5.1000	6.8000
Sl20pHKCl	18	3.7556	0.5078	2.9000	4.4000
Sl40pHKCl	18	3.8111	0.5830	2.6000	4.6000

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20pHH2O	18	5.4222	0.6103	4.5000	6.6000
Sl40pHH2O	18	5.4944	0.6412	4.3000	6.6000
Sl20pHKCl	18	3.3556	0.3914	2.8000	4.2000
Sl40pHKCl	18	3.3778	0.3934	2.8000	4.2000

Table 2- ANOVA soil pH average in H_2O, in the first 20 cm, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20pHH2O   BY Parc
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     6.65778    2.21926   14.80  0.0000
WITHIN    32     4.79778    0.14993
TOTAL     35     11.4556
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.61     3    0.1320
COCHRAN'S Q                  0.4590
LARGEST VAR / SMALLEST VAR     5.8639
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.22993
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             6.1778      9       0.2167
Ba             5.7333      9       0.4031
BC             5.8444      9       0.5247
Ca             5.0000      9       0.3391
TOTAL          5.6889     36       0.3872
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20pHH2O   BY Inst
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     2.56000    2.56000    9.78  0.0036
WITHIN    34     8.89556    0.26163
TOTAL     35     11.4556
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.26     1    0.0709
COCHRAN'S Q                  0.7117
LARGEST VAR / SMALLEST VAR     2.4688
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.12769
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            5.9556      18       0.3884
VA             5.4222     18       0.6103
TOTAL          5.6889     36       0.5115
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20pHH2O   BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.06889    0.03444    0.67  0.5445
WITHIN     6     0.30667    0.05111
TOTAL      8     0.37556
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.17     2    0.5572
COCHRAN'S Q                  0.4565
LARGEST VAR / SMALLEST VAR     5.2500
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00556
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           6.1000      3       0.2646
AmG2           6.1333      3       0.1155
AmG3           6.3000      3       0.2646
TOTAL          6.1778      9       0.2261
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20pHH2O   BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.00667    0.00333    0.02  0.9847
WITHIN     6     1.29333    0.21556
TOTAL      8     1.30000
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.03     2    0.3624
COCHRAN'S Q                  0.6856
LARGEST VAR / SMALLEST VAR     11.083
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.07074
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           5.7000      3       0.2000
BaG2           5.7333      3       0.4041
BaG3           5.7667      3       0.6658
TOTAL          5.7333      9       0.4643
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20pHH2O   BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.14889    0.07444    0.22  0.8106
WITHIN     6     2.05333    0.34222
TOTAL      8     2.20222
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.74     2    0.4198
COCHRAN'S Q                  0.6364
LARGEST VAR / SMALLEST VAR     9.3333
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.08926
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           5.9000      3       0.2646
BCG2           5.9667      3       0.5508
BCG3           5.6667      3       0.8083
TOTAL          5.8444      9       0.5850
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20pHH2O   BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.64667    0.32333    7.10  0.0262
WITHIN     6     0.27333    0.04556
TOTAL      8     0.92000
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.04     2    0.2190
COCHRAN'S Q                  0.5122
LARGEST VAR / SMALLEST VAR     21.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.09259
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           4.7333      3       0.2517
CaG2           4.9000      3       0.2646
CaG3           5.3667      3       0.0577
TOTAL          5.0000      9       0.2134
CASES INCLUDED 9    MISSING CASES 0
```

Table 3- ANOVA soil pH in H_2O, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40pHH2O   BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     9.81000    3.27000   25.40  0.0000
WITHIN    32     4.12000    0.12875
TOTAL     35    13.9300
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.55      3    0.4665
COCHRAN'S Q                    0.3145
LARGEST VAR / SMALLEST VAR     2.9745
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.34903
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            6.4222      9       0.2333
Ba            5.7222      9       0.4024
BC            6.0000      9       0.3841
Ca            4.9889      9       0.3887
TOTAL         5.7833     36       0.3588
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40pHH2O   BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     3.00444    3.00444    9.35  0.0043
WITHIN    34    10.9256     0.32134
TOTAL     35    13.9300
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.34      1    0.2465
COCHRAN'S Q                    0.6397
LARGEST VAR / SMALLEST VAR     1.7757
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.14906
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt           6.0722      18      0.4812
VA            5.4944     18       0.6412
TOTAL         5.7833     36       0.5669
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40pHH2O   BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.21556    0.10778    2.94  0.1289
WITHIN     6     0.22000    0.03667
TOTAL      8     0.43556
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.76      2    0.2521
COCHRAN'S Q                    0.5758
LARGEST VAR / SMALLEST VAR     19.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.02370
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          6.3667      3       0.0577
AmG2          6.2667      3       0.2517
AmG3          6.6333      3       0.2082
TOTAL         6.4222      9       0.1915
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40pHH2O   BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.13556    0.06778    0.35  0.7178
WITHIN     6     1.16000    0.19333
TOTAL      8     1.29556
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.89      2    0.6393
COCHRAN'S Q                    0.6264
LARGEST VAR / SMALLEST VAR     3.8929
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.04185
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          5.8667      3       0.3055
BaG2          5.5667      3       0.3512
BaG3          5.7333      3       0.6028
TOTAL         5.7222      9       0.4397
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40pHH2O   BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.38000    0.19000    1.43  0.3116
WITHIN     6     0.80000    0.13333
TOTAL      8     1.18000
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.21      2    0.5472
COCHRAN'S Q                    0.6333
LARGEST VAR / SMALLEST VAR     5.8462
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01889
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          6.0333      3       0.2082
BCG2          6.2333      3       0.3215
BCG3          5.7333      3       0.5033
TOTAL         6.0000      9       0.3651
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40pHH2O   BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.96889    0.48444   12.11  0.0078
WITHIN     6     0.24000    0.04000
TOTAL      8     1.20889
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.56      2    0.1685
COCHRAN'S Q                    0.7778
LARGEST VAR / SMALLEST VAR     28.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.14815
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          4.5667      3       0.3055
CaG2          5.0333      3       0.1528
CaG3          5.3667      3       0.0577
TOTAL         4.9889      9       0.2000
CASES INCLUDED 9    MISSING CASES 0
```

Table 4- ANOVA soil pH in KCl, in the first 20 cm, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20pHKCl BY Parc
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     4.91778    1.63926   14.94  0.0000
WITHIN    32     3.51111    0.10972
TOTAL     35     8.42889
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.74     3    0.1916
COCHRAN'S Q                    0.4785
LARGEST VAR / SMALLEST VAR     4.0000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.16995
EFlFeCTIVE CELL SIZE                             9.0
                            SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            4.1667       9       0.2291
Ba            3.3444       9       0.3395
BC            3.5111       9       0.2472
Ca            3.2000       9       0.4583
TOTAL         3.5556      36       0.3312
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20pHKCl BY Inst
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     1.44000    1.44000    7.01  0.0122
WITHIN    34     6.98889    0.20556
TOTAL     35     8.42889
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.11     1    0.2926
COCHRAN'S Q                    0.6273
LARGEST VAR / SMALLEST VAR     1.6834
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.06858
EFlFeCTIVE CELL SIZE                            18.0
                            SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            3.7556      18       0.5078
VA             3.3556      18       0.3914
TOTAL          3.5556      36       0.4534
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20pHKCl BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.04667    0.02333    0.38  0.7023
WITHIN     6     0.37333    0.06222
TOTAL      8     0.42000
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.21     2    0.5465
COCHRAN'S Q                    0.6607
LARGEST VAR / SMALLEST VAR     5.2857
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.01296
EFlFeCTIVE CELL SIZE                             3.0
                            SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          4.0667       3       0.3512
AmG2          4.2000       3       0.2000
AmG3          4.2333       3       0.1528
TOTAL         4.1667       9       0.2494
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20pHKCl BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.06222    0.03111    0.22  0.8109
WITHIN     6     0.86000    0.14333
TOTAL      8     0.92222
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.21     2    0.0449
COCHRAN'S Q                    0.8682
LARGEST VAR / SMALLEST VAR     112.00
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.03741
EFlFeCTIVE CELL SIZE                             3.0
                            SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           3.2333      3       0.0577
BaG2           3.3667      3       0.2309
BaG3           3.4333      3       0.6110
TOTAL          3.3444      9       0.3786
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20pHKCl BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.32889    0.16444    6.17  0.0351
WITHIN     6     0.16000    0.02667
TOTAL      8     0.48889
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.12     2    0.2100
COCHRAN'S Q                    0.7917
LARGEST VAR / SMALLEST VAR     19.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04593
EFlFeCTIVE CELL SIZE                             3.0
                            SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          3.7333       3       0.1155
BCG2          3.2667       3       0.2517
BCG3          3.5333       3       0.0577
TOTAL         3.5111       9       0.1633
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20pHKCl BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.08667    0.04333    0.16  0.8531
WITHIN     6     1.59333    0.26556
TOTAL      8     1.68000
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.28     2    0.3192
COCHRAN'S Q                    0.7071
LARGEST VAR / SMALLEST VAR     13.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.07407
EFlFeCTIVE CELL SIZE                             3.0
                            SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           3.3333      3       0.7506
CaG2           3.1000      3       0.4359
CaG3           3.1667      3       0.2082
TOTAL          3.2000      9       0.5153
CASES INCLUDED 9    MISSING CASES 0
```

Table 5- ANOVA soil pH in KCl, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40pHKCl BY Parc
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     6.63444    2.21148   20.43  0.0000
WITHIN    32     3.46444    0.10826
TOTAL     35    10.0989
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.85     3    0.0769
COCHRAN'S Q                   0.4933
LARGEST VAR / SMALLEST VAR    6.1032
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.23369
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             4.3000      9       0.2449
Ba             3.3222      9       0.3528
BC             3.5667      9       0.1871
Ca             3.1889      9       0.4622
TOTAL          3.5944     36       0.3290
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40pHKCl BY Inst
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     1.69000    1.69000    6.83  0.0132
WITHIN    34     8.40889    0.24732
TOTAL     35    10.0989
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.49     1    0.1145
COCHRAN'S Q                   0.6871
LARGEST VAR / SMALLEST VAR    2.1959
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.08015
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            3.8111      18       0.5830
VA             3.3778     18       0.3934
TOTAL          3.5944     36       0.4973
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40pHKCl BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.04667    0.02333    0.32  0.7358
WITHIN     6     0.43333    0.07222
TOTAL      8     0.48000
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.95     2    0.3770
COCHRAN'S Q                   0.7538
LARGEST VAR / SMALLEST VAR    7.0000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.01630
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           4.2333      3       0.4041
AmG2           4.2667      3       0.1528
AmG3           4.4000      3       0.1732
TOTAL          4.3000      9       0.2687
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40pHKCl BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.09556    0.04778    0.32  0.7388
WITHIN     6     0.90000    0.15000
TOTAL      8     0.99556
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.38     2    0.1843
COCHRAN'S Q                   0.7630
LARGEST VAR / SMALLEST VAR    25.750
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.03407
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           3.4667      3       0.3055
BaG2           3.2333      3       0.1155
BaG3           3.2667      3       0.5859
TOTAL          3.3222      9       0.3873
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40pHKCl BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.24667    0.12333   22.20  0.0017
WITHIN     6     0.03333    0.00556
TOTAL      8     0.28000
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.03926
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           3.8000      3       0.0000
BCG2           3.4667      3       0.0577
BCG3           3.4333      3       0.1155
TOTAL          3.5667      9       0.0745
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40pHKCl BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.10889    0.05444    0.20  0.8208
WITHIN     6     1.60000    0.26667
TOTAL      8     1.70889
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.01     2    0.1343
COCHRAN'S Q                   0.7167
LARGEST VAR / SMALLEST VAR    43.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.07074
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           3.3333      3       0.7572
CaG2           3.1667      3       0.4619
CaG3           3.0667      3       0.1155
TOTAL          3.1889      9       0.5164
CASES INCLUDED 9    MISSING CASES 0
```

Table 6- Soil MO (%), determined in the first 20 cm soil depth and between 20 - 40 cm, for different plots and installations forms**.**

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20MO	9	1.2456	0.1572	0.9800	1.4700
Sl40MO	9	0.9867	0.2357	0.6200	1.3600

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20MO	9	0.7056	0.1206	0.5000	0.8800
Sl40MO	9	0.5733	0.1497	0.4000	0.7900

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20MO	9	0.5500	0.3642	0.1600	1.4400
Sl40MO	9	0.5133	0.2978	0.1200	1.2000

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20MO	9	0.8533	0.3373	0.4700	1.3100
Sl40MO	9	0.6422	0.2222	0.2600	0.9700

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20MO	18	0.9756	0.3093	0.5000	1.4700
Sl40MO	18	0.7800	0.2862	0.4000	1.3600

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20MO	18	0.7017	0.3746	0.1600	1.4400
Sl40MO	18	0.5778	0.2634	0.1200	1.2000

Table 7- ANOVA soil MO, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20MO BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     2.40139    0.80046   11.21  0.0000
WITHIN    32     2.28584    0.07143
TOTAL     35     4.68723
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   11.92     3    0.0077
COCHRAN'S Q                   0.4643
LARGEST VAR / SMALLEST VAR    9.1168
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.08100
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             1.2456      9       0.1572
Ba             0.7056      9       0.1206
BC             0.5500      9       0.3642
Ca             0.8533      9       0.3373
TOTAL          0.8386     36       0.2673
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20MO BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.67514    0.67514    5.72  0.0224
WITHIN    34     4.01209    0.11800
TOTAL     35     4.68723
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.60     1    0.4375
COCHRAN'S Q                   0.5947
LARGEST VAR / SMALLEST VAR    1.4671
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.03095
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            0.9756     18       0.3093
VA             0.7017     18       0.3746
TOTAL          0.8386     36       0.3435
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20MO BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.11442    0.05721    4.13  0.0746
WITHIN     6     0.08320    0.01387
TOTAL      8     0.19762
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.71     2    0.7027
COCHRAN'S Q                   0.5777
LARGEST VAR / SMALLEST VAR    3.6786
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01445
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           1.3367      3       0.0808
AmG2           1.3133      3       0.1550
AmG3           1.0867      3       0.1050
TOTAL          1.2456      9       0.1178
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20MO BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.02696    0.01348    0.90  0.4538
WITHIN     6     0.08947    0.01491
TOTAL      8     0.11642
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.86     2    0.6499
COCHRAN'S Q                   0.6237
LARGEST VAR / SMALLEST VAR    3.6711
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -4.778E-04
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           0.6500      3       0.1670
BaG2           0.7800      3       0.0872
BaG3           0.6867      3       0.0961
TOTAL          0.7056      9       0.1221
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20MO BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.09147    0.04573    0.28  0.7631
WITHIN     6     0.96993    0.16166
TOTAL      8     1.06140
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.97     2    0.0186
COCHRAN'S Q                   0.9387
LARGEST VAR / SMALLEST VAR    172.87
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.03864
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           0.5433      3       0.0513
BCG2           0.4300      3       0.1646
BCG3           0.6767      3       0.6747
TOTAL          0.5500      9       0.4021
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20MO BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.52607    0.26303    4.11  0.0752
WITHIN     6     0.38433    0.06406
TOTAL      8     0.91040
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.88     2    0.2368
COCHRAN'S Q                   0.5391
LARGEST VAR / SMALLEST VAR    19.796
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.06633
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           1.0733      3       0.2887
CaG2           0.9700      3       0.3219
CaG3           0.5167      3       0.0723
TOTAL          0.8533      9       0.2531
CASES INCLUDED 9    MISSING CASES 0
```

Table 8- ANOVA soil MO, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40MO BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     1.21160    0.40387    7.48  0.0006
WITHIN    32     1.72876    0.05402
TOTAL     35     2.94036
                       CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.38      3    0.3365
COCHRAN'S Q                    0.4105
LARGEST VAR / SMALLEST VAR     3.9554
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.03887
EFlFeCTIVE CELL SIZE                            9.0
                           SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            0.9867      9        0.2357
Ba            0.5733      9        0.1497
BC            0.5133      9        0.2978
Ca            0.6422      9        0.2222
TOTAL         0.6789     36        0.2324
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40MO BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.36804    0.36804    4.86  0.0343
WITHIN    34     2.57231    0.07566
TOTAL     35     2.94036
                       CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.11      1    0.7357
COCHRAN'S Q                    0.5415
LARGEST VAR / SMALLEST VAR     1.1808
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01624
EFlFeCTIVE CELL SIZE                           18.0
                           SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt           0.7800      18       0.2862
VA            0.5778      18       0.2634
TOTAL         0.6789      36       0.2751
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40MO BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.12087    0.06043    1.12  0.3861
WITHIN     6     0.32373    0.05396
TOTAL      8     0.44460
                       CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.95      2    0.6232
COCHRAN'S Q                    0.5377
LARGEST VAR / SMALLEST VAR     4.9079
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00216
EFlFeCTIVE CELL SIZE                            3.0
                           SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          1.1067      3        0.1332
AmG2          1.0233      3        0.2950
AmG3          0.8300      3        0.2390
TOTAL         0.9867      9        0.2323
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40MO BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.06247    0.03123    1.60  0.2769
WITHIN     6     0.11693    0.01949
TOTAL      8     0.17940
                       CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.16      2    0.5603
COCHRAN'S Q                    0.5906
LARGEST VAR / SMALLEST VAR     5.9200
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00391
EFlFeCTIVE CELL SIZE                            3.0
                           SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          0.4667      3        0.0764
BaG2          0.5833      3        0.1858
BaG3          0.6700      3        0.1345
TOTAL         0.5733      9        0.1396
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40MO BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.18060    0.09030    1.02  0.4143
WITHIN     6     0.52900    0.08817
TOTAL      8     0.70960
                       CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.11      2    0.2107
COCHRAN'S Q                    0.8213
LARGEST VAR / SMALLEST VAR     15.262
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  7.111E-04
EFlFeCTIVE CELL SIZE                            3.0
                           SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          0.5533      3        0.1193
BCG2          0.3233      3        0.1818
BCG3          0.6633      3        0.4661
TOTAL         0.5133      9        0.2969
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40MO BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.28042    0.14021    7.33  0.0245
WITHIN     6     0.11473    0.01912
TOTAL      8     0.39516
                       CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.74      2    0.6923
COCHRAN'S Q                    0.5967
LARGEST VAR / SMALLEST VAR     3.5292
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04036
EFlFeCTIVE CELL SIZE                            3.0
                           SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          0.7833      3        0.1850
CaG2          0.7500      3        0.0985
CaG3          0.3933      3        0.1159
TOTAL         0.6422      9        0.1383
CASES INCLUDED 9    MISSING CASES 0
```

Table 9- P_2O_5 determined in the first 20 cm soil depth and between 20 and 40 cm, for different plots and installations forms**.**

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20P2O5	9	36.222	16.354	12.000	69.000
Sl40P2O5	9	32.889	9.1028	21.000	51.000

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20P2O5	9	97.778	62.962	25.000	208.00
Sl40P2O5	9	93.222	69.627	24.000	235.00

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20P2O5	9	57.556	43.105	18.000	161.00
Sl40P2O5	9	43.778	14.923	25.000	70.000

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20P2O5	9	145.67	65.433	51.000	224.00
Sl40P2O5	9	140.22	90.490	29.000	262.00

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20P2O5	18	67.000	54.721	12.000	208.00
Sl40P2O5	18	63.056	57.306	21.000	235.00

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20P2O5	18	101.61	70.315	18.000	224.00
Sl40P2O5	18	92.000	80.127	25.000	262.00

Table 10- ANOVA soil mg P_2O_5/kg, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20P2O5 BY Parc
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    62768.3    20922.8    8.07  0.0004
WITHIN    32    82969.3    2592.79
TOTAL     35     145738
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   12.76     3    0.0052
COCHRAN'S Q                   0.4128
LARGEST VAR / SMALLEST VAR    16.009
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2036.66
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            36.222      9       16.354
Ba            97.778      9       62.962
BC            57.556      9       43.105
Ca            145.67      9       65.433
TOTAL         84.306     36       50.919
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20P2O5 BY Inst
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    10781.4    10781.4    2.72  0.1085
WITHIN    34     134956    3969.30
TOTAL     35     145738
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.03     1    0.3107
COCHRAN'S Q                   0.6228
LARGEST VAR / SMALLEST VAR    1.6512
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    378.448
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            67.000     18       54.721
VA            101.61     18       70.315
TOTAL         84.306     36       63.002
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20P2O5 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    1155.56    577.778    3.52  0.0973
WITHIN     6    984.000    164.000
TOTAL      8    2139.56
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.00     2    0.0498
COCHRAN'S Q                   0.7161
LARGEST VAR / SMALLEST VAR    151.00
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    137.926
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          47.333      3       18.771
AmG2          40.667      3       1.5275
AmG3          20.667      3       11.719
TOTAL         36.222      9       12.806
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20P2O5 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    3710.89    1855.44    0.40  0.6884
WITHIN     6    28002.7    4667.11
TOTAL      8    31713.6
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.17     2    0.9188
COCHRAN'S Q                   0.4107
LARGEST VAR / SMALLEST VAR    1.8628
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -937.222
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          91.000      3       55.561
BaG2          77.000      3       71.861
BaG3          125.33      3       75.831
TOTAL         97.778      9       68.316
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20P2O5 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    3864.22    1932.11    1.05  0.4053
WITHIN     6    11000.0    1833.33
TOTAL      8    14864.2
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.39     2    0.1834
COCHRAN'S Q                   0.8328
LARGEST VAR / SMALLEST VAR    18.009
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    32.9259
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          36.333      3       15.948
BCG2          50.667      3       25.794
BCG3          85.667      3       67.678
TOTAL         57.556      9       42.817
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20P2O5 BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    30034.7    15017.3   21.37  0.0019
WITHIN     6    4217.33    702.889
TOTAL      8    34252.0
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.53     2    0.4656
COCHRAN'S Q                   0.7134
LARGEST VAR / SMALLEST VAR    5.4243
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4771.48
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          179.67      3       38.786
CaG2          193.00      3       18.083
CaG3          64.333      3       16.653
TOTAL         145.67      9       26.512
CASES INCLUDED 9    MISSING CASES 0
```

Table 11- ANOVA soil mg P_2O_5/kg, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40P2O5 BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3     65777.4    21925.8    6.57  0.0014
WITHIN   32      106736    3335.49
TOTAL    35      172513
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   39.01     3    0.0000
COCHRAN'S Q                  0.6137
LARGEST VAR / SMALLEST VAR   98.821
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2065.59
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            32.889      9       9.1028
Ba            93.222      9       69.627
BC            43.778      9       14.923
Ca            140.22      9       90.490
TOTAL         77.528     36       57.754
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40P2O5 BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1     7540.03    7540.03    1.55  0.2211
WITHIN   34      164973    4852.15
TOTAL    35      172513
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.82     1    0.1771
COCHRAN'S Q                  0.6616
LARGEST VAR / SMALLEST VAR   1.9551
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    149.327
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt           63.056      18       57.306
VA            92.000     18       80.127
TOTAL         77.528     36       69.657
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40P2O5 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     286.889    143.444    2.29  0.1825
WITHIN    6     376.000    62.6667
TOTAL     8     662.889
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.29     2    0.8657
COCHRAN'S Q                  0.5018
LARGEST VAR / SMALLEST VAR   2.1278
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    26.9259
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          31.667      3       7.0238
AmG2          40.333      3       9.7125
AmG3          26.667      3       6.6583
TOTAL         32.889      9       7.9162
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40P2O5 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     6236.22    3118.11    0.57  0.5910
WITHIN    6     32547.3    5424.56
TOTAL     8     38783.6
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.25     2    0.5365
COCHRAN'S Q                  0.5278
LARGEST VAR / SMALLEST VAR   6.2405
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -768.815
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          64.333      3       37.099
BaG2          87.333      3       79.425
BaG3          128.00      3       92.677
TOTAL         93.222      9       73.652
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40P2O5 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     990.889    495.444    3.76  0.0874
WITHIN    6     790.667    131.778
TOTAL     8     1781.56
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.59     2    0.7438
COCHRAN'S Q                  0.5261
LARGEST VAR / SMALLEST VAR   3.4475
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    121.222
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          31.333      3       7.7675
BCG2          43.000      3       14.422
BCG3          57.000      3       11.269
TOTAL         43.778      9       11.479
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40P2O5 BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     39664.9    19832.4    4.60  0.0614
WITHIN    6     25842.7    4307.11
TOTAL     8     65507.6
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.11     2    0.2107
COCHRAN'S Q                  0.7385
LARGEST VAR / SMALLEST VAR   22.596
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    5175.11
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          168.00      3       97.688
CaG2          204.00      3       54.369
CaG3          48.667      3       20.551
TOTAL         140.22      9       65.629
CASES INCLUDED 9    MISSING CASES 0
```

Table 12- K_2O determined in the first 20 cm soil depth and between 20 - 0 cm, for different plots and installations forms**.**

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20K2O	9	47.333	8.1240	34.000	58.000
Sl40K2O	9	46.444	8.8192	32.000	56.000

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20K2O	9	46.222	4.7376	40.000	54.000
Sl40K2O	9	45.778	3.6667	40.000	52.000

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20K2O	9	63.778	13.544	44.000	86.000
Sl40K2O	9	62.889	10.868	48.000	82.000

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20K2O	9	60.556	9.8376	46.000	73.000
Sl40K2O	9	61.333	14.248	40.000	76.000

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20K2O	18	46.778	6.4767	34.000	58.000
Sl40K2O	18	46.111	6.5609	32.000	56.000

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20K2O	18	62.167	11.602	44.000	86.000
Sl40K2O	18	62.111	12.319	40.000	82.000

Table 13- ANOVA soil mg K_2O/kg, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20K2O BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    2183.64    727.880    7.90  0.0004
WITHIN    32    2949.33    92.1667
TOTAL     35    5132.97
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.68     3    0.0532
COCHRAN'S Q                    0.4976
LARGEST VAR / SMALLEST VAR     8.1733
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    70.6348
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             47.333      9       8.1240
Ba             46.222      9       4.7376
BC             63.778      9       13.544
Ca             60.556      9       9.8376
TOTAL          54.472     36       9.6003
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20K2O BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    2131.36    2131.36   24.14  0.0000
WITHIN    34    3001.61    88.2827
TOTAL     35    5132.97
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.32     1    0.0211
COCHRAN'S Q                    0.7624
LARGEST VAR / SMALLEST VAR     3.2092
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    113.504
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            46.778     18       6.4767
VA             62.167     18       11.602
TOTAL          54.472     36       9.3959
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20K2O BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    354.667    177.333    6.14  0.0354
WITHIN     6    173.333    28.8889
TOTAL      8    528.000
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.71     2    0.7012
COCHRAN'S Q                    0.6000
LARGEST VAR / SMALLEST VAR     3.0000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    49.4815
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           53.333      3       4.1633
AmG2           50.000      3       7.2111
AmG3           38.667      3       4.1633
TOTAL          47.333      9       5.3748
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20K2O BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    56.8889    28.4444    1.39  0.3188
WITHIN     6    122.667    20.4444
TOTAL      8    179.556
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.76     2    0.6844
COCHRAN'S Q                    0.5870
LARGEST VAR / SMALLEST VAR     3.8571
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.66667
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           48.000      3       6.0000
BaG2           42.667      3       3.0551
BaG3           48.000      3       4.0000
TOTAL          46.222      9       4.5216
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20K2O BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    110.222    55.1111    0.24  0.7912
WITHIN     6    1357.33    226.222
TOTAL      8    1467.56
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.57     2    0.4568
COCHRAN'S Q                    0.6896
LARGEST VAR / SMALLEST VAR     7.1633
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -57.0370
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           68.667      3       8.0829
BCG2           60.667      3       12.055
BCG3           62.000      3       21.633
TOTAL          63.778      9       15.041
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20K2O BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    670.889    335.444   19.48  0.0024
WITHIN     6    103.333    17.2222
TOTAL      8    774.222
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.83     2    0.6600
COCHRAN'S Q                    0.5419
LARGEST VAR / SMALLEST VAR     4.4211
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    106.074
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           62.000      3       5.2915
CaG2           70.333      3       2.5166
CaG3           49.333      3       4.1633
TOTAL          60.556      9       4.1500
CASES INCLUDED 9    MISSING CASES 0
```

Table 14- ANOVA soil mg K_2O/kg, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40K2O BY Parc
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     2316.89    772.296    7.49  0.0006
WITHIN    32     3298.67    103.083
TOTAL     35     5615.56
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   11.44     3    0.0096
COCHRAN'S Q                   0.4923
LARGEST VAR / SMALLEST VAR    15.099
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    74.3570
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Am             46.444      9       8.8192
Ba             45.778      9       3.6667
BC             62.889      9       10.868
Ca             61.333      9       14.248
TOTAL          54.111     36       10.153
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40K2O BY Inst
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     2304.00    2304.00   23.66  0.0000
WITHIN    34     3311.56    97.3987
TOTAL     35     5615.56
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.16     1    0.0131
COCHRAN'S Q                   0.7790
LARGEST VAR / SMALLEST VAR    3.5254
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    122.589
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Pt            46.111     18        6.5609
VA             62.111     18       12.319
TOTAL          54.111     36       9.8691
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40K2O BY PaEtG3
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     491.556    245.778   11.29  0.0093
WITHIN     6     130.667    21.7778
TOTAL      8     622.222
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.13     2    0.9385
COCHRAN'S Q                   0.4286
LARGEST VAR / SMALLEST VAR    1.7500
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    74.6667
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
AmG1           52.000      3       5.2915
AmG2           51.333      3       4.6188
AmG3           36.000      3       4.0000
TOTAL          46.444      9       4.6667
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40K2O BY PaEtG3
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     46.2222    23.1111    2.26  0.1854
WITHIN     6     61.3333    10.2222
TOTAL      8     107.556
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.48     2    0.7865
COCHRAN'S Q                   0.5217
LARGEST VAR / SMALLEST VAR    3.0000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4.29630
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
BaG1           42.667      3       2.3094
BaG2           48.000      3       4.0000
BaG3           46.667      3       3.0551
TOTAL          45.778      9       3.1972
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40K2O BY PaEtG3
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     216.889    108.444    0.89  0.4574
WITHIN     6     728.000    121.333
TOTAL      8     944.889
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.19     2    0.2029
COCHRAN'S Q                   0.8168
LARGEST VAR / SMALLEST VAR    17.154
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -4.29630
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
BCG1           68.667      3       4.1633
BCG2           56.667      3       7.0238
BCG3           63.333      3       17.243
TOTAL          62.889      9       11.015
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40K2O BY PaEtG3
SOURCE    DF       SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     992.000    496.000    4.71  0.0589
WITHIN     6     632.000    105.333
TOTAL      8     1624.00
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.26     2    0.5332
COCHRAN'S Q                   0.6624
LARGEST VAR / SMALLEST VAR    5.6071
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    130.222
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
CaG1           66.667      3       14.468
CaG2           70.667      3       6.1101
CaG3           46.667      3       8.3267
TOTAL          61.333      9       10.263
CASES INCLUDED 9    MISSING CASES 0
```

Table 15- Calcium, Magnesium, Potassium, Sodium and Boron, determined in the first 20 cm soil depth and between 20 and 40 cm, for different plots and installations forms**.**

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20Ca	9	8.7556	0.9017	7.2000	9.7600
Sl40Ca	9	8.6244	0.8744	7.1200	9.7600
Sl20Mg	9	2.0000	0.2582	1.6000	2.2700
Sl40Mg	9	2.0100	0.2605	1.4400	2.2700
Sl20K	9	0.1233	0.0180	0.0900	0.1400
Sl40K	9	0.1111	0.0145	0.0900	0.1300
Sl20Na	9	0.1267	0.0235	0.0900	0.1500
Sl40Na	9	0.1233	0.0255	0.0800	0.1500
Sl20BH2O	9	0.7389	0.1531	0.5000	0.9300
Sl40BH2O	9	0.5667	0.1581	0.3300	0.7800

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20Ca	9	7.8878	1.1828	6.0600	9.7600
Sl40Ca	9	7.8489	1.3346	5.8200	10.000
Sl20Mg	9	2.1256	0.4106	1.7300	3.1300
Sl40Mg	9	2.0600	0.2905	1.8700	2.8000
Sl20K	9	0.1033	0.0100	0.0900	0.1200
Sl40K	9	0.0978	0.0109	0.0900	0.1200
Sl20Na	9	0.0989	0.0426	0.0100	0.1500
Sl40Na	9	0.1100	0.0439	0.0200	0.1700
Sl20BH2O	9	0.8356	0.3111	0.3500	1.2500
Sl40BH2O	9	0.9011	0.2416	0.6300	1.2200

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20Ca	9	10.883	3.1978	6.4800	14.800
Sl40Ca	9	10.703	3.0425	7.0200	15.280
Sl20Mg	9	0.5467	0.2198	0.2900	0.9900
Sl40Mg	9	0.5333	0.2011	0.3200	0.8800
Sl20K	9	0.1333	0.0240	0.0900	0.1700
Sl40K	9	0.1344	0.0251	0.0900	0.1700
Sl20Na	9	0.1278	0.0489	0.0600	0.2200
Sl40Na	9	0.1233	0.0543	0.0600	0.2400
Sl20BH2O	9	0.4533	0.3032	0.1300	1.1700
Sl40BH2O	9	0.5022	0.1017	0.3900	0.7000

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20Ca	9	5.0233	0.9628	3.1200	6.1000
Sl40Ca	9	5.2378	1.3796	2.4000	6.6900
Sl20Mg	9	1.2556	0.2796	0.8300	1.7300
Sl40Mg	9	1.2733	0.3584	0.6900	1.7300
Sl20K	9	0.1089	0.0242	0.0700	0.1400
Sl40K	9	0.1178	0.0299	0.0700	0.1600
Sl20Na	9	0.0633	0.0287	0.0000	0.0900
Sl40Na	9	0.0689	0.0252	0.0200	0.1000
Sl20BH2O	9	0.6900	0.2987	0.2200	1.1700
Sl40BH2O	9	0.6111	0.2647	0.3300	1.1100

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20Ca	18	8.3217	1.1137	6.0600	9.7600
Sl40Ca	18	8.2367	1.1650	5.8200	10.000
Sl20Mg	18	2.0628	0.3389	1.6000	3.1300
Sl40Mg	18	2.0350	0.2689	1.4400	2.8000
Sl20K	18	0.1133	0.0175	0.0900	0.1400
Sl40K	18	0.1044	0.0142	0.0900	0.1300
Sl20Na	18	0.1128	0.0363	0.0100	0.1500
Sl40Na	18	0.1167	0.0355	0.0200	0.1700
Sl20BH2O	18	0.7872	0.2430	0.3500	1.2500
Sl40BH2O	18	0.7339	0.2624	0.3300	1.2200

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20Ca	18	7.9533	3.7866	3.1200	14.800
Sl40Ca	18	7.9706	3.6276	2.4000	15.280
Sl20Mg	18	0.9011	0.4388	0.2900	1.7300
Sl40Mg	18	0.9033	0.4737	0.3200	1.7300
Sl20K	18	0.1211	0.0265	0.0700	0.1700
Sl40K	18	0.1261	0.0281	0.0700	0.1700
Sl20Na	18	0.0956	0.0511	0.0000	0.2200
Sl40Na	18	0.0961	0.0497	0.0200	0.2400
Sl20BH2O	18	0.5717	0.3164	0.1300	1.1700
Sl40BH2O	18	0.5567	0.2025	0.3300	1.1100

Table 16- ANOVA soil Ca, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20Ca BY Parc
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3     159.138    53.0460   15.88  0.0000
WITHIN    32    106.920    3.34126
TOTAL     35    266.058
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   18.61     3    0.0003
COCHRAN'S Q                   0.7651
LARGEST VAR / SMALLEST VAR    12.579
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    5.52274
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            8.7556      9       0.9017
Ba            7.8878      9       1.1828
BC            10.883      9       3.1978
Ca            5.0233      9       0.9628
TOTAL         8.1375     36       1.8279
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Ca BY Inst
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1     1.22103    1.22103    0.16  0.6946
WITHIN    34    264.837    7.78933
TOTAL     35    266.058
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   20.27     1    0.0000
COCHRAN'S Q                   0.9204
LARGEST VAR / SMALLEST VAR    11.561
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.36491
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt           8.3217     18       1.1137
VA            7.9533     18       3.7866
TOTAL         8.1375     36       2.7909
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Ca BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     0.53049    0.26524    0.27  0.7747
WITHIN    6     5.97333    0.99556
TOTAL     8     6.50382
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.57     2    0.1679
COCHRAN'S Q                   0.5743
LARGEST VAR / SMALLEST VAR    32.160
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.24344
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          9.0933      3       0.2309
AmG2          8.5333      3       1.1037
AmG3          8.6400      3       1.3097
TOTAL         8.7556      9       0.9978
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Ca BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     1.31069    0.65534    0.40  0.6882
WITHIN    6     9.88127    1.64688
TOTAL     8     11.1920
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.08     2    0.2140
COCHRAN'S Q                   0.8212
LARGEST VAR / SMALLEST VAR    14.765
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.33051
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          8.3800      3       0.5242
BaG2          7.8333      3       0.7801
BaG3          7.4500      3       2.0143
TOTAL         7.8878      9       1.2833
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Ca BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     57.1013    28.5506    6.93  0.0275
WITHIN    6     24.7075    4.11792
TOTAL     8     81.8088
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.77     2    0.0923
COCHRAN'S Q                   0.6130
LARGEST VAR / SMALLEST VAR    70.638
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    8.14424
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          9.2767      3       2.7518
BCG2          14.440      3       0.3274
BCG3          8.9333      3       2.1620
TOTAL         10.883      9       2.0293
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Ca BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     5.57607    2.78803    9.09  0.0153
WITHIN    6     1.83973    0.30662
TOTAL     8     7.41580
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.00     2    0.2234
COCHRAN'S Q                   0.8310
LARGEST VAR / SMALLEST VAR    10.133
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.82714
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          3.9400      3       0.8743
CaG2          5.7867      3       0.2829
CaG3          5.3433      3       0.2747
TOTAL         5.0233      9       0.5537
CASES INCLUDED 9    MISSING CASES 0
```

Table 17- ANOVA soil Ca, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40Ca BY Parc
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     137.769    45.9231   13.40  0.0000
WITHIN    32     109.646    3.42643
TOTAL     35     247.415
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   13.29     3    0.0040
COCHRAN'S Q                    0.6754
LARGEST VAR / SMALLEST VAR     12.107
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4.72185
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             8.6244      9       0.8744
Ba             7.8489      9       1.3346
BC             10.703      9       3.0425
Ca             5.2378      9       1.3796
TOTAL          8.1036     36       1.8511
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Ca BY Inst
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.63734    0.63734    0.09  0.7688
WITHIN    34     246.778    7.25817
TOTAL     35     247.415
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   17.86     1    0.0000
COCHRAN'S Q                    0.9065
LARGEST VAR / SMALLEST VAR     9.6958
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.36782
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            8.2367     18       1.1650
VA             7.9706     18       3.6276
TOTAL          8.1036     36       2.6941
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Ca BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     4.65502    2.32751    9.55  0.0136
WITHIN     6     1.46160    0.24360
TOTAL      8     6.11662
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.46     2    0.2930
COCHRAN'S Q                    0.7823
LARGEST VAR / SMALLEST VAR     10.720
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.69464
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           9.6267      3       0.2309
AmG2           7.9733      3       0.7561
AmG3           8.2733      3       0.3252
TOTAL          8.6244      9       0.4936
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Ca BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     1.37482    0.68741    0.32  0.7376
WITHIN     6     12.8743    2.14571
TOTAL      8     14.2491
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.64     2    0.4412
COCHRAN'S Q                    0.7205
LARGEST VAR / SMALLEST VAR     6.2711
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.48610
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           8.4000      3       0.8600
BaG2           7.5367      3       1.0293
BaG3           7.6100      3       2.1536
TOTAL          7.8489      9       1.4648
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Ca BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     28.1821    14.0910    1.84  0.2377
WITHIN     6     45.8711    7.64519
TOTAL      8     74.0532
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.65     2    0.7232
COCHRAN'S Q                    0.5373
LARGEST VAR / SMALLEST VAR     3.6580
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.14861
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           9.6033      3       3.5103
BCG2           13.200      3       2.6916
BCG3           9.3067      3       1.8354
TOTAL          10.703      9       2.7650
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Ca BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     4.49096    2.24548    1.25  0.3505
WITHIN     6     10.7360    1.78933
TOTAL      8     15.2270
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.88     2    0.1435
COCHRAN'S Q                    0.8742
LARGEST VAR / SMALLEST VAR     14.585
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.15205
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           4.3233      3       2.1662
CaG2           6.0433      3       0.5947
CaG3           5.3467      3       0.5672
TOTAL          5.2378      9       1.3377
CASES INCLUDED 9    MISSING CASES 0
```

Table 18- ANOVA soil Mg, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20Mg BY Parc
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    14.4775    4.82584   53.36  0.0000
WITHIN    32    2.89384    0.09043
TOTAL     35    17.3714
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.46     3    0.3264
COCHRAN'S Q                    0.4660
LARGEST VAR / SMALLEST VAR     3.4897
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.52616
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             2.0000      9       0.2582
Ba             2.1256      9       0.4106
BC             0.5467      9       0.2198
Ca             1.2556      9       0.2796
TOTAL          1.4819     36       0.3007
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Mg BY Inst
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    12.1452    12.1452   79.01  0.0000
WITHIN    34    5.22614    0.15371
TOTAL     35    17.3714
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.09     1    0.2965
COCHRAN'S Q                    0.6263
LARGEST VAR / SMALLEST VAR     1.6763
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.66620
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            2.0628      18       0.3389
VA             0.9011     18       0.4388
TOTAL          1.4819     36       0.3921
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Mg BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.69176    0.34588    3.16  0.1155
WITHIN     6    0.65667    0.10944
TOTAL      8    1.34842
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.38     2    0.1121
COCHRAN'S Q                    0.8930
LARGEST VAR / SMALLEST VAR     17.349
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.07881
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           2.0000      3       0.1300
BaG2           2.5100      3       0.5415
BaG3           1.8667      3       0.1350
TOTAL          2.1256      9       0.3308
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Mg BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.25207    0.12603    5.63  0.0420
WITHIN     6    0.13433    0.02239
TOTAL      8    0.38640
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.22     2    0.5432
COCHRAN'S Q                    0.6035
LARGEST VAR / SMALLEST VAR     6.2041
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.03455
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           0.4800      3       0.1418
BCG2           0.7767      3       0.2013
BCG3           0.3833      3       0.0808
TOTAL          0.5467      9       0.1496
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Mg BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.34462    0.17231    3.68  0.0906
WITHIN     6    0.28100    0.04683
TOTAL      8    0.62562
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.59     2    0.4522
COCHRAN'S Q                    0.5582
LARGEST VAR / SMALLEST VAR     8.3145
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04183
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           0.9867      3       0.2294
CaG2           1.4467      3       0.2801
CaG3           1.3333      3       0.0971
TOTAL          1.2556      9       0.2164
CASES INCLUDED 9    MISSING CASES 0
```

Table 19- ANOVA soil Mg, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40Mg BY Parc
SOURCE    DF        SS         MS         F        P
BETWEEN    3     14.0015    4.66716    58.13  0.0000
WITHIN    32     2.56920    0.08029
TOTAL     35     16.5707
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.54     3    0.4684
COCHRAN'S Q                   0.3999
LARGEST VAR / SMALLEST VAR    3.1749
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.50965
EFlFeCTIVE CELL SIZE                            9.0
                      SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
Am            2.0100      9        0.2605
Ba            2.0600      9        0.2905
BC            0.5333      9        0.2011
Cd            1.2733      9        0.3584
TOTAL         1.4692     36        0.2834
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Mg BY Inst
SOURCE    DF        SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     11.5260    11.5260   77.68  0.0000
WITHIN    34     5.04465    0.14837
TOTAL     35     16.5707
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.03     1    0.0249
COCHRAN'S Q                   0.7563
LARGEST VAR / SMALLEST VAR    3.1032
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.63209
EFlFeCTIVE CELL SIZE                           18.0
                      SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            2.0350     18       0.2689
VA            0.9033     18       0.4737
TOTAL         1.4692     36       0.3852
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Mg BY PaEtG3
SOURCE    DF        SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.15440    0.07720    1.19  0.3665
WITHIN     6     0.38860    0.06477
TOTAL      8     0.54300
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.88     2    0.2373
COCHRAN'S Q                   0.6919
LARGEST VAR / SMALLEST VAR    20.577
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00414
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          2.1767      3        0.0808
AmG2          1.8567      3        0.3667
AmG3          1.9967      3        0.2309
TOTAL         2.0100      9        0.2545
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Mg BY PaEtG3
SOURCE    DF        SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.28407    0.14203    2.18  0.1944
WITHIN     6     0.39113    0.06519
TOTAL      8     0.67520
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.31     2    0.0426
COCHRAN'S Q                   0.9424
LARGEST VAR / SMALLEST VAR    32.716
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.02561
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          1.9567      3        0.0751
BaG2          2.3100      3        0.4293
BaG3          1.9133      3        0.0751
TOTAL         2.0600      9        0.2553
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Mg BY PaEtG3
SOURCE    DF        SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.23807    0.11903    8.35  0.0185
WITHIN     6     0.08553    0.01426
TOTAL      8     0.32360
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.79     2    0.4090
COCHRAN'S Q                   0.7303
LARGEST VAR / SMALLEST VAR    7.2636
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.03493
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          0.4167      3        0.0850
BCG2          0.7633      3        0.1767
BCG3          0.4200      3        0.0656
TOTAL         0.5333      9        0.1194
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Mg BY PaEtG3
SOURCE    DF        SS         MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.46487    0.23243    2.48  0.1641
WITHIN     6     0.56253    0.09376
TOTAL      8     1.02740
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.03     2    0.5981
COCHRAN'S Q                   0.5162
LARGEST VAR / SMALLEST VAR    5.1795
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04623
EFlFeCTIVE CELL SIZE                            3.0
                      SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          0.9667      3        0.3287
CaG2          1.5100      3        0.3811
CaG3          1.3433      3        0.1674
TOTAL         1.2733      9        0.3062
CASES INCLUDED 9    MISSING CASES 0
```

Table 20- ANOVA soil K, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20K BY Parc
SOURCE    DF       SS         MS        F       P
BETWEEN    3     0.00503    0.00168    4.23  0.0126
WITHIN    32     0.01269  3.965E-04
TOTAL     35     0.01772
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.19     3    0.1027
COCHRAN'S Q                   0.3695
LARGEST VAR / SMALLEST VAR    5.8611
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.424E-04
EFlFeCTIVE CELL SIZE                             9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
Am            0.1233      9       0.0180
Ba            0.1033      9       0.0100
BC            0.1333      9       0.0240
Cd            0.1089      9       0.0242
TOTAL         0.1172     36       0.0199
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20K BY Inst
SOURCE    DF       SS         MS        F       P
BETWEEN    1   5.444E-04  5.444E-04    1.08  0.3066
WITHIN    34     0.01718  5.052E-04
TOTAL     35     0.01772
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.79     1    0.0946
COCHRAN'S Q                   0.6973
LARGEST VAR / SMALLEST VAR    2.3034
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  2.179E-06
EFlFeCTIVE CELL SIZE                            18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
Pt            0.1133     18       0.0175
VA            0.1211     18       0.0265
TOTAL         0.1172     36       0.0225
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20K BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2   2.667E-04  1.333E-04    0.34  0.7228
WITHIN     6     0.00233  3.889E-04
TOTAL      8     0.00260
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.25     2    0.5360
COCHRAN'S Q                   0.5429
LARGEST VAR / SMALLEST VAR    6.3333
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -8.519E-05
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          0.1300      3       0.0100
AmG2          0.1233      3       0.0208
AmG3          0.1167      3       0.0252
TOTAL         0.1233      9       0.0197
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20K BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2   4.667E-04  2.333E-04    0.34  0.7255
WITHIN     6     0.00413  6.889E-04
TOTAL      8     0.00460
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.81     2    0.0904
COCHRAN'S Q                   0.8387
LARGEST VAR / SMALLEST VAR    52.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -1.519E-04
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          0.1367      3    5.774E-03
BCG2          0.1400      3       0.0173
BCG3          0.1233      3       0.0416
TOTAL         0.1333      9       0.0262
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20K BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.00376    0.00188   12.07  0.0079
WITHIN     6   9.333E-04  1.556E-04
TOTAL      8     0.00469
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.31     2    0.8557
COCHRAN'S Q                   0.5000
LARGEST VAR / SMALLEST VAR    2.3333
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  5.741E-04
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          0.1233      3       0.0153
CaG2          0.1233      3       0.0115
CaG3          0.0800      3    1.000E-02
TOTAL         0.1089      9       0.0125
CASES INCLUDED 9    MISSING CASES 0
```

Table 21- ANOVA soil K, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40K BY Parc
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.00628    0.00209    4.52  0.0095
WITHIN    32     0.01482  4.632E-04
TOTAL     35     0.02110
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.96      3    0.0298
COCHRAN'S Q                  0.4828
LARGEST VAR / SMALLEST VAR     7.4884
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.809E-04
EFlFeCTIVE CELL SIZE                           9.0
                         SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            0.1111       9       0.0145
Ba            0.0978       9       0.0109
BC            0.1344       9       0.0251
Ca            0.1178       9       0.0299
TOTAL         0.1153      36       0.0215
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40K BY Inst
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.00422    0.00422    8.51  0.0062
WITHIN    34     0.01687  4.962E-04
TOTAL     35     0.02110
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.12      1    0.0076
COCHRAN'S Q                  0.7959
LARGEST VAR / SMALLEST VAR     3.8984
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  2.072E-04
EFlFeCTIVE CELL SIZE                          18.0
                         SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt           0.1044      18       0.0142
VA            0.1261      18       0.0281
TOTAL         0.1153      36       0.0223
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40K BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2   6.889E-04  3.444E-04    2.07  0.2076
WITHIN     6   1.000E-03  1.667E-04
TOTAL      8     0.00169
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.53      2    0.4648
COCHRAN'S Q                  0.4667
LARGEST VAR / SMALLEST VAR     7.0000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  5.926E-05
EFlFeCTIVE CELL SIZE                           3.0
                         SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          0.1233       3    5.774E-03
AmG2          0.1067       3       0.0153
AmG3          0.1033       3       0.0153
TOTAL         0.1111       9       0.0129
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40K BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2   1.556E-04  7.778E-05    0.58  0.5868
WITHIN     6   8.000E-04  1.333E-04
TOTAL      8   9.556E-04
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.35      2    0.5085
COCHRAN'S Q                  0.5833
LARGEST VAR / SMALLEST VAR     7.0000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -1.852E-05
EFlFeCTIVE CELL SIZE                           3.0
                         SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          0.0967       3       0.0115
BaG2          0.1033       3       0.0153
BaG3          0.0933       3    5.774E-03
TOTAL         0.0978       9       0.0115
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40K BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.00162  8.111E-04    1.43  0.3103
WITHIN     6     0.00340  5.667E-04
TOTAL      8     0.00502
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.63      2    0.4424
COCHRAN'S Q                  0.7255
LARGEST VAR / SMALLEST VAR     5.2857
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  8.148E-05
EFlFeCTIVE CELL SIZE                           3.0
                         SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          0.1533       3       0.0153
BCG2          0.1267       3       0.0153
BCG3          0.1233       3       0.0351
TOTAL         0.1344       9       0.0238
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40K BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.00549    0.00274    9.88  0.0126
WITHIN     6     0.00167  2.778E-04
TOTAL      8     0.00716
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  8.222E-04
EFlFeCTIVE CELL SIZE                           3.0
                         SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          0.1300       3       0.0265
CaG2          0.1400       3       0.0000
CaG3          0.0833       3       0.0115
TOTAL         0.1178       9       0.0167
CASES INCLUDED 9    MISSING CASES 0
```

Table 22- ANOVA soil Na, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20Na BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3    0.02483    0.00828    5.93  0.0025
WITHIN   32    0.04464    0.00140
TOTAL    35    0.06948
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.98     3    0.1732
COCHRAN'S Q                  0.4291
LARGEST VAR / SMALLEST VAR   4.3535
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  7.646E-04
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am           0.1267       9       0.0235
Ba           0.0989       9       0.0426
BC           0.1278       9       0.0489
Ca           0.0633       9       0.0287
TOTAL        0.1042      36       0.0374
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Na BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1    0.00267    0.00267    1.36  0.2519
WITHIN   34    0.06681    0.00196
TOTAL    35    0.06948
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.91     1    0.1669
COCHRAN'S Q                  0.6653
LARGEST VAR / SMALLEST VAR   1.9876
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  3.914E-05
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            0.1128     18       0.0363
VA             0.0956     18       0.0511
TOTAL          0.1042     36       0.0443
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Na BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2   8.667E-04  4.333E-04    0.74  0.5178
WITHIN    6    0.00353  5.889E-04
TOTAL     8    0.00440
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.51     2    0.7741
COCHRAN'S Q                  0.5283
LARGEST VAR / SMALLEST VAR   3.1111
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -5.185E-05
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1         0.1400       3       0.0173
AmG2         0.1167       3       0.0231
AmG3         0.1233       3       0.0306
TOTAL        0.1267       9       0.0243
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Na BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2    0.01042    0.00521    7.69  0.0221
WITHIN    6    0.00407  6.778E-04
TOTAL     8    0.01449
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.03     2    0.2203
COCHRAN'S Q                  0.8033
LARGEST VAR / SMALLEST VAR   16.333
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00151
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           0.1400      3       0.0173
BaG2           0.1000      3       0.0100
BaG3           0.0567      3       0.0404
TOTAL          0.0989      9       0.0260
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Na BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2    0.00762    0.00381    1.98  0.2183
WITHIN    6    0.01153    0.00192
TOTAL     8    0.01916
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.04     2    0.9802
COCHRAN'S Q                  0.3873
LARGEST VAR / SMALLEST VAR   1.3673
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  6.296E-04
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1         0.1200       3       0.0436
BCG2         0.1667       3       0.0473
BCG3         0.0967       3       0.0404
TOTAL        0.1278       9       0.0438
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20Na BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2    0.00240    0.00120    1.71  0.2577
WITHIN    6    0.00420  7.000E-04
TOTAL     8    0.00660
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.22     2    0.0164
COCHRAN'S Q                  0.9683
LARGEST VAR / SMALLEST VAR   61.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.667E-04
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           0.0433      3       0.0451
CaG2           0.0833      3    5.774E-03
CaG3           0.0633      3    5.774E-03
TOTAL          0.0633      9       0.0265
CASES INCLUDED 9    MISSING CASES 0
```

Table 23- ANOVA soil Na, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40Na BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.01794    0.00598    3.88  0.0179
WITHIN    32     0.04929    0.00154
TOTAL     35     0.06723
                         CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.65     3    0.0840
COCHRAN'S Q                    0.4788
LARGEST VAR / SMALLEST VAR     4.6376
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  4.934E-04
EFlFeCTIVE CELL SIZE                               9.0
                           SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.1233      9       0.0255
Ba             0.1100      9       0.0439
BC             0.1233      9       0.0543
Ca             0.0689      9       0.0252
TOTAL          0.1064     36       0.0392
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Na BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.00380    0.00380    2.04  0.1625
WITHIN    34     0.06343    0.00187
TOTAL     35     0.06723
                         CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.85     1    0.1742
COCHRAN'S Q                    0.6626
LARGEST VAR / SMALLEST VAR     1.9639
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.076E-04
EFlFeCTIVE CELL SIZE                              18.0
                           SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            0.1167     18       0.0355
VA             0.0961     18       0.0497
TOTAL          0.1064     36       0.0432
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Na BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.00187  9.333E-04    1.68  0.2634
WITHIN     6     0.00333  5.556E-04
TOTAL      8     0.00520
                         CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.29     2    0.5237
COCHRAN'S Q                    0.5000
LARGEST VAR / SMALLEST VAR     6.2500
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.259E-04
EFlFeCTIVE CELL SIZE                               3.0
                           SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           0.1433      3       0.0115
AmG2           0.1100      3       0.0265
AmG3           0.1167      3       0.0289
TOTAL          0.1233      9       0.0236
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Na BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.00960    0.00480    4.97  0.0534
WITHIN     6     0.00580  9.667E-04
TOTAL      8     0.01540
                         CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.97     2    0.2264
COCHRAN'S Q                    0.7241
LARGEST VAR / SMALLEST VAR     21.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00128
EFlFeCTIVE CELL SIZE                               3.0
                           SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           0.1500      3       0.0265
BaG2           0.1100      3    1.000E-02
BaG3           0.0700      3       0.0458
TOTAL          0.1100      9       0.0311
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Na BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.00720    0.00360    1.32  0.3356
WITHIN     6     0.01640    0.00273
TOTAL      8     0.02360
                         CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.80     2    0.6695
COCHRAN'S Q                    0.6138
LARGEST VAR / SMALLEST VAR     3.5116
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  2.889E-04
EFlFeCTIVE CELL SIZE                               3.0
                           SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           0.1033      3       0.0416
BCG2           0.1633      3       0.0709
BCG3           0.1033      3       0.0379
TOTAL          0.1233      9       0.0523
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40Na BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2   8.222E-04  4.111E-04    0.58  0.5894
WITHIN     6     0.00427  7.111E-04
TOTAL      8     0.00509
                         CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.79     2    0.2477
COCHRAN'S Q                    0.7656
LARGEST VAR / SMALLEST VAR     16.333
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -1.000E-04
EFlFeCTIVE CELL SIZE                               3.0
                           SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           0.0567      3       0.0404
CaG2           0.0800      3       0.0200
CaG3           0.0700      3       0.0100
TOTAL          0.0689      9       0.0267
CASES INCLUDED 9    MISSING CASES 0
```

Table 24- ANOVA soil B, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20BH2O BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   3     0.71228    0.23743    3.15  0.0383
WITHIN    32    2.41151    0.07536
TOTAL     35    3.12379
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.18     3    0.2429
COCHRAN'S Q                  0.3211
LARGEST VAR / SMALLEST VAR   4.1305
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01801
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            0.7389      9       0.1531
Ba            0.8356      9       0.3111
BC            0.4533      9       0.3032
Ca            0.6900      9       0.2987
TOTAL         0.6794     36       0.2745
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20BH2O BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   1     0.41818    0.41818    5.26  0.0282
WITHIN    34    2.70561    0.07958
TOTAL     35    3.12379
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.14     1    0.2864
COCHRAN'S Q                  0.6289
LARGEST VAR / SMALLEST VAR   1.6949
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01881
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt           0.7872     18       0.2430
VA            0.5717     18       0.3164
TOTAL         0.6794     36       0.2821
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20BH2O BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     0.06056    0.03028    1.43  0.3103
WITHIN    6     0.12693    0.02116
TOTAL     8     0.18749
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.77     2    0.6793
COCHRAN'S Q                  0.4790
LARGEST VAR / SMALLEST VAR   3.9825
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00304
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          0.6333      3       0.1595
AmG2          0.8333      3       0.0874
AmG3          0.7500      3       0.1744
TOTAL         0.7389      9       0.1454
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20BH2O BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     0.20309    0.10154    1.07  0.4015
WITHIN    6     0.57133    0.09522
TOTAL     8     0.77442
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.76     2    0.6854
COCHRAN'S Q                  0.5672
LARGEST VAR / SMALLEST VAR   4.0207
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00211
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          0.7833      3       0.4025
BaG2          0.6833      3       0.2887
BaG3          1.0400      3       0.2007
TOTAL         0.8356      9       0.3086
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20BH2O BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     0.40447    0.20223    3.66  0.0912
WITHIN    6     0.33113    0.05519
TOTAL     8     0.73560
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.94     2    0.0847
COCHRAN'S Q                  0.9026
LARGEST VAR / SMALLEST VAR   30.497
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04901
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          0.2100      3       0.0700
BCG2          0.4233      3       0.1060
BCG3          0.7267      3       0.3866
TOTAL         0.4533      9       0.2349
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20BH2O BY PaEtG3
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN   2     0.41487    0.20743    4.16  0.0735
WITHIN    6     0.29913    0.04986
TOTAL     8     0.71400
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.92     2    0.6312
COCHRAN'S Q                  0.4954
LARGEST VAR / SMALLEST VAR   4.6216
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.05253
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          0.9200      3       0.2722
CaG2          0.7467      3       0.1266
CaG3          0.4033      3       0.2438
TOTAL         0.6900      9       0.2233
CASES INCLUDED 9    MISSING CASES 0
```

Table 25- ANOVA soil B, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40BH2O BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    0.83936    0.27979    6.83  0.0011
WITHIN    32    1.31033    0.04095
TOTAL     35    2.14970
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.43     3    0.0593
COCHRAN'S Q                    0.4279
LARGEST VAR / SMALLEST VAR     6.7752
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.02654
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            0.5667      9       0.1581
Ba            0.9011      9       0.2416
BC            0.5022      9       0.1017
Ca            0.6111      9       0.2647
TOTAL         0.6453     36       0.2024
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40BH2O BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    0.28267    0.28267    5.15  0.0297
WITHIN    34    1.86703    0.05491
TOTAL     35    2.14970
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.10     1    0.2948
COCHRAN'S Q                    0.6268
LARGEST VAR / SMALLEST VAR     1.6794
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01265
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            0.7339     18       0.2624
VA            0.5567     18       0.2025
TOTAL         0.6453     36       0.2343
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40BH2O BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.01327    0.00663    0.21  0.8139
WITHIN     6    0.18673    0.03112
TOTAL      8    0.20000
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.26     2    0.5335
COCHRAN'S Q                    0.6644
LARGEST VAR / SMALLEST VAR     5.5387
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00816
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          0.5233      3       0.1419
AmG2          0.6167      3       0.2491
AmG3          0.5600      3       0.1058
TOTAL         0.5667      9       0.1764
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40BH2O BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.14536    0.07268    1.36  0.3266
WITHIN     6    0.32153    0.05359
TOTAL      8    0.46689
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.37     2    0.5050
COCHRAN'S Q                    0.6508
LARGEST VAR / SMALLEST VAR     6.6084
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00636
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          0.7967      3       0.1258
BaG2          0.8267      3       0.3235
BaG3          1.0800      3       0.2007
TOTAL         0.9011      9       0.2315
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40BH2O BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.02629    0.01314    1.40  0.3177
WITHIN     6    0.05647    0.00941
TOTAL      8    0.08276
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.01     2    0.1344
COCHRAN'S Q                    0.8749
LARGEST VAR / SMALLEST VAR     19.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00124
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          0.4300      3       0.0361
BCG2          0.5167      3       0.0473
BCG3          0.5600      3       0.1572
TOTAL         0.5022      9       0.0970
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40BH2O BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.16862    0.08431    1.29  0.3419
WITHIN     6    0.39207    0.06534
TOTAL      8    0.56069
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.04     2    0.9794
COCHRAN'S Q                    0.3964
LARGEST VAR / SMALLEST VAR     1.3192
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00632
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          0.8000      3       0.2787
CaG2          0.5533      3       0.2438
CaG3          0.4800      3       0.2427
TOTAL         0.6111      9       0.2556
CASES INCLUDED 9    MISSING CASES 0
```

Table 26- AT, SBT, CTCe, in cmol+ / kg, determined in the first 20 cm soil depth and between 20 and 40 cm, for different plots and installations forms**.**

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20AT	9	0.1100	0.0456	0.0700	0.2100
Sl40AT	9	0.0944	0.0347	0.0500	0.1600
Sl20SBT	9	11.003	1.1598	8.9800	12.170
Sl40SBT	9	10.872	1.1389	8.7300	12.310
Sl20CTCe	9	11.113	1.1747	9.0500	12.240
Sl40CTCe	9	10.968	1.1555	8.8300	12.470
Sl20GSBe	9	99.011	0.3551	98.200	99.400
Sl40GSBe	9	99.156	0.2698	98.700	99.600

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20AT	9	0.3856	0.1646	0.1400	0.6400
Sl40AT	9	0.4133	0.2112	0.2300	0.8900
Sl20SBT	9	10.238	1.4303	8.1200	12.160
Sl40SBT	9	10.117	1.4222	7.9400	12.040
Sl20CTCe	9	10.624	1.3218	8.7600	12.430
Sl40CTCe	9	10.543	1.3416	8.2000	12.270
Sl20GSBe	9	96.200	1.9326	92.700	98.900
Sl40GSBe	9	95.856	2.4749	90.200	98.100

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20AT	9	0.2667	0.1667	0.0000	0.5300
Sl40AT	9	0.2711	0.1912	0.0000	0.7000
Sl20SBT	9	12.361	4.1660	7.0000	18.260
Sl40SBT	9	11.957	3.9001	7.5600	18.350
Sl20CTCe	9	12.627	4.1211	7.5300	18.260
Sl40CTCe	9	12.242	3.9935	7.7700	19.180
Sl20GSBe	9	97.556	1.9249	93.000	100.00
Sl40GSBe	9	97.656	1.2798	95.700	100.00

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20AT	9	0.4956	0.2617	0.0700	0.8300
Sl40AT	9	0.4622	0.2810	0.0500	0.9400
Sl20SBT	9	6.4522	1.1756	4.1800	8.0300
Sl40SBT	9	6.6967	1.6090	3.3000	8.6500
Sl20CTCe	9	6.9500	1.1893	4.9900	8.8600
Sl40CTCe	9	7.1567	1.5195	4.2400	9.3200
Sl20GSBe	9	92.667	4.4433	83.900	98.800
Sl40GSBe	9	92.833	6.2014	77.800	99.400

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20AT	18	0.2478	0.1839	0.0700	0.6400
Sl40AT	18	0.2539	0.2202	0.0500	0.8900
Sl20SBT	18	10.621	1.3232	8.1200	12.170
Sl40SBT	18	10.494	1.3089	7.9400	12.310
Sl20CTCe	18	10.869	1.2389	8.7600	12.430
Sl40CTCe	18	10.756	1.2341	8.2000	12.470
Sl20GSBe	18	97.606	1.9771	92.700	99.400
Sl40GSBe	18	97.506	2.4082	90.200	99.600

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
Sl20AT	18	0.3811	0.2433	0.0000	0.8300
Sl40AT	18	0.3667	0.2531	0.0000	0.9400
Sl20SBT	18	9.4067	4.2497	4.1800	18.260
Sl40SBT	18	9.3267	3.9623	3.3000	18.350
Sl20CTCe	18	9.7883	4.1458	4.9900	18.260
Sl40CTCe	18	9.6994	3.9291	4.2400	19.180
Sl20GSBe	18	95.111	4.1667	83.900	100.00
Sl40GSBe	18	95.244	5.0024	77.800	100.00

Table 27- ANOVA soil AT, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20AT BY Parc
SOURCE    DF       SS         MS        F       P
BETWEEN    3     0.73744    0.24581    7.84  0.0005
WITHIN    32     1.00364    0.03136
TOTAL     35     1.74109
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   16.74     3    0.0008
COCHRAN'S Q                   0.5458
LARGEST VAR / SMALLEST VAR     33.001
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.02383
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
Am            0.1100      9        0.0456
Ba            0.3856      9        0.1646
BC            0.2667      9        0.1667
Cd            0.4956      9        0.2617
TOTAL         0.3144     36        0.1771
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20AT BY Inst
SOURCE    DF       SS         MS        F       P
BETWEEN    1     0.16000    0.16000    3.44  0.0723
WITHIN    34     1.58109    0.04650
TOTAL     35     1.74109
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.27     1    0.2590
COCHRAN'S Q                   0.6363
LARGEST VAR / SMALLEST VAR     1.7492
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00631
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
Pt           0.2478     18       0.1839
VA            0.3811     18        0.2433
TOTAL         0.3144     36        0.2156
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20AT BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.00740    0.00370    2.41  0.1702
WITHIN     6     0.00920    0.00153
TOTAL      8     0.01660
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.58     2    0.1667
COCHRAN'S Q                   0.7899
LARGEST VAR / SMALLEST VAR     27.250
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  7.222E-04
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          0.1467      3        0.0603
AmG2          0.1067      3        0.0289
AmG3          0.0767      3        0.0115
TOTAL         0.1100      9        0.0392
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20AT BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.02169    0.01084    0.33  0.7289
WITHIN     6     0.19513    0.03252
TOTAL      8     0.21682
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.00     2    0.6070
COCHRAN'S Q                   0.6406
LARGEST VAR / SMALLEST VAR     4.2711
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00723
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          0.4433      3        0.1429
BaG2          0.3233      3        0.1210
BaG3          0.3900      3        0.2500
TOTAL         0.3856      9        0.1803
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20AT BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.08420    0.04210    1.83  0.2399
WITHIN     6     0.13820    0.02303
TOTAL      8     0.22240
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.34     2    0.8443
COCHRAN'S Q                   0.4703
LARGEST VAR / SMALLEST VAR     2.5194
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00636
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          0.1300      3        0.1136
BCG2          0.3400      3        0.1539
BCG3          0.3300      3        0.1803
TOTAL         0.2667      9        0.1518
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20AT BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.06416    0.03208    0.40  0.6882
WITHIN     6     0.48367    0.08061
TOTAL      8     0.54782
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    7.44     2    0.0242
COCHRAN'S Q                   0.6108
LARGEST VAR / SMALLEST VAR     369.25
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.01618
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          0.5000      3        0.3843
CaG2          0.5967      3        0.3062
CaG3          0.3900      3        0.0200
TOTAL         0.4956      9        0.2839
CASES INCLUDED 9    MISSING CASES 0
```

Table 28- ANOVA soil AT, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40AT BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.73643    0.24548    6.09  0.0021
WITHIN    32     1.29067    0.04033
TOTAL     35     2.02710
                          CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    21.58     3    0.0001
COCHRAN'S Q                    0.4895
LARGEST VAR / SMALLEST VAR     65.656
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.02279
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.0944      9       0.0347
Ba             0.4133      9       0.2112
BC             0.2711      9       0.1912
Ca             0.4622      9       0.2810
TOTAL          0.3103     36       0.2008
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40AT BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.11447    0.11447    2.03  0.1628
WITHIN    34     1.91263    0.05625
TOTAL     35     2.02710
                          CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.32      1    0.5722
COCHRAN'S Q                    0.5692
LARGEST VAR / SMALLEST VAR     1.3211
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00323
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            0.2539     18       0.2202
VA             0.3667     18       0.2531
TOTAL          0.3103     36       0.2372
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40AT BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.00676    0.00338    7.07  0.0264
WITHIN     6     0.00287  4.778E-04
TOTAL      8     0.00962
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  9.667E-04
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           0.1300      3       0.0361
AmG2           0.0900      3       0.0000
AmG3           0.0633      3       0.0115
TOTAL          0.0944      9       0.0219
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40AT BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.02247    0.01123    0.20  0.8227
WITHIN     6     0.33433    0.05572
TOTAL      8     0.35680
                          CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.63      2    0.1631
COCHRAN'S Q                    0.8431
LARGEST VAR / SMALLEST VAR     20.327
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.01483
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           0.3433      3       0.0833
BaG2           0.4400      3       0.1389
BaG3           0.4567      3       0.3754
TOTAL          0.4133      9       0.2361
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40AT BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.12136    0.06068    2.13  0.2003
WITHIN     6     0.17113    0.02852
TOTAL      8     0.29249
                          CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.28      2    0.1943
COCHRAN'S Q                    0.8208
LARGEST VAR / SMALLEST VAR     18.009
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01072
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           0.1167      3       0.1069
BCG2           0.3967      3       0.2650
BCG3           0.3000      3       0.0624
TOTAL          0.2711      9       0.1689
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40AT BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.06149    0.03074    0.32  0.7355
WITHIN     6     0.57027    0.09504
TOTAL      8     0.63176
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.02143
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           0.4900      3       0.4451
CaG2           0.5467      3       0.2950
CaG3           0.3500      3       0.0000
TOTAL          0.4622      9       0.3083
CASES INCLUDED 9    MISSING CASES 0
```

Table 29- ANOVA soil SBT, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20SBT BY Parc
SOURCE    DF       SS          MS         F        P
BETWEEN    3     173.016    57.6721    10.42  0.0001
WITHIN    32     177.030    5.53220
TOTAL     35     350.047
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   20.17     3    0.0002
COCHRAN'S Q                  0.7843
LARGEST VAR / SMALLEST VAR     12.903
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    5.79333
EFlFeCTIVE CELL SIZE                             9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
Am            11.003      9       1.1598
Ba            10.238      9       1.4303
BC            12.361      9       4.1660
Cd            6.4522      9       1.1756
TOTAL         10.014     36       2.3521
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20SBT BY Inst
SOURCE    DF       SS          MS         F        P
BETWEEN    1     13.2617    13.2617     1.34  0.2553
WITHIN    34     336.785    9.90544
TOTAL     35     350.047
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   18.70     1    0.0000
COCHRAN'S Q                  0.9116
LARGEST VAR / SMALLEST VAR     10.315
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.18646
EFlFeCTIVE CELL SIZE                            18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
Pt            10.621     18       1.3232
VA            9.4067     18       4.2497
TOTAL         10.014     36       3.1473
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20SBT BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.58847    0.29423     0.17  0.8447
WITHIN     6     10.1721    1.69536
TOTAL      8     10.7606
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.76     2    0.0561
COCHRAN'S Q                  0.5539
LARGEST VAR / SMALLEST VAR     123.55
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.46704
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          11.360      3       0.1510
AmG2          10.773      3       1.4987
AmG3          10.877      3       1.6784
TOTAL         11.003      9       1.3021
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20SBT BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     2.60682    1.30341     0.57  0.5942
WITHIN     6     13.7599    2.29332
TOTAL      8     16.3668
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.33     2    0.3126
COCHRAN'S Q                  0.6638
LARGEST VAR / SMALLEST VAR     14.275
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.32997
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          10.620      3       0.5656
BaG2          10.617      3       1.4119
BaG3          9.4767      3       2.1370
TOTAL         10.238      9       1.5144
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20SBT BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     62.1073    31.0536     2.43  0.1688
WITHIN     6     76.7398    12.7900
TOTAL      8     138.847
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.96     2    0.0507
COCHRAN'S Q                  0.8607
LARGEST VAR / SMALLEST VAR     100.06
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    6.08789
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          11.683      3       5.7467
BCG2          15.863      3       0.5745
BCG3          9.5367      3       2.2395
TOTAL         12.361      9       3.5763
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20SBT BY PaEtG3
SOURCE    DF       SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     8.83316    4.41658    11.92  0.0081
WITHIN     6     2.22280    0.37047
TOTAL      8     11.0560
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.20     2    0.3326
COCHRAN'S Q                  0.6741
LARGEST VAR / SMALLEST VAR     12.888
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.34870
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          5.0967      3       0.8656
CaG2          7.4367      3       0.5514
CaG3          6.8233      3       0.2411
TOTAL         6.4522      9       0.6087
CASES INCLUDED 9    MISSING CASES 0
```

Table 30- ANOVA soil SBT, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40SBT BY Parc
SOURCE    DF       SS          MS        F       P
BETWEEN    3     139.346    46.4488    8.80  0.0002
WITHIN    32     168.956    5.27986
TOTAL     35     308.302
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   15.34     3    0.0015
COCHRAN'S Q                   0.7202
LARGEST VAR / SMALLEST VAR     11.727
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4.57433
EFlFeCTIVE CELL SIZE                            9.0
                            SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
Am             10.872      9       1.1389
Ba             10.117      9       1.4222
BC             11.957      9       3.9001
Cd             6.6967      9       1.6090
TOTAL          9.9106     36       2.2978
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40SBT BY Inst
SOURCE    DF       SS          MS        F       P
BETWEEN    1     12.2733    12.2733    1.41  0.2433
WITHIN    34     296.029    8.70672
TOTAL     35     308.302
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   17.11     1    0.0000
COCHRAN'S Q                   0.9016
LARGEST VAR / SMALLEST VAR     9.1638
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.19815
EFlFeCTIVE CELL SIZE                           18.0
                            SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
Pt             10.494     18       1.3089
VA              9.3267     18       3.9623
TOTAL           9.9106     36       2.9507
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40SBT BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     6.81849    3.40924    5.75  0.0403
WITHIN     6     3.55807    0.59301
TOTAL      8     10.3766
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.78     2    0.2494
COCHRAN'S Q                   0.7669
LARGEST VAR / SMALLEST VAR     16.064
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.93874
EFlFeCTIVE CELL SIZE                            3.0
                            SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           12.077      3       0.2914
AmG2           10.050      3       1.1681
AmG3           10.490      3       0.5742
TOTAL          10.872      9       0.7701
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40SBT BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     1.27487    0.63743    0.26  0.7818
WITHIN     6     14.9053    2.48422
TOTAL      8     16.1802
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.03     2    0.5989
COCHRAN'S Q                   0.6009
LARGEST VAR / SMALLEST VAR     5.1541
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.61560
EFlFeCTIVE CELL SIZE                            3.0
                            SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           10.603      3       0.9322
BaG2           10.060      3       1.4509
BaG3           9.6867      3       2.1163
TOTAL          10.117      9       1.5761
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40SBT BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     42.2605    21.1302    1.60  0.2781
WITHIN     6     79.4275    13.2379
TOTAL      8     121.688
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.19     2    0.5503
COCHRAN'S Q                   0.5608
LARGEST VAR / SMALLEST VAR     6.1267
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.63077
EFlFeCTIVE CELL SIZE                            3.0
                            SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           10.950      3       4.7193
BCG2           14.967      3       3.7157
BCG3           9.9533      3       1.9066
TOTAL          11.957      9       3.6384
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40SBT BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     7.95860    3.97930    1.87  0.2334
WITHIN     6     12.7522    2.12537
TOTAL      8     20.7108
                        CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.50     2    0.2867
COCHRAN'S Q                   0.7886
LARGEST VAR / SMALLEST VAR     10.579
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.61798
EFlFeCTIVE CELL SIZE                            3.0
                            SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           5.4800      3       2.2424
CaG2           7.7700      3       0.9340
CaG3           6.8400      3       0.6894
TOTAL          6.6967      9       1.4579
CASES INCLUDED 9    MISSING CASES 0
```

Table 31- ANOVA soil CTCe, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20CTCe BY Parc
SOURCE    DF       SS          MS        F       P
BETWEEN    3     156.594    52.1981    9.70  0.0001
WITHIN    32     172.199    5.38121
TOTAL     35     328.793
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   20.32     3    0.0001
COCHRAN'S Q                    0.7890
LARGEST VAR / SMALLEST VAR     12.306
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    5.20188
EFlFeCTIVE CELL SIZE                            9.0
                         SAMPLE     GROUP
   Parc         MEAN      SIZE     STD DEV
Am             11.113      9        1.1747
Ba             10.624      9        1.3218
BC             12.627      9        4.1211
Cd             6.9500      9        1.1893
TOTAL          10.329     36        2.3197
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20CTCe BY Inst
SOURCE    DF       SS          MS        F       P
BETWEEN    1     10.5084    10.5084    1.12  0.2968
WITHIN    34     318.285    9.36131
TOTAL     35     328.793
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   19.83     1    0.0000
COCHRAN'S Q                    0.9180
LARGEST VAR / SMALLEST VAR     11.198
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.06373
EFlFeCTIVE CELL SIZE                           18.0
                         SAMPLE     GROUP
   Inst         MEAN      SIZE     STD DEV
Pt            10.869     18       1.2389
VA             9.7883     18        4.1458
TOTAL          10.329     36        3.0596
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20CTCe BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.70427    0.35213    0.20  0.8206
WITHIN     6     10.3359    1.72266
TOTAL      8     11.0402
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.05     2    0.0800
COCHRAN'S Q                    0.5475
LARGEST VAR / SMALLEST VAR     78.955
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.45684
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
AmG1           11.507      3        0.1893
AmG2           10.880      3        1.5175
AmG3           10.953      3        1.6820
TOTAL          11.113      9        1.3125
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20CTCe BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     2.58669    1.29334    0.68  0.5412
WITHIN     6     11.3905    1.89842
TOTAL      8     13.9772
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.38     2    0.3043
COCHRAN'S Q                    0.6432
LARGEST VAR / SMALLEST VAR     15.011
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.20169
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
BaG1           11.067      3        0.4940
BaG2           10.937      3        1.3372
BaG3           9.8700      3        1.9139
TOTAL          10.624      9        1.3778
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20CTCe BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     63.2313    31.6156    2.61  0.1528
WITHIN     6     72.6337    12.1056
TOTAL      8     135.865
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    6.95     2    0.0309
COCHRAN'S Q                    0.8757
LARGEST VAR / SMALLEST VAR     172.71
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    6.50334
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
BCG1           11.810      3        5.6394
BCG2           16.203      3        0.4291
BCG3           9.8667      3        2.0809
TOTAL          12.627      9        3.4793
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20CTCe BY PaEtG3
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     9.26687    4.63343   13.57  0.0059
WITHIN     6     2.04933    0.34156
TOTAL      8     11.3162
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.17     2    0.3374
COCHRAN'S Q                    0.6726
LARGEST VAR / SMALLEST VAR     12.638
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.43063
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           5.5967      3        0.5300
CaG2           8.0400      3        0.8302
CaG3           7.2133      3        0.2335
TOTAL          6.9500      9        0.5844
CASES INCLUDED 9    MISSING CASES 0
```

Table 32- ANOVA soil CTCe, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40CTCe BY Parc
SOURCE    DF       SS         MS        F       P
BETWEEN    3     127.232    42.4107    7.93  0.0004
WITHIN    32     171.139    5.34808
TOTAL     35     298.371
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   16.91     3    0.0007
COCHRAN'S Q                 0.7455
LARGEST VAR / SMALLEST VAR     11.944
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4.11806
EFlFeCTIVE CELL SIZE                            9.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
Am            10.968      9        1.1555
Ba            10.543      9        1.3416
BC            12.242      9        3.9935
Cd            7.1567      9        1.5195
TOTAL         10.227     36        2.3126
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40CTCe BY Inst
SOURCE    DF       SS         MS        F       P
BETWEEN    1     10.0383    10.0383    1.18  0.2843
WITHIN    34     288.332    8.48036
TOTAL     35     298.371
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   18.46     1    0.0000
COCHRAN'S Q                 0.9102
LARGEST VAR / SMALLEST VAR     10.136
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.08655
EFlFeCTIVE CELL SIZE                           18.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
Pt            10.756     18        1.2341
VA             9.6994    18        3.9291
TOTAL          10.227    36        2.9121
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40CTCe BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     7.11776    3.55888    5.99  0.0371
WITHIN     6     3.56420    0.59403
TOTAL      8     10.6820
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.48     2    0.2898
COCHRAN'S Q                 0.7606
LARGEST VAR / SMALLEST VAR     12.759
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.98828
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          12.203      3        0.3259
AmG2          10.147      3        1.1642
AmG3          10.553      3        0.5661
TOTAL         10.968      9        0.7707
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40CTCe BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.90687    0.45343    0.20  0.8227
WITHIN     6     13.4913    2.24856
TOTAL      8     14.3982
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.15     2    0.5619
COCHRAN'S Q                 0.6153
LARGEST VAR / SMALLEST VAR     5.7385
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.59837
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          10.953      3        0.8504
BaG2          10.497      3        1.3683
BaG3          10.180      3        2.0372
TOTAL         10.543      9        1.4995
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40CTCe BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     46.0540    23.0270    1.69  0.2610
WITHIN     6     81.5334    13.5889
TOTAL      8     127.587
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.14     2    0.5660
COCHRAN'S Q                 0.5223
LARGEST VAR / SMALLEST VAR     5.7020
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    3.14603
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          11.067      3        4.6143
BCG2          15.407      3        3.9675
BCG3          10.253      3        1.9324
TOTAL         12.242      9        3.6863
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40CTCe BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     8.26347    4.13173    2.43  0.1688
WITHIN     6     10.2077    1.70129
TOTAL      8     18.4712
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.36     2    0.5063
COCHRAN'S Q                 0.6299
LARGEST VAR / SMALLEST VAR     6.8441
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.81015
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
  PaEtG3        MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
CaG1           5.9700     3        1.7930
CaG2           8.3167     3        1.1913
CaG3           7.1833     3        0.6854
TOTAL          7.1567     9        1.3043
CASES INCLUDED 9    MISSING CASES 0
```

Table 33- ANOVA soil GSBe, in the first 20 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl20GSBe BY Parc
SOURCE    DF       SS          MS         F       P
BETWEEN    3     199.116    66.3721     9.72  0.0001
WITHIN    32     218.471    6.82722
TOTAL     35     417.587
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   31.51     3    0.0000
COCHRAN'S Q                   0.7229
LARGEST VAR / SMALLEST VAR    156.55
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    6.61610
EFlFeCTIVE CELL SIZE                            9.0
                         SAMPLE     GROUP
   Parc         MEAN      SIZE     STD DEV
Am            99.011       9       0.3551
Ba            96.200       9       1.9326
BC            97.556       9       1.9249
Cd            92.667       9       4.4433
TOTAL         96.358      36       2.6129
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20GSBe BY Inst
SOURCE    DF       SS          MS         F       P
BETWEEN    1     56.0003    56.0003     5.27  0.0280
WITHIN    34     361.587    10.6349
TOTAL     35     417.587
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.44     1    0.0037
COCHRAN'S Q                   0.8162
LARGEST VAR / SMALLEST VAR    4.4415
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    2.52030
EFlFeCTIVE CELL SIZE                           18.0
                         SAMPLE     GROUP
   Inst         MEAN      SIZE     STD DEV
Pt           97.606      18       1.9771
VA            95.111      18       4.1667
TOTAL         96.358      36       3.2611
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20GSBe BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     0.42889    0.21444     2.22  0.1900
WITHIN     6     0.58000    0.09667
TOTAL      8     1.00889
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.99     2    0.1359
COCHRAN'S Q                   0.8736
LARGEST VAR / SMALLEST VAR    19.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.03926
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          98.733       3       0.5033
AmG2          99.033       3       0.1528
AmG3          99.267       3       0.1155
TOTAL         99.011       9       0.3109
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20GSBe BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     2.72667    1.36333     0.30  0.7505
WITHIN     6     27.1533    4.52556
TOTAL      8     29.8800
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.49     2    0.4740
COCHRAN'S Q                   0.7100
LARGEST VAR / SMALLEST VAR    5.2014
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1.05407
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          95.933       3       1.3614
BaG2          96.967       3       1.4434
BaG3          95.700       3       3.1048
TOTAL         96.200       9       2.1273
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20GSBe BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     7.57556    3.78778     1.03  0.4126
WITHIN     6     22.0667    3.67778
TOTAL      8     29.6422
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.04     2    0.3598
COCHRAN'S Q                   0.7514
LARGEST VAR / SMALLEST VAR    8.5464
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.03667
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          98.467       3       1.3317
BCG2          97.900       3       0.9849
BCG3          96.300       3       2.8792
TOTAL         97.556       9       1.9178
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl20GSBe BY PaEtG3
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2     22.8600    11.4300     0.51  0.6256
WITHIN     6     135.080    22.5133
TOTAL      8     157.940
                     CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.01     2    0.0183
COCHRAN'S Q                   0.8425
LARGEST VAR / SMALLEST VAR    397.00
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -3.69444
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          90.667       3       7.5434
CaG2          92.767       3       3.2393
CaG3          94.567       3       0.3786
TOTAL         92.667       9       4.7448
CASES INCLUDED 9    MISSING CASES 0
```

Table 34- ANOVA soil GSBe, between 20 - 40 cm depth, among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR Sl40GSBe BY Parc
SOURCE    DF       SS         MS        F       P
BETWEEN    3    199.661    66.5536    5.75  0.0029
WITHIN    32    370.347    11.5733
TOTAL     35    570.007
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES   49.12     3    0.0000
COCHRAN'S Q                   0.8307
LARGEST VAR / SMALLEST VAR     528.42
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    6.10892
EFlFeCTIVE CELL SIZE                            9.0
                         SAMPLE     GROUP
   Parc         MEAN      SIZE     STD DEV
Am            99.156       9       0.2698
Ba            95.856       9       2.4749
BC            97.656       9       1.2798
Cd            92.833       9       6.2014
TOTAL         96.375      36       3.4020
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40GSBe BY Inst
SOURCE    DF       SS         MS        F       P
BETWEEN    1     46.0136    46.0136    2.99  0.0931
WITHIN    34    523.994    15.4116
TOTAL     35    570.007
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    8.14     1    0.0043
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.70011
COCHRAN'S Q                   0.8119
LARGEST VAR / SMALLEST VAR     4.3149
EFlFeCTIVE CELL SIZE                           18.0
                         SAMPLE     GROUP
   Inst         MEAN      SIZE     STD DEV
Pt           97.506      18       2.4082
VA            95.244      18       5.0024
TOTAL         96.375      36       3.9258
CASES INCLUDED 36    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40GSBe BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    0.38889    0.19444    6.03  0.0366
WITHIN     6    0.19333    0.03222
TOTAL      8    0.58222
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.34     2    0.5125
COCHRAN'S Q                   0.6552
LARGEST VAR / SMALLEST VAR     6.3333
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.05407
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
AmG1          98.933       3       0.2517
AmG2          99.100       3       0.1000
AmG3          99.433       3       0.1528
TOTAL         99.156       9       0.1795
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40GSBe BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    4.61556    2.30778    0.31  0.7432
WITHIN     6    44.3867    7.39778
TOTAL      8    49.0022
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.22     2    0.2004
COCHRAN'S Q                   0.8166
LARGEST VAR / SMALLEST VAR     17.595
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1.69667
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
BaG1          96.800       3       1.0149
BaG2          95.700       3       1.7436
BaG3          95.067       3       4.2572
TOTAL         95.856       9       2.7199
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40GSBe BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    4.14889    2.07444    1.39  0.3191
WITHIN     6    8.95333    1.49222
TOTAL      8    13.1022
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.36     2    0.5066
COCHRAN'S Q                   0.5145
LARGEST VAR / SMALLEST VAR     6.7087
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.19407
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
BCG1          98.600       3       1.3528
BCG2          97.333       3       1.5177
BCG3          97.033       3       0.5859
TOTAL         97.656       9       1.2216
CASES INCLUDED 9    MISSING CASES 0
```

```
ONE-WAY AOV FOR Sl40GSBe BY PaEtG3
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    2    49.6067    24.8033    0.58  0.5901
WITHIN     6    258.053    43.0089
TOTAL      8    307.660
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    9.60     2    0.0082
COCHRAN'S Q                   0.9288
LARGEST VAR / SMALLEST VAR     570.68
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -6.06852
EFlFeCTIVE CELL SIZE                            3.0
                         SAMPLE     GROUP
  PaEtG3        MEAN      SIZE     STD DEV
---------   ----------  ------  ----------
CaG1          89.633       3       10.947
CaG2          93.667       3       2.9956
CaG3          95.200       3       0.4583
TOTAL         92.833       9       6.5581
CASES INCLUDED 9    MISSING CASES 0
```

Table 35- Regression analysis for average data 2005 pH, in H_2O, in first 20 cm soil.

```
Dependent variable.. Sl20pHH2O          Method.. QUADRATI

Multiple R           .62400
R Square             .38937
Adjusted R Square    .18583
Standard Error       .19550

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .14623088        .07311544
Residuals      6        .22932468        .03822078

F =       1.91298       Signif F =  .2277

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.087706     .114221  -1.108577     -.768  .4717
Pt**2               .012771     .011140   1.655079     1.146  .2953
(Constant)         6.211905     .248759               24.972  .0000
```

```
Dependent variable.. Sl20pHH2O          Method.. QUADRATI

Multiple R           .17142
R Square             .02938
Adjusted R Square   -.29415
Standard Error       .45858

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         .0381991        .01909957
Residuals      6        1.2618009        .21030014

F =        .09082       Signif F =  .9144

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .107056     .267926    .727304      .400  .7033
Pt**2              -.011039     .026130   -.768958     -.422  .6874
(Constant)         5.547619     .583512                9.507  .0001
```

```
Dependent variable.. Sl20pHH2O          Method.. QUADRATI

Multiple R           .58190
R Square             .33861
Adjusted R Square    .11814
Standard Error       .49270

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         .7456854        .37284271
Residuals      6        1.4565368        .24275613

F =       1.53587       Signif F =  .2893

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .243506     .287859   1.271029      .846  .4300
Pt**2              -.032684     .028074  -1.749243    -1.164  .2885
(Constant)         5.661905     .626924                9.031  .0001
```

```
Dependent variable.. Sl20pHH2O          Method.. QUADRATI

Multiple R           .75831
R Square             .57503
Adjusted R Square    .43338
Standard Error       .25527

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .52903030        .26451515
Residuals      6        .39096970        .06516162

F =       4.05937       Signif F =  .0767

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .047879     .149139    .386656      .321  .7591
Pt**2               .004545     .014545    .376382      .313  .7652
(Constant)         4.616667     .324807               14.214  .0000
```

Table 36- Regression analysis for average data 2005 pH, in H_2O, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40pHH2O          Method.. QUADRATI

Multiple R           .78112
R Square             .61015
Adjusted R Square    .48020
Standard Error       .16823

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .26575469        .13287734
Residuals      6        .16980087        .02830014

F =       4.69529       Signif F =  .0593

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta          T  Sig T
Pt                 -.179610     .098285  -2.108071     -1.827  .1174
Pt**2               .022294     .009586   2.682992      2.326  .0590
(Constant)         6.614286     .214054                30.900  .0000
```

```
Dependent variable.. Sl40pHH2O          Method.. QUADRATI

Multiple R           .14014
R Square             .01964
Adjusted R Square   -.30715
Standard Error       .46009

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         .0254430         .01272150
Residuals      6        1.2701126         .21168543

F =        .06010       Signif F =  .9422

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta          T  Sig T
Pt                 -.041645     .268807   -.283407      -.155  .8820
Pt**2               .002165     .026216    .151034       .083  .9369
(Constant)         5.861905     .585430                10.013  .0001
```

```
Dependent variable.. Sl40pHH2O          Method.. QUADRATI

Multiple R           .79437
R Square             .63103
Adjusted R Square    .50804
Standard Error       .26938

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .74461472        .37230736
Residuals      6        .43538528        .07256421

F =       5.13073       Signif F =  .0502

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta          T  Sig T
Pt                  .296797     .157382   2.116379      1.886  .1083
Pt**2              -.037013     .015349  -2.706194     -2.411  .0525
(Constant)         5.688095     .342761                16.595  .0000
```

```
Dependent variable.. Sl40pHH2O          Method.. QUADRATI

Multiple R           .79467
R Square             .63150
Adjusted R Square    .50866
Standard Error       .27248

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .76340837        .38170418
Residuals      6        .44548052        .07424675

F =       5.14102       Signif F =  .0500

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta          T  Sig T
Pt                  .041320     .159197    .291103       .260  .8039
Pt**2               .007035     .015526    .508152       .453  .6664
(Constant)         4.559524     .346712                13.151  .0000
```

Table 37- Regression analysis for average data 2005 pH, in KCl, in first 20 cm soil dept

```
Dependent variable.. Sl20pHKCl          Method.. QUADRATI

Multiple R           .39281
R Square             .15430
Adjusted R Square   -.12760
Standard Error       .24331

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .06480519        .03240260
Residuals      6        .35519481        .05919913

F =        .54735       Signif F =  .6049

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 .119156     .142152  1.424185      .838  .4340
Pt**2             -.009416     .013864 -1.153901     -.679  .5224
(Constant)         3.869048     .309590              12.497  .0000
```

```
Dependent variable.. Sl20pHKCl          Method.. QUADRATI

Multiple R           .34036
R Square             .11585
Adjusted R Square   -.17887
Standard Error       .36864

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .10683694        .05341847
Residuals      6        .81538528        .13589755

F =        .39308       Signif F =  .6912

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 .186082     .215378  1.500938      .864  .4208
Pt**2             -.016775     .021005 -1.387356     -.799  .4550
(Constant)         2.945238     .469068               6.279  .0008
```

```
Dependent variable.. Sl20pHKCl          Method.. QUADRATI

Multiple R           .73979
R Square             .54729
Adjusted R Square    .39639
Standard Error       .19206

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .26756421        .13378211
Residuals      6        .22132468        .03688745

F =       3.62677       Signif F =  .0928

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -.279675     .112211 -3.098309    -2.492  .0470
Pt**2              .024134     .010944  2.741408     2.205  .0696
(Constant)         4.145238     .244382              16.962  .0000
```

```
Dependent variable.. Sl20pHKCl          Method.. QUADRATI

Multiple R           .12126
R Square             .01470
Adjusted R Square   -.31373
Standard Error       .52525

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         .0247013        .01235065
Residuals      6        1.6552987        .27588312

F =        .04477       Signif F =  .9565

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 .067922     .306872   .405912      .221  .8322
Pt**2             -.007792     .029929  -.477476     -.260  .8033
(Constant)         3.107143     .668332               4.649  .0035
```

Table 38- Regression analysis for average data 2005 pH, in KCl, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40pHKCl          Method.. QUADRATI

Multiple R           .31943
R Square             .10204
Adjusted R Square   -.19728
Standard Error       .26802

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .04897835        .02448918
Residuals      6        .43102165        .07183694

F =        .34090       Signif F =  .7241

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                   .044567     .156592    .498275      .285  .7855
Pt**2               -.001623     .015272   -.186099     -.106  .9188
(Constant)          4.128571     .341039               12.106  .0000
```

```
Dependent variable.. Sl40pHKCl          Method.. QUADRATI

Multiple R           .20120
R Square             .04048
Adjusted R Square   -.27936
Standard Error       .39901

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .04030014        .02015007
Residuals      6        .95525541        .15920924

F =        .12656       Signif F =  .8834

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                   .026450     .233120    .205339      .113  .9134
Pt**2               -.004978     .022736   -.396277     -.219  .8339
(Constant)          3.347619     .507708                6.594  .0006
```

```
Dependent variable.. Sl40pHKCl          Method.. QUADRATI

Multiple R           .86356
R Square             .74573
Adjusted R Square    .66098
Standard Error       .10893

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .20880519        .10440260
Residuals      6        .07119481        .01186580

F =       8.79861       Signif F =  .0164

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                  -.149156     .063642  -2.183418    -2.344  .0576
Pt**2                .009416     .006207   1.413234     1.517  .1801
(Constant)          4.014286     .138605               28.962  .0000
```

```
Dependent variable.. Sl40pHKCl          Method.. QUADRATI

Multiple R           .26579
R Square             .07064
Adjusted R Square   -.23914
Standard Error       .51448

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         .1207244        .06036219
Residuals      6        1.5881645        .26469408

F =        .22805       Signif F =  .8027

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                   .117186     .300585    .694376      .390  .7101
Pt**2               -.014719     .029315   -.894244     -.502  .6335
(Constant)          3.069048     .654639                4.688  .0034
```

Table 39- Regression analysis for average data 2005 organic matter, in first 20 cm soil dept

```
Dependent variable.. Sl20MO          Method.. QUADRATI

Multiple R           .72777
R Square             .52965
Adjusted R Square    .37286
Standard Error       .12447

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .10466967        .05233483
Residuals      6        .09295255        .01549209

F =       3.37816       Signif F =  .1041

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta          T  Sig T
Pt                   .070645     .072719   1.230947       .971  .3688
Pt**2               -.010498     .007092  -1.875546     -1.480  .1893
(Constant)          1.224762     .158374                 7.733  .0002
```

```
Dependent variable.. Sl20MO          Method.. QUADRATI

Multiple R           .30639
R Square             .09387
Adjusted R Square   -.20817
Standard Error       .13260

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .01092898        .00546449
Residuals      6        .10549325        .01758221

F =        .31080       Signif F =  .7440

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta          T  Sig T
Pt                   .057699     .077470   1.309866       .745  .4845
Pt**2               -.005920     .007555  -1.377981      -.784  .4631
(Constant)           .604524     .168720                 3.583  .0116
```

```
Dependent variable.. Sl20MO          Method.. QUADRATI

Multiple R           .72692
R Square             .52841
Adjusted R Square    .37122
Standard Error       .28883

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .56085654        .28042827
Residuals      6        .50054346        .08342391

F =       3.36149       Signif F =  .1049

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta          T  Sig T
Pt                  -.334887     .168749  -2.517880     -1.985  .0944
Pt**2                .037922     .016458   2.923469      2.304  .0607
(Constant)          1.023571     .367515                 2.785  .0318
```

```
Dependent variable.. Sl20MO          Method.. QUADRATI

Multiple R           .75343
R Square             .56766
Adjusted R Square    .42355
Standard Error       .25613

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .51679758        .25839879
Residuals      6        .39360242        .06560040

F =       3.93898       Signif F =  .0808

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta          T  Sig T
Pt                   .093606     .149640    .759912       .626  .5546
Pt**2               -.017727     .014594  -1.475610     -1.215  .2701
(Constant)           .946667     .325899                 2.905  .0272
```

Table 40- Regression analysis for average data 2005 organic matter, between 20 - 40 cm soil dept

Dependent variable.. Sl40MO   Method.. QUADRATI

Multiple R	.47082
R Square	.22167
Adjusted R Square	-.03777
Standard Error	.24015

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	.09855472	.04927736
Residuals	6	.34604528	.05767421

F = .85441   Signif F = .4715

------------------- Variables in the Equation -------------------

Variable	B	SE B	Beta	T	Sig T
Pt	.072037	.140309	.836846	.513	.6260
Pt**2	-.010487	.013684	-1.249145	-.766	.4725
(Constant)	.958571	.305577		3.137	.0201

Dependent variable.. Sl40MO   Method.. QUADRATI

Multiple R	.52815
R Square	.27894
Adjusted R Square	.03859
Standard Error	.14683

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	.05004199	.02502100
Residuals	6	.12935801	.02155967

F = 1.16055   Signif F = .3749

------------------- Variables in the Equation -------------------

Variable	B	SE B	Beta	T	Sig T
Pt	.003658	.085786	.066897	.043	.9674
Pt**2	.002468	.008367	.462698	.295	.7780
(Constant)	.476905	.186832		2.553	.0433

Dependent variable.. Sl40MO   Method.. QUADRATI

Multiple R	.77621
R Square	.60250
Adjusted R Square	.47000
Standard Error	.21682

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	.42753550	.21376775
Residuals	6	.28206450	.04701075

F = 4.54721   Signif F = .0628

------------------- Variables in the Equation -------------------

Variable	B	SE B	Beta	T	Sig T
Pt	-.301504	.126676	-2.772441	-2.380	.0548
Pt**2	.033734	.012354	3.180562	2.730	.0342
(Constant)	.952619	.275885		3.453	.0136

Dependent variable.. Sl40MO   Method.. QUADRATI

Multiple R	.75056
R Square	.56333
Adjusted R Square	.41778
Standard Error	.16958

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	.22260421	.11130211
Residuals	6	.17255134	.02875856

F = 3.87023   Signif F = .0833

------------------- Variables in the Equation -------------------

Variable	B	SE B	Beta	T	Sig T
Pt	.105961	.099078	1.305683	1.069	.3260
Pt**2	-.015563	.009663	-1.966295	-1.611	.1584
(Constant)	.605238	.215781		2.805	.0310

Table 41- Regression analysis for average data 2005 P_2O_5, in first 20 cm soil dept

```
Dependent variable.. Sl20P2O5          Method.. QUADRATI

Multiple R           .79596
R Square             .63356
Adjusted R Square    .51141
Standard Error     11.43113

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1355.5313        677.76566
Residuals      6         784.0242        130.67071

F =       5.18682       Signif F =  .0492

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 4.639394    6.678578    .776918      .695  .5133
Pt**2              -.893939     .651349  -1.534943    -1.372  .2190
(Constant)        41.333333   14.545174                2.842  .0295
```

```
Dependent variable.. Sl20P2O5          Method.. QUADRATI

Multiple R           .32489
R Square             .10555
Adjusted R Square   -.19259
Standard Error     68.75811

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         3347.492        1673.7462
Residuals      6        28366.063        4727.6772

F =        .35403       Signif F =  .7156

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 6.579221   40.171566    .286172      .164  .8753
Pt**2               .088745    3.917857    .039579      .023  .9827
(Constant)        62.071429   87.489054                 .709  .5047
```

```
Dependent variable.. Sl20P2O5          Method.. QUADRATI

Multiple R           .78760
R Square             .62031
Adjusted R Square    .49374
Standard Error     30.66981

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        9220.3980        4610.1990
Residuals      6        5643.8242         940.6374

F =       4.90114       Signif F =  .0547

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt               -15.160606   17.918678   -.963210     -.846  .4300
Pt**2              2.606061    1.747575   1.697693     1.491  .1865
(Constant)        50.833333   39.024822                1.303  .2405
```

```
Dependent variable.. Sl20P2O5          Method.. QUADRATI

Multiple R           .77788
R Square             .60510
Adjusted R Square    .47346
Standard Error     47.48018

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        20725.794        10362.897
Residuals      6        13526.206         2254.368

F =       4.59681       Signif F =  .0616

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                33.669697   27.740050   1.409198     1.214  .2704
Pt**2             -4.863636    2.705434  -2.087200    -1.798  .1223
(Constant)       131.333333   60.414639                2.174  .0727
```

Table 42- Regression analysis for average data 2005 P_2O_5, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40P2O5          Method.. QUADRATI

Multiple R           .72386
R Square             .52398
Adjusted R Square    .36530
Standard Error      7.25203

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        347.33737        173.66869
Residuals      6        315.55152         52.59192

F =       3.30219       Signif F =  .1079

-------------------- Variables in the Equation --------------------

Variable                  B         SE B       Beta         T  Sig T
Pt                 8.948485    4.236960   2.692184     2.112  .0792
Pt**2              -.984848     .413223  -3.038050    -2.383  .0545
(Constant)        19.333333    9.227612                2.095  .0810
```

```
Dependent variable.. Sl40P2O5          Method.. QUADRATI

Multiple R           .38979
R Square             .15193
Adjusted R Square   -.13075
Standard Error     74.03938

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         5892.577        2946.2886
Residuals      6        32890.978        5481.8297

F =        .53746       Signif F =  .6099

-------------------- Variables in the Equation --------------------

Variable                  B         SE B       Beta         T  Sig T
Pt                15.266234   43.257123    .600460      .353  .7362
Pt**2              -.543290    4.218785  -.219106     -.129  .9017
(Constant)        34.095238   94.209041                 .362  .7298
```

```
Dependent variable.. Sl40P2O5          Method.. QUADRATI

Multiple R           .87599
R Square             .76736
Adjusted R Square    .68982
Standard Error      8.31117

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1367.1027        683.55137
Residuals      6         414.4528         69.07547

F =       9.89572       Signif F =  .0126

-------------------- Variables in the Equation --------------------

Variable                  B         SE B       Beta         T  Sig T
Pt                 1.020346    4.855755    .187251      .210  .8405
Pt**2               .367965     .473573    .692394      .777  .4667
(Constant)        27.023810   10.575277                2.555  .0432
```

```
Dependent variable.. Sl40P2O5          Method.. QUADRATI

Multiple R           .79123
R Square             .62604
Adjusted R Square    .50139
Standard Error     63.89710

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        41010.521        20505.260
Residuals      6        24497.035         4082.839

F =       5.02230       Signif F =  .0523

-------------------- Variables in the Equation --------------------

Variable                  B         SE B       Beta         T  Sig T
Pt                81.517316   37.331547   2.467061     2.184  .0717
Pt**2             -9.601732    3.640875  -2.979543    -2.637  .0387
(Constant)        36.690476   81.303819                 .451  .6676
```

Table 43- Regression analysis for average data 2005 K_2O, in first 20 cm soil dept

```
Dependent variable.. Sl20K2O          Method.. QUADRATI

Multiple R           .72595
R Square             .52701
Adjusted R Square    .36935
Standard Error      6.45160

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        278.26147        139.13074
Residuals      6        249.73853         41.62309

F =       3.34263       Signif F =  .1058

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.834632    3.769311   -.281354     -.221  .8321
Pt**2              -.129870     .367614   -.448888     -.353  .7360
(Constant)        55.619048    8.209127                6.775  .0005
```

```
Dependent variable.. Sl20K2O          Method.. QUADRATI

Multiple R           .65882
R Square             .43404
Adjusted R Square    .24539
Standard Error      4.11543

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         77.93478        38.967388
Residuals      6        101.62078        16.936797

F =       2.30075       Signif F =  .1813

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -5.088312    2.404421  -2.941372    -2.116  .0787
Pt**2               .502165     .234499   2.976408     2.141  .0760
(Constant)        55.761905    5.236552               10.649  .0000
```

```
Dependent variable.. Sl20K2O          Method.. QUADRATI

Multiple R           .37239
R Square             .13867
Adjusted R Square   -.14844
Standard Error     14.51462

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         203.5105        101.75527
Residuals      6        1264.0450        210.67417

F =        .48300       Signif F =  .6390

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -8.333766    8.480091  -1.685077     -.983  .3637
Pt**2               .790043     .827047   1.637946      .955  .3763
(Constant)        80.428571   18.468663                4.355  .0048
```

```
Dependent variable.. Sl20K2O          Method.. QUADRATI

Multiple R           .67567
R Square             .45653
Adjusted R Square    .27537
Standard Error      8.37425

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        353.45339        176.72670
Residuals      6        420.76883         70.12814

F =       2.52005       Signif F =  .1605

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 5.386147    4.892615   1.499412     1.101  .3131
Pt**2              -.718615     .477167  -2.051205    -1.506  .1828
(Constant)        56.380952   10.655552                5.291  .0018
```

Table 44- Regression analysis for average data 2005 K_2O, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40K2O          Method.. QUADRATI

Multiple R           .78186
R Square             .61131
Adjusted R Square    .48174
Standard Error      6.34892

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        380.36941        190.18470
Residuals      6        241.85281         40.30880

F =       4.71819       Signif F =  .0587

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -1.179654    3.709324   -.366317     -.318  .7612
Pt**2              -.132035     .361763   -.420398     -.365  .7276
(Constant)        56.523810    8.078482                6.997  .0004
```

```
Dependent variable.. Sl40K2O          Method.. QUADRATI

Multiple R           .78590
R Square             .61763
Adjusted R Square    .49018
Standard Error      2.61806

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        66.430014        33.215007
Residuals      6        41.125541         6.854257

F =       4.84589       Signif F =  .0559

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 4.259740    1.529590   3.181576     2.785  .0318
Pt**2              -.359307     .149178  -2.751665    -2.409  .0527
(Constant)        35.857143    3.331271               10.764  .0000
```

```
Dependent variable.. Sl40K2O          Method.. QUADRATI

Multiple R           .61945
R Square             .38372
Adjusted R Square    .17830
Standard Error      9.85151

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        362.57547        181.28773
Residuals      6        582.31342         97.05224

F =       1.86794       Signif F =  .2341

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt               -11.034199    5.755693  -2.780520    -1.917  .1037
Pt**2              1.080087     .561342   2.790706     1.924  .1027
(Constant)        83.857143   12.535238                6.690  .0005
```

```
Dependent variable.. Sl40K2O          Method.. QUADRATI

Multiple R           .64278
R Square             .41316
Adjusted R Square    .21755
Standard Error     12.60310

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        670.97143        335.48571
Residuals      6        953.02857        158.83810

F =       2.11212       Signif F =  .2021

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 8.414286    7.363295   1.617335     1.143  .2967
Pt**2             -1.071429     .718128  -2.111621    -1.492  .1863
(Constant)        53.190476   16.036410                3.317  .0161
```

Table 45- Regression analysis for average data 2005 calcium, in first 20 cm soil dept

```
Dependent variable.. Sl20Ca          Method.. QUADRATI

Multiple R           .45769
R Square             .20948
Adjusted R Square   -.05402
Standard Error       .92569

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1.3624501        .68122505
Residuals      6        5.1413721        .85689535

F =        .79499       Signif F =  .4940

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.676242     .540827  -2.053968    -1.250  .2577
Pt**2               .062424     .052746   1.944083     1.183  .2814
(Constant)        10.160000    1.177860                8.626  .0001
```

```
Dependent variable.. Sl20Ca          Method.. QUADRATI

Multiple R           .49467
R Square             .24470
Adjusted R Square   -.00707
Standard Error      1.18696

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        2.7386430        1.3693215
Residuals      6        8.4533126        1.4088854

F =        .97192       Signif F =  .4309

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .286645     .693478    .663693      .413  .6937
Pt**2              -.047165     .067634  -1.119717     -.697  .5117
(Constant)         7.948095    1.510315                5.263  .0019
```

```
Dependent variable.. Sl20Ca          Method.. QUADRATI

Multiple R           .59408
R Square             .35293
Adjusted R Square    .13724
Standard Error      2.97030

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        28.872787        14.436393
Residuals      6        52.936013         8.822669

F =       1.63628       Signif F =  .2709

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 2.777968    1.735381   2.379046     1.601  .1605
Pt**2              -.295747     .169248  -2.596963    -1.747  .1312
(Constant)         6.358810    3.779460                1.682  .1435
```

```
Dependent variable.. Sl20Ca          Method.. QUADRATI

Multiple R           .83244
R Square             .69296
Adjusted R Square    .59061
Standard Error       .61603

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        5.1388236        2.5694118
Residuals      6        2.2769764         .3794961

F =       6.77059       Signif F =  .0289

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .984455     .359914   2.800221     2.735  .0339
Pt**2              -.074545     .035102  -2.174142    -2.124  .0779
(Constant)         2.461667     .783851                3.140  .0201
```

Table 46- Regression analysis for average data 2005 calcium, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40Ca          Method.. QUADRATI

Multiple R           .81311
R Square             .66115
Adjusted R Square    .54820
Standard Error       .58774

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        4.0440169        2.0220084
Residuals      6        2.0726054         .3454342

F =       5.85353       Signif F =  .0389

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.941922     .343382  -2.950087    -2.743  .0336
Pt**2               .074459     .033489   2.391148     2.223  .0679
(Constant)        10.976190     .747847               14.677  .0000
```

```
Dependent variable.. Sl40Ca          Method.. QUADRATI

Multiple R           .43009
R Square             .18498
Adjusted R Square   -.08669
Standard Error      1.39124

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         2.635806        1.3179030
Residuals      6        11.613283        1.9355471

F =        .68089       Signif F =  .5414

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .451857     .812824    .927221      .556  .5984
Pt**2              -.060952     .079273  -1.282457     -.769  .4711
(Constant)         7.519762    1.770238                4.248  .0054
```

```
Dependent variable.. Sl40Ca          Method.. QUADRATI

Multiple R           .41978
R Square             .17621
Adjusted R Square   -.09838
Standard Error      3.18863

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        13.049155         6.524578
Residuals      6        61.004045        10.167341

F =        .64172       Signif F =  .5590

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 1.485048    1.862939   1.336731      .797  .4557
Pt**2              -.173571     .181689  -1.601962     -.955  .3763
(Constant)         8.774524    4.057266                2.163  .0738
```

```
Dependent variable.. Sl40Ca          Method.. QUADRATI

Multiple R           .63034
R Square             .39732
Adjusted R Square    .19643
Standard Error      1.23672

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        6.0500417        3.0250209
Residuals      6        9.1769139        1.5294856

F =       1.97780       Signif F =  .2189

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 1.219654     .722549   2.421060     1.688  .1424
Pt**2              -.099632     .070469  -2.027862    -1.414  .2071
(Constant)         2.294524    1.573630                1.458  .1951
```

Table 47- Regression analysis for average data 2005 magnesium, in first 20 cm soil dept

```
Dependent variable.. Sl20Mg          Method.. QUADRATI

Multiple R           .28836
R Square             .08315
Adjusted R Square   -.22247
Standard Error       .28550

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .04435221        .02217610
Residuals      6        .48904779        .08150797

F =        .27207       Signif F =  .7707

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -.098740     .166800  -1.047233     -.592  .5755
Pt**2              .010974     .016268   1.193398      .675  .5251
(Constant)        2.146190     .363270                5.908  .0010
```

```
Dependent variable.. Sl20Mg          Method.. QUADRATI

Multiple R           .50319
R Square             .25320
Adjusted R Square    .00426
Standard Error       .40968

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         .3414159        .17070795
Residuals      6        1.0070063        .16783439

F =       1.01712       Signif F =  .4165

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 .312232     .239351   2.082761     1.304  .2399
Pt**2             -.032673     .023343  -2.234725    -1.400  .2111
(Constant)        1.599048     .521279                3.068  .0220
```

```
Dependent variable.. Sl20Mg          Method.. QUADRATI

Multiple R           .67357
R Square             .45370
Adjusted R Square    .27160
Standard Error       .18757

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .17530883        .08765442
Residuals      6        .21109117        .03518186

F =       2.49147       Signif F =  .1630

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 .188162     .109586   2.344713     1.717  .1368
Pt**2             -.021266     .010688  -2.717177    -1.990  .0937
(Constant)         .279286     .238665                1.170  .2863
```

```
Dependent variable.. Sl20Mg          Method.. QUADRATI

Multiple R           .53060
R Square             .28154
Adjusted R Square    .04205
Standard Error       .27370

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .17613590        .08806795
Residuals      6        .44948632        .07491439

F =       1.17558       Signif F =  .3709

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 .155102     .159911   1.518925      .970  .3695
Pt**2             -.010660     .015596  -1.070420     -.684  .5198
(Constant)         .817619     .348267                2.348  .0572
```

Table 48- Regression analysis for average data 2005 magnesium, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40Mg          Method.. QUADRATI

Multiple R           .55433
R Square             .30729
Adjusted R Square    .07638
Standard Error       .25038

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .16685654        .08342827
Residuals      6        .37614346        .06269058

F =       1.33079       Signif F =  .3324

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.236673     .146284  -2.487853    -1.618  .1568
Pt**2               .021851     .014267   2.355105     1.532  .1765
(Constant)         2.501429     .318589                7.852  .0002
```

```
Dependent variable.. Sl40Mg          Method.. QUADRATI

Multiple R           .45456
R Square             .20663
Adjusted R Square   -.05783
Standard Error       .29880

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .13951455        .06975727
Residuals      6        .53568545        .08928091

F =        .78132       Signif F =  .4994

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .218091     .174572   2.055876     1.249  .2581
Pt**2              -.020909     .017026  -2.020993    -1.228  .2654
(Constant)         1.631667     .380197                4.292  .0051
```

```
Dependent variable.. Sl40Mg          Method.. QUADRATI

Multiple R           .69743
R Square             .48641
Adjusted R Square    .31521
Standard Error       .16643

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .15740199        .07870100
Residuals      6        .16619801        .02769967

F =       2.84123       Signif F =  .1355

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .219009     .097237   2.982172     2.252  .0652
Pt**2              -.022468     .009483  -3.136873    -2.369  .0556
(Constant)          .149762     .211771                 .707  .5060
```

```
Dependent variable.. Sl40Mg          Method.. QUADRATI

Multiple R           .50793
R Square             .25799
Adjusted R Square    .01065
Standard Error       .35645

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .26505913        .13252957
Residuals      6        .76234087        .12705681

F =       1.04307       Signif F =  .4085

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .129444     .208254    .989206      .622  .5571
Pt**2              -.006461     .020311   -.506266     -.318  .7612
(Constant)          .830714     .453554                1.832  .1167
```

Table 49- Regression analysis for average data 2005 potassium, in first 20 cm soil dept

```
Dependent variable.. Sl20K           Method.. QUADRATI

Multiple R           .37898
R Square             .14362
Adjusted R Square   -.14184
Standard Error       .01926

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00037342        .00018671
Residuals      6        .00222658        .00037110

F =        .50313       Signif F =  .6281

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 -.009301     .011255  -1.412903     -.826  .4402
Pt**2               .000747     .001098   1.163152      .680  .5217
(Constant)          .146190     .024512                5.964  .0010
```

```
Dependent variable.. Sl20K           Method.. QUADRATI

Multiple R           .38548
R Square             .14859
Adjusted R Square   -.13521
Standard Error       .01065

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00011887        .00005944
Residuals      6        .00068113        .00011352

F =        .52358       Signif F =  .6172

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                  .006335     .006225   1.735048     1.018  .3481
Pt**2             -.000617     .000607  -1.732223    -1.016  .3488
(Constant)          .091190     .013557                6.726  .0005
```

```
Dependent variable.. Sl20K           Method.. QUADRATI

Multiple R           .33862
R Square             .11466
Adjusted R Square   -.18045
Standard Error       .02605

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00052745        .00026372
Residuals      6        .00407255        .00067876

F =        .38854       Signif F =  .6939

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                 -.013022     .015221  -1.487177     -.855  .4251
Pt**2               .001169     .001485   1.368733      .787  .4610
(Constant)          .161429     .033150                4.870  .0028
```

```
Dependent variable.. Sl20K           Method.. QUADRATI

Multiple R           .80826
R Square             .65328
Adjusted R Square    .53771
Standard Error       .01646

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00306317        .00153159
Residuals      6        .00162571        .00027095

F =       5.65261       Signif F =  .0417

-------------------- Variables in the Equation --------------------

Variable                 B        SE B       Beta         T  Sig T
Pt                  .006595     .009617    .746055      .686  .5185
Pt**2             -.001310     .000938  -1.518883    -1.396  .2121
(Constant)          .117381     .020945                5.604  .0014
```

Table 50- Regression analysis for average data 2005 potassium, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40K           Method.. QUADRATI

Multiple R           .57027
R Square             .32521
Adjusted R Square    .10027
Standard Error       .01378

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00054924        .00027462
Residuals      6        .00113965        .00018994

F =       1.44580       Signif F =  .3073

-------------------- Variables in the Equation --------------------

Variable                  B         SE B       Beta          T  Sig T
Pt                 -.004732     .008052   -.891832     -.588  .5782
Pt**2               .000173     .000785    .334652      .221  .8328
(Constant)          .129286     .017536                7.372  .0003
```

```
Dependent variable.. Sl40K           Method.. QUADRATI

Multiple R           .40156
R Square             .16125
Adjusted R Square   -.11833
Standard Error       .01156

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00015408        .00007704
Residuals      6        .00080147        .00013358

F =        .57675       Signif F =  .5901

-------------------- Variables in the Equation --------------------

Variable                  B         SE B       Beta          T  Sig T
Pt                  .006868     .006752   1.720980     1.017  .3484
Pt**2              -.000703     .000659  -1.807421    -1.068  .3265
(Constant)          .085714     .014706                5.828  .0011
```

```
Dependent variable.. Sl40K           Method.. QUADRATI

Multiple R           .50236
R Square             .25236
Adjusted R Square    .00315
Standard Error       .02502

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00126742        .00063371
Residuals      6        .00375481        .00062580

F =       1.01264       Signif F =  .4179

-------------------- Variables in the Equation --------------------

Variable                  B         SE B       Beta          T  Sig T
Pt                 -.018368     .014615  -2.007653    -1.257  .2556
Pt**2               .001537     .001425   1.722322     1.078  .3224
(Constant)          .177619     .031831                5.580  .0014
```

```
Dependent variable.. Sl40K           Method.. QUADRATI

Multiple R           .77414
R Square             .59929
Adjusted R Square    .46573
Standard Error       .02186

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00428828        .00214414
Residuals      6        .00286727        .00047788

F =       4.48679       Signif F =  .0643

-------------------- Variables in the Equation --------------------

Variable                  B         SE B       Beta          T  Sig T
Pt                  .015136     .012772   1.386039     1.185  .2808
Pt**2              -.002197     .001246  -2.062758    -1.764  .1282
(Constant)          .111667     .027816                4.015  .0070
```

Table 51- Regression analysis for average data 2005 sodium, in first 20 cm soil dept

```
Dependent variable.. Sl20Na          Method.. QUADRATI

Multiple R           .64455
R Square             .41545
Adjusted R Square    .22060
Standard Error       .02070

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00182797        .00091398
Residuals      6        .00257203        .00042867

F =       2.13212       Signif F =  .1997

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.024411     .012096  -2.850620    -2.018  .0901
Pt**2               .002208     .001180   2.643490     1.871  .1105
(Constant)          .178810     .026345                6.787  .0005
```

```
Dependent variable.. Sl20Na          Method.. QUADRATI

Multiple R           .89191
R Square             .79550
Adjusted R Square    .72733
Standard Error       .02222

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .01152586        .00576293
Residuals      6        .00296303        .00049384

F =      11.66967       Signif F =  .0086

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .008212     .012983    .528462      .633  .5504
Pt**2              -.002121     .001266  -1.399627    -1.675  .1449
(Constant)          .125000     .028276                4.421  .0045
```

```
Dependent variable.. Sl20Na          Method.. QUADRATI

Multiple R           .49326
R Square             .24330
Adjusted R Square   -.00893
Standard Error       .04915

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00466058        .00233029
Residuals      6        .01449498        .00241583

F =        .96459       Signif F =  .4333

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .017734     .028716    .992497      .618  .5596
Pt**2              -.002457     .002801  -1.409783     -.877  .4141
(Constant)          .116905     .062541                1.869  .1108
```

```
Dependent variable.. Sl20Na          Method.. QUADRATI

Multiple R           .86284
R Square             .74450
Adjusted R Square    .65933
Standard Error       .01676

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00491368        .00245684
Residuals      6        .00168632        .00028105

F =       8.74154       Signif F =  .0167

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .039398     .009795   3.756477     4.022  .0069
Pt**2              -.003506     .000955  -3.428048    -3.671  .0104
(Constant)         -.022619     .021332               -1.060  .3298
```

Table 52- Regression analysis for average data 2005 sodium, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40Na          Method.. QUADRATI

Multiple R           .58159
R Square             .33825
Adjusted R Square    .11766
Standard Error       .02395

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00175887        .00087944
Residuals      6        .00344113        .00057352

F =       1.53340       Signif F =  .2898

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.019426     .013992  -2.086731    -1.388  .2144
Pt**2               .001526     .001365   1.680704     1.118  .3062
(Constant)          .172143     .030472                5.649  .0013
```

```
Dependent variable.. Sl40Na          Method.. QUADRATI

Multiple R           .81507
R Square             .66434
Adjusted R Square    .55246
Standard Error       .02935

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .01023091        .00511545
Residuals      6        .00516909        .00086152

F =       5.93774       Signif F =  .0378

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .010727     .017149    .669583      .626  .5546
Pt**2              -.002273     .001672  -1.454564    -1.359  .2230
(Constant)          .128333     .037347                3.436  .0139
```

```
Dependent variable.. Sl40Na          Method.. QUADRATI

Multiple R           .41411
R Square             .17148
Adjusted R Square   -.10469
Standard Error       .05709

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00404701        .00202351
Residuals      6        .01955299        .00325883

F =        .62093       Signif F =  .5687

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .029292     .033352   1.476970      .878  .4136
Pt**2              -.003279     .003253  -1.695354    -1.008  .3523
(Constant)          .080714     .072637                1.111  .3090
```

```
Dependent variable.. Sl40Na          Method.. QUADRATI

Multiple R           .71209
R Square             .50707
Adjusted R Square    .34276
Standard Error       .02045

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00258040        .00129020
Residuals      6        .00250848        .00041808

F =       3.08601       Signif F =  .1198

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .027318     .011946   2.966306     2.287  .0622
Pt**2              -.002348     .001165  -2.614702    -2.016  .0904
(Constant)          .006667     .026017                 .256  .8063
```

Table 53- Regression analysis for average data 2005 boron, in first 20 cm soil dept

Dependent variable.. Sl20BH2O Method.. QUADRATI

Multiple R	.85274
R Square	.72717
Adjusted R Square	.63622
Standard Error	.09233

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	.13633590	.06816795
Residuals	6	.05115299	.00852550

F = 7.99577 Signif F = .0203

-------------------- Variables in the Equation --------------------

Variable	B	SE B	Beta	T	Sig T
Pt	.214626	.053945	3.839452	3.979	.0073
Pt**2	-.019946	.005261	-3.658571	-3.791	.0091
(Constant)	.297381	.117487		2.531	.0446

Dependent variable.. Sl20BH2O Method.. QUADRATI

Multiple R	.64848
R Square	.42052
Adjusted R Square	.22737
Standard Error	.27348

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	.32566352	.16283176
Residuals	6	.44875870	.07479312

F = 2.17710 Signif F = .1946

-------------------- Variables in the Equation --------------------

Variable	B	SE B	Beta	T	Sig T
Pt	-.283851	.159781	-2.498484	-1.776	.1260
Pt**2	.030768	.015583	2.776910	1.974	.0958
(Constant)	1.280476	.347985		3.680	.0103

Dependent variable.. Sl20BH2O Method.. QUADRATI

Multiple R	.90684
R Square	.82236
Adjusted R Square	.76315
Standard Error	.14757

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	.60492987	.30246494
Residuals	6	.13067013	.02177835

F = 13.88833 Signif F = .0056

-------------------- Variables in the Equation --------------------

Variable	B	SE B	Beta	T	Sig T
Pt	-.048506	.086220	-.438081	-.563	.5941
Pt**2	.014351	.008409	1.328913	1.707	.1388
(Constant)	.241429	.187777		1.286	.2459

Dependent variable.. Sl20BH2O Method.. QUADRATI

Multiple R	.62031
R Square	.38479
Adjusted R Square	.17972
Standard Error	.27057

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	2	.27474000	.13737000
Residuals	6	.43926000	.07321000

F = 1.87638 Signif F = .2328

-------------------- Variables in the Equation --------------------

Variable	B	SE B	Beta	T	Sig T
Pt	.009500	.158081	.087086	.060	.9540
Pt**2	-.007500	.015417	-.704949	-.486	.6439
(Constant)	.880000	.344283		2.556	.0431

Table 54- Regression analysis for average data 2005 boron, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40BH2O          Method.. QUADRATI

Multiple R           .43322
R Square             .18768
Adjusted R Square   -.08310
Standard Error       .16455

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .03753524        .01876762
Residuals      6        .16246476        .02707746

F =        .69311       Signif F =  .5360

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 .084619     .096139   1.465645      .880  .4126
Pt**2             -.006429     .009376  -1.141682     -.686  .5185
(Constant)         .347143     .209379                1.658  .1484
```

```
Dependent variable.. Sl40BH2O          Method.. QUADRATI

Multiple R           .58323
R Square             .34016
Adjusted R Square    .12021
Standard Error       .22660

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .15881590        .07940795
Residuals      6        .30807299        .05134550

F =       1.54654       Signif F =  .2873

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 .093898     .132387   1.064453      .709  .5048
Pt**2             -.004340     .012911   -.504442     -.336  .7482
(Constant)         .569048     .288324                1.974  .0959
```

```
Dependent variable.. Sl40BH2O          Method.. QUADRATI

Multiple R           .68368
R Square             .46742
Adjusted R Square    .28989
Standard Error       .08571

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .03868136        .01934068
Residuals      6        .04407420        .00734570

F =       2.63293       Signif F =  .1511

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -.012580     .050074   -.338735     -.251  .8100
Pt**2              .003658     .004884   1.009932      .749  .4822
(Constant)         .449286     .109055                4.120  .0062
```

```
Dependent variable.. Sl40BH2O          Method.. QUADRATI

Multiple R           .41261
R Square             .17025
Adjusted R Square   -.10634
Standard Error       .27846

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .09545469        .04772734
Residuals      6        .46523420        .07753903

F =        .61553       Signif F =  .5713

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                -.134556     .162688  -1.391934     -.827  .4398
Pt**2              .010206     .015867   1.082492      .643  .5439
(Constant)         .960714     .354315                2.711  .0350
```

Table 55- Regression analysis for average data 2005 total acidity, in first 20 cm soil dept

```
Dependent variable.. Sl20AT          Method.. QUADRATI

Multiple R           .74117
R Square             .54933
Adjusted R Square    .39911
Standard Error       .03531

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00911887        .00455944
Residuals      6        .00748113        .00124685

F =       3.65675       Signif F =  .0915

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                 -.027093     .020630  -1.628845    -1.313  .2371
Pt**2               .001526     .002012    .940674      .758  .4769
(Constant)          .197143     .044930                4.388  .0046
```

```
Dependent variable.. Sl20AT          Method.. QUADRATI

Multiple R           .14303
R Square             .02046
Adjusted R Square   -.30606
Standard Error       .18814

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00443564        .00221782
Residuals      6        .21238658        .03539776

F =        .06265       Signif F =  .9399

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                 -.035563     .109922   -.591588     -.324  .7573
Pt**2               .003723     .010720    .635010      .347  .7402
(Constant)          .445476     .239396                1.861  .1121
```

```
Dependent variable.. Sl20AT          Method.. QUADRATI

Multiple R           .68912
R Square             .47488
Adjusted R Square    .29984
Standard Error       .13951

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .10561342        .05280671
Residuals      6        .11678658        .01946443

F =       2.71299       Signif F =  .1448

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                  .083366     .081511   1.369292     1.023  .3459
Pt**2              -.004253     .007950   -.716307     -.535  .6119
(Constant)         -.015476     .177521                -.087  .9334
```

```
Dependent variable.. Sl20AT          Method.. QUADRATI

Multiple R           .19206
R Square             .03689
Adjusted R Square   -.28415
Standard Error       .29654

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .02020837        .01010418
Residuals      6        .52761385        .08793564

F =        .11490       Signif F =  .8934

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                 -.014654     .173252   -.153357     -.085  .9353
Pt**2              -.000368     .016897   -.039485     -.022  .9833
(Constant)          .580476     .377322                1.538  .1749
```

Table 56- Regression analysis for average data 2005 total acidity, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40AT          Method.. QUADRATI

Multiple R           .88696
R Square             .78670
Adjusted R Square    .71561
Standard Error       .01849

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .00756984        .00378492
Residuals      6        .00205238        .00034206

F =      11.06497       Signif F =  .0097

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.023929     .010806  -1.889534    -2.214  .0687
Pt**2               .001310     .001054   1.060282     1.243  .2604
(Constant)          .172619     .023533                7.335  .0003
```

```
Dependent variable.. Sl40AT          Method.. QUADRATI

Multiple R           .23522
R Square             .05533
Adjusted R Square   -.25956
Standard Error       .23702

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .01974130        .00987065
Residuals      6        .33705870        .05617645

F =        .17571       Signif F =  .8430

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .044922     .138475    .582536      .324  .7566
Pt**2              -.002792     .013505   -.371263     -.207  .8430
(Constant)          .277143     .301583                 .919  .3936
```

```
Dependent variable.. Sl40AT          Method.. QUADRATI

Multiple R           .65574
R Square             .43000
Adjusted R Square    .24000
Standard Error       .16669

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .12576967        .06288483
Residuals      6        .16671922        .02778654

F =       2.26314       Signif F =  .1852

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .178145     .097389   2.551494     1.829  .1171
Pt**2              -.014665     .009498  -2.153567    -1.544  .1736
(Constant)         -.155238     .212103                -.732  .4918
```

```
Dependent variable.. Sl40AT          Method.. QUADRATI

Multiple R           .18620
R Square             .03467
Adjusted R Square   -.28711
Standard Error       .31881

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .02190257        .01095128
Residuals      6        .60985299        .10164216

F =        .10774       Signif F =  .8996

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.010126     .186265   -.098678     -.054  .9584
Pt**2              -.000887     .018166   -.088677     -.049  .9626
(Constant)          .540952     .405664                1.333  .2308
```

Table 57- Regression analysis for average data 2005 SBT in first 20 cm soil dept

```
Dependent variable.. Sl20SBT          Method.. QUADRATI

Multiple R           .41993
R Square             .17634
Adjusted R Square   -.09822
Standard Error      1.21539

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        1.8974989         .9487494
Residuals      6        8.8631011        1.4771835

F =        .64227       Signif F =  .5588

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.804407     .710088  -1.899473    -1.133  .3005
Pt**2               .075974     .069254   1.839470     1.097  .3147
(Constant)        12.619524    1.546490                8.160  .0002
```

```
Dependent variable.. Sl20SBT          Method.. QUADRATI

Multiple R           .54700
R Square             .29921
Adjusted R Square    .06562
Standard Error      1.38261

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         4.897130        2.4485651
Residuals      6        11.469625        1.9116042

F =       1.28090       Signif F =  .3442

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .652589     .807781   1.249493      .808  .4500
Pt**2              -.086126     .078781  -1.690817    -1.093  .3162
(Constant)         9.702143    1.759255                5.515  .0015
```

```
Dependent variable.. Sl20SBT          Method.. QUADRATI

Multiple R           .44475
R Square             .19780
Adjusted R Square   -.06959
Standard Error      4.30857

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         27.46448        13.732240
Residuals      6        111.38261        18.563768

F =        .73973       Signif F =  .5162

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 1.326061    2.517259    .871707      .527  .6172
Pt**2              -.185606     .245504  -1.251035     -.756  .4783
(Constant)        11.608333    5.482301                2.117  .0786
```

```
Dependent variable.. Sl20SBT          Method.. QUADRATI

Multiple R           .81493
R Square             .66410
Adjusted R Square    .55214
Standard Error       .78673

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        7.3423030        3.6711515
Residuals      6        3.7136526         .6189421

F =       5.93133       Signif F =  .0379

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 1.179431     .459642   2.747577     2.566  .0426
Pt**2              -.089426     .044828  -2.136060    -1.995  .0931
(Constant)         3.386905    1.001048                3.383  .0148
```

Table 58- Regression analysis for average data 2005 SBT, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40SBT          Method.. QUADRATI

Multiple R           .75772
R Square             .57415
Adjusted R Square    .43219
Standard Error       .85819

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        5.9576502        2.9788251
Residuals      6        4.4189054         .7364842

F =       4.04466       Signif F =  .0772

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta          T  Sig T
Pt               -1.203911     .501391  -2.894966     -2.401  .0532
Pt**2              .098041     .048900   2.417283      2.005  .0918
(Constant)       13.787143    1.091972                12.626  .0000
```

```
Dependent variable.. Sl40SBT          Method.. QUADRATI

Multiple R           .48352
R Square             .23379
Adjusted R Square   -.02161
Standard Error      1.43744

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         3.782831        1.8914155
Residuals      6        12.397369        2.0662282

F =        .91540       Signif F =  .4498

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta          T  Sig T
Pt                 .691773     .839816   1.332132       .824  .4416
Pt**2             -.085227     .081906  -1.682800     -1.041  .3382
(Constant)        9.356667    1.829022                 5.116  .0022
```

```
Dependent variable.. Sl40SBT          Method.. QUADRATI

Multiple R           .40450
R Square             .16362
Adjusted R Square   -.11517
Standard Error      4.11861

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         19.91047         9.955237
Residuals      6        101.77753        16.962921

F =        .58688       Signif F =  .5851

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta          T  Sig T
Pt                1.433134    2.406275   1.006326       .596  .5732
Pt**2             -.183247     .234679  -1.319345      -.781  .4646
(Constant)       10.593810    5.240589                 2.021  .0897
```

```
Dependent variable.. Sl40SBT          Method.. QUADRATI

Multiple R           .64484
R Square             .41582
Adjusted R Square    .22109
Standard Error      1.42003

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         8.611870        4.3059349
Residuals      6        12.098930        2.0164884

F =       2.13536       Signif F =  .1994

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta          T  Sig T
Pt                1.388721     .829646   2.363699      1.674  .1452
Pt**2             -.110422     .080914  -1.927096     -1.365  .2213
(Constant)        3.249762    1.806873                 1.799  .1222
```

Table 59- Regression analysis for average data 2005 CTCe, in first 20 cm soil dept

```
Dependent variable.. Sl20CTCe          Method.. QUADRATI

Multiple R           .43001
R Square             .18491
Adjusted R Square   -.08678
Standard Error      1.22466

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        2.0414600        1.0207300
Residuals      6        8.9987400        1.4997900

F =        .68058       Signif F =  .5415

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 -.831500     .715501  -1.938427    -1.162  .2893
Pt**2               .077500     .069781   1.852504     1.111  .3093
(Constant)        12.816667    1.558278                8.225  .0002
```

```
Dependent variable.. Sl20CTCe          Method.. QUADRATI

Multiple R           .57675
R Square             .33265
Adjusted R Square    .11019
Standard Error      1.24685

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        4.6494644        2.3247322
Residuals      6        9.3277578        1.5546263

F =       1.49536       Signif F =  .2972

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .613504     .728464   1.271109      .842  .4320
Pt**2              -.082067     .071046  -1.743430    -1.155  .2920
(Constant)        10.155714    1.586510                6.401  .0007
```

```
Dependent variable.. Sl20CTCe          Method.. QUADRATI

Multiple R           .43263
R Square             .18717
Adjusted R Square   -.08377
Standard Error      4.29021

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         25.42970        12.714849
Residuals      6        110.43530        18.405884

F =        .69080       Signif F =  .5370

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 1.408894    2.506532    .936268      .562  .5944
Pt**2              -.189773     .244457  -1.293081     -.776  .4671
(Constant)        11.591667    5.458938                2.123  .0779
```

```
Dependent variable.. Sl20CTCe          Method.. QUADRATI

Multiple R           .77380
R Square             .59877
Adjusted R Square    .46503
Standard Error       .86990

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        6.7758098        3.3879049
Residuals      6        4.5403902         .7567317

F =       4.47702       Signif F =  .0646

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 1.168457     .508236   2.690531     2.299  .0612
Pt**2              -.090162     .049567  -2.128731    -1.819  .1188
(Constant)         3.962857    1.106881                3.580  .0116
```

Table 60- Regression analysis for average data 2005 CTCe, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40CTCe          Method.. QUADRATI

Multiple R           .76662
R Square             .58771
Adjusted R Square    .45028
Standard Error       .85674

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        6.2779120        3.1389560
Residuals      6        4.4040435         .7340073

F =       4.27646       Signif F =  .0701

-------------------- Variables in the Equation --------------------

Variable                    B        SE B       Beta         T  Sig T
Pt                  -1.220305     .500547  -2.892136    -2.438  .0506
Pt**2                 .098647     .048817   2.397205     2.021  .0898
(Constant)          13.945476    1.090134               12.792  .0000
```

```
Dependent variable.. Sl40CTCe          Method.. QUADRATI

Multiple R           .48997
R Square             .24007
Adjusted R Square   -.01324
Standard Error      1.35041

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         3.456533        1.7282664
Residuals      6        10.941667        1.8236112

F =        .94772       Signif F =  .4389

-------------------- Variables in the Equation --------------------

Variable                    B        SE B       Beta         T  Sig T
Pt                    .724636     .788971   1.479250      .918  .3938
Pt**2                -.086364     .076947  -1.807685    -1.122  .3046
(Constant)           9.655000    1.718288                5.619  .0014
```

```
Dependent variable.. Sl40CTCe          Method.. QUADRATI

Multiple R           .40111
R Square             .16089
Adjusted R Square   -.11881
Standard Error      4.22413

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         20.52758        10.263788
Residuals      6        107.05978        17.843296

F =        .57522       Signif F =  .5908

-------------------- Variables in the Equation --------------------

Variable                    B        SE B       Beta         T  Sig T
Pt                   1.639418    2.467928   1.124246      .664  .5312
Pt**2                -.200725     .240692  -1.411379     -.834  .4362
(Constant)          10.401429    5.374862                1.935  .1011
```

```
Dependent variable.. Sl40CTCe          Method.. QUADRATI

Multiple R           .65799
R Square             .43295
Adjusted R Square    .24393
Standard Error      1.32124

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         7.997079        3.9985397
Residuals      6        10.474121        1.7456868

F =       2.29053       Signif F =  .1823

-------------------- Variables in the Equation --------------------

Variable                    B        SE B       Beta         T  Sig T
Pt                   1.376987     .771930   2.481749     1.784  .1247
Pt**2                -.111299     .075285  -2.056783    -1.478  .1898
(Constant)           3.796190    1.681175                2.258  .0647
```

Table 61- Regression analysis for average data 2005 GSBE, in first 20 cm soil dept

```
Dependent variable.. Sl20GSBe          Method.. QUADRATI

Multiple R           .72175
R Square             .52093
Adjusted R Square    .36123
Standard Error       .28382

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .52555556        .26277778
Residuals      6        .48333333        .08055556

F =       3.26207       Signif F =  .1100

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .175000     .165822   1.349559     1.055  .3319
Pt**2              -.008333     .016172   -.658936     -.515  .6248
(Constant)        98.400000     .361142              272.469  .0000
```

```
Dependent variable.. Sl20GSBe          Method.. QUADRATI

Multiple R           .29308
R Square             .08589
Adjusted R Square   -.21881
Standard Error      2.13360

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         2.566519        1.2832597
Residuals      6        27.313481        4.5522468

F =        .28190       Signif F =  .7638

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .556558    1.246544    .788671      .446  .6709
Pt**2              -.069156     .121573  -1.004811     -.569  .5901
(Constant)        95.607143    2.714830               35.217  .0000
```

```
Dependent variable.. Sl20GSBe          Method.. QUADRATI

Multiple R           .71165
R Square             .50644
Adjusted R Square    .34193
Standard Error      1.56152

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        15.012136        7.5060678
Residuals      6        14.630087        2.4383478

F =       3.07834       Signif F =  .1202

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                  .425866     .912311    .605889      .467  .6571
Pt**2              -.088420     .088976  -1.289854     -.994  .3587
(Constant)        98.226190    1.986907               49.437  .0000
```

```
Dependent variable.. Sl20GSBe          Method.. QUADRATI

Multiple R           .46105
R Square             .21257
Adjusted R Square   -.04991
Standard Error      4.55279

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         33.57274        16.786372
Residuals      6        124.36726        20.727876

F =        .80985       Signif F =  .4882

-------------------- Variables in the Equation --------------------

Variable                  B        SE B       Beta         T  Sig T
Pt                 2.189307    2.659943   1.349386      .823  .4419
Pt**2              -.152597     .259419   -.964377     -.588  .5778
(Constant)        86.552381    5.793049               14.941  .0000
```

Table 62- Regression analysis for average data 2005 GSBE, between 20 - 40 cm soil dept

```
Dependent variable.. Sl40GSBe          Method.. QUADRATI

Multiple R           .84668
R Square             .71686
Adjusted R Square    .62248
Standard Error       .16576

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        .41737374        .20868687
Residuals      6        .16484848        .02747475

F =       7.59559       Signif F =  .0227

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T

Pt                   .068182     .096842    .692149      .704  .5078
Pt**2                .001515     .009445    .157709      .160  .8778
(Constant)         98.766667     .210910              468.289  .0000
```

```
Dependent variable.. Sl40GSBe          Method.. QUADRATI

Multiple R           .28978
R Square             .08397
Adjusted R Square   -.22137
Standard Error      2.73518

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         4.114837        2.0574185
Residuals      6        44.887385        7.4812309

F =        .27501       Signif F =  .7686

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T

Pt                  -.215130    1.598017   -.238050     -.135  .8973
Pt**2               -.004654     .155852   -.052800     -.030  .9771
(Constant)         97.078571    3.480297               27.894  .0000
```

```
Dependent variable.. Sl40GSBe          Method.. QUADRATI

Multiple R           .67340
R Square             .45347
Adjusted R Square    .27130
Standard Error      1.09245

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2        5.9415036        2.9707518
Residuals      6        7.1607186        1.1934531

F =       2.48921       Signif F =  .1632

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                  -.759870     .638260  -1.626082    -1.191  .2788
Pt**2                .046320     .062248   1.016354      .744  .4849
(Constant)         99.988095    1.390057               71.931  .0000
```

```
Dependent variable.. Sl40GSBe          Method.. QUADRATI

Multiple R           .42250
R Square             .17851
Adjusted R Square   -.09532
Standard Error      6.49025

            Analysis of Variance:

              DF   Sum of Squares      Mean Square

Regression     2         54.92020        27.460100
Residuals      6        252.73980        42.123300

F =        .65190       Signif F =  .5544

-------------------- Variables in the Equation --------------------

Variable                   B        SE B       Beta         T  Sig T
Pt                  2.521277    3.791893   1.113424      .665  .5308
Pt**2               -.163961     .369816   -.742422     -.443  .6730
(Constant)         85.419048    8.258307               10.343  .0000
```

Table 63- Contents of applied fertilizers according soil results analysis

Kg de adubo / ha							
	Calcáreo	**Nitromagnésio 20.5**	**Super 18**	**Cloreto de Potássio**	**Sufato de Magnésio**	**Boron - Bórax**	
Amendoal		200	600	350		0.5	5
Bateiras		250	750	350		0.5	5
Bico dos Casais		250	1250	250	100	1.5	15
Cardanhas	6000	250		250		1.0	10
Total	6000	950	2600	1200	100	3.5	35

g de adubo / planta (compasso 2 x 1 m)							
	Calcáreo	**Nitromagnésio 20.5**	**Super 18**	**Cloreto de Potássio**	**Sufato de Magnésio**	**Boron - Bórax**	
Amendoal		40.00	120.00	70.00	0.00	0.1	1
Bateiras		50.00	150.00	70.00	0.00	0.1	1
Bico dos Casais		50.00	250.00	50.00	20.00	0.3	3
Cardanhas	1200.00	50.00	0.00	50.00	0.00	0.2	2

kg de adubo necessários (4 plantas x 3 pontos x 9 estações)							
	Calcáreo	**Nitromagnésio 20.5**	**Super 18**	**Cloreto de Potássio**	**Sufato de Magnésio**	**Boron - Bórax**	
Amendoal		4.32	12.96	7.56		0.011	0.108
Bateiras		5.40	16.20	7.56		0.011	0.108
Bico dos Casais		5.40	27.00	5.40	2.16	0.032	0.324
Cardanhas	129.60	5.40		5.40		0.022	0.216
Total	**129.60**	**20.52**	**56.16**	**25.92**	**2.16**	**0.076**	**0.756**

Figure 1- Spatial and cartographic distribution of SI20pHH$_2$O results

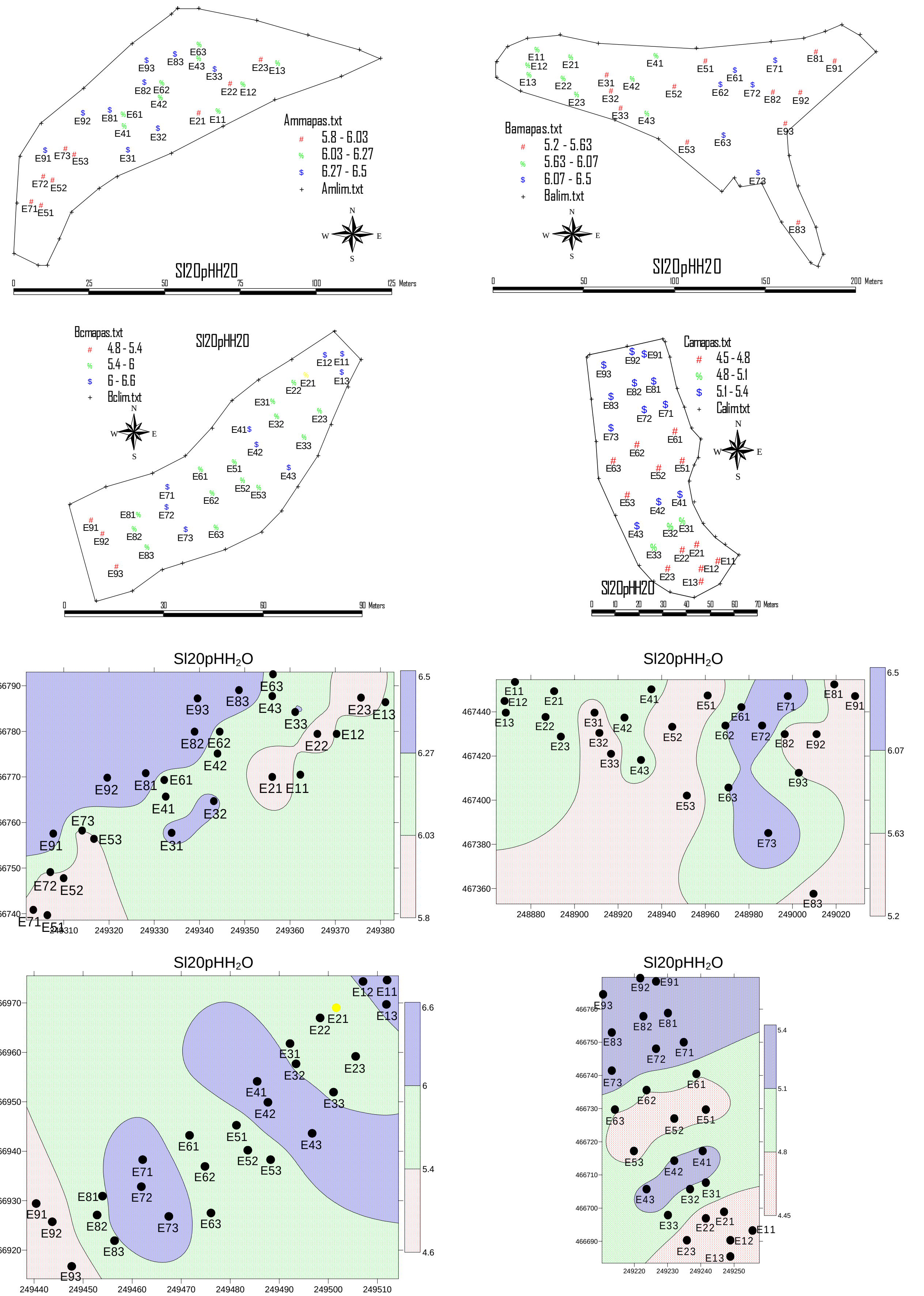


Figure 2- Spatial and cartographic distribution of SI40pHH_2O results

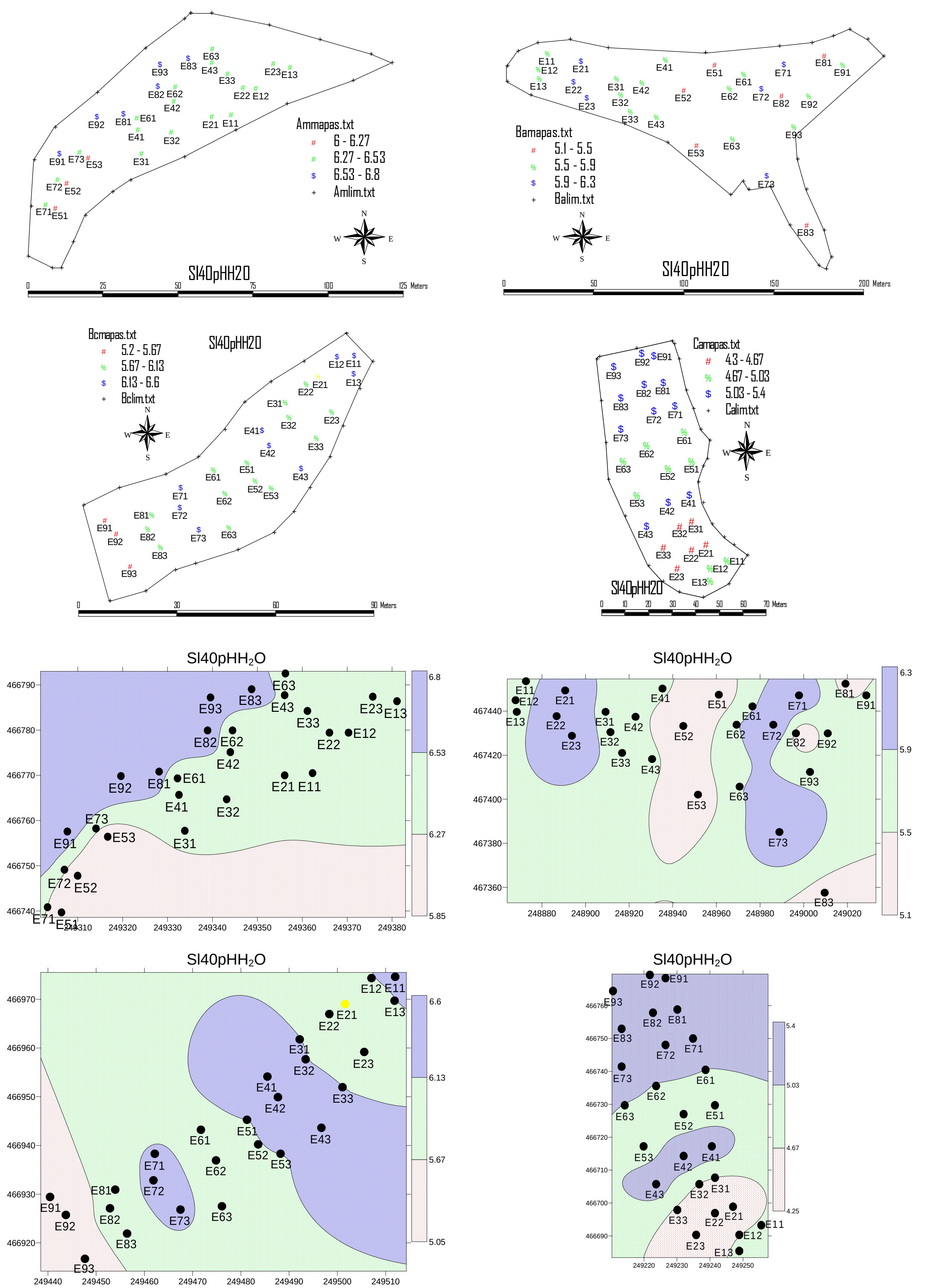


Figure 3- Spatial and cartographic distribution of SI20pHKCl results

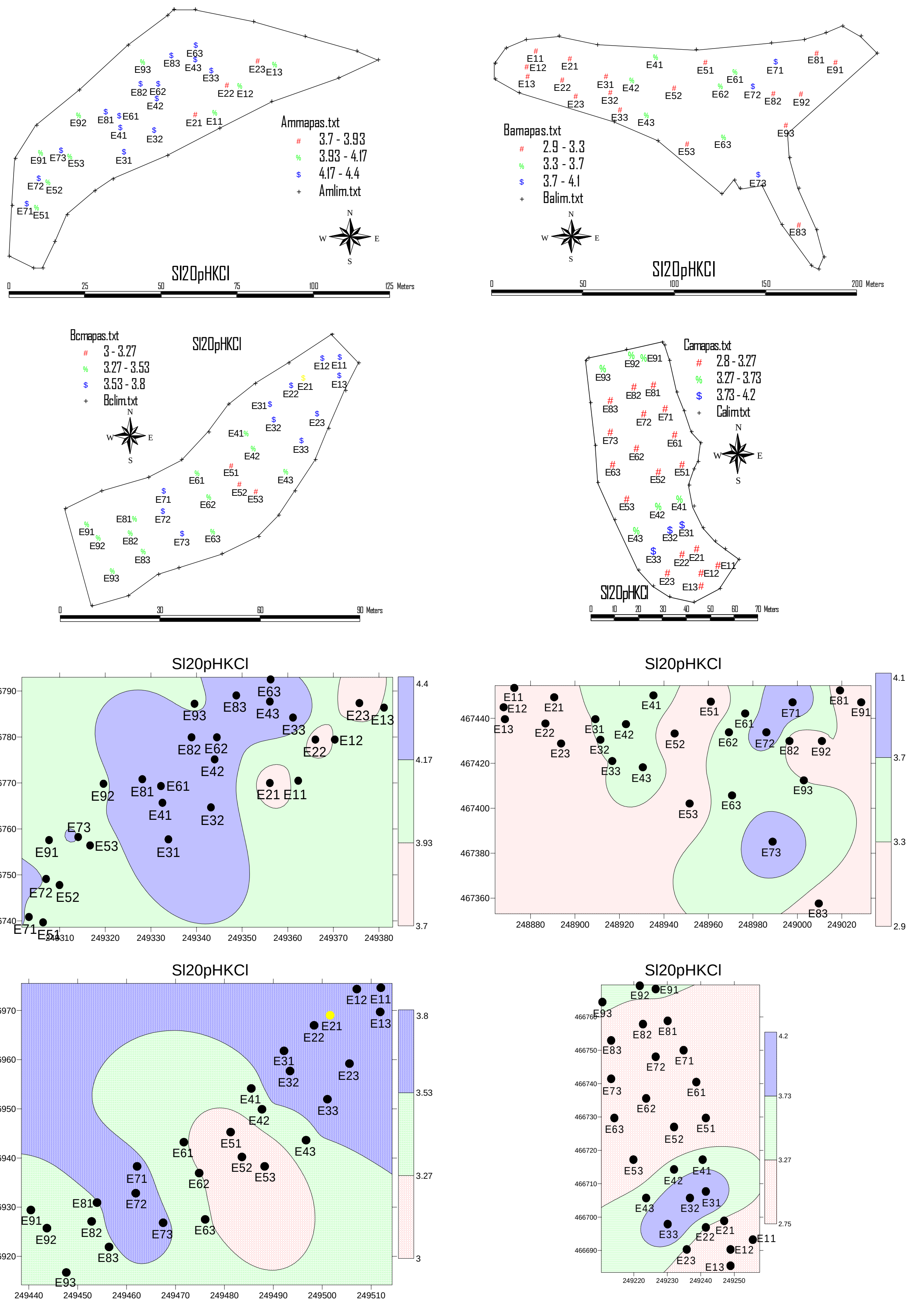


Figure 4- Spatial and cartographic distribution of SI40pHKCl results

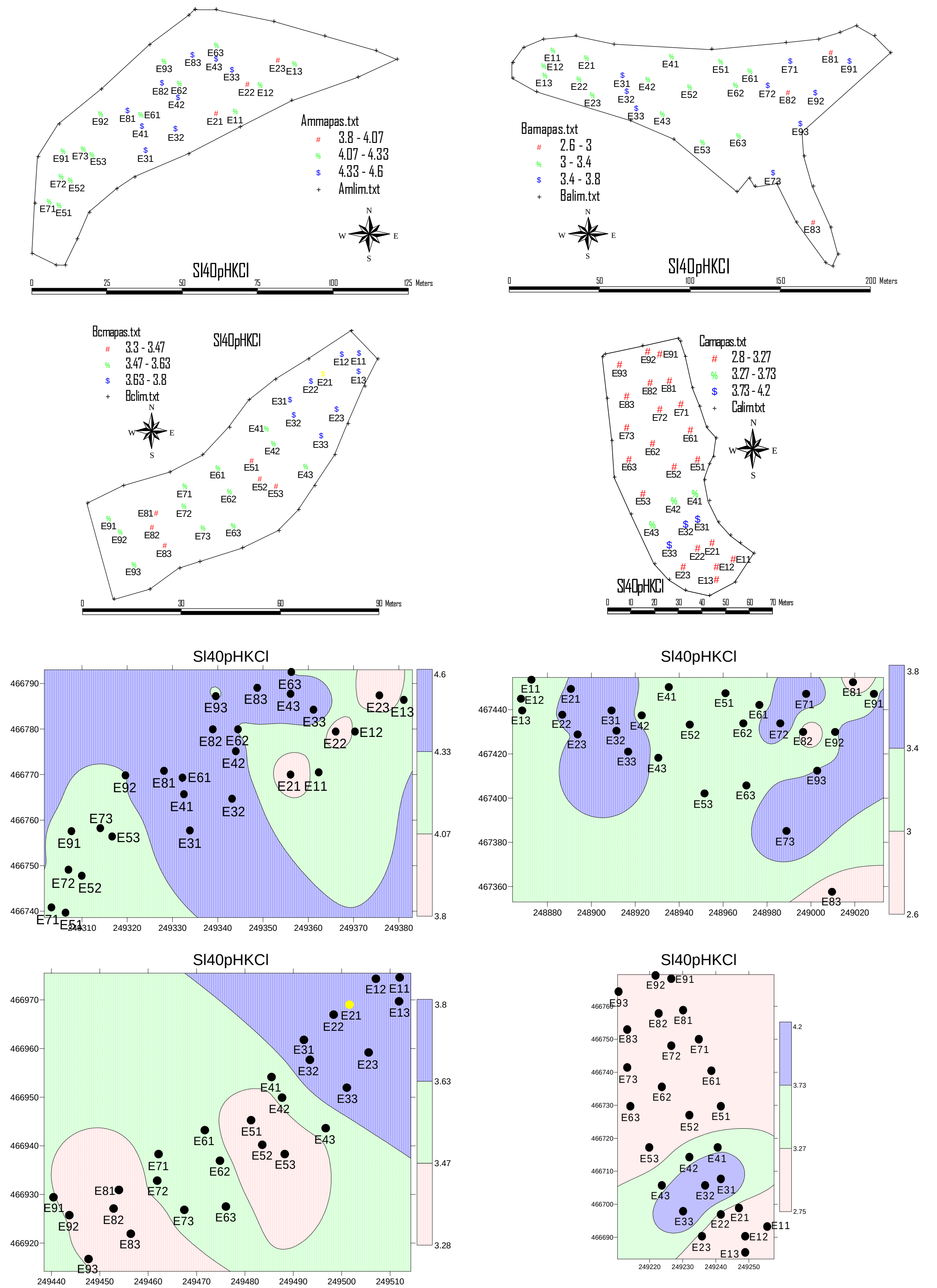


Figure 5- Spatial and cartographic distribution of SI20MO results

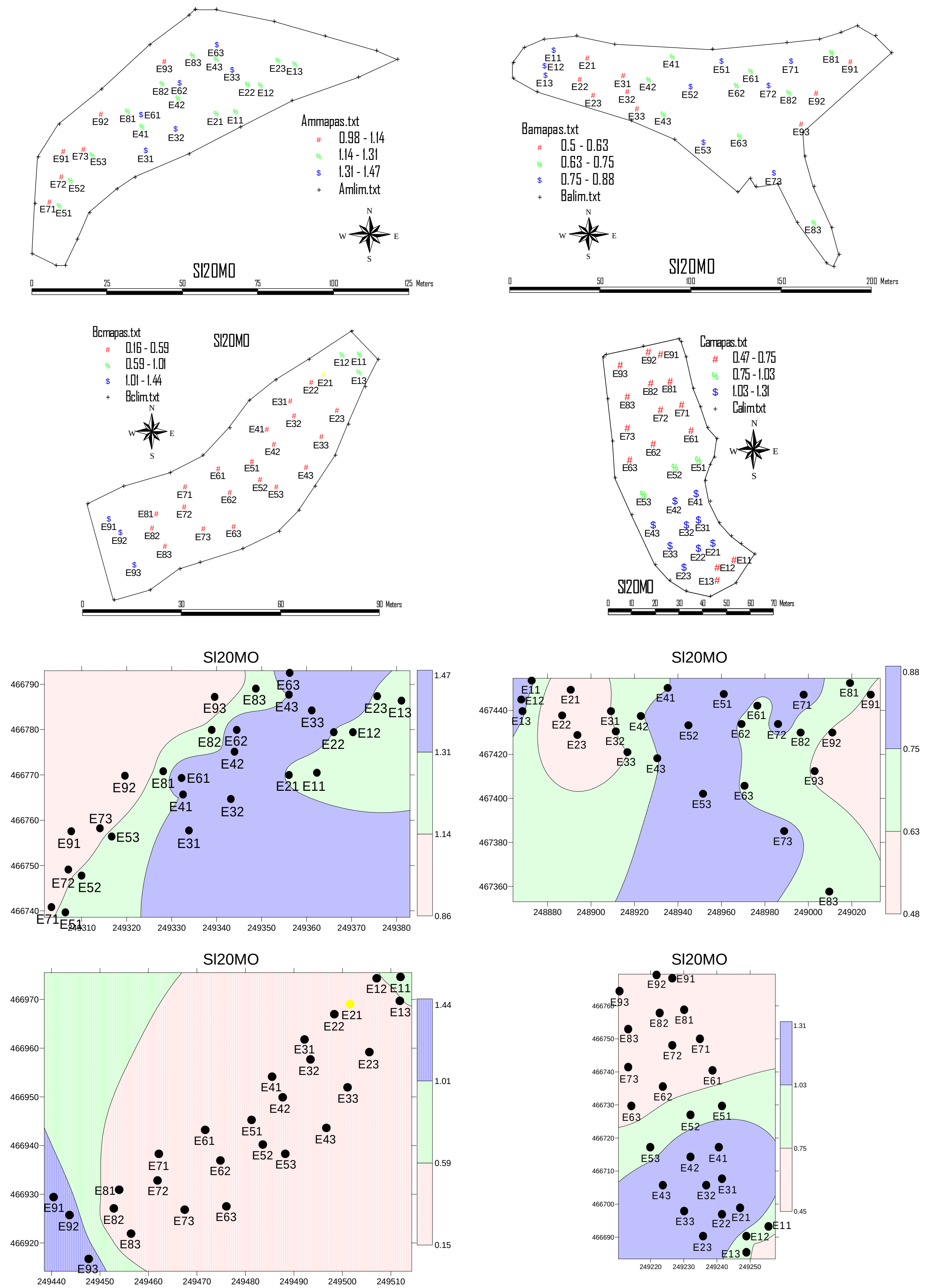


Figure 6- Spatial and cartographic distribution of SI40MO results

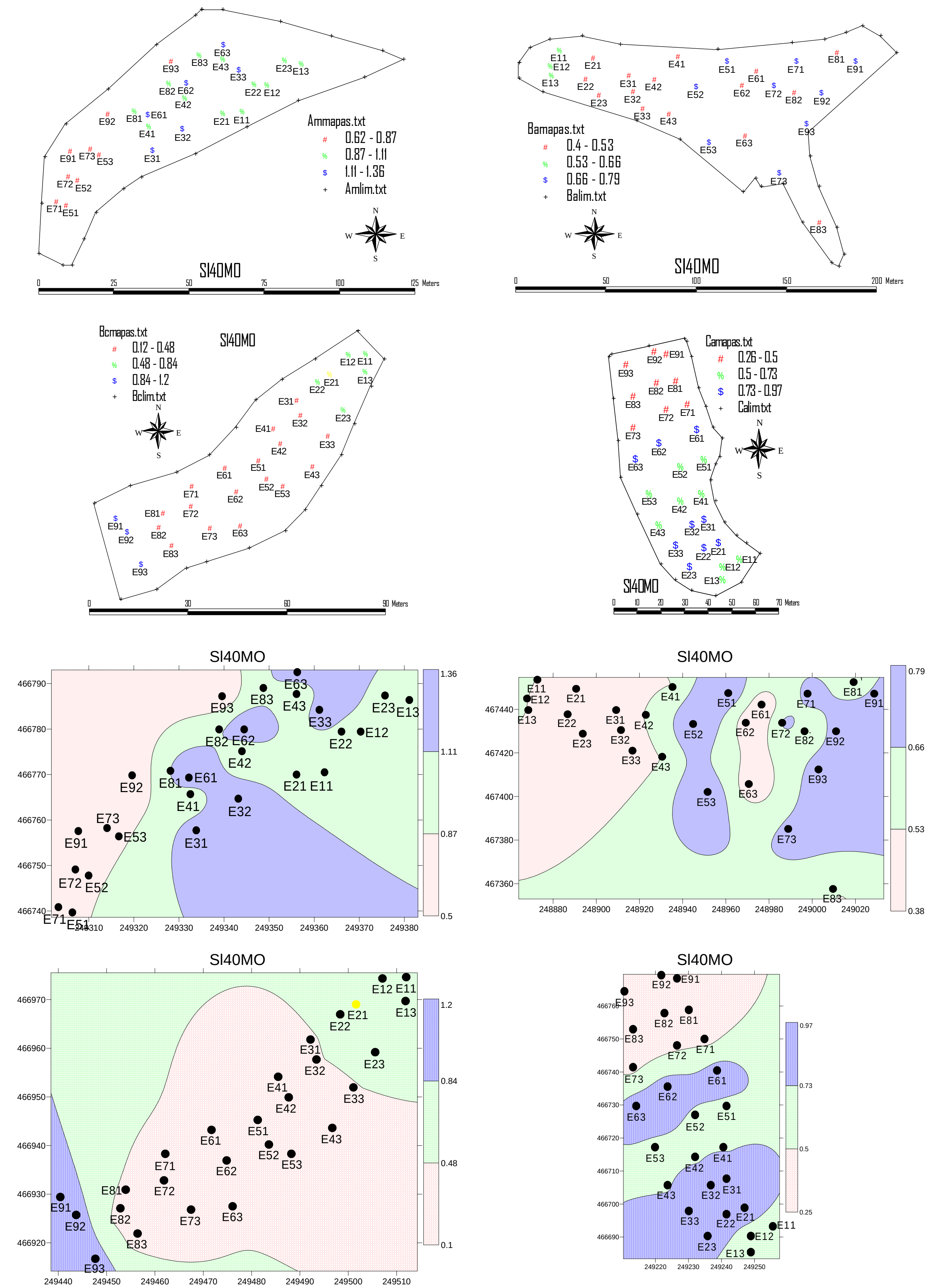


Figure 7- Spatial and cartographic distribution of $SI20P_2O_5$ results

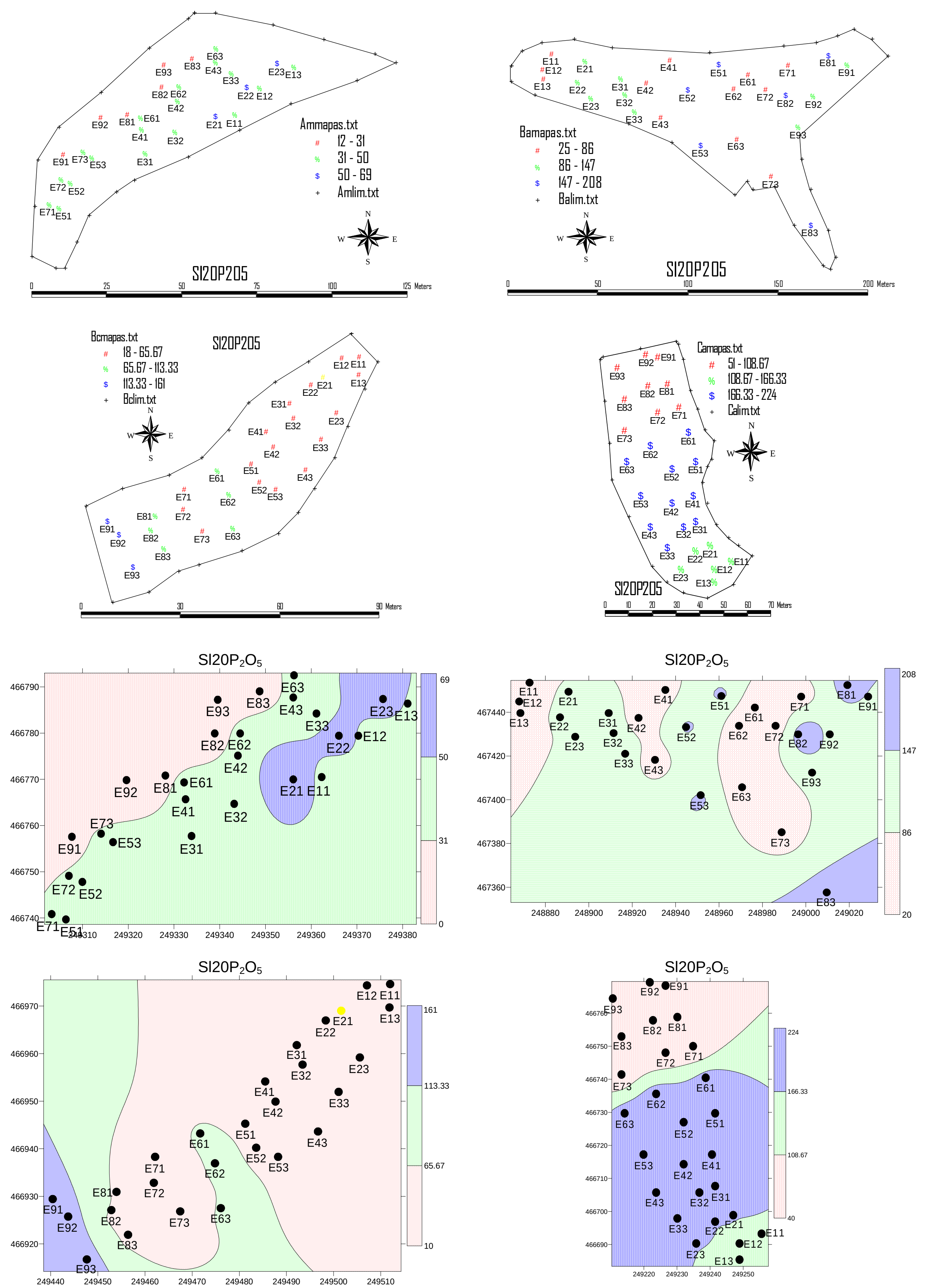


Figure 8- Spatial and cartographic distribution of $SI40P_2O_5$ results

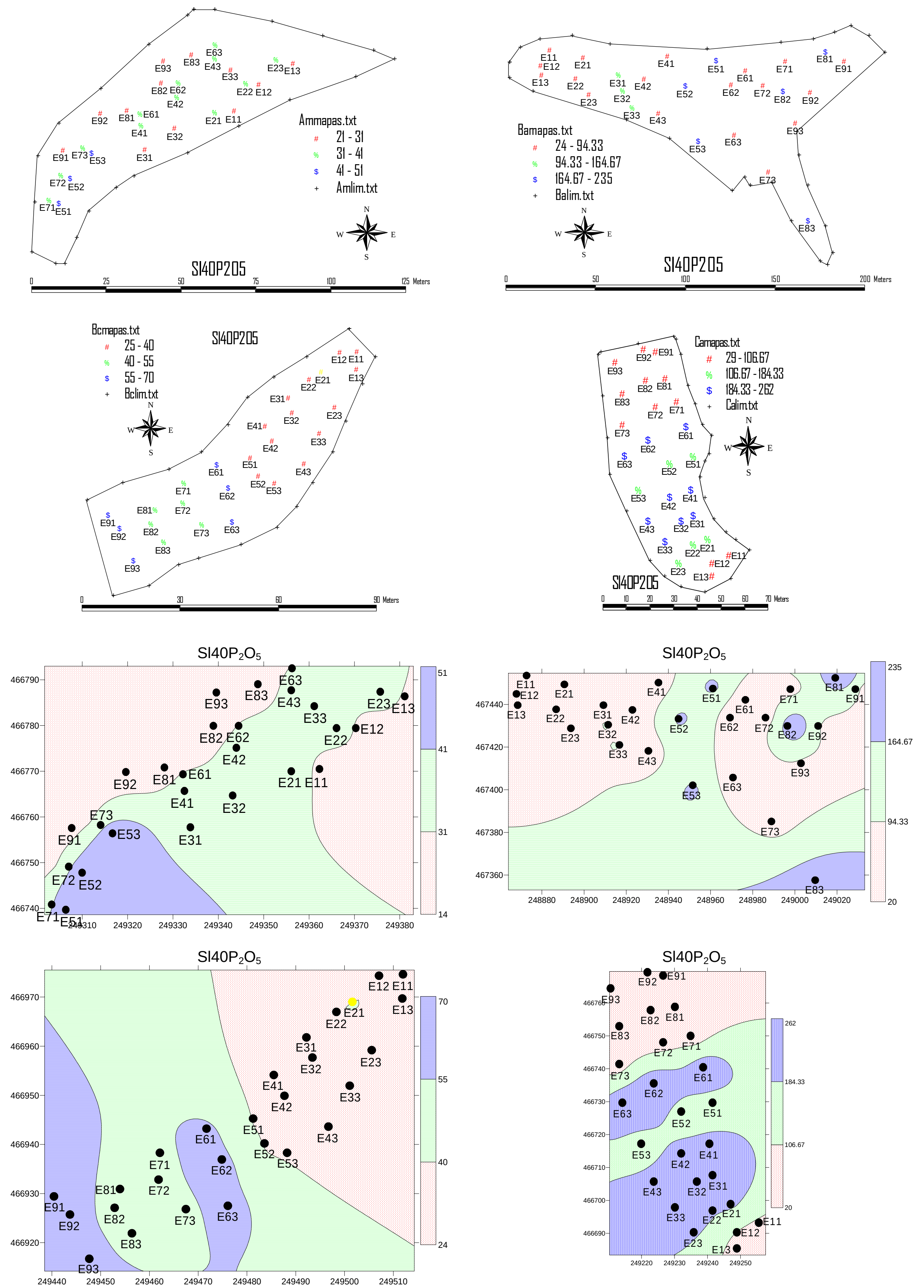


Figure 9- Spatial and cartographic distribution of SI20K$_2$O results

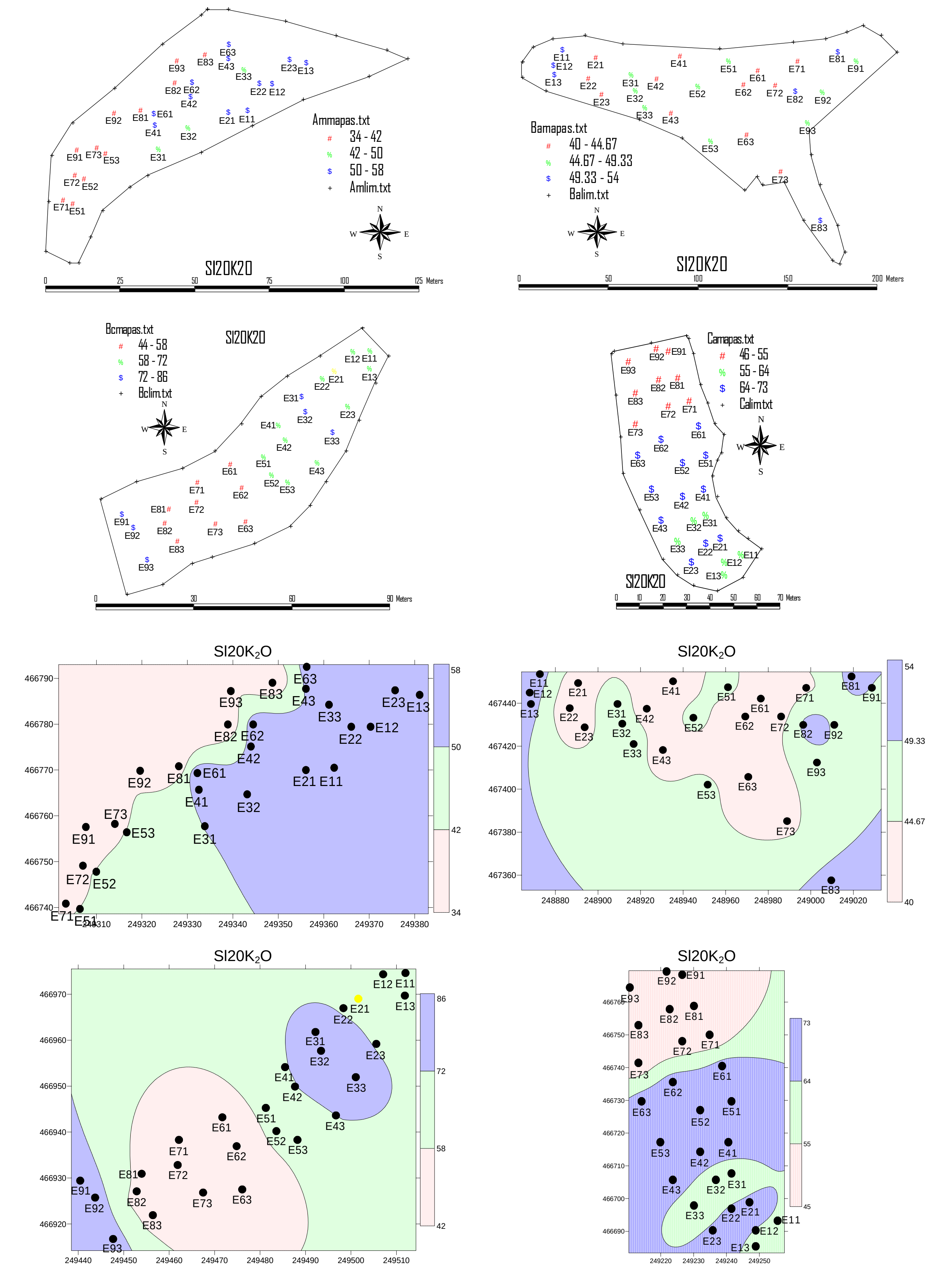


Figure 10- Spatial and cartographic distribution of SI40K$_2$O results

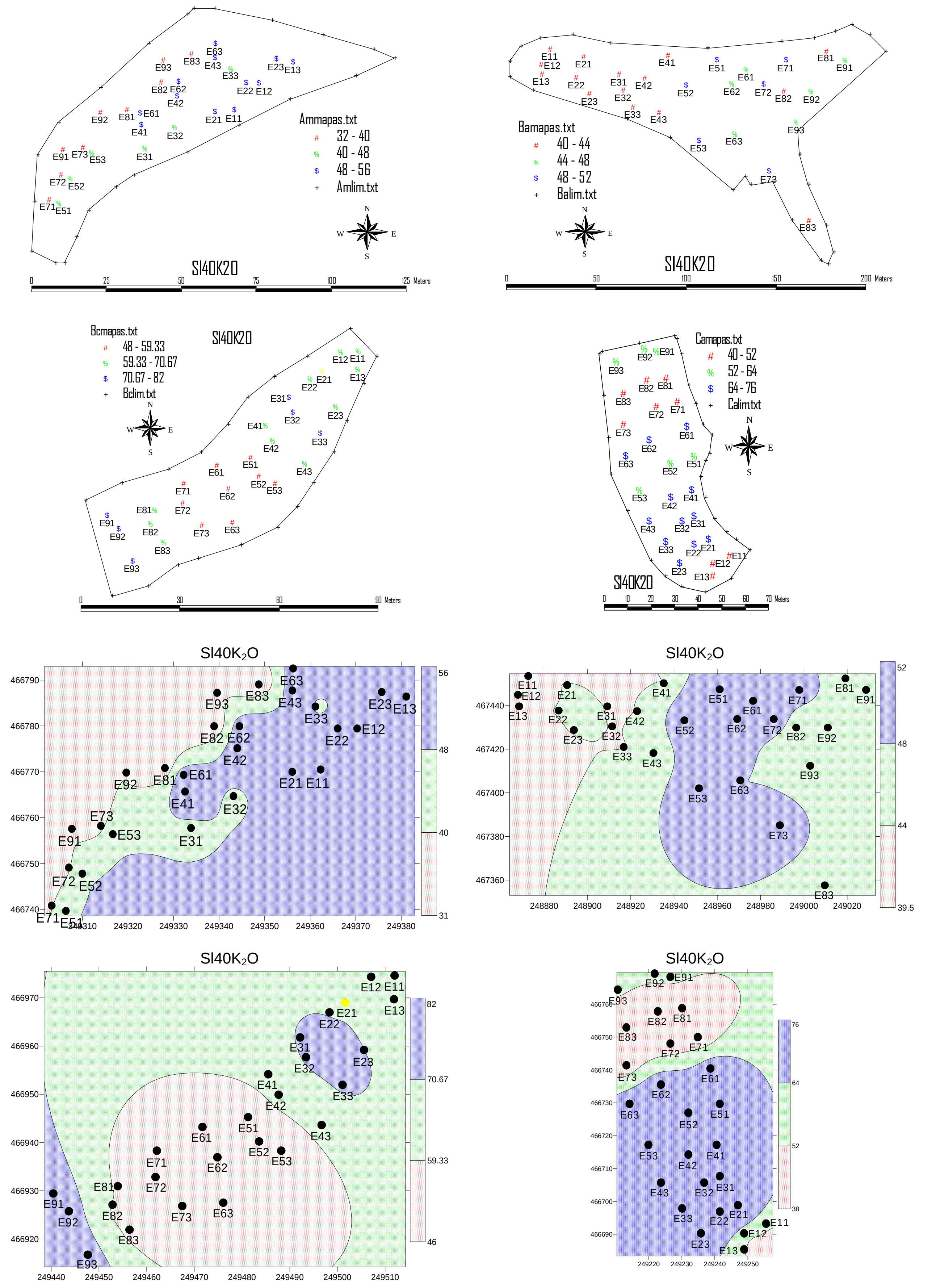


Figure 11- Spatial and cartographic distribution of SI20Ca results

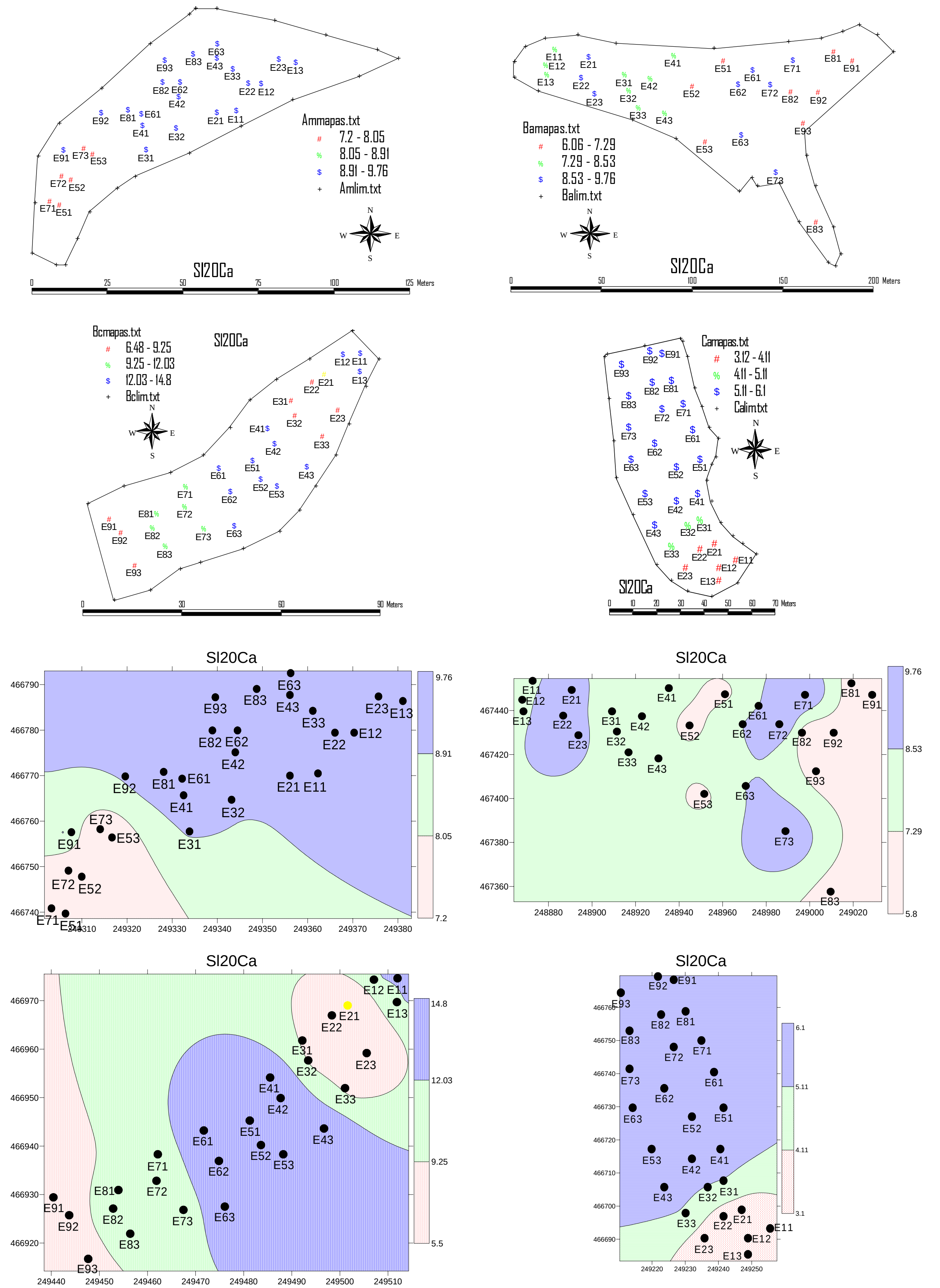


Figure 12- Spatial and cartographic distribution of SI40Ca results

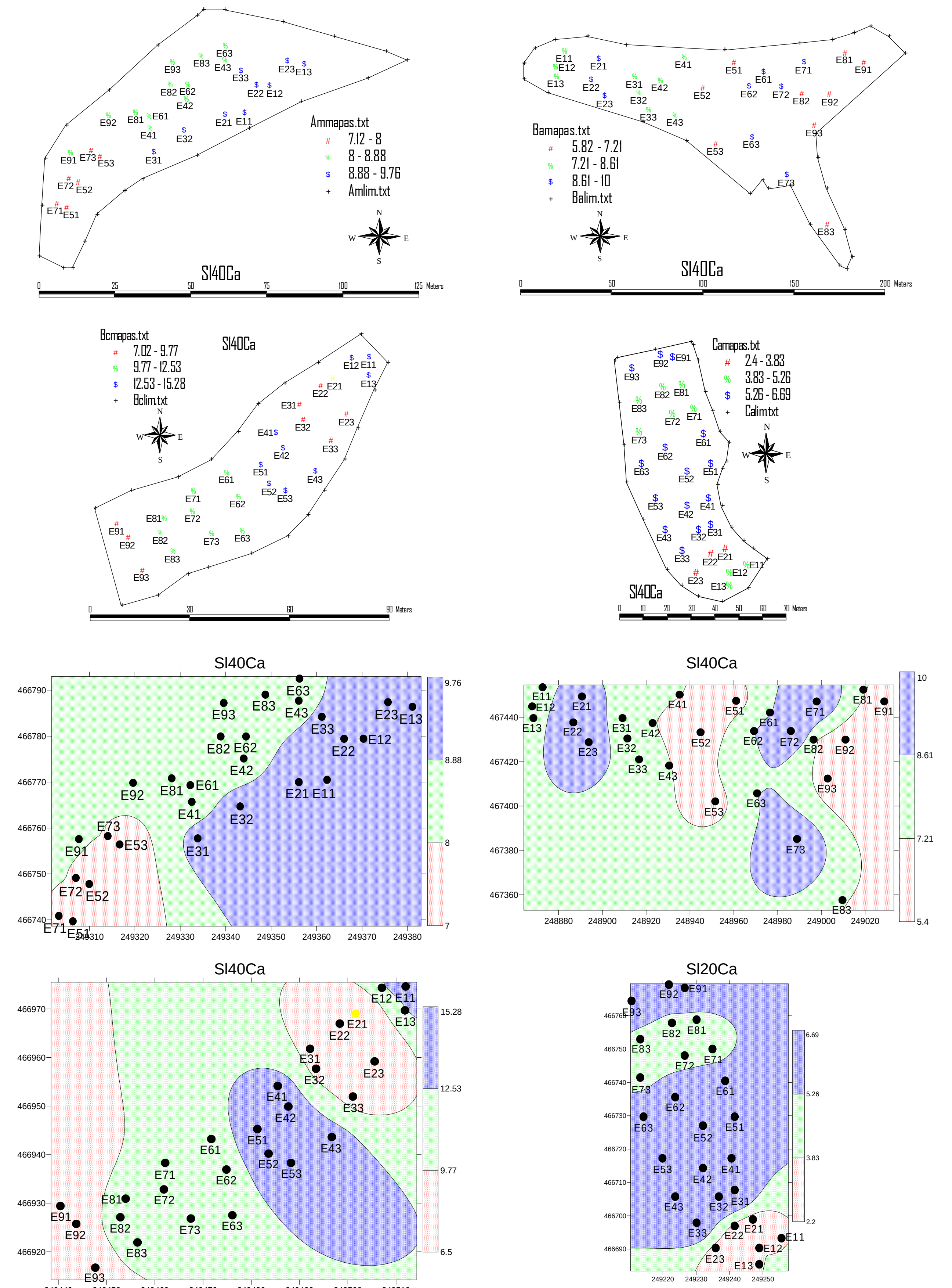


Figure 13- Spatial and cartographic distribution of SI20Mg results

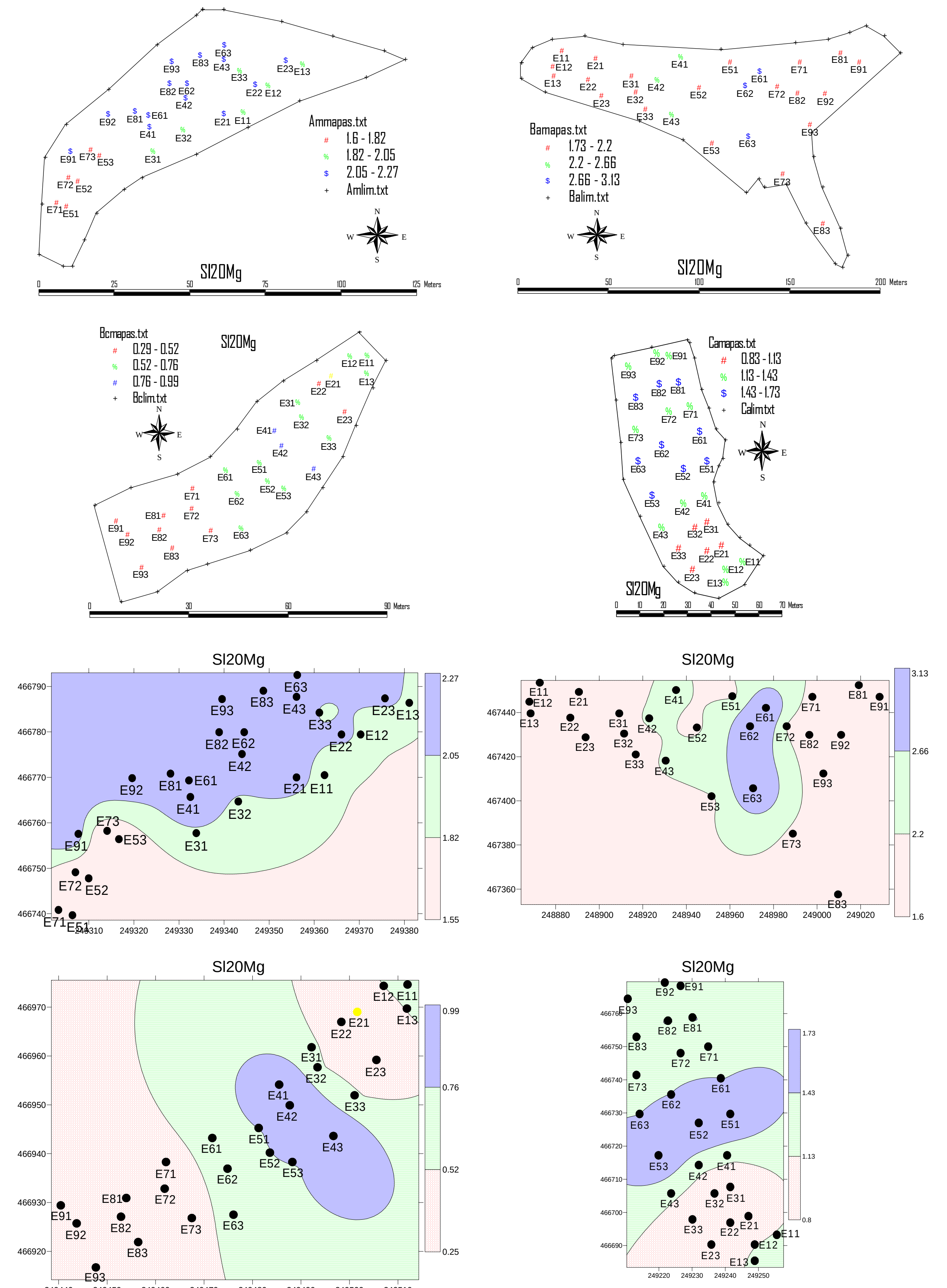


Figure 14- Spatial and cartographic distribution of SI40Mg results

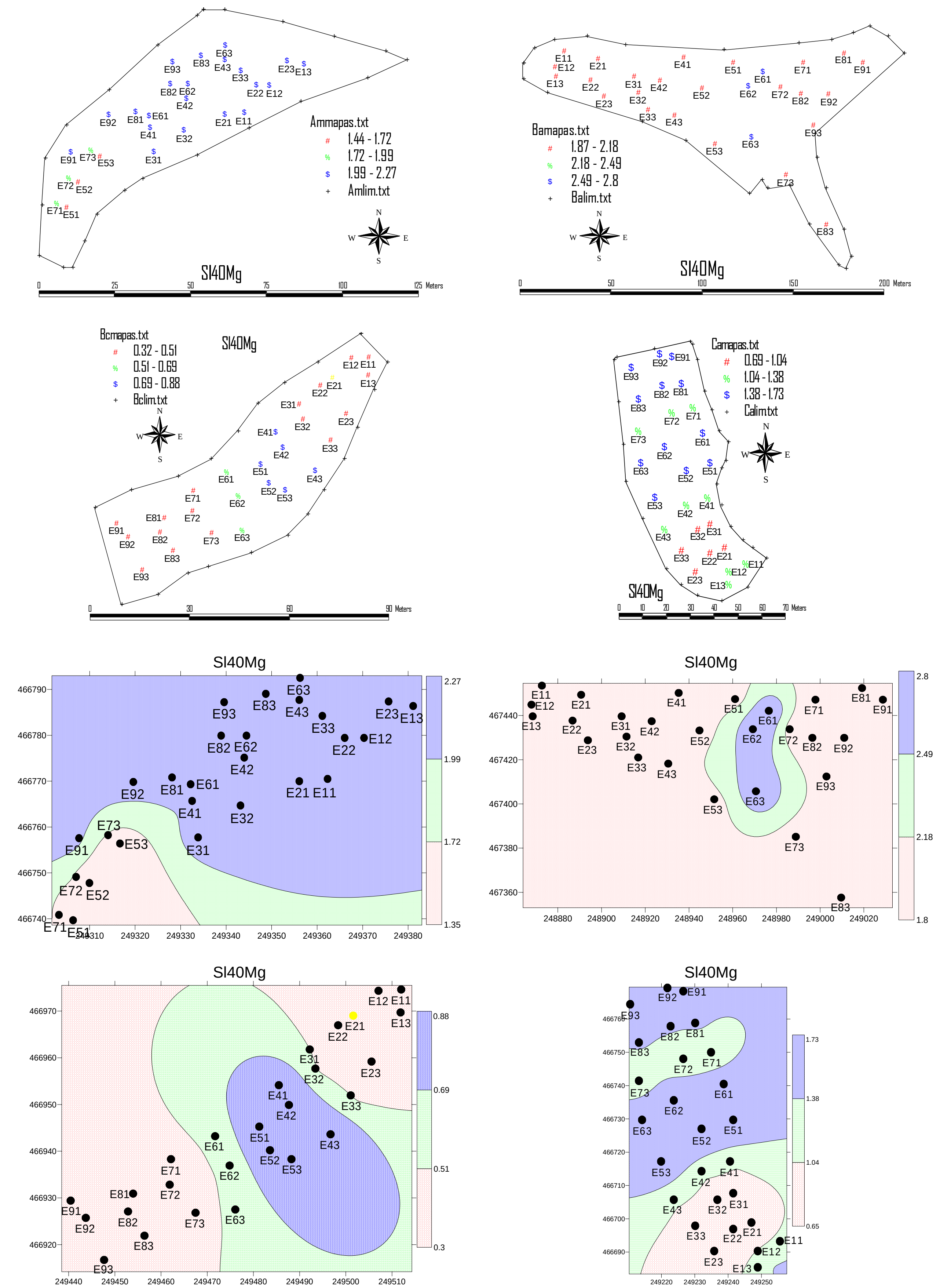


Figure 15- Spatial and cartographic distribution of SI20K results

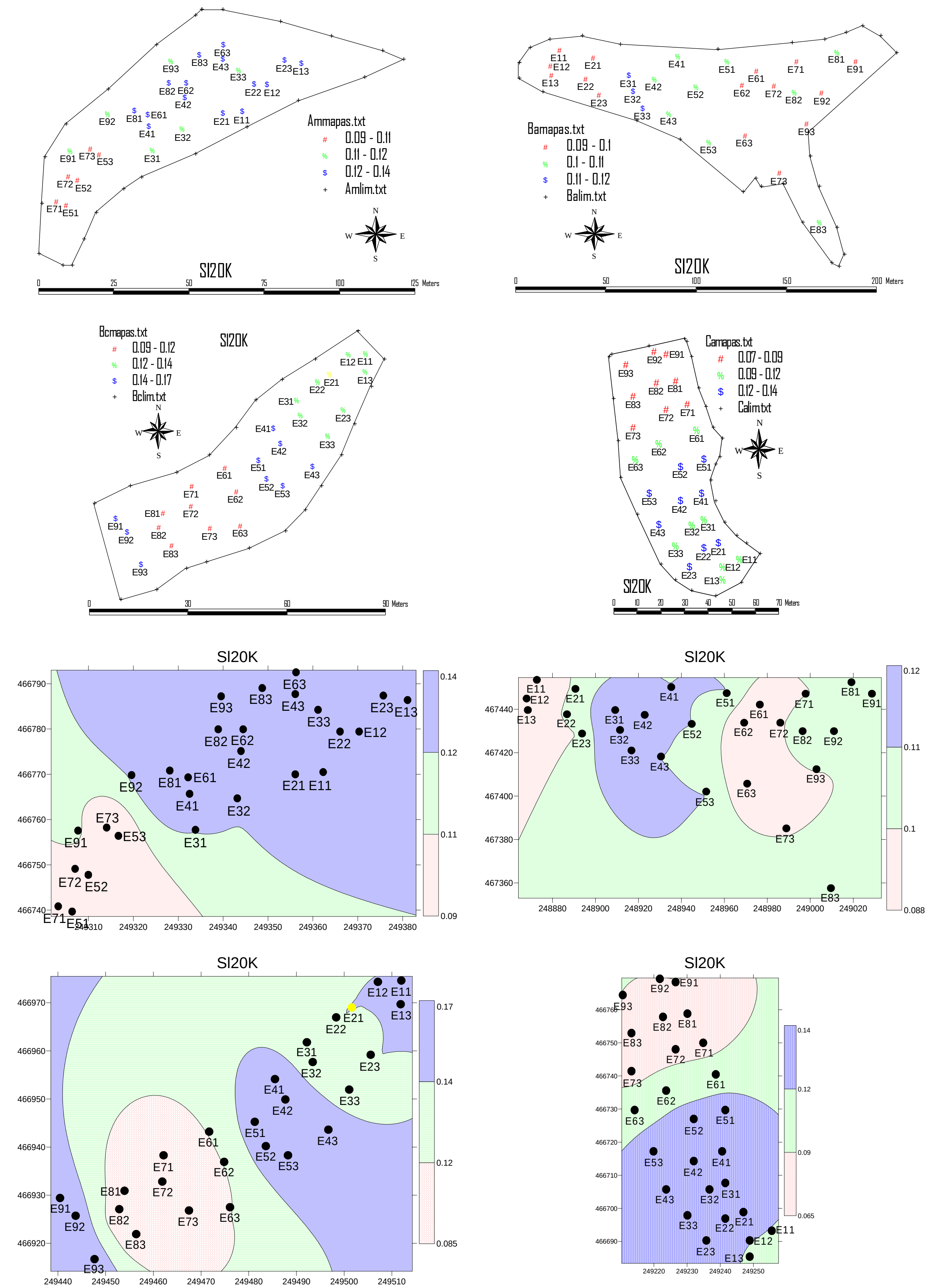


Figure 16- Spatial and cartographic distribution of SI40K results

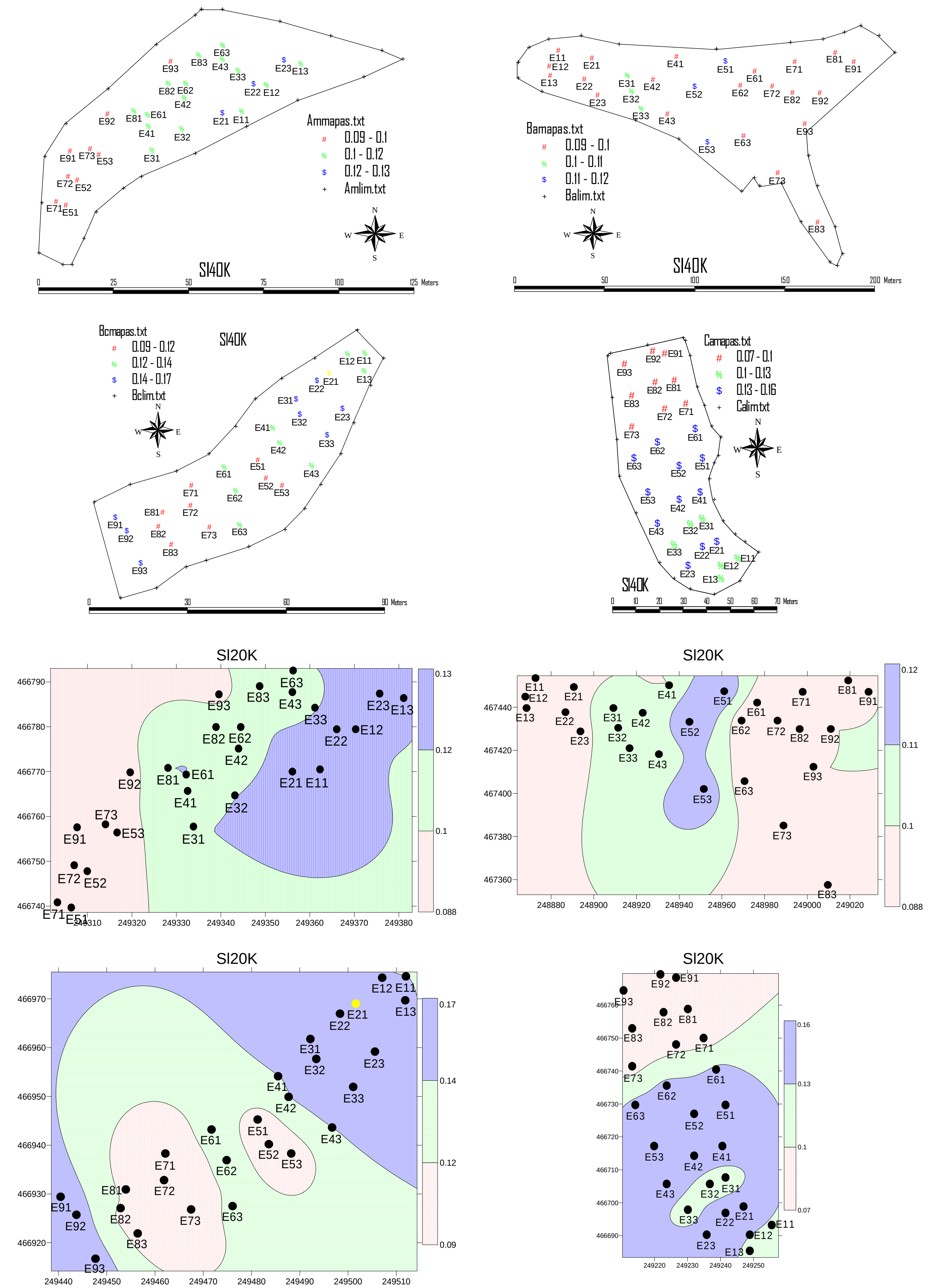


Figure 17- Spatial and cartographic distribution of SI20Na results

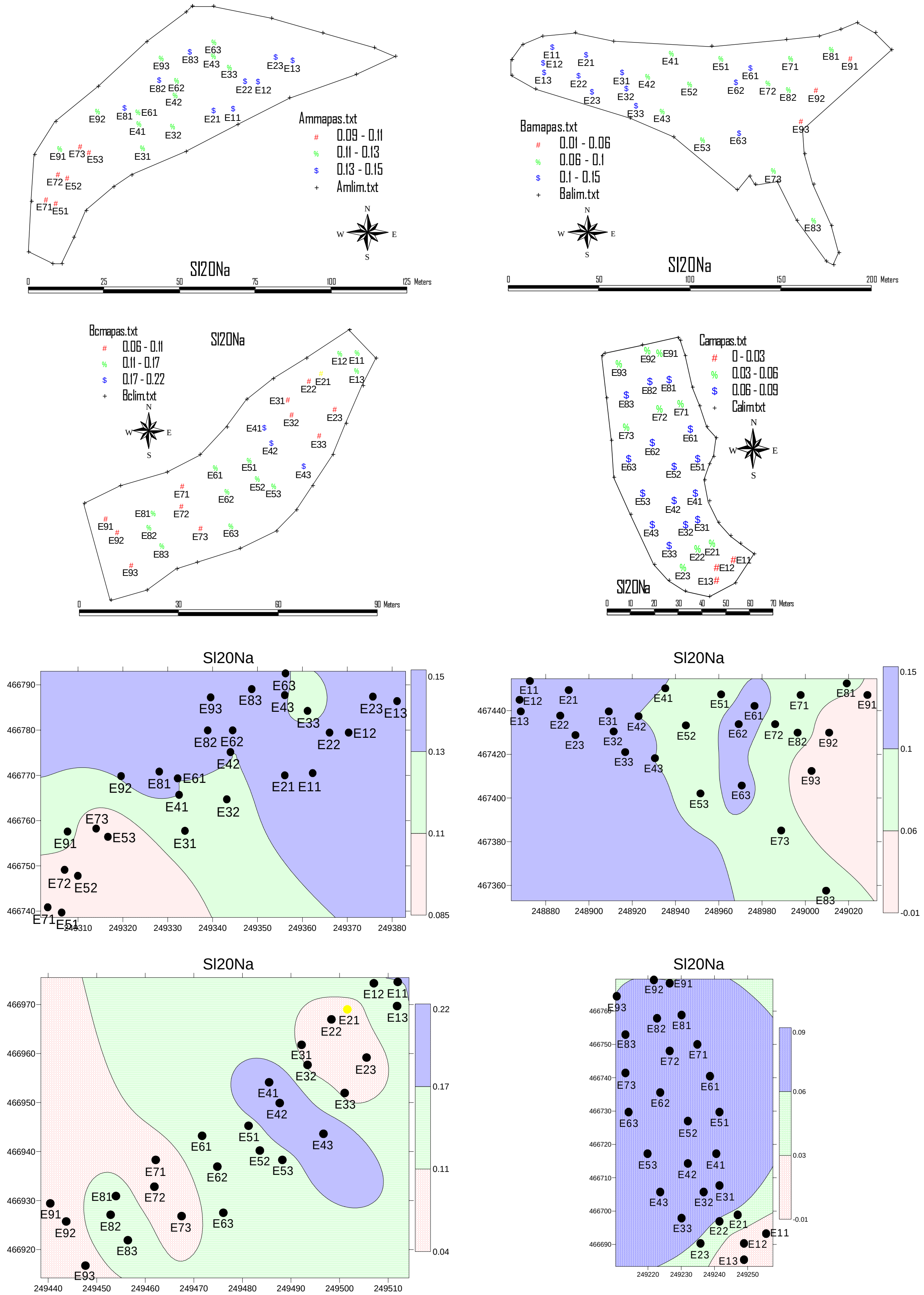


Figure 18- Spatial and cartographic distribution of SI40Na results

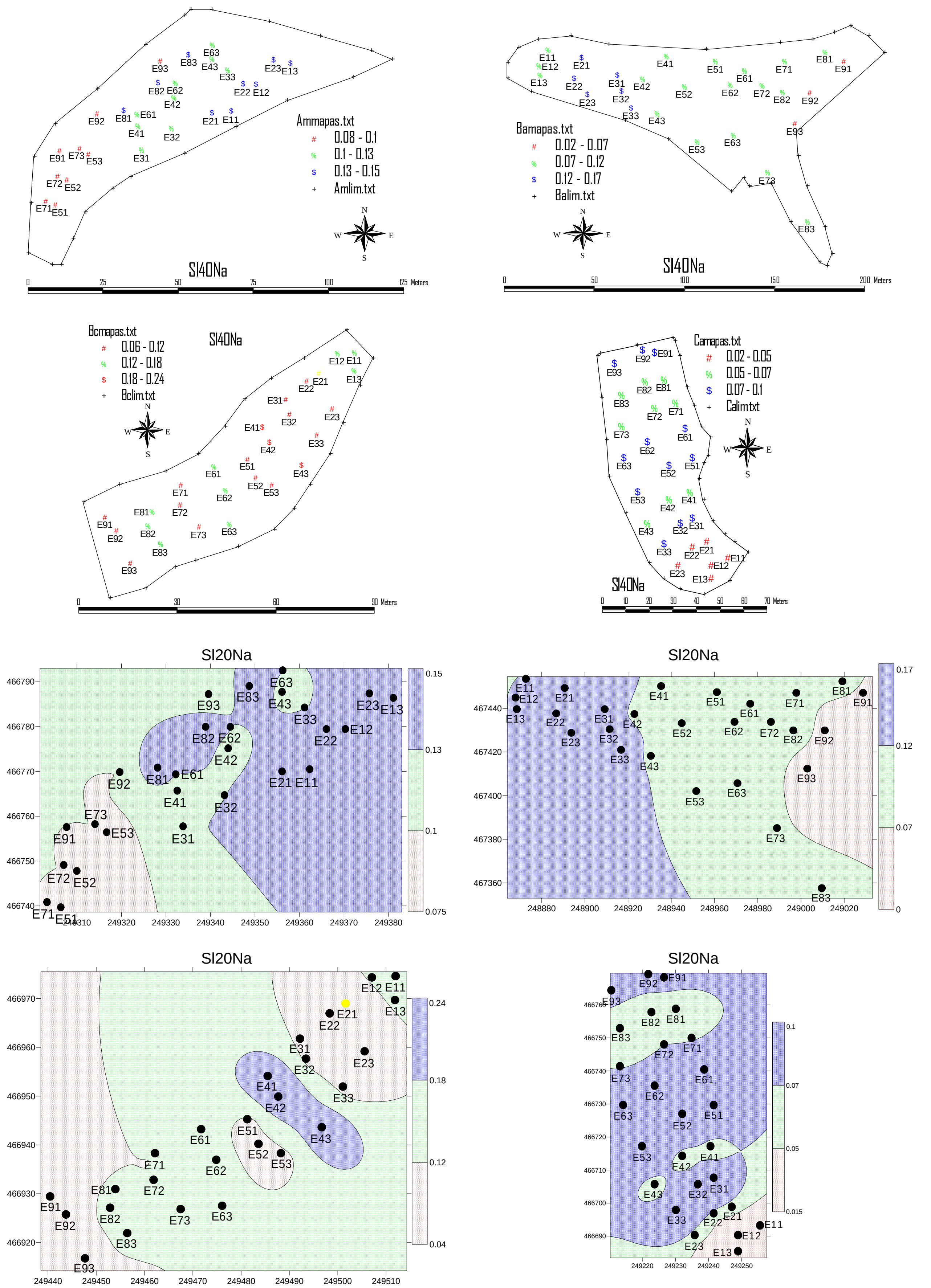


Figure 19- Spatial and cartographic distribution of SI20BH$_2$O results

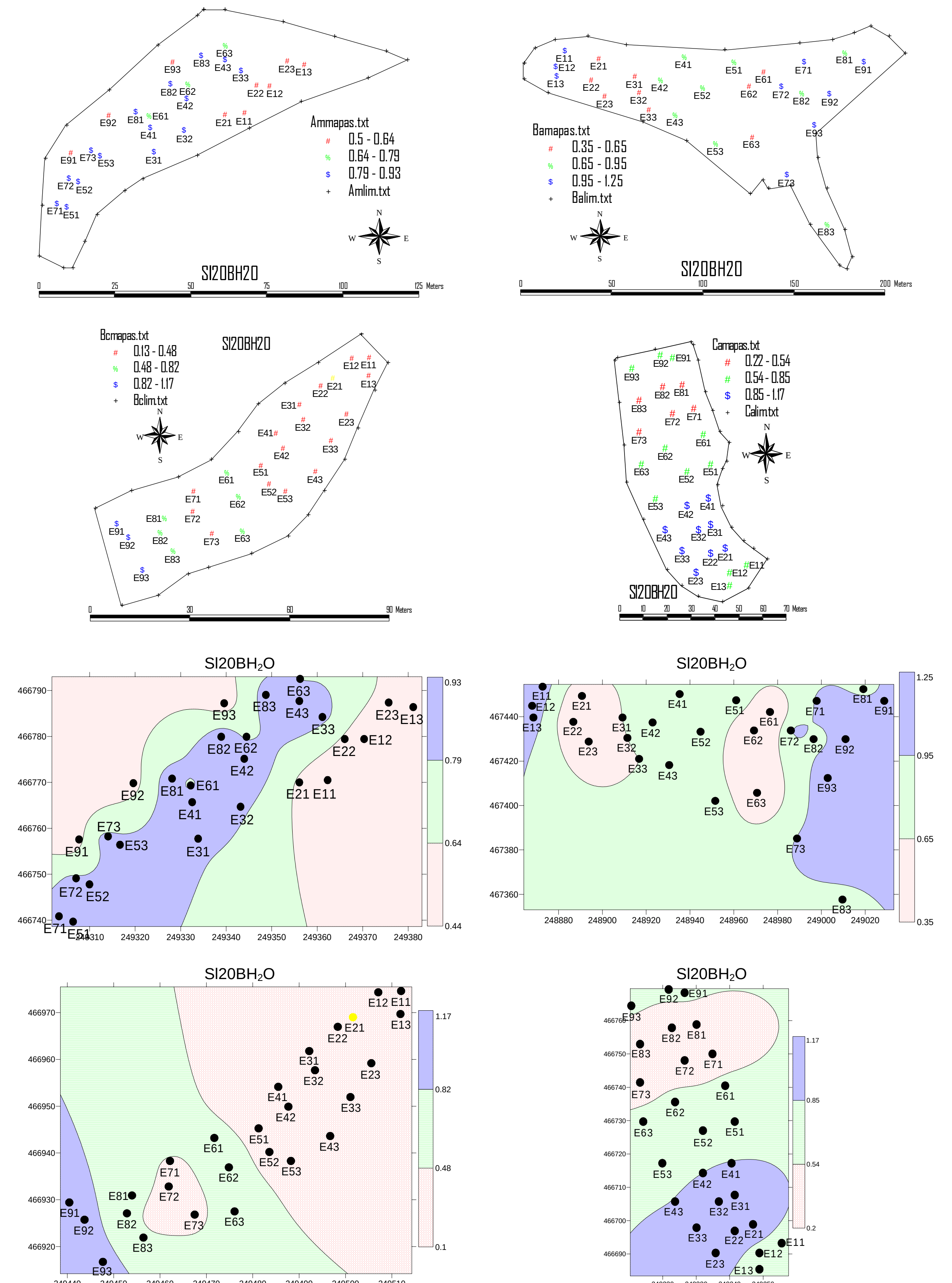


Figure 20- Spatial and cartographic distribution of $SI40BH_2O$ results

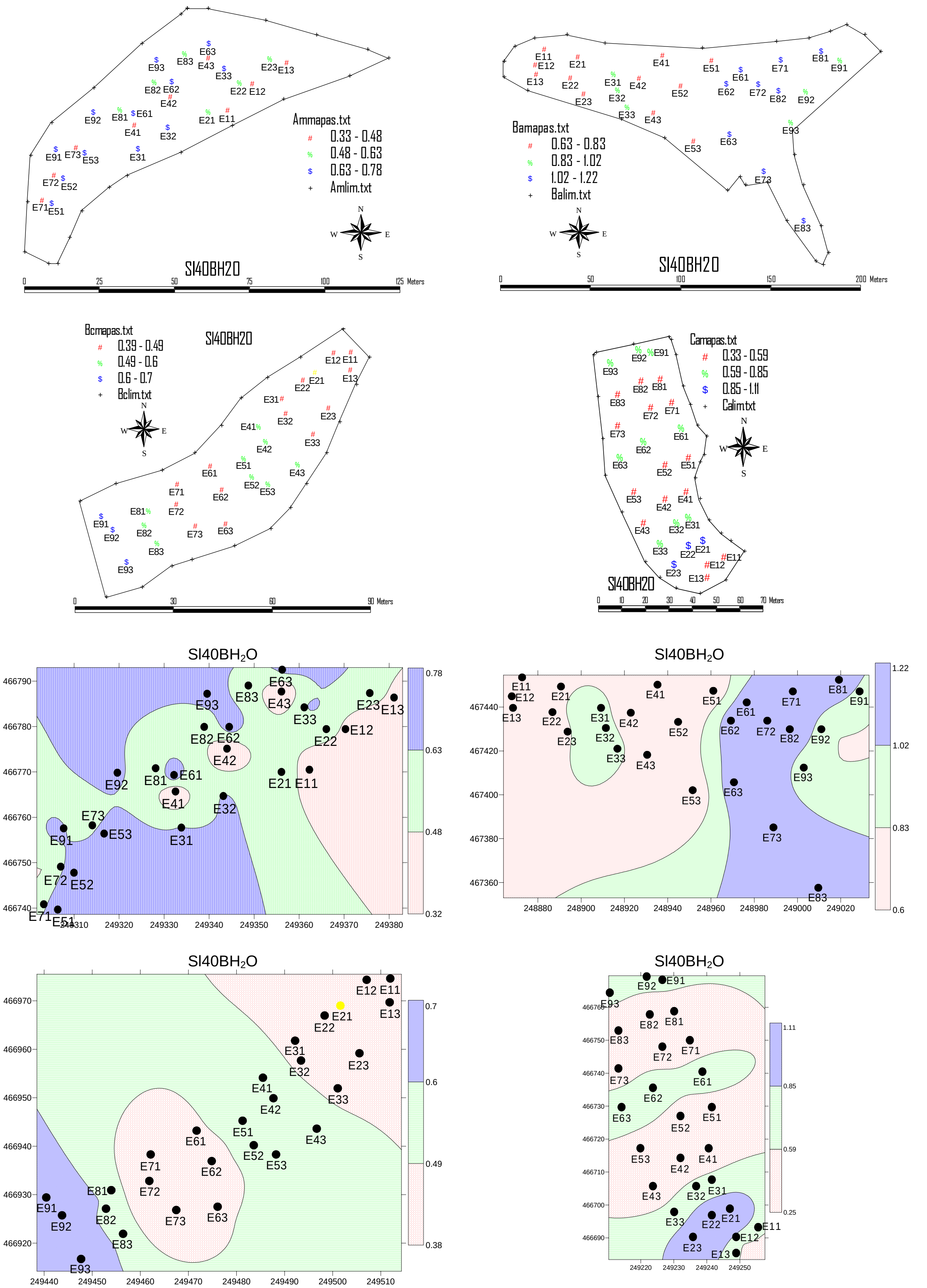


Figure 21- Spatial and cartographic distribution of SI20AT results

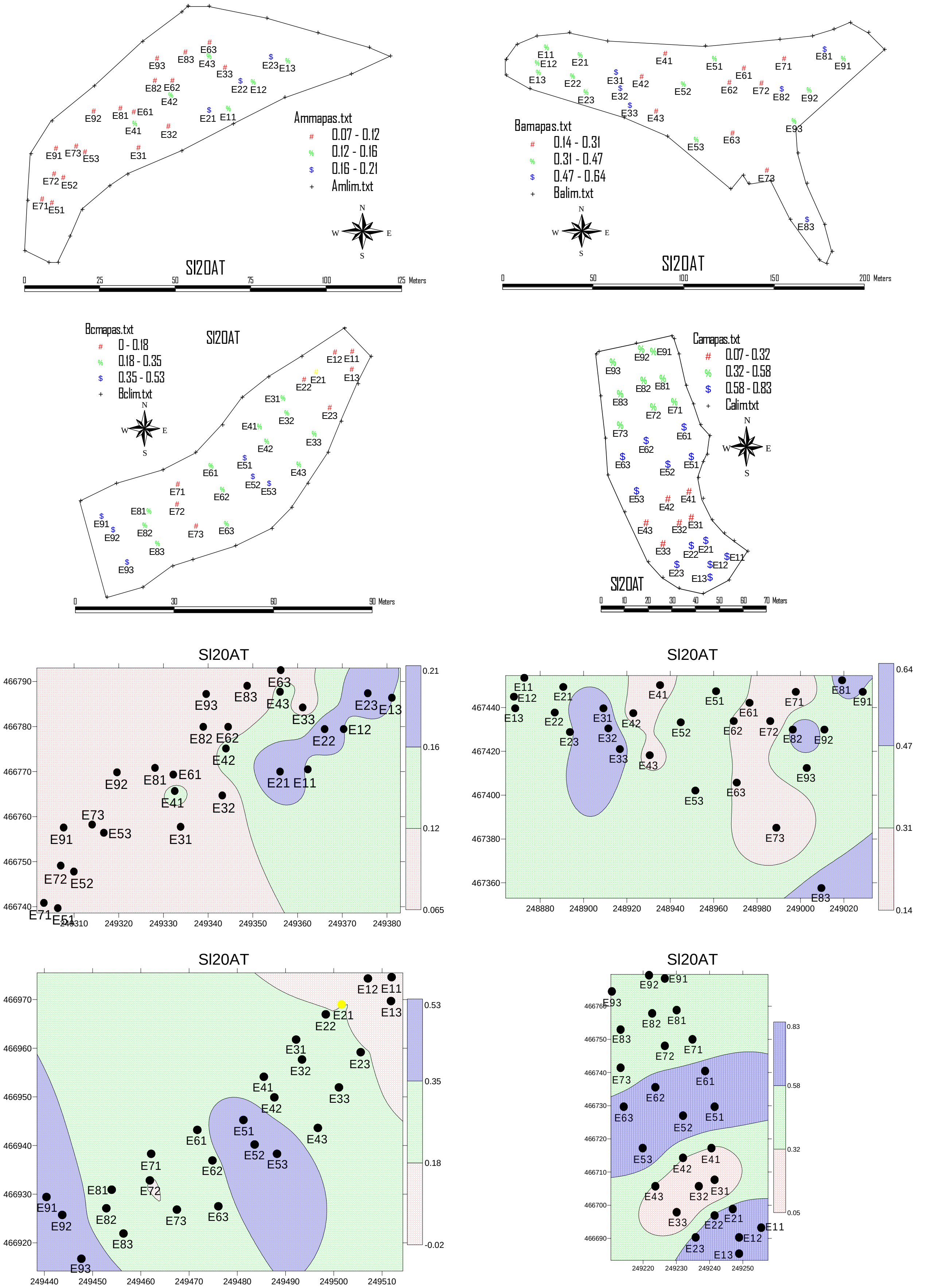


Figure 22- Spatial and cartographic distribution of SI40AT results

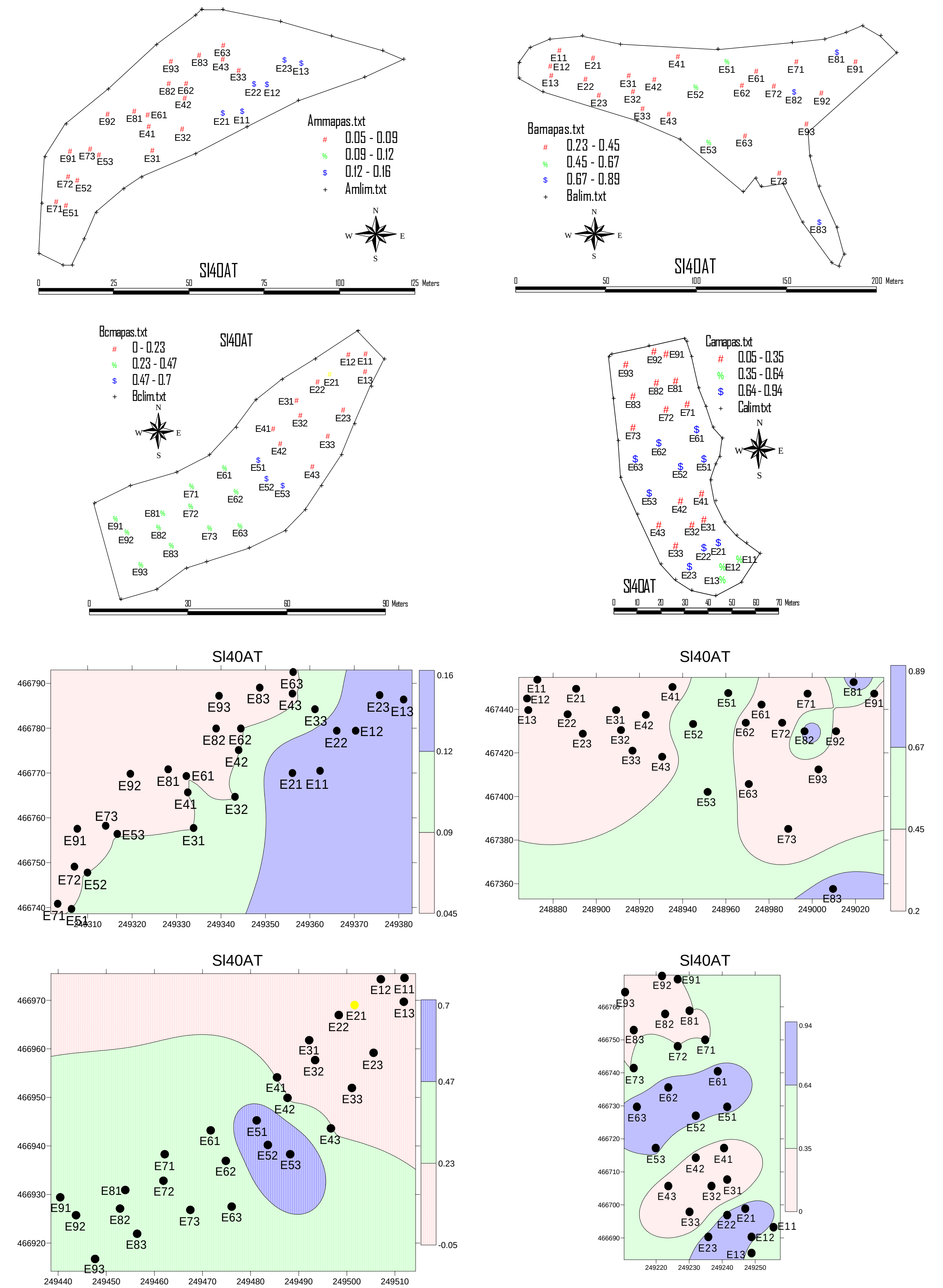


Figure 23- Spatial and cartographic distribution of SI20SBT results

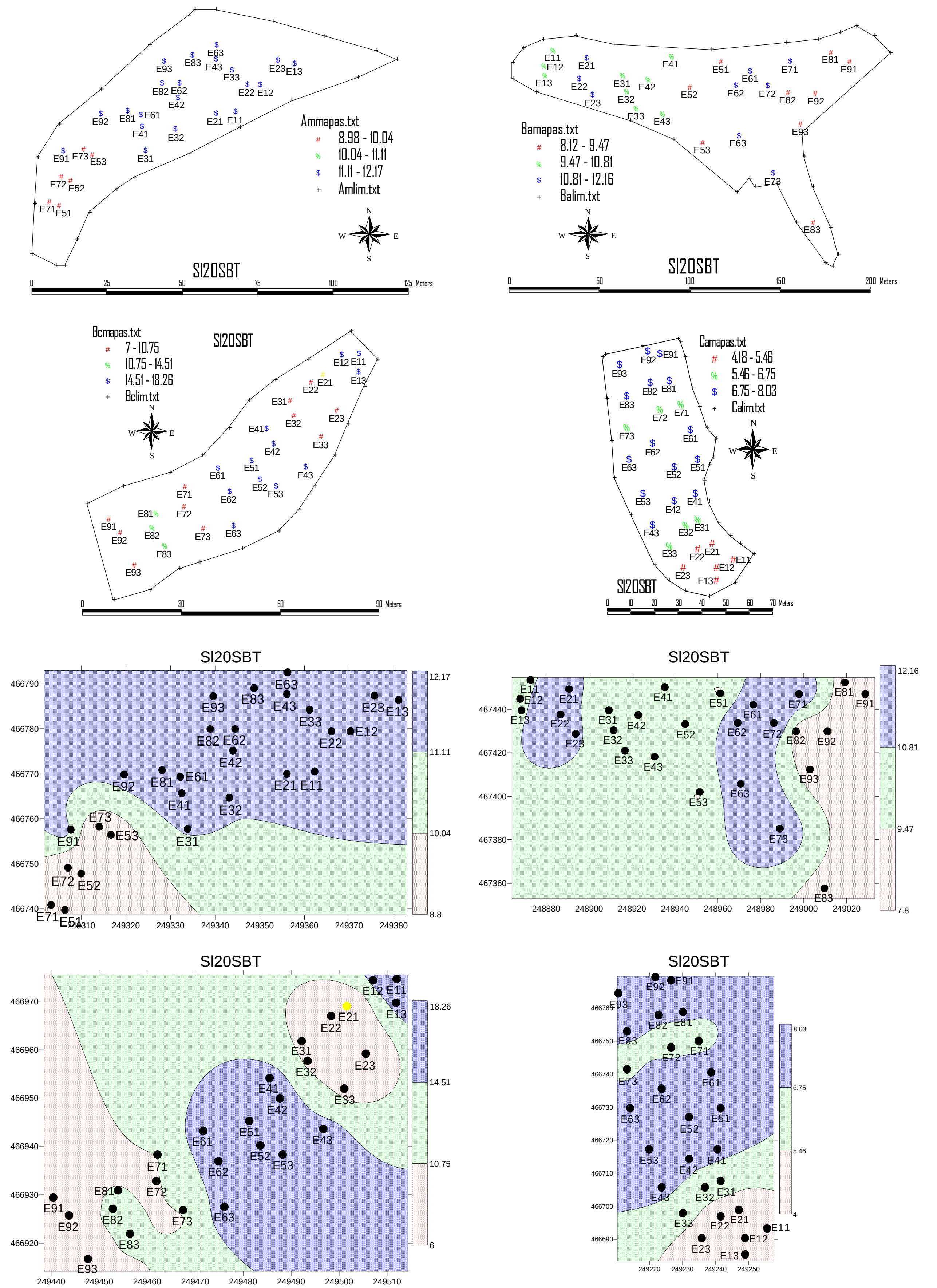


Figure 24- Spatial and cartographic distribution of SI40SBT results

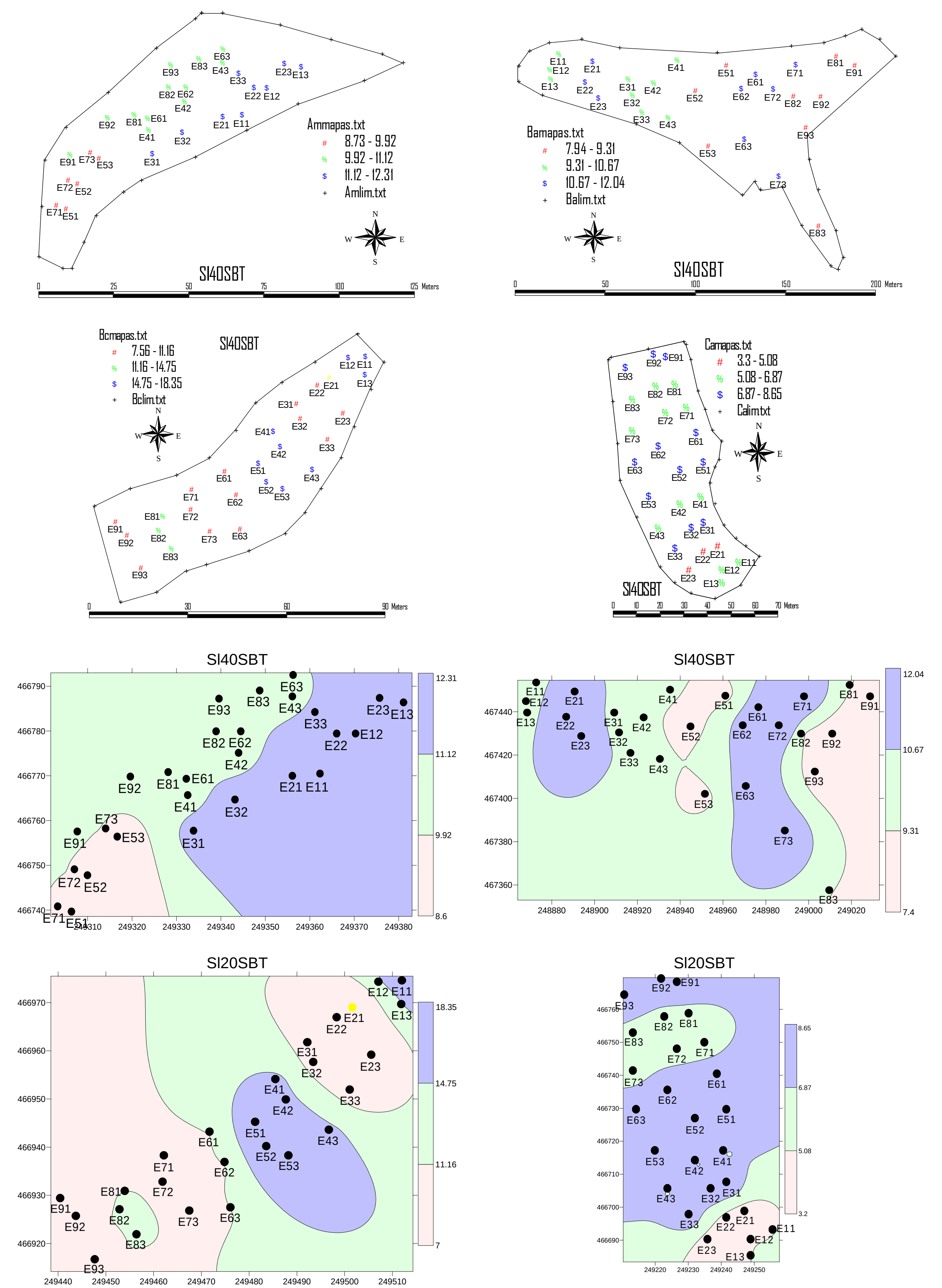


Figure 25- Spatial and cartographic distribution of SI20CTCe results

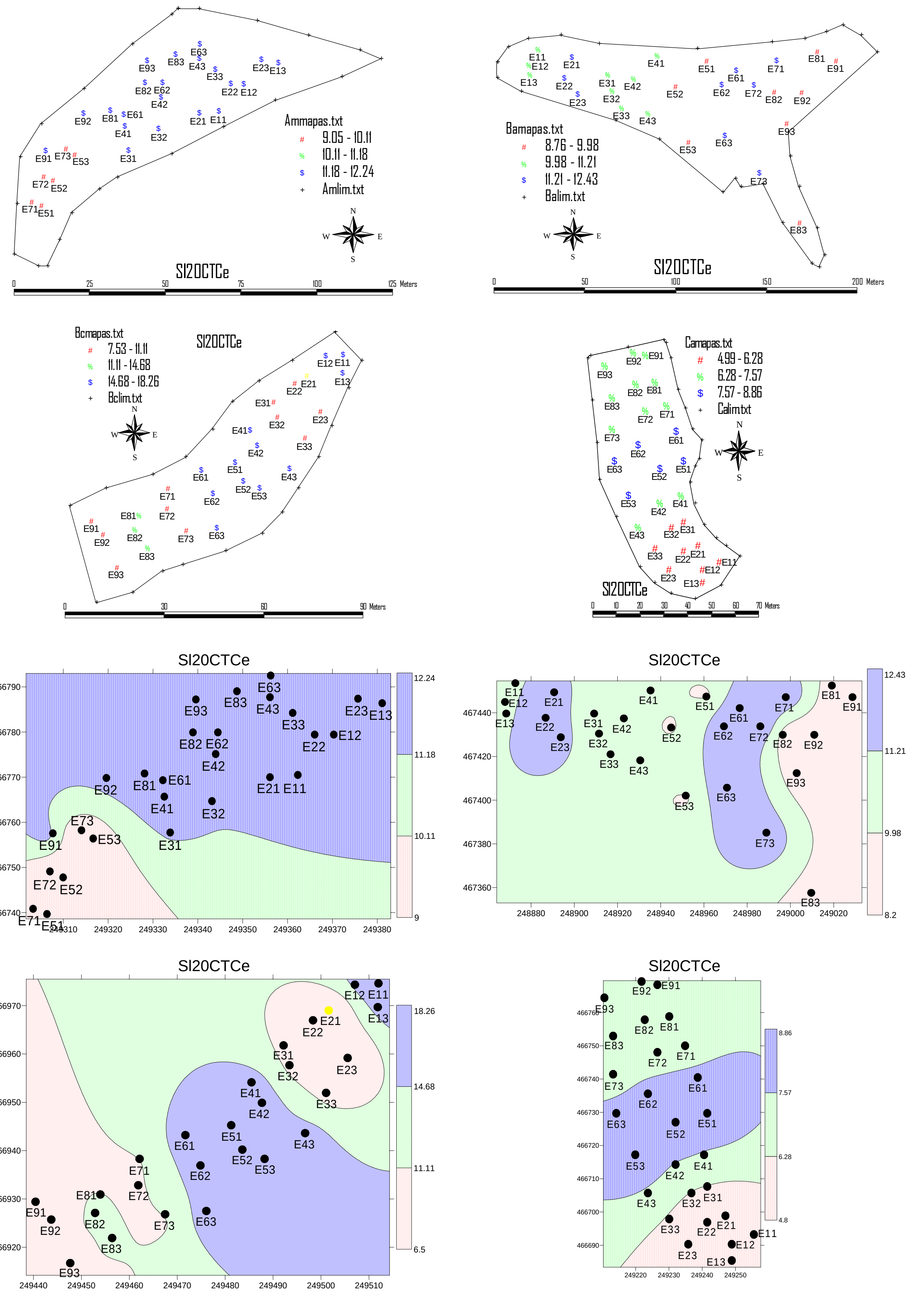


Figure 26- Spatial and cartographic distribution of SI40CTCe results

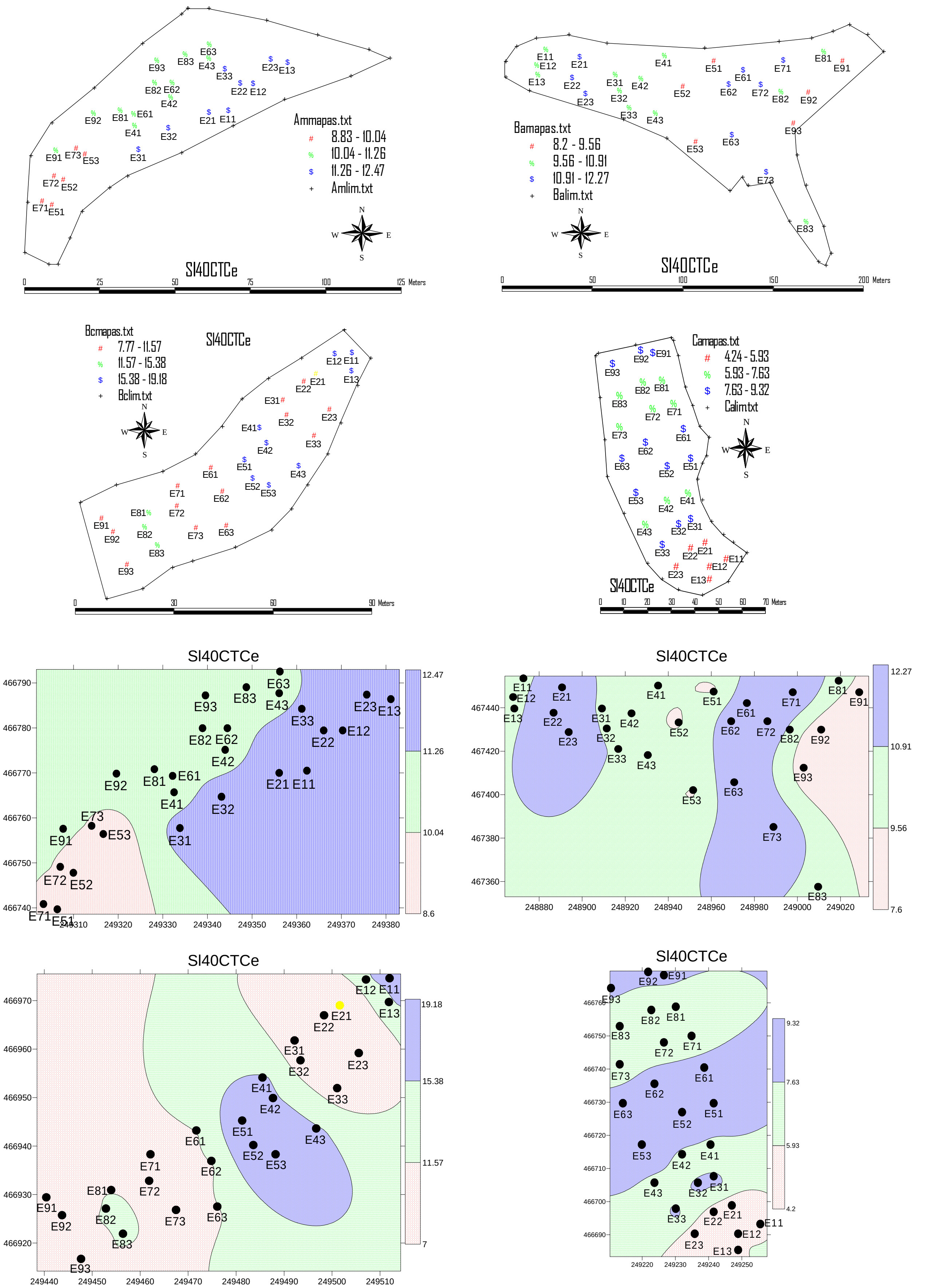


Figure 27- Spatial and cartographic distribution of SI20GSBe results

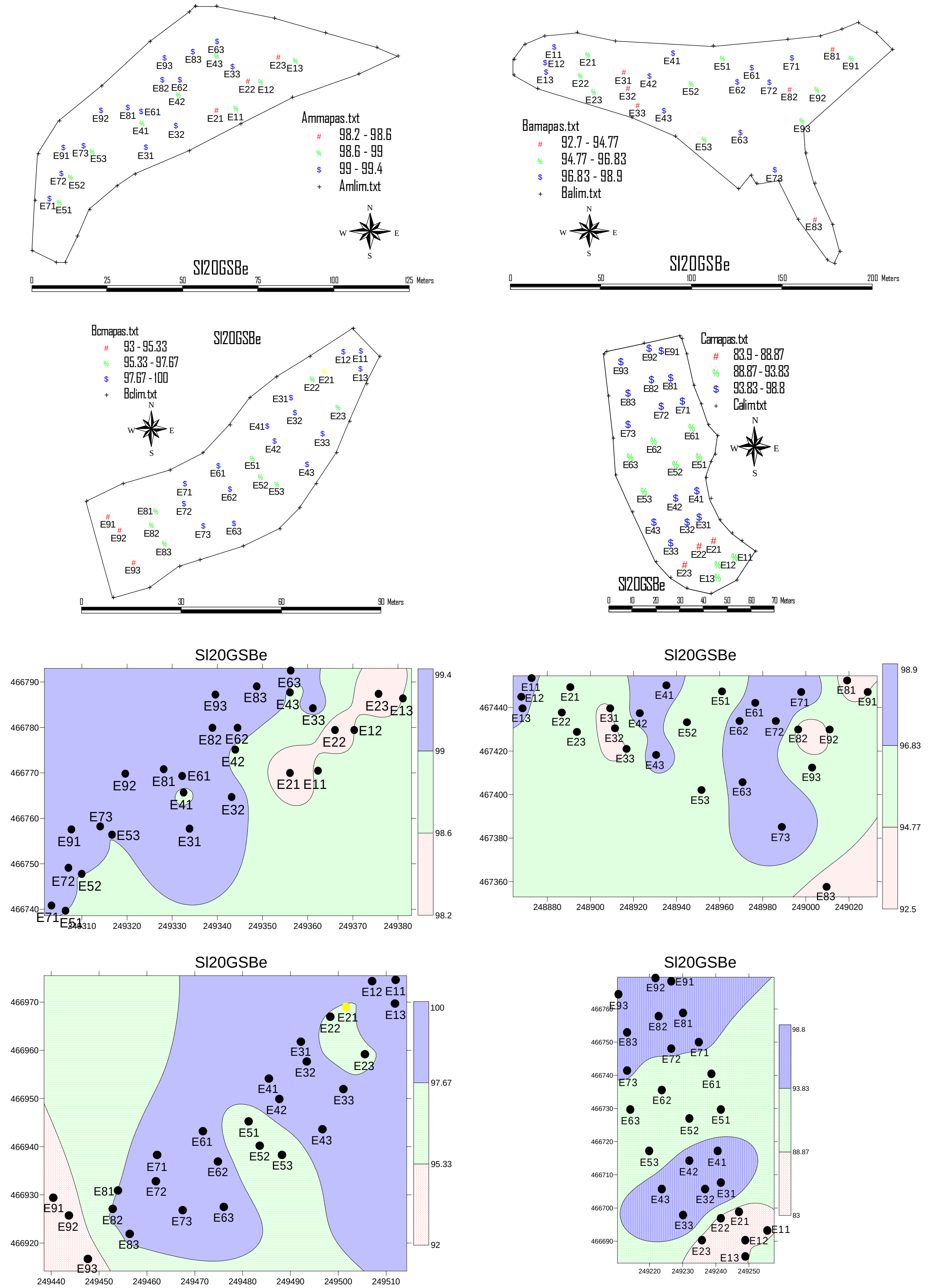
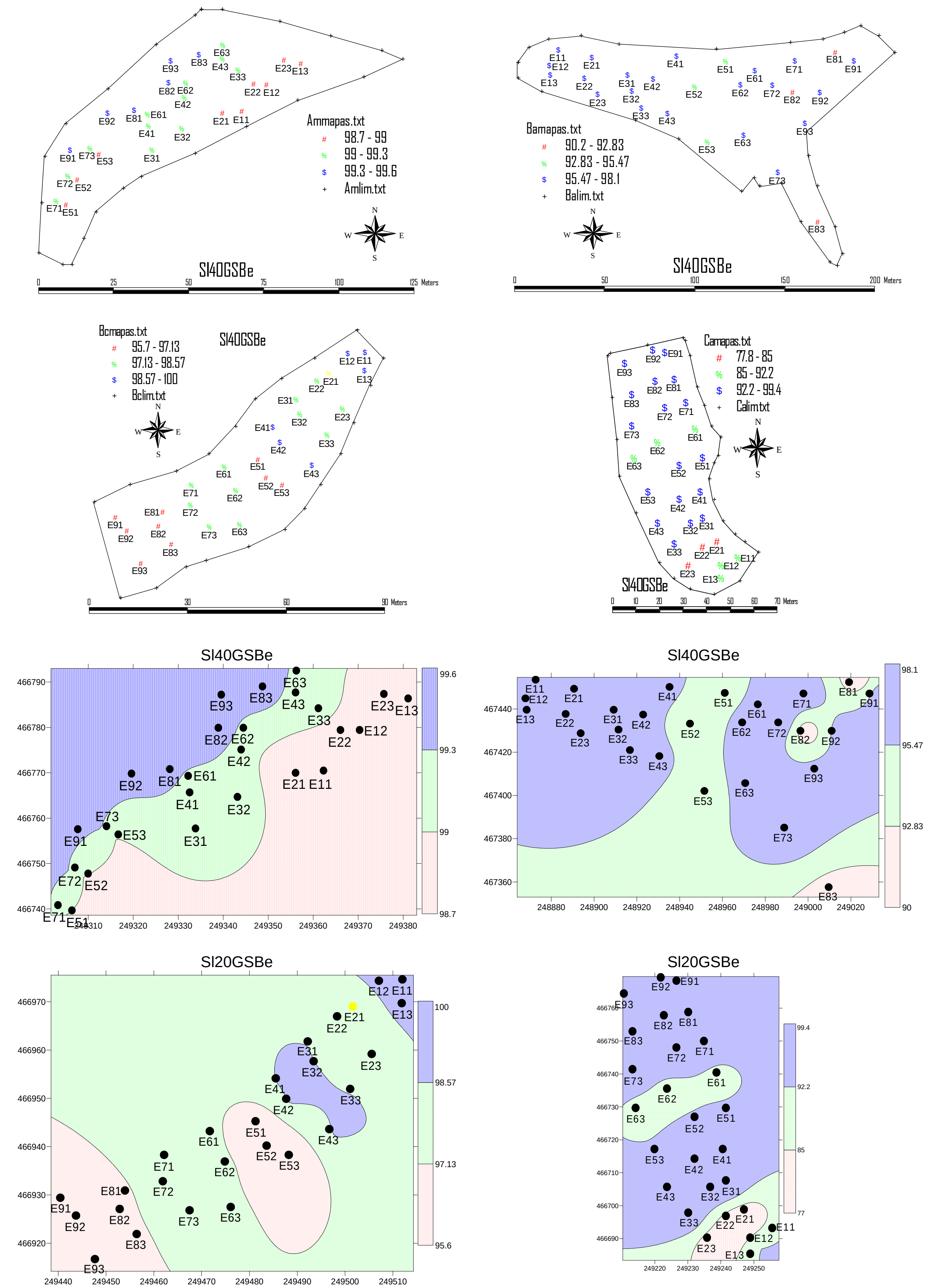
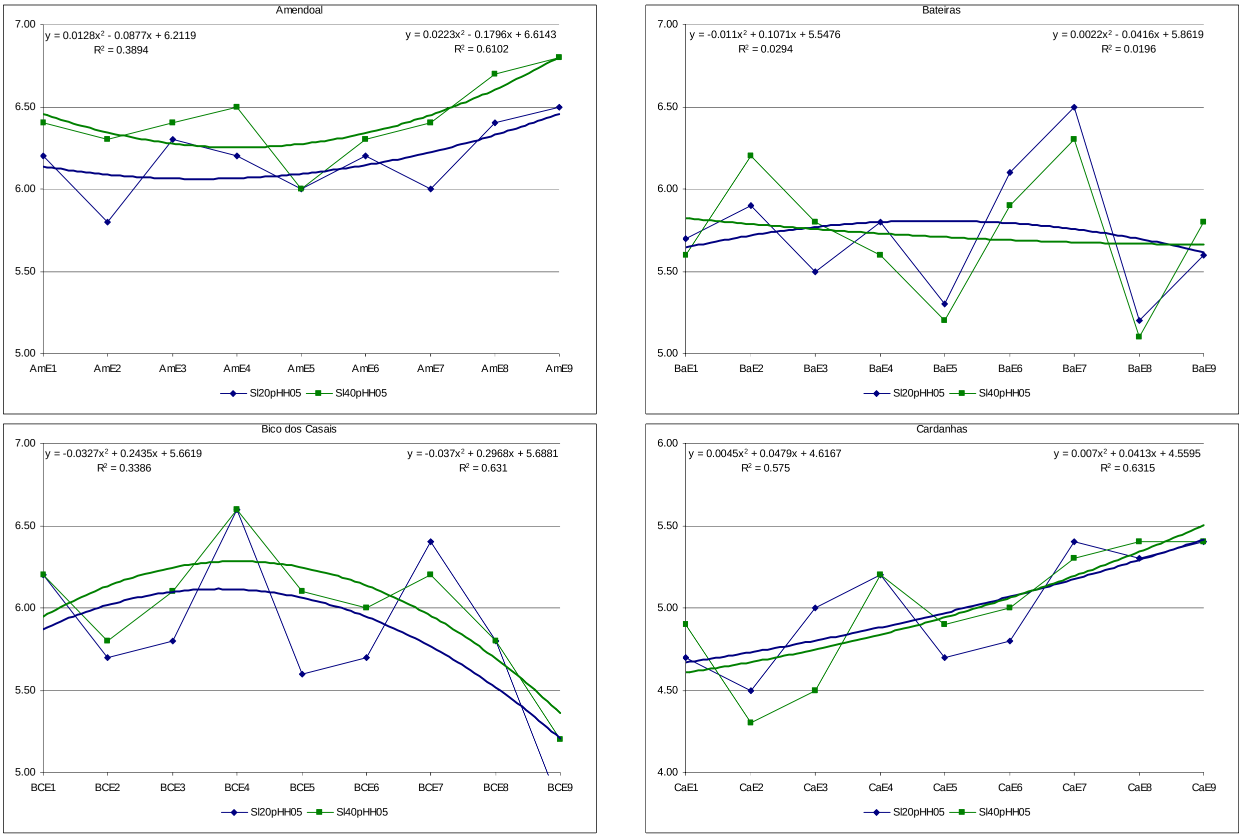


Figure 28- Spatial and cartographic distribution of SI40GSBe results

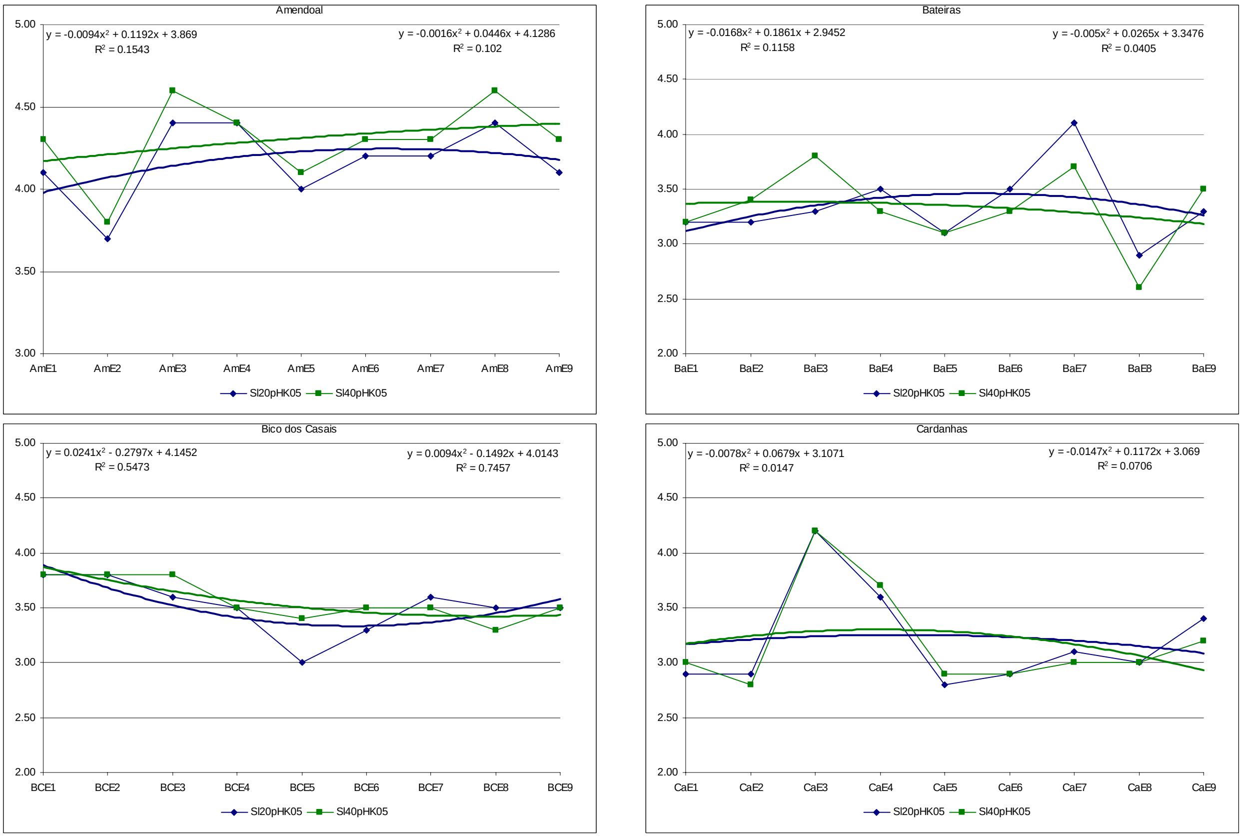


Graphic 1- Regression analysis for SI20(40)pHH$_2$O data



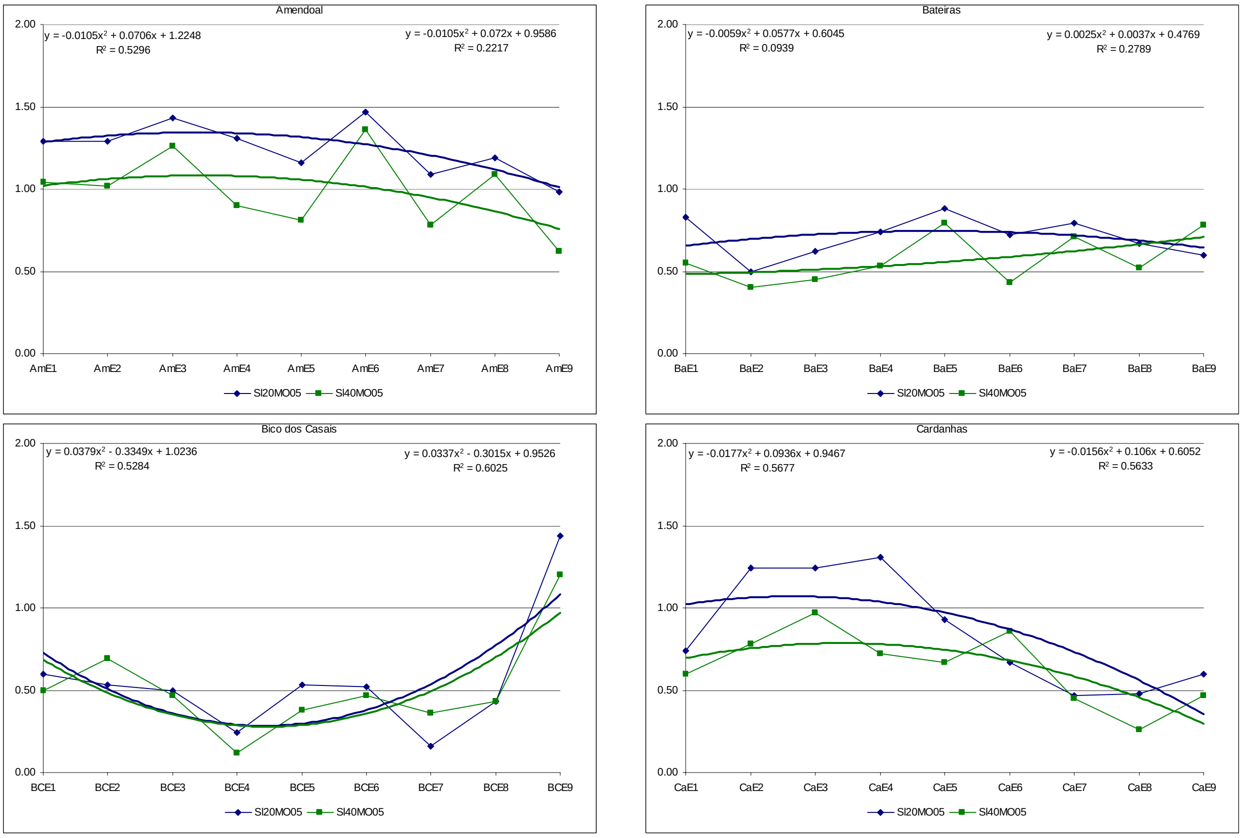
SI20pHH$_2$O- NS, NS, NS, NS **SI40pHH$_2$O- NS, NS, S, S**

Graphic 2- Regression analysis for SI20(40)KCl data



SI20pHKCl- NS, NS, NS, NS **SI40pHKCl- NS, NS, S, NS**

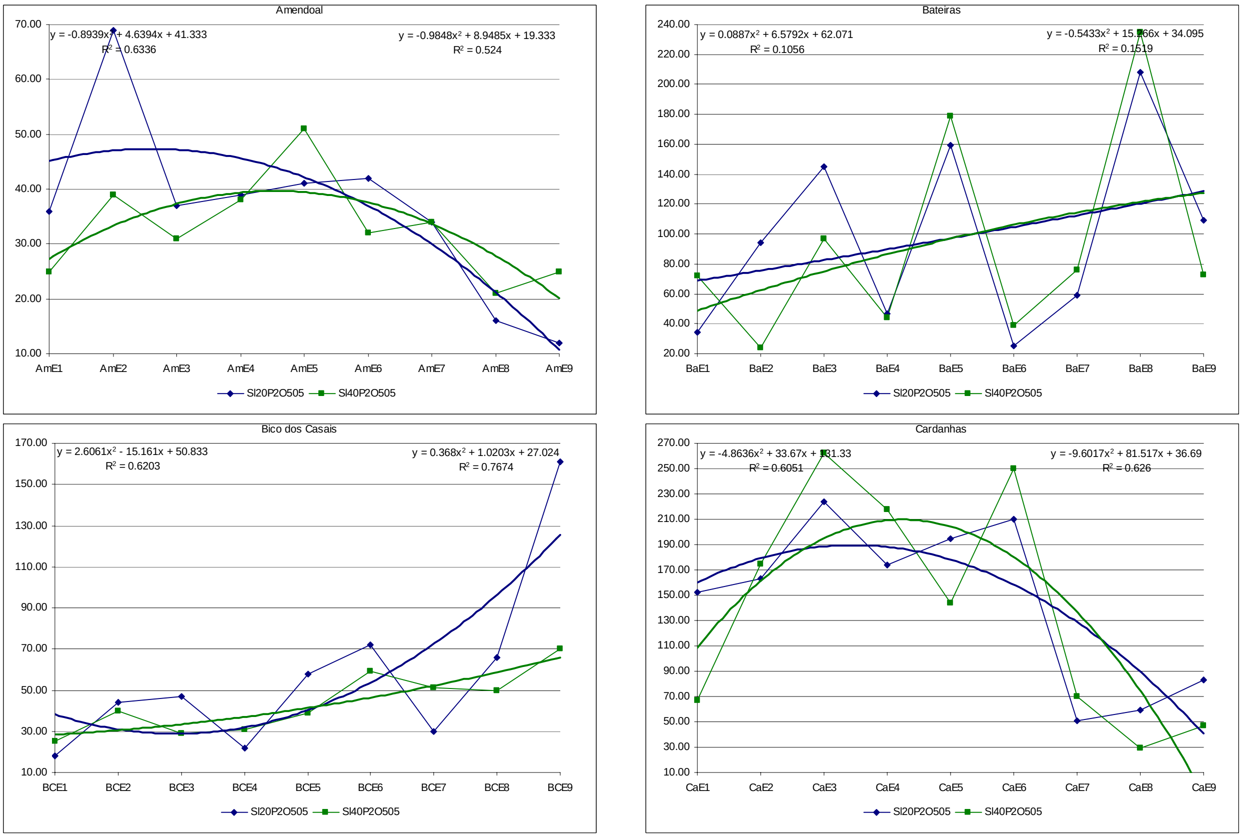
Graphic 3- Regression analysis for SIMO20(40) data



SI20MO- NS, NS, NS, NS

SI40MO- NS, NS, NS, NS

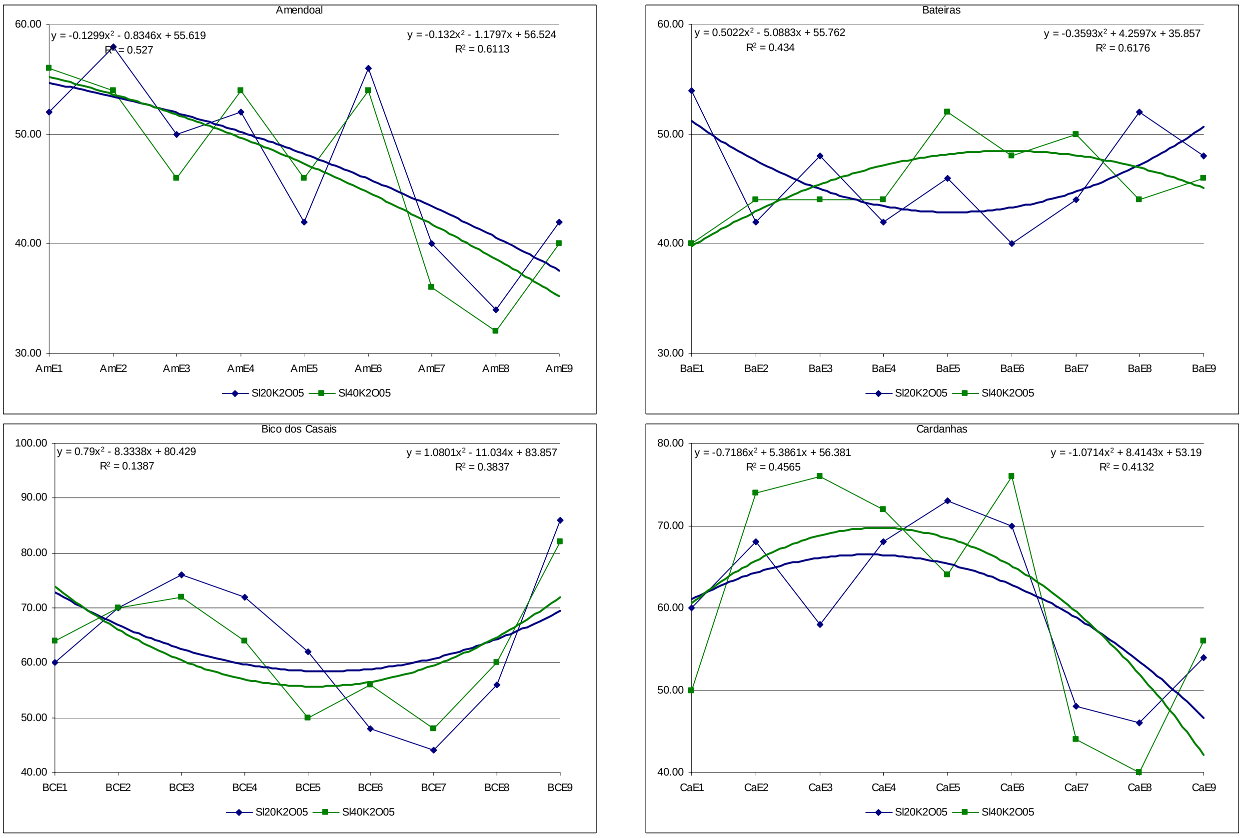
Graphic 4- Regression analysis for SI20(40)P_2O_5 data



SI20P_2O_5- S, NS, NS, NS

SI40P_2O_5- NS, NS, S, NS

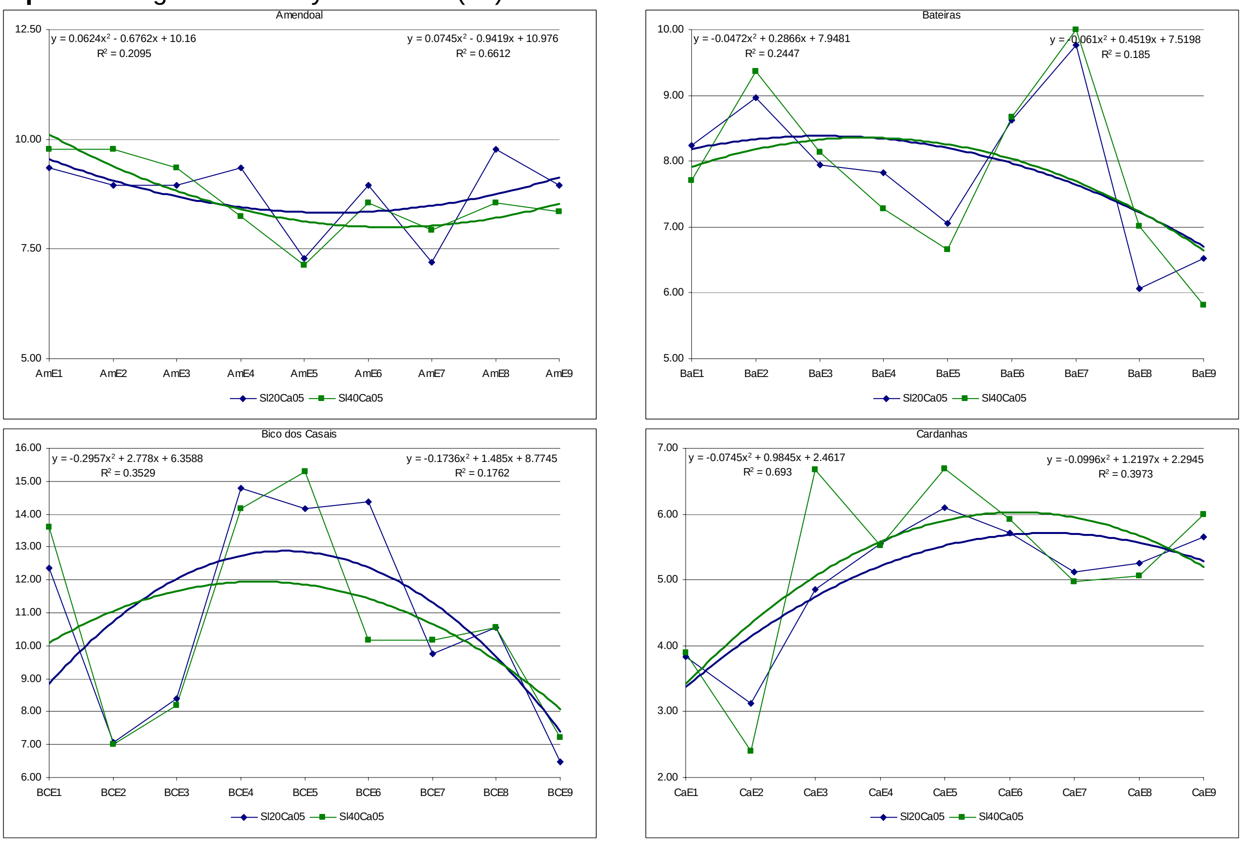
Graphic 5- Regression analysis for SI20(40)K_2O data



SI20K_2O- NS, NS, NS, NS

SI40K_2O- NS, NS, NS, NS

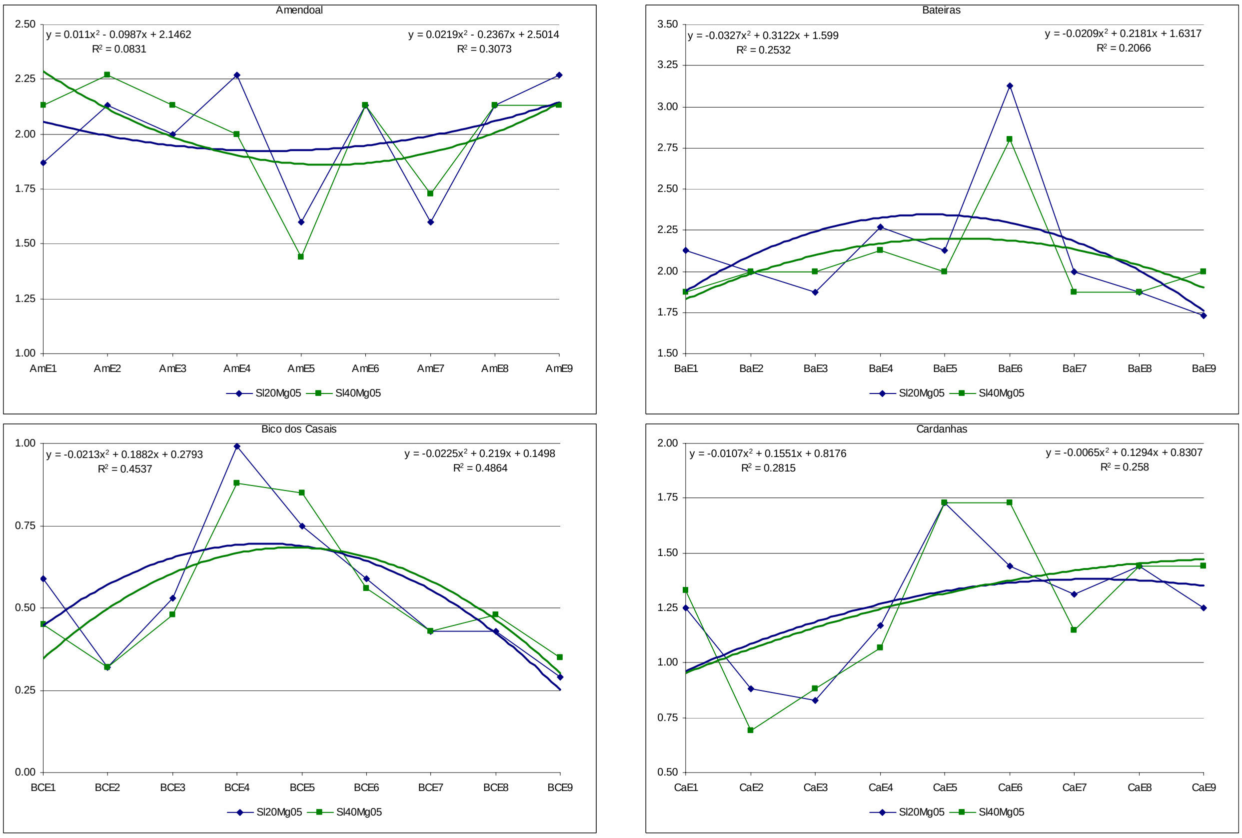
Graphic 6- Regression analysis for SI20(40)Ca data



SI20Ca- NS, NS, NS, S

SI40Ca- S, NS, NS, NS

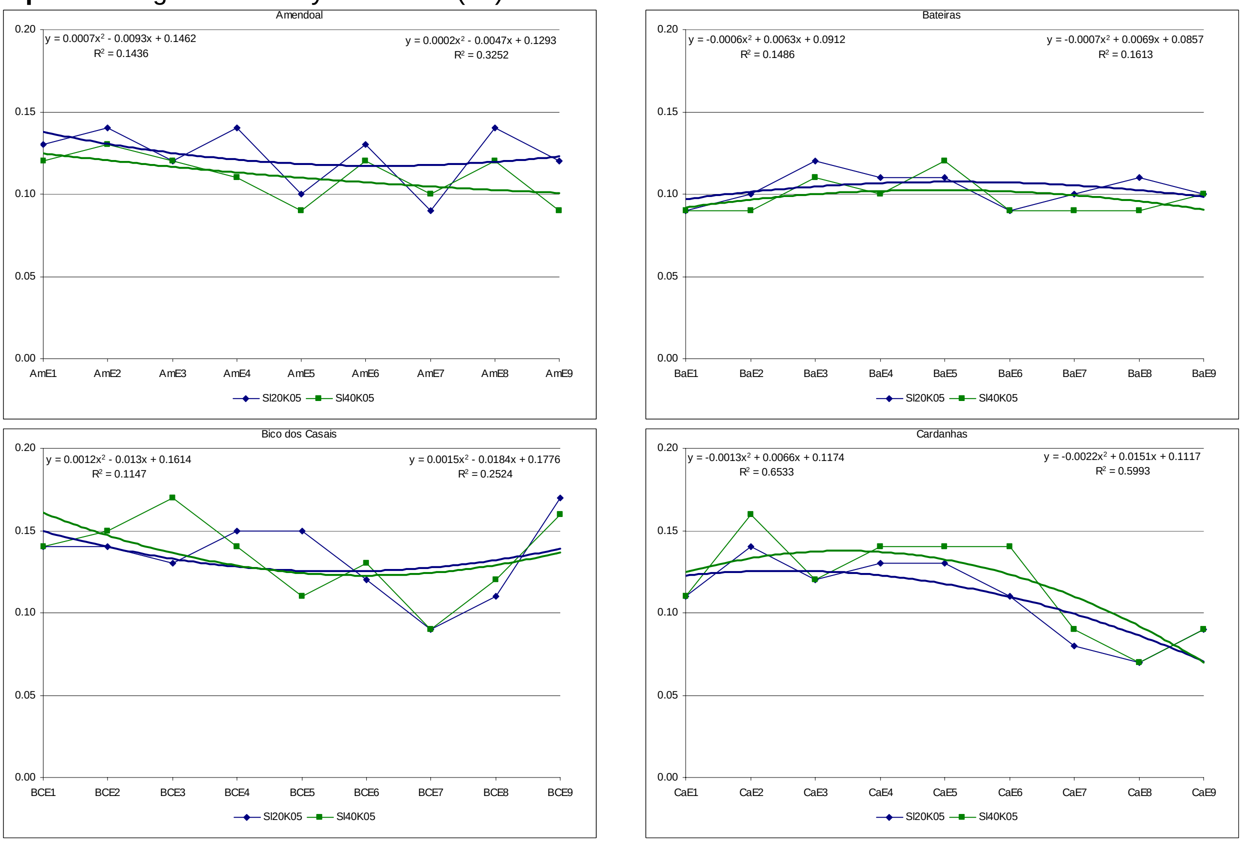
Graphic 7- Regression analysis for SI20(40)Mg data



SI20Mg- NS, NS, NS, NS

SI40Mg- NS, NS, NS, NS

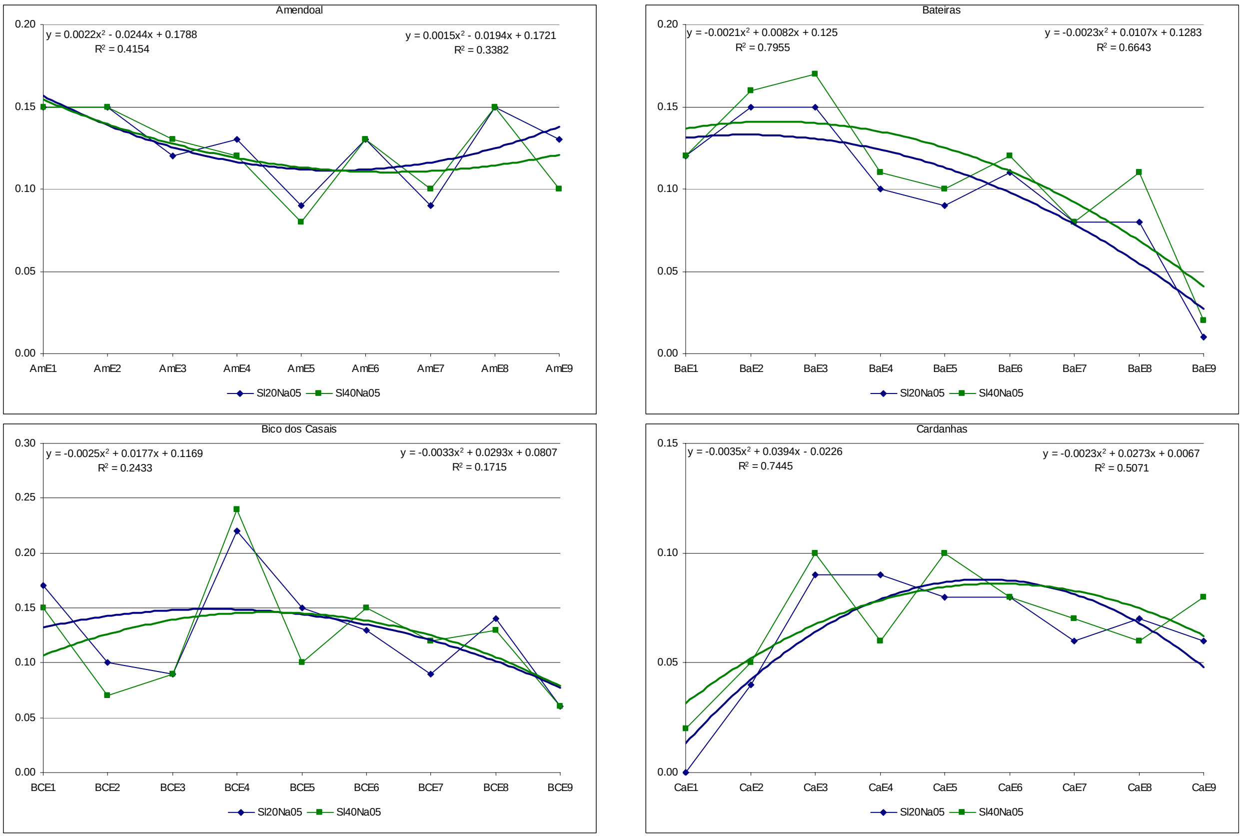
Graphic 8- Regression analysis for SI20(40)K data



SI20K- NS, NS, NS, S

SI40K- NS, NS, NS, NS

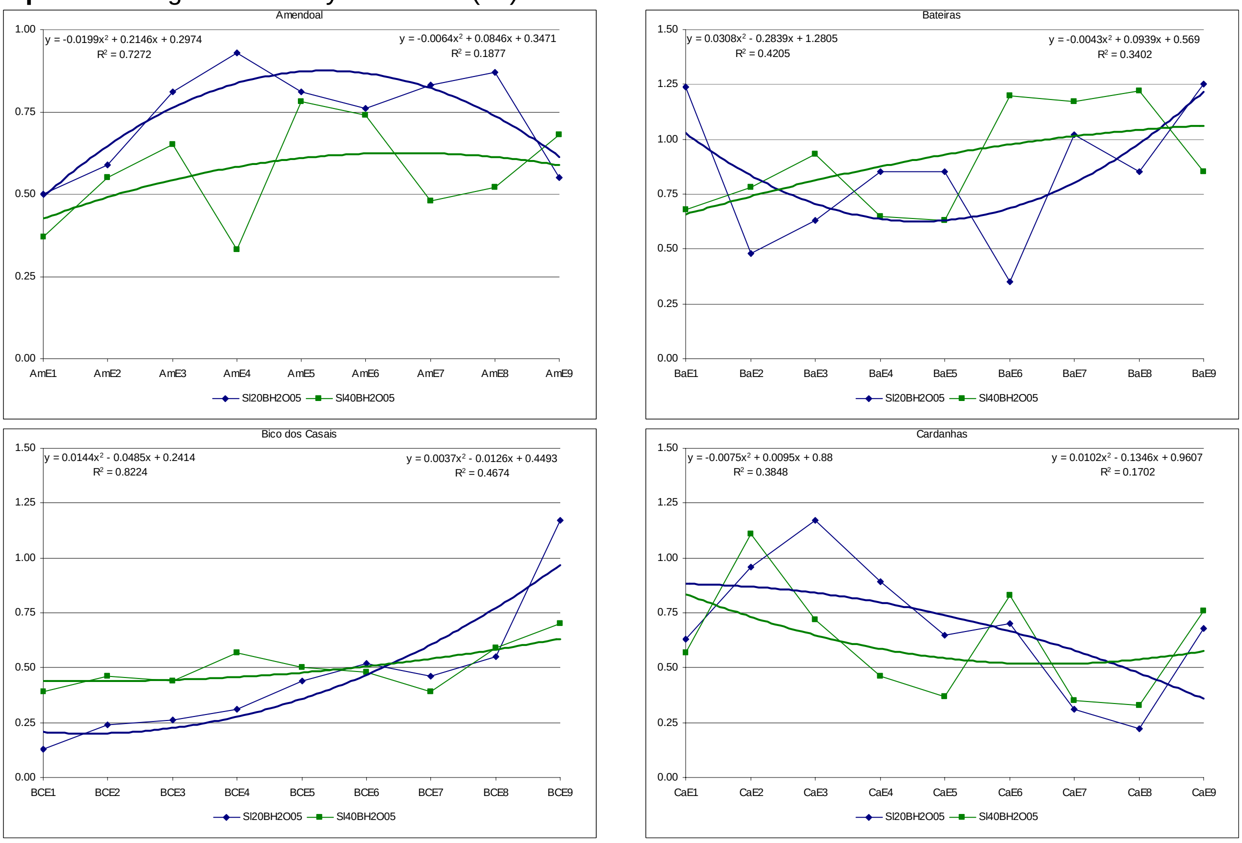
Graphic 9- Regression analysis for SI20(40)Na data



SI20Na- NS, S, NS, S

SI40Na- NS, S, NS, NS

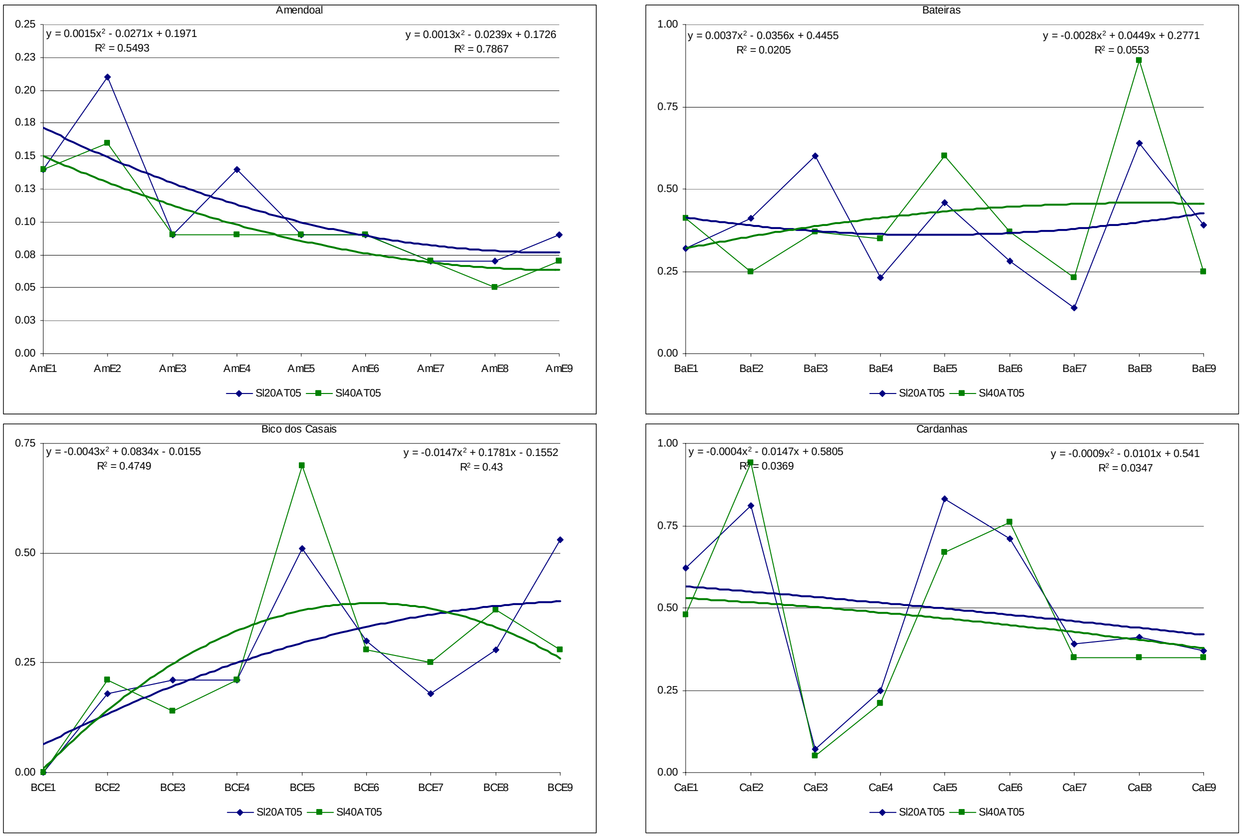
Graphic 10- Regression analysis for SI20(40)B data



SI20B- S, NS, S, NS

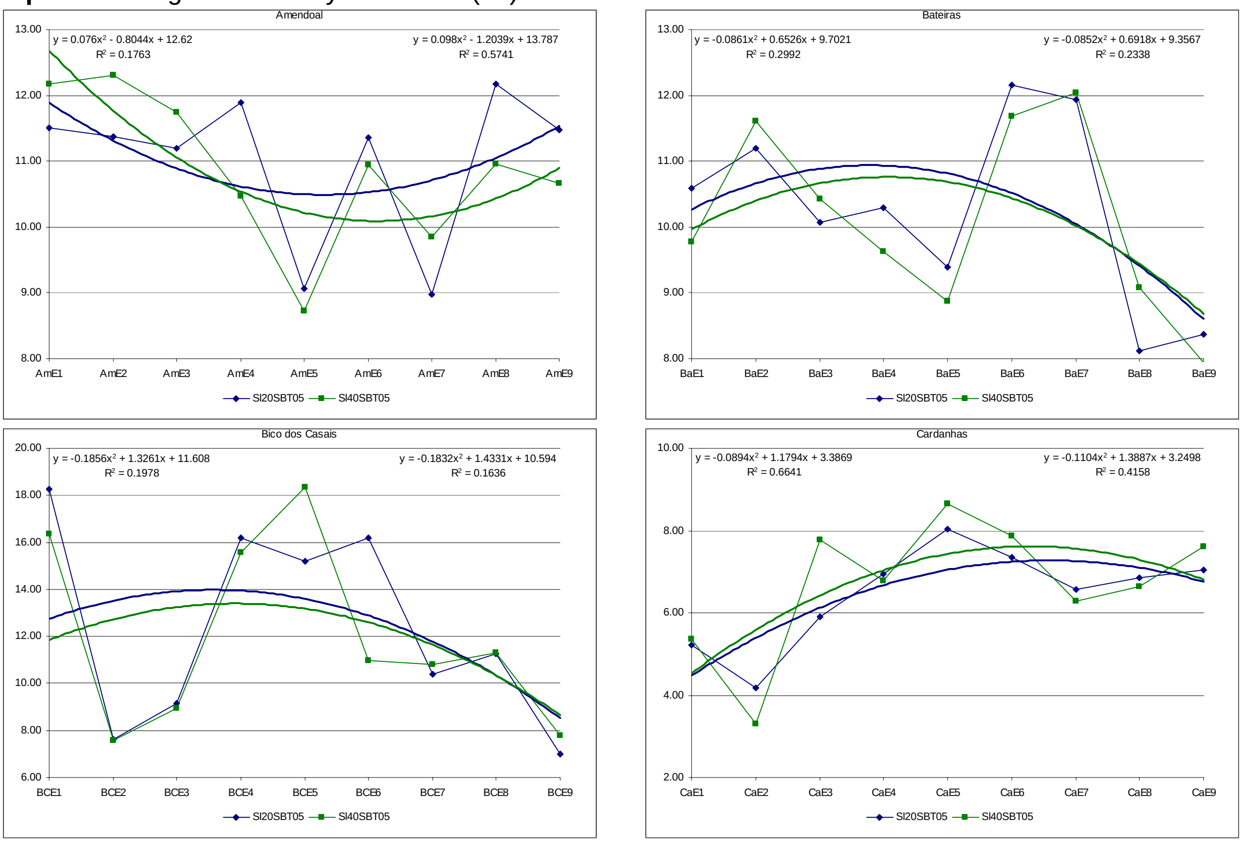
SI40B- NS, NS, NS, NS

Graphic 11- Regression analysis for SI20(40)AT data



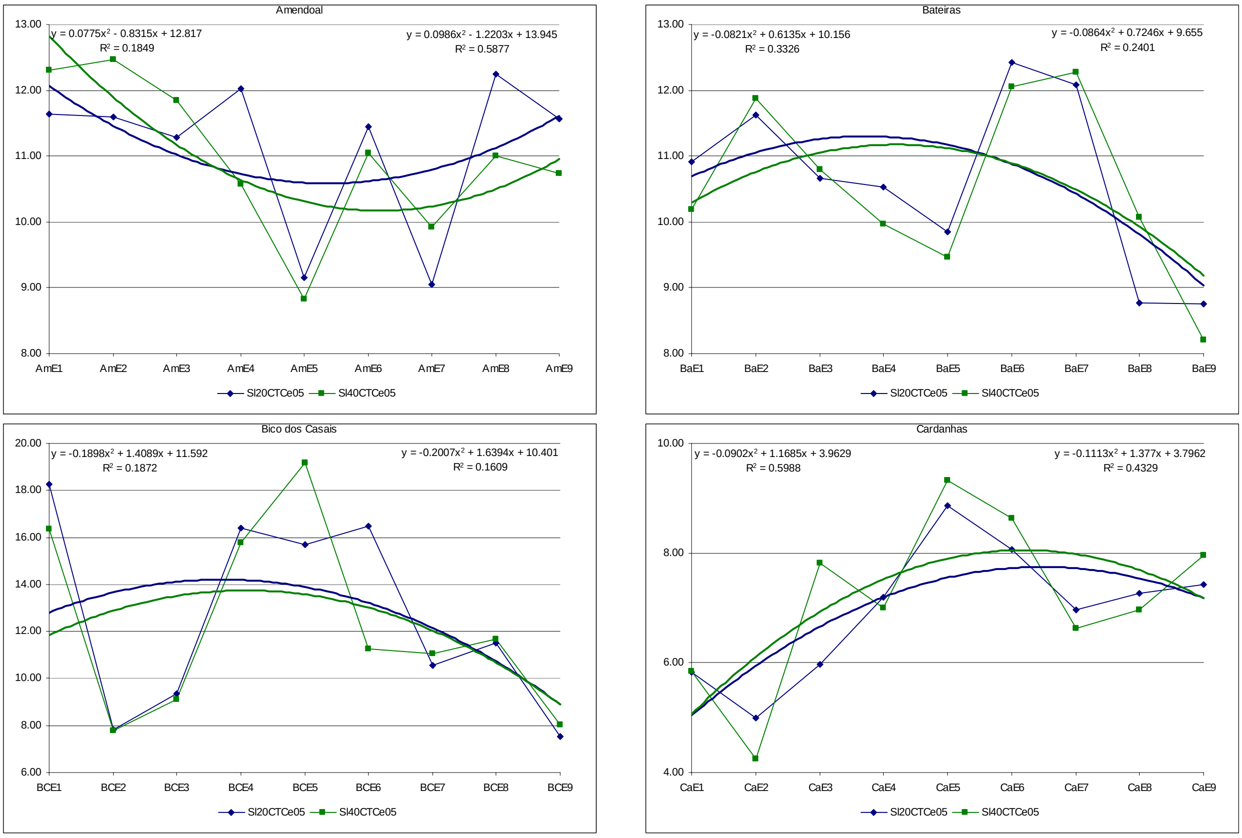
SI20AT- NS, NS, NS, NS **SI40AT- S, NS, NS, NS**

Graphic 12- Regression analysis for SI20(40)SBT data



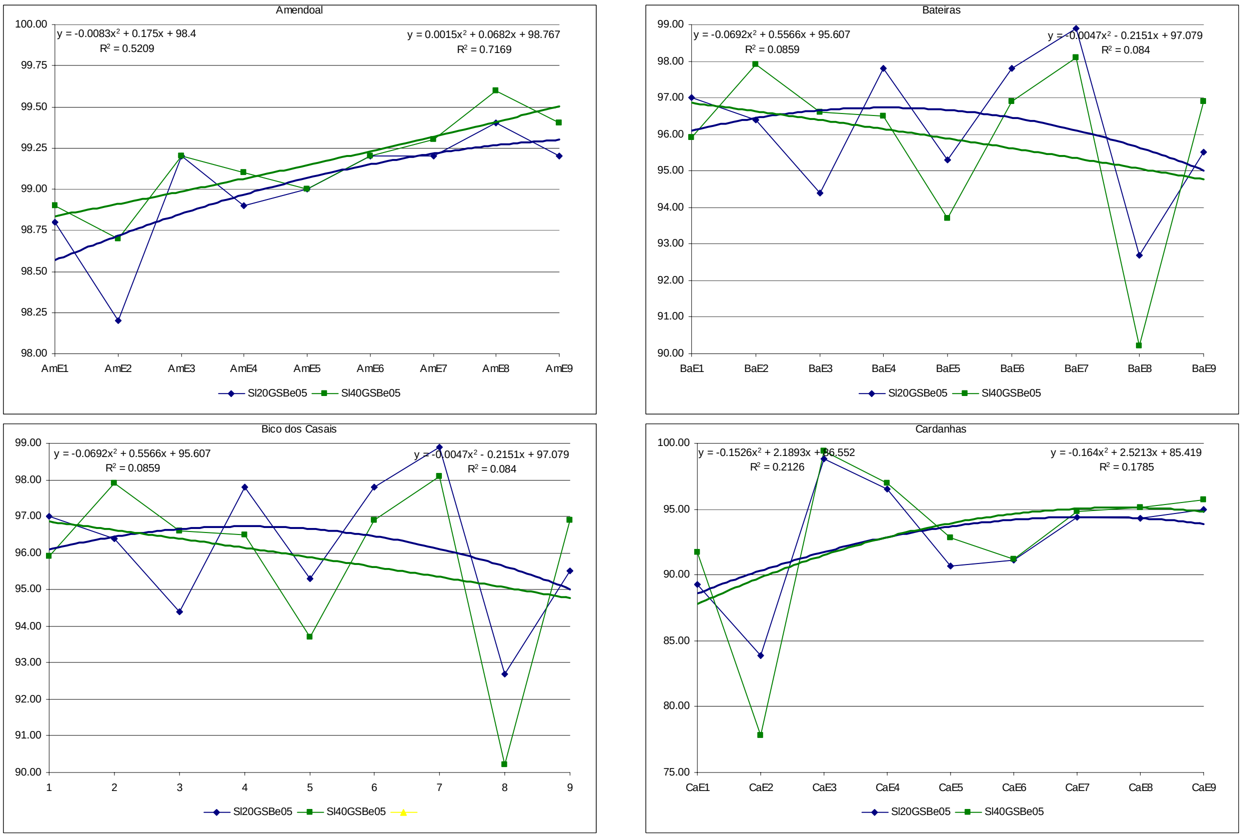
SI20SBT- NS, NS, NS, S **SI40SBT- NS, NS, NS, NS**

Graphic 13- Regression analysis for SI20(40)CTCe data



SI20CTCe- NS, NS, NS, NS **SI40CTCe- NS, NS, NS, NS**

Graphic 14- Regression analysis for SI20(40)GSBe data



SI20GSBe- NS, NS, NS, NS **SI40GSBe- S, NS, NS, NS**

Annex Berries (AnBagos)

Tables and figures

Table 1- Weight, in g, of 126 grapes, and plant yield, in kg, according plots and installations forms**.**

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BP260805	3	151.17	11.963	138.90	162.80
BP310805	3	148.10	2.5515	145.60	150.70
BP080905	3	154.93	10.340	146.90	166.60
BP140905	3	168.50	18.713	150.20	187.60
BP210905	3	182.07	37.028	153.50	223.90
ProPla05	3	2.2967	0.2887	2.1300	2.6300
ProPla06	3	2.7733	0.3355	2.5600	3.1600

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BP260805	3	197.23	8.5114	190.50	206.80
BP310805	3	185.13	12.345	172.00	196.50
BP080905	3	192.47	8.2197	183.70	200.00
BP140905	3	202.17	6.5363	198.00	209.70
BP210905	3	211.87	7.7591	203.90	219.40
ProPla05	3	3.6667	0.6019	3.0000	4.1700
ProPla06	3	4.5100	1.2117	3.1300	5.4000

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BP260805	3	148.77	16.398	139.10	167.70
BP310805	3	139.27	8.3770	129.60	144.40
BP080905	3	138.57	15.645	121.00	151.00
BP140905	3	146.03	3.2716	143.00	149.50
BP210905	3	153.50	12.498	140.20	165.00
ProPla05	3	3.4867	0.2483	3.2000	3.6300
ProPla06	3	4.2200	0.9102	3.2200	5.0000

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BP260805	3	145.97	9.1243	140.50	156.50
BP310805	3	139.07	11.524	128.00	151.00
BP080905	3	150.00	8.8357	139.80	155.30
BP140905	3	157.30	8.3504	149.00	165.70
BP210905	3	164.60	10.316	158.20	176.50
ProPla05	3	3.6567	0.3092	3.4000	4.0000
ProPla06	3	4.8900	1.2348	3.5600	6.0000

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BP260805	6	174.20	26.886	138.90	206.80
BP310805	6	166.62	21.795	145.60	196.50
BP080905	6	173.70	22.191	146.90	200.00
BP140905	6	185.33	22.298	150.20	209.70
BP210905	6	196.97	28.964	153.50	223.90
ProPla05	6	2.9817	0.8610	2.1300	4.1700
ProPla06	6	3.6417	1.2398	2.5600	5.4000

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BP260805	6	147.37	11.967	139.10	167.70
BP310805	6	139.17	9.0115	128.00	151.00
BP080905	6	144.28	12.975	121.00	155.30
BP140905	6	151.67	8.3818	143.00	165.70
BP210905	6	159.05	11.917	140.20	176.50
ProPla05	6	3.5717	0.2675	3.2000	4.0000
ProPla06	6	4.5550	1.0373	3.2200	6.0000

Table 2- ANOVA weight grapes, in g, among plots, between vineyard installations and inside plots for BP210905

```
ONE-WAY AOV FOR BP210905  BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     5829.90    1943.30    4.59  0.0377
WITHIN     8     3387.69    423.462
TOTAL     11     9217.59
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.22     3    0.1563
COCHRAN'S Q                    0.8094
LARGEST VAR / SMALLEST VAR     22.774
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    506.612
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            182.07      3       37.028
Ba            211.87      3       7.7591
BC            153.50      3       12.498
Ca            164.60      3       10.316
TOTAL         178.01     12       20.578
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR BP210905  BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     4313.02    4313.02    8.79  0.0142
WITHIN    10     4904.57    490.457
TOTAL     11     9217.59
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    3.19     1    0.0739
COCHRAN'S Q                    0.8552
LARGEST VAR / SMALLEST VAR     5.9077
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    637.094
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            196.97      6       28.964
VA            159.05      6       11.917
TOTAL         178.01     12       22.146
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE          N        MEAN
BP210905             1      223.90

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE          N        MEAN
BP210905             1      153.50

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE          N        MEAN
BP210905             1      168.80
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE          N        MEAN
BP210905             1      212.30

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE          N        MEAN
BP210905             1      219.40

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE          N        MEAN
BP210905             1      203.90
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE          N        MEAN
BP210905             1      165.00

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE          N        MEAN
BP210905             1      155.30

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE          N        MEAN
BP210905             1      140.20
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE          N        MEAN
BP210905             1      158.20

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE          N        MEAN
BP210905             1      159.10

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE          N        MEAN
BP210905             1      176.50
```

Table 3- ANOVA grape yield, in kg, among plots, between vineyard installations and inside plots for year 2005

```
ONE-WAY AOV FOR ProPla05  BY Parc
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    3.90300    1.30100    8.63  0.0069
WITHIN     8    1.20567    0.15071
TOTAL     11    5.10867
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.76     3    0.6232
COCHRAN'S Q                  0.6009
LARGEST VAR / SMALLEST VAR    5.8772
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.38343
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            2.2967      3       0.2887
Ba            3.6667      3       0.6019
BC            3.4867      3       0.2483
Ca            3.6567      3       0.3092
TOTAL         3.2767     12       0.3882
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR ProPla05  BY Inst
SOURCE    DF       SS         MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    1.04430    1.04430    2.57  0.1400
WITHIN    10    4.06437    0.40644
TOTAL     11    5.10867
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    5.16     1    0.0231
COCHRAN'S Q                  0.9119
LARGEST VAR / SMALLEST VAR    10.357
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.10631
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            2.9817      6       0.8610
VA            3.5717      6       0.2675
TOTAL         3.2767     12       0.6375
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE          N        MEAN

ProPla05          3      2.6300
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE          N        MEAN
ProPla05          3      2.1300

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE          N        MEAN
ProPla05          3      2.1300
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE          N        MEAN
ProPla05          3      3.0000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE          N        MEAN
ProPla05          3      4.1700

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE          N        MEAN
ProPla05          3      3.8300
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE          N        MEAN
ProPla05          3      3.6300

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE          N        MEAN
ProPla05          3      3.2000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE          N        MEAN
ProPla05          3      3.6300
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE          N        MEAN
ProPla05          3      3.5700

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE          N        MEAN
ProPla05          3      4.0000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE          N        MEAN
ProPla05          3      3.4000
```

Table 4- ANOVA grape yield, in kg, among plots, between vineyard installations and inside plots for year 2006

```
ONE-WAY AOV FOR ProPla06 BY Parc
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     7.69990    2.56663    2.61  0.1236
WITHIN     8     7.86787    0.98348
TOTAL     11    15.5678
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    2.48     3    0.4783
COCHRAN'S Q                    0.3876
LARGEST VAR / SMALLEST VAR     13.549
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.52772
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             2.7733      3       0.3355
Ba             4.5100      3       1.2117
BC             4.2200      3       0.9102
Ca             4.8900      3       1.2348
TOTAL          4.0983     12       0.9917
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR ProPla06 BY Inst
SOURCE    DF       SS         MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     2.50253    2.50253    1.92  0.1965
WITHIN    10     13.0652    1.30652
TOTAL     11     15.5678
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.14     1    0.7045
COCHRAN'S Q                    0.5883
LARGEST VAR / SMALLEST VAR     1.4287
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.19934
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             3.6417      6       1.2398
VA             4.5550      6       1.0373
TOTAL          4.0983     12       1.1430
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE          N        MEAN
ProPla06          1      3.1600

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE          N        MEAN
ProPla06          1      2.5600

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE          N        MEAN
ProPla06          1      2.6000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE          N        MEAN
ProPla06          1      3.1300

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE          N        MEAN
ProPla06          1      5.0000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE          N        MEAN
ProPla06          1      5.4000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE          N        MEAN
ProPla06          1      3.2200

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE          N        MEAN
ProPla06          1      5.0000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE          N        MEAN
ProPla06          1      4.4400
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE          N        MEAN
ProPla06          1      6.0000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE          N        MEAN
ProPla06          1      5.1100

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE          N        MEAN
ProPla06          1      3.5600
```

Table 5- Grapes - Probable alcohol according plots and installation forms**.**

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAP26AG	3	12.367	0.3215	12.000	12.600
BAP31AG	3	12.633	0.1528	12.500	12.800
BAP08ST	3	12.100	0.2000	11.900	12.300
BAP14ST	3	12.000	0.3000	11.700	12.300
BAP21ST	3	12.867	0.4509	12.400	13.300

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAP26AG	3	12.533	0.1155	12.400	12.600
BAP31AG	3	12.533	0.2309	12.400	12.800
BAP08ST	3	12.533	0.2517	12.300	12.800
BAP14ST	3	12.800	0.1732	12.600	12.900
BAP21ST	3	13.367	0.7371	12.800	14.200

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAP26AG	3	12.467	0.1528	12.300	12.600
BAP31AG	3	12.600	0.2646	12.300	12.800
BAP08ST	3	12.233	0.2082	12.000	12.400
BAP14ST	3	12.067	0.2887	11.900	12.400
BAP21ST	3	12.033	0.2887	11.700	12.200

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAP26AG	3	11.467	0.0577	11.400	11.500
BAP31AG	3	11.533	0.3512	11.200	11.900
BAP08ST	3	11.400	0.1732	11.200	11.500
BAP14ST	3	11.633	0.0577	11.600	11.700
BAP21ST	3	11.333	0.1155	11.200	11.400

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAP26AG	6	12.450	0.2345	12.000	12.600
BAP31AG	6	12.583	0.1835	12.400	12.800
BAP08ST	6	12.317	0.3125	11.900	12.800
BAP14ST	6	12.400	0.4899	11.700	12.900
BAP21ST	6	13.117	0.6113	12.400	14.200

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAP26AG	6	11.967	0.5574	11.400	12.600
BAP31AG	6	12.067	0.6470	11.200	12.800
BAP08ST	6	11.817	0.4875	11.200	12.400
BAP14ST	6	11.850	0.3017	11.600	12.400
BAP21ST	6	11.683	0.4309	11.200	12.200

Table 6- Grapes - Total acidity according plots and installation forms**.**

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAT26AG	3	4.6100	0.1229	4.5200	4.7500
BAT31AG	3	4.2300	0.2007	4.0200	4.4200
BAT08ST	3	3.4833	0.2155	3.2400	3.6500
BAT14ST	3	3.3867	0.1550	3.2100	3.5000
BAT21ST	3	3.9167	0.1815	3.7100	4.0500

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAT26AG	3	4.8200	0.1058	4.7000	4.9000
BAT31AG	3	4.5367	0.0945	4.4300	4.6100
BAT08ST	3	3.8300	0.0889	3.7300	3.9000
BAT14ST	3	3.7200	0.1652	3.5600	3.8900
BAT21ST	3	4.3133	0.1904	4.1300	4.5100

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAT26AG	3	4.6533	0.1553	4.4800	4.7800
BAT31AG	3	4.2900	0.4200	3.8700	4.7100
BAT08ST	3	3.8000	0.1825	3.6800	4.0100
BAT14ST	3	3.3667	0.1222	3.2600	3.5000
BAT21ST	3	3.1900	0.0436	3.1600	3.2400

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAT26AG	3	4.9500	0.1300	4.8700	5.1000
BAT31AG	3	4.4933	0.1656	4.3200	4.6500
BAT08ST	3	3.6867	0.1159	3.6100	3.8200
BAT14ST	3	3.5267	0.1266	3.3900	3.6400
BAT21ST	3	3.5167	0.1686	3.4000	3.7100

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAT26AG	6	4.7150	0.1541	4.5200	4.9000
BAT31AG	6	4.3833	0.2189	4.0200	4.6100
BAT08ST	6	3.6567	0.2404	3.2400	3.9000
BAT14ST	6	3.5533	0.2321	3.2100	3.8900
BAT21ST	6	4.1150	0.2736	3.7100	4.5100

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BAT26AG	6	4.8017	0.2069	4.4800	5.1000
BAT31AG	6	4.3917	0.3065	3.8700	4.7100
BAT08ST	6	3.7433	0.1502	3.6100	4.0100
BAT14ST	6	3.4467	0.1417	3.2600	3.6400
BAT21ST	6	3.3533	0.2101	3.1600	3.7100

Table 7- Grapes - pH according plots and installation forms**.**

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BpH26AG	3	3.6367	0.0231	3.6100	3.6500
BpH31AG	3	3.7267	0.0462	3.7000	3.7800
BpH08ST	3	3.8633	0.0586	3.8200	3.9300
BpH14ST	3	3.8533	0.0513	3.8100	3.9100
BpH21ST	3	3.9200	0.0361	3.8800	3.9500

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BpH26AG	3	3.6400	0.0400	3.6000	3.6800
BpH31AG	3	3.7200	0.0346	3.7000	3.7600
BpH08ST	3	3.8500	0.0265	3.8200	3.8700
BpH14ST	3	3.8500	0.0265	3.8200	3.8700
BpH21ST	3	3.8467	0.0802	3.7700	3.9300

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BpH26AG	3	3.6600	0.0100	3.6500	3.6700
BpH31AG	3	3.7800	0.0436	3.7500	3.8300
BpH08ST	3	3.9167	0.1159	3.8100	4.0400
BpH14ST	3	3.9000	0.0265	3.8700	3.9200
BpH21ST	3	3.9767	0.0153	3.9600	3.9900

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BpH26AG	3	3.6233	0.0569	3.5600	3.6700
BpH31AG	3	3.7100	0.0557	3.6500	3.7600
BpH08ST	3	3.8600	0.0693	3.7800	3.9000
BpH14ST	3	3.8533	0.0603	3.7900	3.9100
BpH21ST	3	3.9367	0.0666	3.8600	3.9800

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BpH26AG	6	3.6383	0.0293	3.6000	3.6800
BpH31AG	6	3.7233	0.0367	3.7000	3.7800
BpH08ST	6	3.8567	0.0413	3.8200	3.9300
BpH14ST	6	3.8517	0.0366	3.8100	3.9100
BpH21ST	6	3.8833	0.0686	3.7700	3.9500

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BpH26AG	6	3.6417	0.0417	3.5600	3.6700
BpH31AG	6	3.7450	0.0589	3.6500	3.8300
BpH08ST	6	3.8883	0.0909	3.7800	4.0400
BpH14ST	6	3.8767	0.0489	3.7900	3.9200
BpH21ST	6	3.9567	0.0484	3.8600	3.9900

Table 8- Frozen grapes data according plots and installations forms**.**

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BcAcucar	3	233.93	7.9027	225.40	241.00
BcpH	3	4.2467	0.0737	4.1900	4.3300
BcAcTt	3	2.7533	0.0321	2.7300	2.7900
BcFenTt	3	28.300	2.1284	26.000	30.200
BcAntTt	3	311.33	18.339	297.00	332.00

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BcAcucar	3	234.57	19.136	222.10	256.60
BcpH	3	4.2167	0.0666	4.1600	4.2900
BcAcTt	3	3.0167	0.1079	2.9400	3.1400
BcFenTt	3	29.000	2.4269	27.500	31.800
BcAntTt	3	374.33	59.138	313.00	431.00

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BcAcucar	3	232.50	4.6357	228.80	237.70
BcpH	3	4.2667	0.0208	4.2500	4.2900
BcAcTt	3	2.9167	0.0987	2.8500	3.0300
BcFenTt	3	37.633	1.0116	37.000	38.800
BcAntTt	3	390.33	95.112	281.00	454.00

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BcAcucar	3	212.43	4.4993	207.60	216.50
BcpH	3	4.3167	0.1137	4.1900	4.4100
BcAcTt	3	2.9600	0.2427	2.6800	3.1100
BcFenTt	3	27.500	3.7000	23.800	31.200
BcAntTt	3	463.67	222.47	250.00	694.00

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BcAcucar	6	234.25	13.099	222.10	256.60
BcpH	6	4.2317	0.0649	4.1600	4.3300
BcAcTt	6	2.8850	0.1608	2.7300	3.1400
BcFenTt	6	28.650	2.0773	26.000	31.800
BcAntTt	6	342.83	52.194	297.00	431.00

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
BcAcucar	6	222.47	11.726	207.60	237.70
BcpH	6	4.2917	0.0781	4.1900	4.4100
BcAcTt	6	2.9383	0.1674	2.6800	3.1100
BcFenTt	6	32.567	6.0573	23.800	38.800
BcAntTt	6	427.00	158.20	250.00	694.00

Table 9- ANOVA sugar from frozen grape among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR BcAcucar BY Parc
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     1021.15    340.383    2.89  0.1020
WITHIN     8     940.780    117.598
TOTAL     11     1961.93
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    74.2619
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             233.93      3       7.9027
Ba             234.57      3       19.136
BC             232.50      3       4.6357
Ca             212.43      3       4.4993
TOTAL          228.36     12       10.844
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR BcAcucar BY INT
SOURCE    DF       SS          MS        F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     416.541    416.541    2.70  0.1317
WITHIN    10     1545.39    154.539
TOTAL     11     1961.93
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    43.6670
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE     GROUP
   INT          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             234.25      6       13.099
VA             222.47      6       11.726
TOTAL          228.36     12       12.431
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE          N        MEAN
BcAcucar          1      225.40

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE          N        MEAN
BcAcucar          1      235.40

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE          N        MEAN
BcAcucar          1      241.00
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE          N        MEAN
BcAcucar          1      225.00

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE          N        MEAN
BcAcucar          1      256.60

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE          N        MEAN
BcAcucar          1      222.10
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE          N        MEAN
BcAcucar          1      231.00

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE          N        MEAN
BcAcucar          1      228.80

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE          N        MEAN
BcAcucar          1      237.70
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE          N        MEAN
BcAcucar          1      207.60

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE          N        MEAN
BcAcucar          1      216.50

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE          N        MEAN
BcAcucar          1      213.20
```

Table 10- ANOVA pH from frozen grape among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR BcpH BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.01333     0.00444     1.07   0.4158
WITHIN      8     0.03333     0.00417
TOTAL      11     0.04667
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  9.259E-05
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             4.2333      3       0.0577
Ba             4.2333      3       0.0577
BC             4.3000      3       0.0000
Ca             4.3000      3       0.1000
TOTAL          4.2667     12       0.0645
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR BcpH BY INT
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.01333     0.01333     4.00   0.0734
WITHIN     10     0.03333     0.00333
TOTAL      11     0.04667
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.00167
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE     GROUP
   INT          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             4.2333      6       0.0516
VA             4.3000      6       0.0632
TOTAL          4.2667     12       0.0577
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE            N        MEAN
BcpH                1      4.3300

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE            N        MEAN
BcpH                1      4.2200

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE            N        MEAN
BcpH                1      4.1900
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE            N        MEAN
BcpH                1      4.2000

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE            N        MEAN
BcpH                1      4.2900

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE            N        MEAN
BcpH                1      4.1600
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE            N        MEAN
BcpH                1      4.2500

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE            N        MEAN
BcpH                1      4.2900

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE            N        MEAN
BcpH                1      4.2600
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE            N        MEAN
BcpH                1      4.4100

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE            N        MEAN
BcpH                1      4.3500

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE            N        MEAN
BcpH                1      4.1900
```

Table 11- ANOVA total acidity from frozen grape among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR BcAcTt BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.12917     0.04306     2.46   0.1373
WITHIN      8     0.14000     0.01750
TOTAL      11     0.26917
                          CHI-SQ     DF        P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES         4.57       3     0.2060
COCHRAN'S Q                        0.7619
LARGEST VAR / SMALLEST VAR         16.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.00852
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE      GROUP
   Parc         MEAN      SIZE     STD DEV
---------   ----------   ------   ----------
Am             2.7333       3       0.0577
Ba             3.0000       3       0.1000
BC             2.9333       3       0.0577
Ca             2.9667       3       0.2309
TOTAL          2.9083      12       0.1323
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR BcAcTt BY INT
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.02083     0.02083     0.84   0.3813
WITHIN     10     0.24833     0.02483
TOTAL      11     0.26917
                          CHI-SQ     DF        P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES         0.02       1     0.8748
COCHRAN'S Q                        0.5369
LARGEST VAR / SMALLEST VAR         1.1594
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -6.667E-04
EFlFeCTIVE CELL SIZE                              6.0
                        SAMPLE      GROUP
   INT          MEAN      SIZE     STD DEV
---------   ----------   ------   ----------
Pt             2.8667       6       0.1633
VA             2.9500       6       0.1517
TOTAL          2.9083      12       0.1576
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE            N         MEAN
BcAcTt              1       2.7900

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE            N         MEAN
BcAcTt              1       2.7400

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE            N         MEAN
BcAcTt              1       2.7300
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE            N         MEAN
BcAcTt              1       2.9700

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE            N         MEAN
BcAcTt              1       3.1400

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE            N         MEAN
BcAcTt              1       2.9400
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE            N         MEAN
BcAcTt              1       3.0300

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE            N         MEAN
BcAcTt              1       2.8700

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE            N         MEAN
BcAcTt              1       2.8500
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE            N         MEAN
BcAcTt              1       2.6800

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE            N         MEAN
BcAcTt              1       3.1100

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE            N         MEAN
BcAcTt              1       3.0900
```

Table 12- ANOVA total phenol from frozen grape among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR BcFenTt BY Parc
SOURCE     DF        SS           MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3     200.782     66.9275    10.65  0.0036
WITHIN      8     50.2667     6.28333
TOTAL      11     251.049
                              CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     2.36      3     0.5005
COCHRAN'S Q                      0.5447
LARGEST VAR / SMALLEST VAR      13.378
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     20.2147
EFlFeCTIVE CELL SIZE                                   3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE      STD DEV
---------   ----------  ------  ----------
Am              28.300       3       2.1284
Ba              29.000       3       2.4269
BC              37.633       3       1.0116
Ca              27.500       3       3.7000
TOTAL           30.608      12       2.5067
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR BcFenTt BY INT
SOURCE     DF        SS           MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1     46.0208     46.0208     2.24  0.1650
WITHIN     10     205.028     20.5028
TOTAL      11     251.049
                              CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     4.44      1     0.0351
COCHRAN'S Q                      0.8948
LARGEST VAR / SMALLEST VAR      8.5031
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     4.25300
EFlFeCTIVE CELL SIZE                                   6.0
                        SAMPLE      GROUP
   INT           MEAN     SIZE      STD DEV
---------   ----------  ------  ----------
Pt              28.650       6       2.0773
VA              32.567       6       6.0573
TOTAL           30.608      12       4.5280
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE            N         MEAN
BcFenTt             1       30.200

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE            N         MEAN
BcFenTt             1       26.000

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE            N         MEAN
BcFenTt             1       28.700
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE            N         MEAN
BcFenTt             1       31.800

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE            N         MEAN
BcFenTt             1       27.700

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE            N         MEAN
BcFenTt             1       27.500
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE            N         MEAN
BcFenTt             1       37.100

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE            N         MEAN
BcFenTt             1       37.000

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE            N         MEAN
BcFenTt             1       38.800
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE            N         MEAN
BcFenTt             1       27.500

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE            N         MEAN
BcFenTt             1       23.800

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE            N         MEAN
BcFenTt             1       31.200
```

Table 13- ANOVA total anthocyanins from frozen grape among plots, between vineyard installations and inside plots

```
ONE-WAY AOV FOR BcAntTt BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     35272.3     11757.4     0.75   0.5503
WITHIN      8      124745     15593.1
TOTAL      11      160017
                      CHI-SQ     DF         P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     7.81      3     0.0500
COCHRAN'S Q                    0.7935
LARGEST VAR / SMALLEST VAR     147.15
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1278.56
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   Parc          MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
Am             311.33      3      18.339
Ba             374.33      3      59.138
BC             390.33      3      95.112
Ca             463.67      3      222.47
TOTAL          384.92     12      124.87
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR BcAntTt BY INT
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     21252.1     21252.1     1.53   0.2442
WITHIN     10      138765     13876.5
TOTAL      11      160017
                      CHI-SQ     DF         P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     4.72      1     0.0298
COCHRAN'S Q                    0.9018
LARGEST VAR / SMALLEST VAR     9.1877
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1229.27
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE     GROUP
   INT           MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
Pt             342.83      6      52.194
VA             427.00      6      158.20
TOTAL          384.92     12      117.80
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N        MEAN
BcAntTt            1      332.00

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N        MEAN
BcAntTt            1      305.00

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N        MEAN
BcAntTt            1      297.00
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N        MEAN
BcAntTt            1      379.00

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N        MEAN
BcAntTt            1      431.00

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N        MEAN
BcAntTt            1      313.00
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N        MEAN
BcAntTt            1      454.00

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N        MEAN
BcAntTt            1      281.00

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N        MEAN
BcAntTt            1      436.00
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N        MEAN
BcAntTt            1      250.00

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N        MEAN
BcAntTt            1      447.00

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE           N        MEAN
BcAntTt            1      694.00
```

Figure 1- Spatial and cartographic representation of grape weight (BP210905)

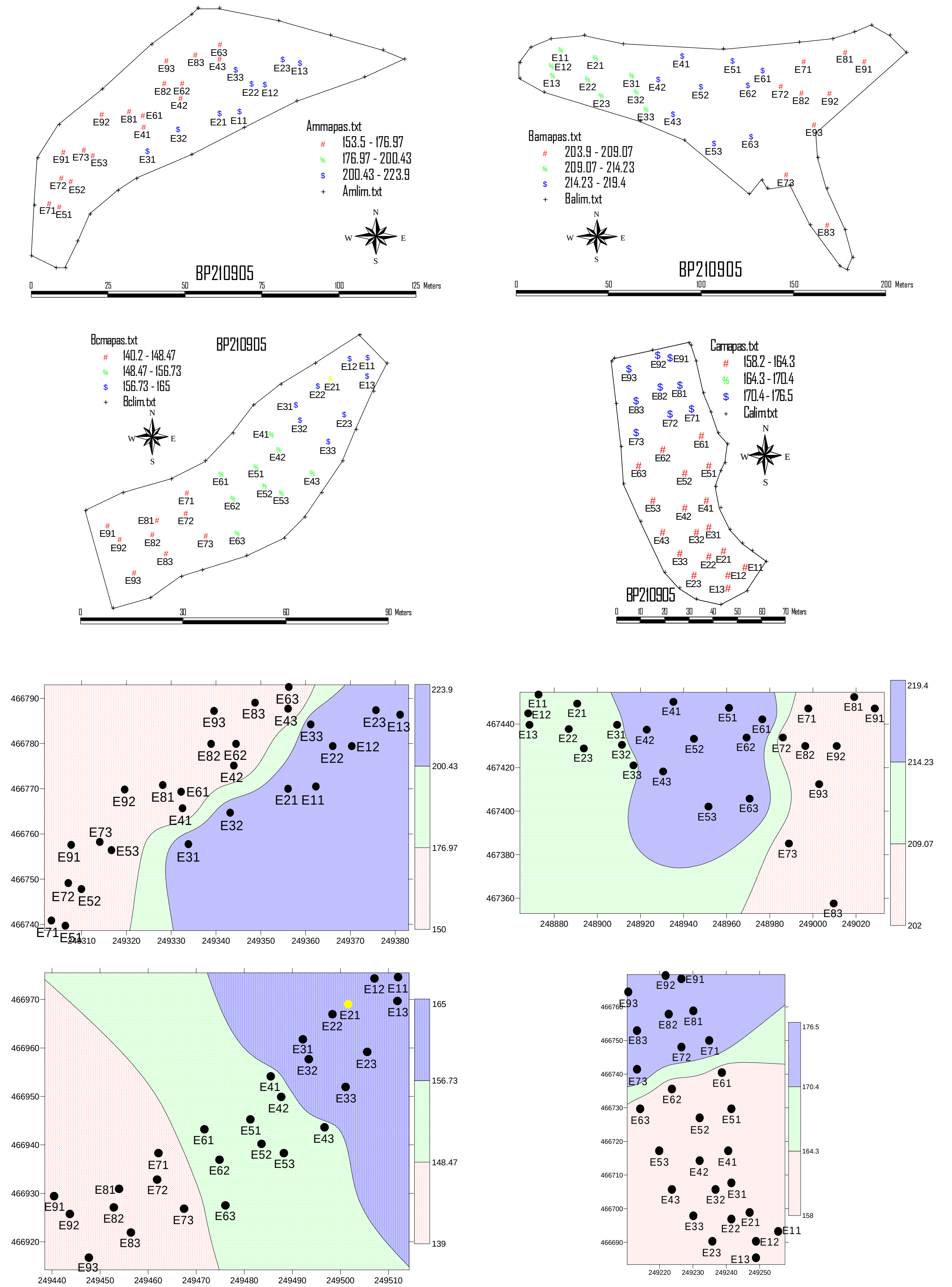


Figure 2- Spatial and cartographic representation of grape yield, in kg (2005)

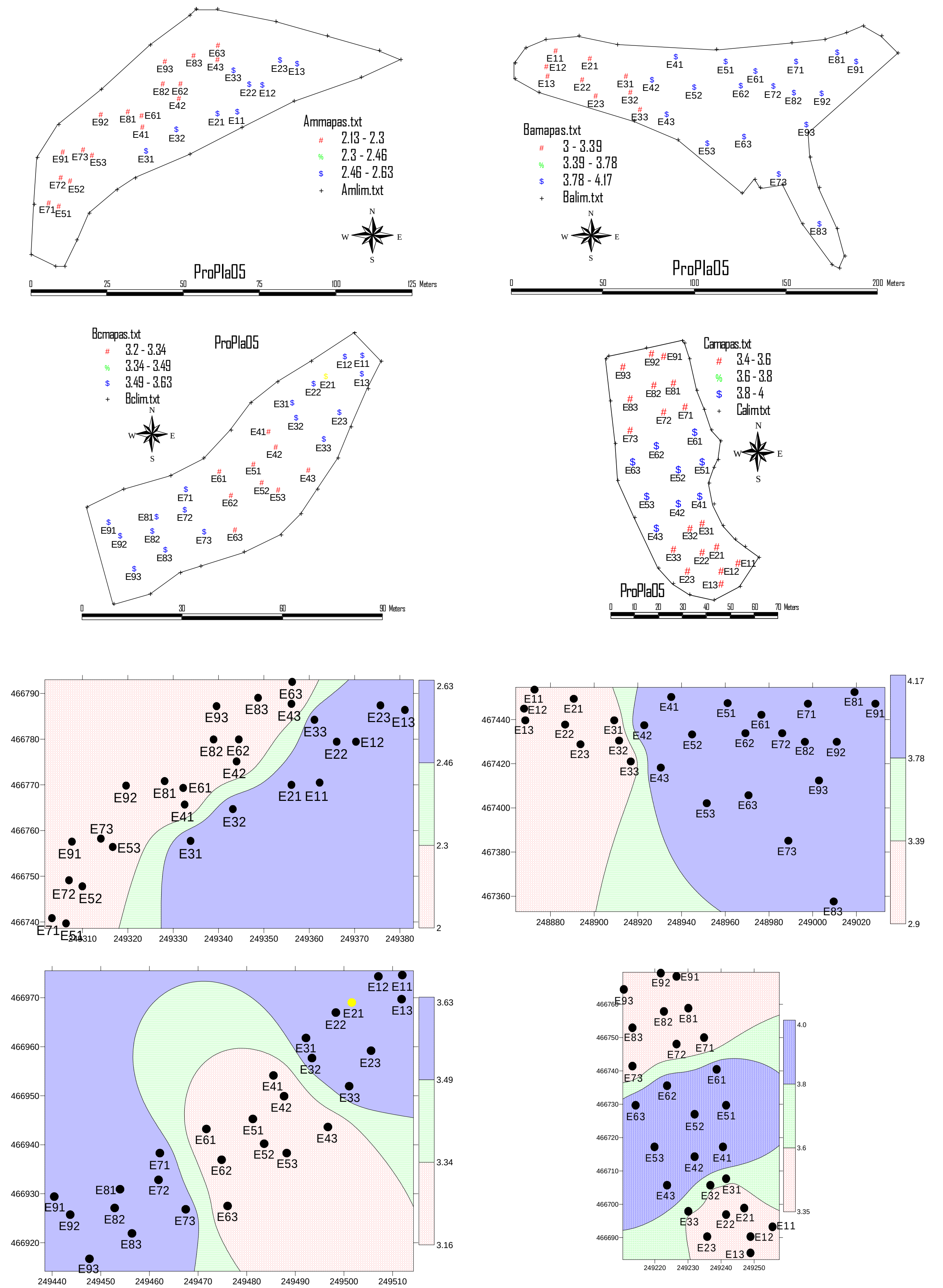


Figura 3- Spatial and cartographic representation of grape yield, in kg (2006)

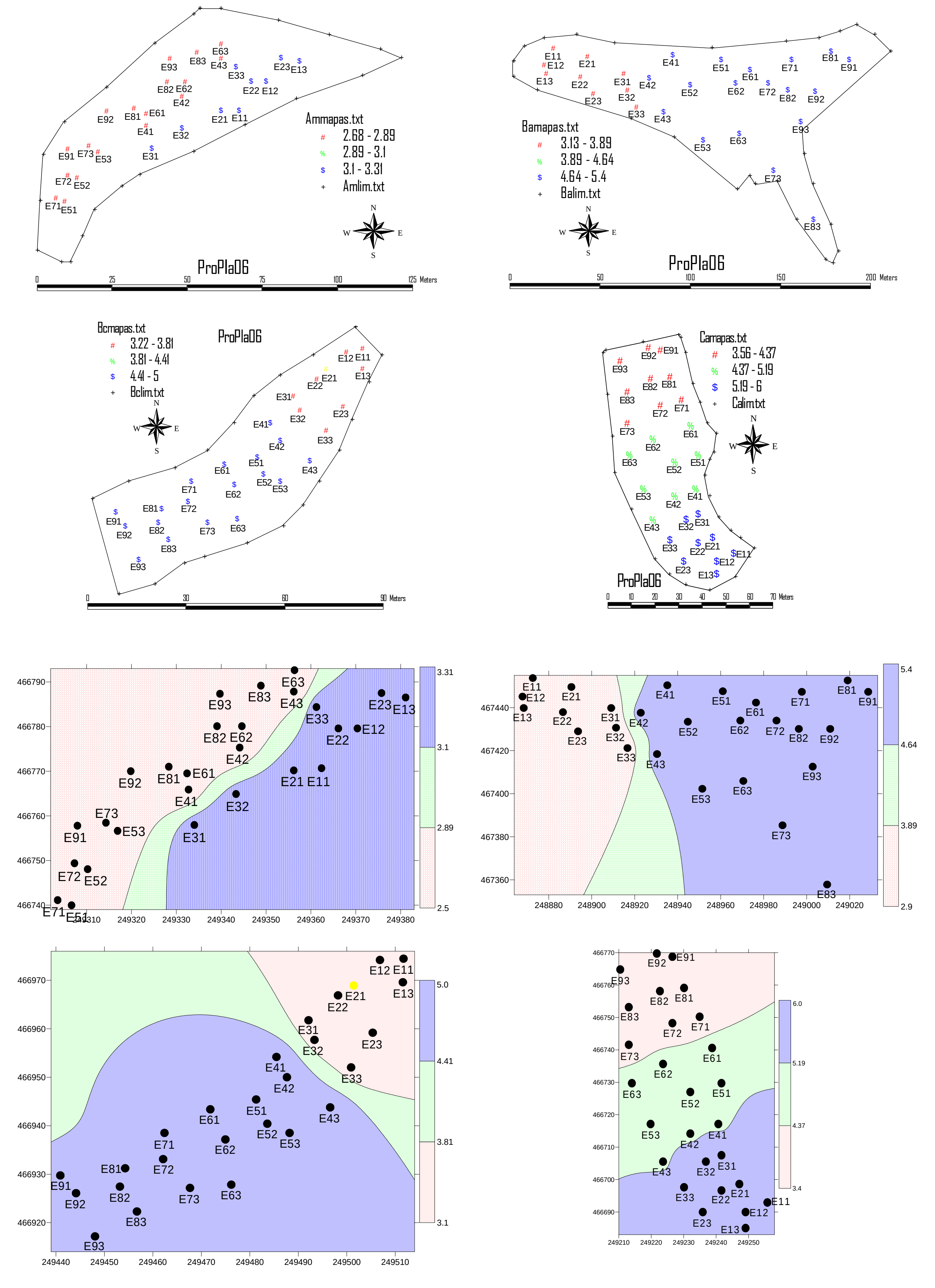


Figure 4- Spatial and cartographic representation of sugar from frozen grapes

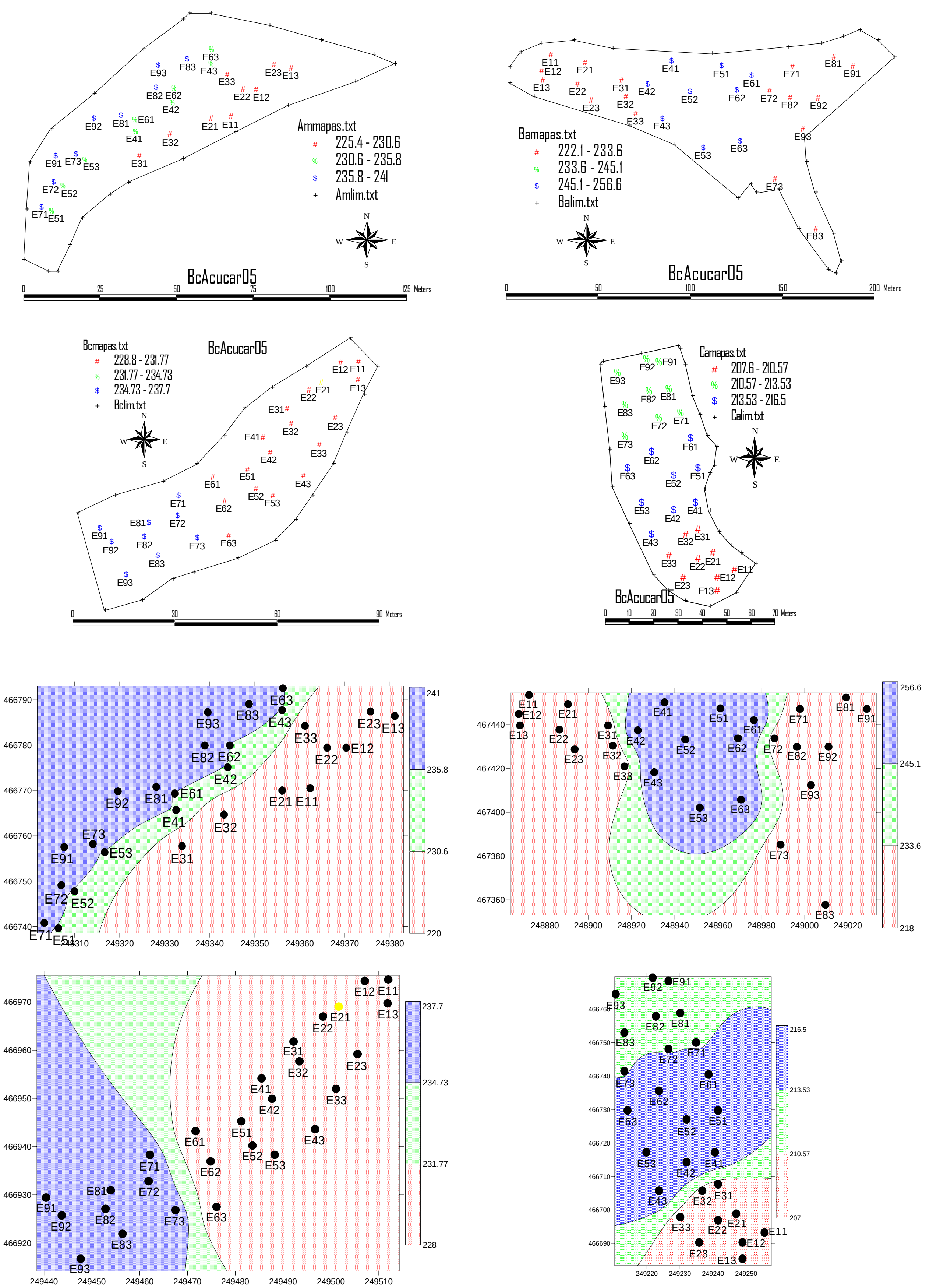


Figure 5- Spatial and cartographic representation of pH from frozen grapes

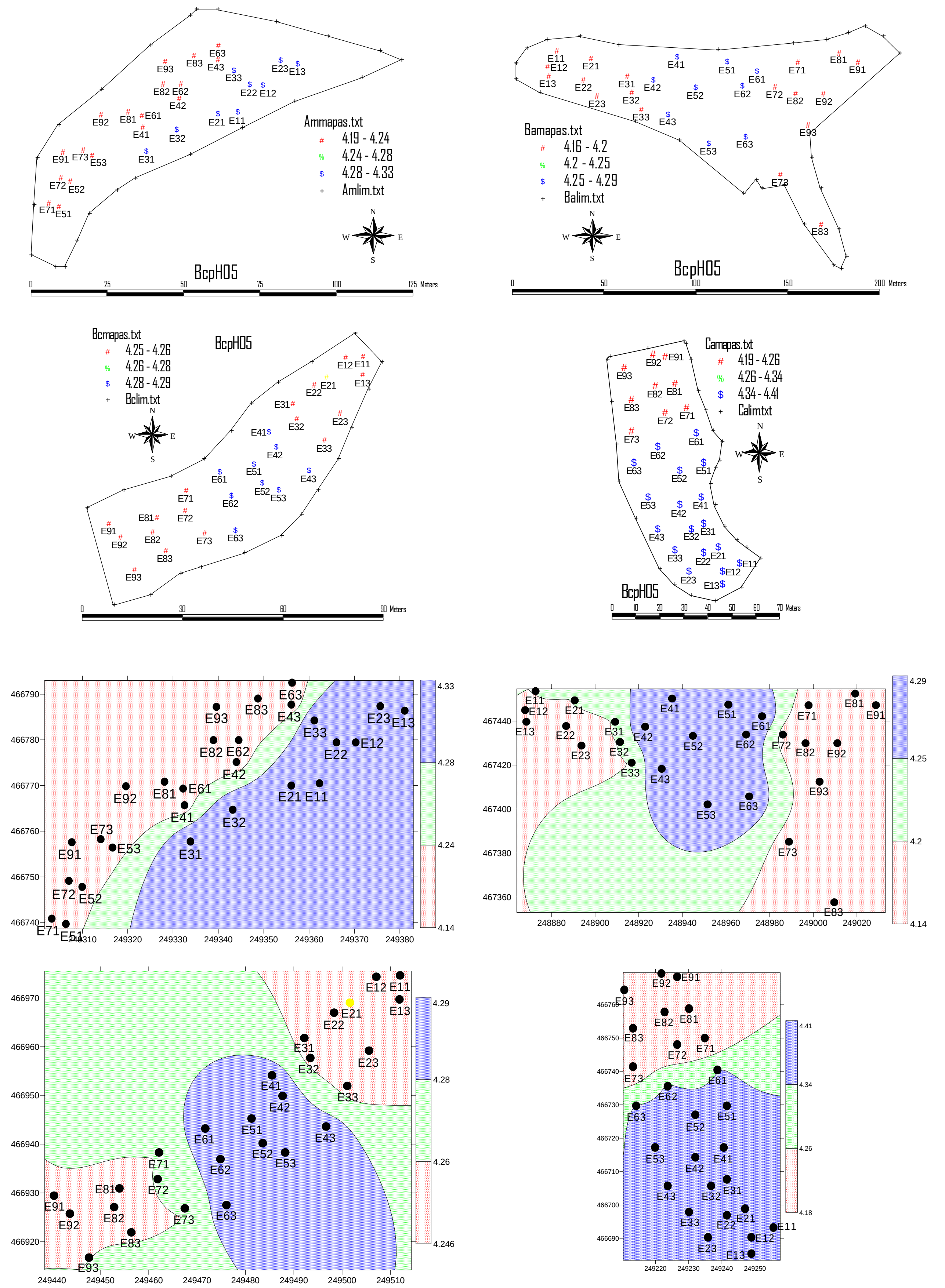


Figure 6- Spatial and cartographic representation of total acidity from frozen grapes

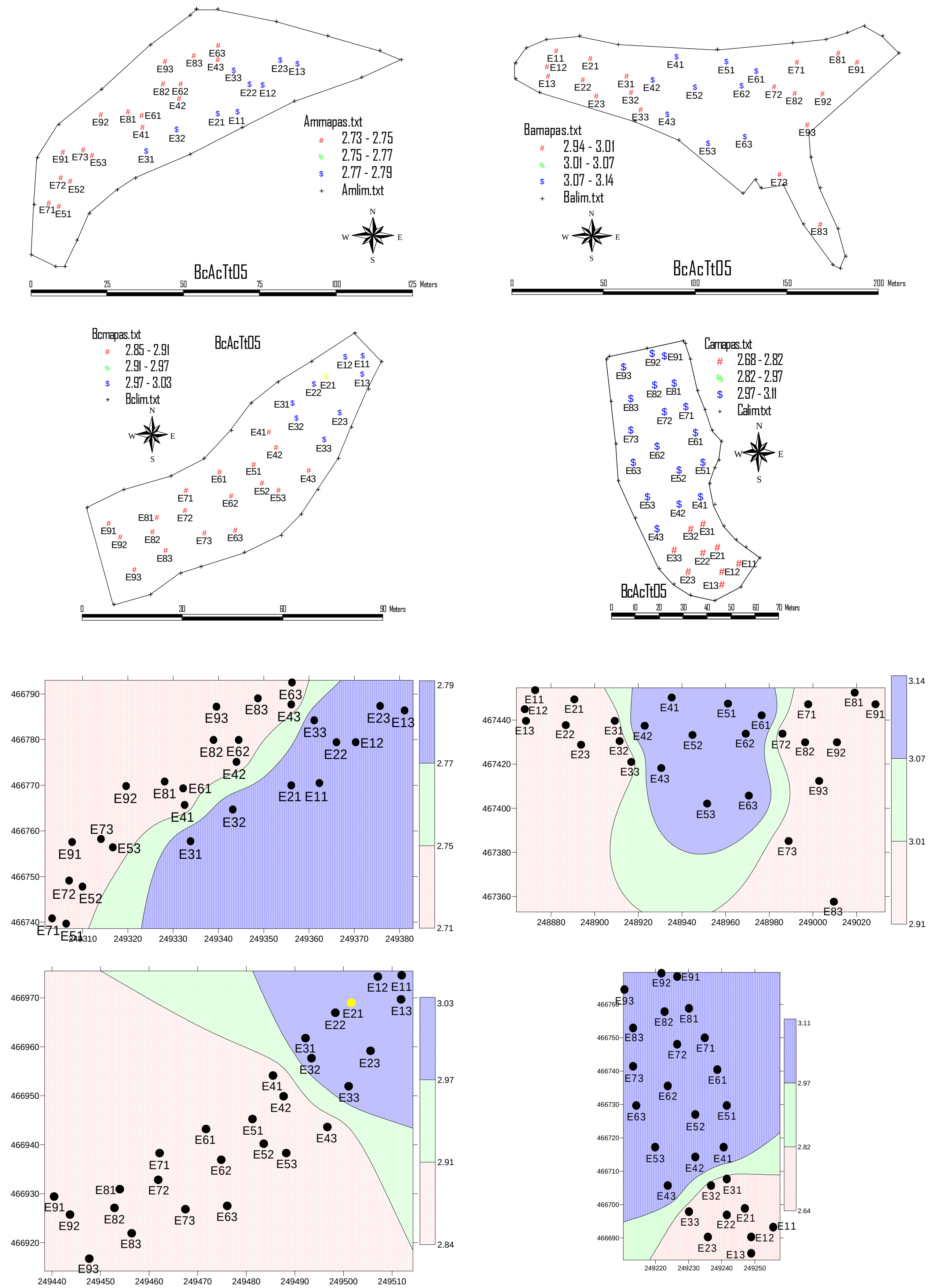


Figure 7- Spatial and cartographic representation of total phenol from frozen grapes

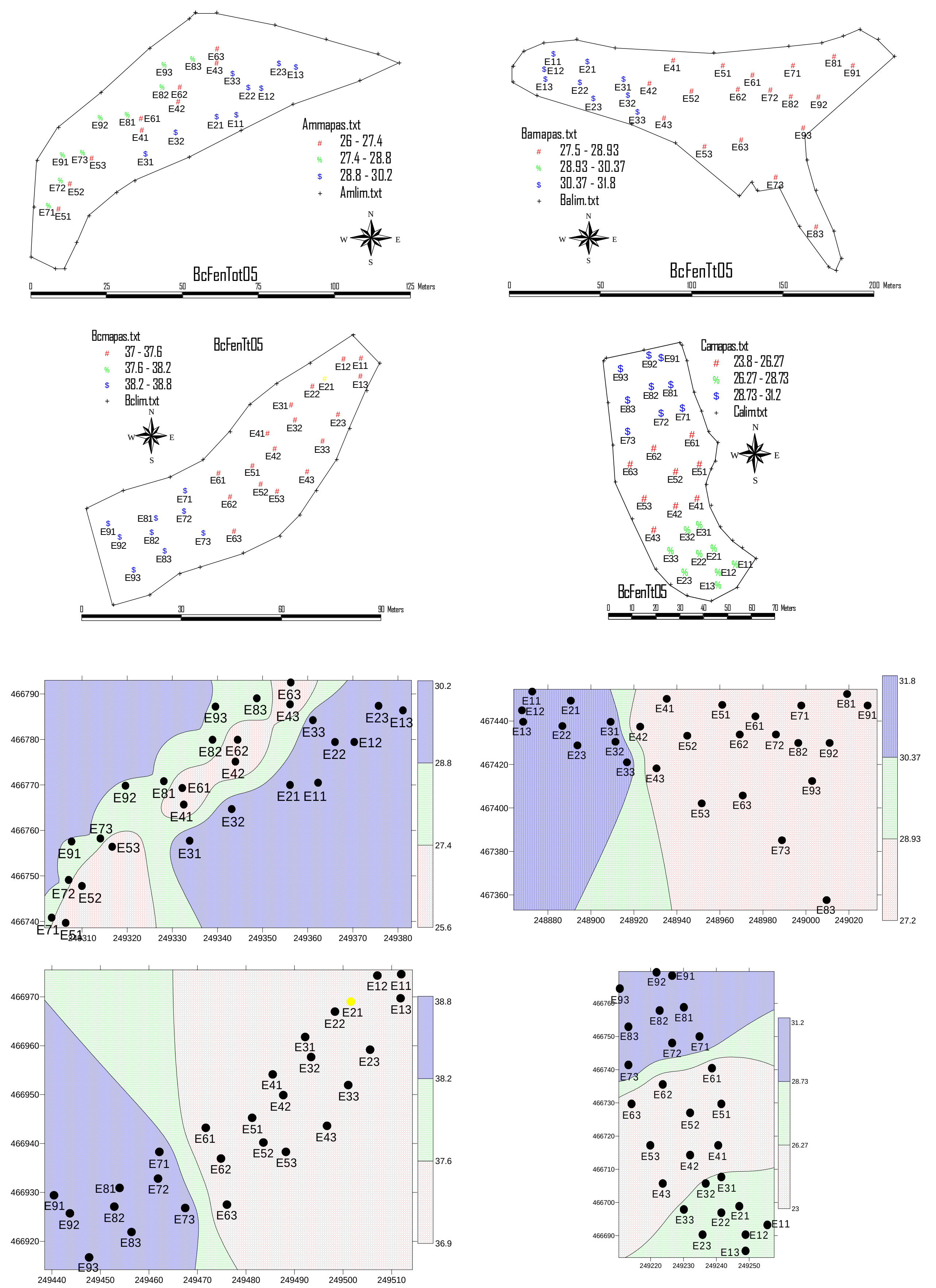
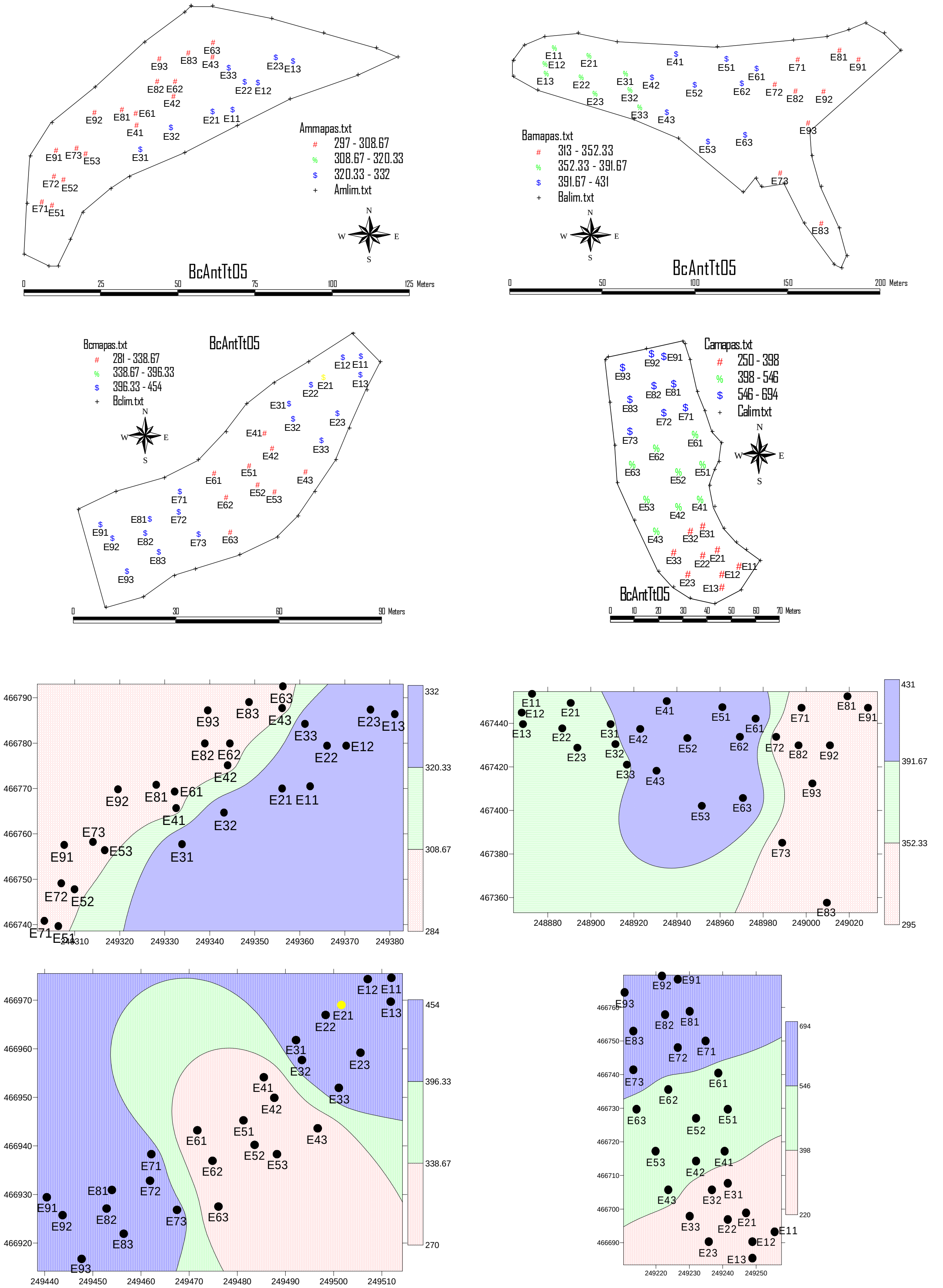


Figure 8- Spatial and cartographic representation of anthocyanins from frozen grapes



Annex - Musts (AnMostos)

Tables and figures

Table 1- Must data according plots and installations forms.

Year 2005

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP21ST	3	12.867	0.4509	12.400	13.300
MpH21ST	3	3.9200	0.0361	3.8800	3.9500
MAT21ST	3	3.9167	0.1815	3.7100	4.0500

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP21ST	3	13.367	0.7371	12.800	14.200
MpH21ST	3	3.8467	0.0802	3.7700	3.9300
MAT21ST	3	4.3133	0.1904	4.1300	4.5100

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP21ST	3	12.033	0.2887	11.700	12.200
MpH21ST	3	3.9767	0.0153	3.9600	3.9900
MAT21ST	3	3.1900	0.0436	3.1600	3.2400

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP21ST	3	11.333	0.1155	11.200	11.400
MpH21ST	3	3.9367	0.0666	3.8600	3.9800
MAT21ST	3	3.5167	0.1686	3.4000	3.7100

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP21ST	6	13.117	0.6113	12.400	14.200
MpH21ST	6	3.8833	0.0686	3.7700	3.9500
MAT21ST	6	4.1150	0.2736	3.7100	4.5100

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP21ST	6	11.683	0.4309	11.200	12.200
MpH21ST	6	3.9567	0.0484	3.8600	3.9900
MAT21ST	6	3.3533	0.2101	3.1600	3.7100

Year 2006:

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP06	3	13.383	0.4661	12.900	13.830
MAT06	3	4.2667	0.1986	4.0400	4.4100
MpH06	3	3.6833	0.0306	3.6500	3.7100

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP06	3	13.433	0.8145	12.500	14.000
MAT06	3	4.3033	0.2850	4.0200	4.5900
MpH06	3	3.6533	0.0833	3.5600	3.7200

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP06	3	12.567	0.4163	12.100	12.900
MAT06	3	3.6167	0.3262	3.2600	3.9000
MpH06	3	3.7233	0.0513	3.6800	3.7800

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP06	3	12.167	0.4041	11.700	12.400
MAT06	3	4.0100	0.4272	3.6100	4.4600
MpH06	3	3.6467	0.0586	3.5800	3.6900

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP06	6	13.183	0.6113	12.500	14.000
MAT06	6	4.1017	0.2878	3.8500	4.5900
MpH06	6	3.7117	0.1103	3.5600	3.9000

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
MAP06	6	12.367	0.4274	11.700	12.900
MAT06	6	3.8133	0.4025	3.2600	4.4600
MpH06	6	3.6850	0.0647	3.5800	3.7800

Table 2- ANOVA must probable alcohol among plots, between vineyard installations and inside plots for 2005 year

```
ONE-WAY AOV FOR BAP21ST BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     7.27333     2.42444    11.50   0.0028
WITHIN      8     1.68667     0.21083
TOTAL      11     8.96000
                            CHI-SQ     DF        P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES      4.60      3     0.2036
COCHRAN'S Q                     0.6443
LARGEST VAR / SMALLEST VAR      40.750
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.73787
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE      STD DEV
---------    ----------   ------   ----------
Am             12.867      3        0.4509
Ba             13.367      3        0.7371
BC             12.033      3        0.2887
Ca             11.333      3        0.1155
TOTAL          12.400     12        0.4592
CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY AOV FOR BAP21ST BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     6.16333     6.16333    22.04   0.0008
WITHIN     10     2.79667     0.27967
TOTAL      11     8.96000
                            CHI-SQ     DF        P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES      0.54      1     0.4604
COCHRAN'S Q                     0.6681
LARGEST VAR / SMALLEST VAR      2.0126
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.98061
EFlFeCTIVE CELL SIZE                              6.0
                        SAMPLE      GROUP
   Inst          MEAN     SIZE      STD DEV
---------    ----------   ------   ----------
Pt             13.117      6        0.6113
VA             11.683      6        0.4309
TOTAL          12.400     12        0.5288
CASES INCLUDED 12     MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE          N        MEAN
BAP21ST           1       12.400

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE          N        MEAN
BAP21ST           1       13.300

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE          N        MEAN
BAP21ST           1       12.900
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE          N        MEAN
BAP21ST           1       13.100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE          N        MEAN
BAP21ST           1       14.200

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE          N        MEAN
BAP21ST           1       12.800
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE          N        MEAN
BAP21ST           1       11.700

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE          N        MEAN
BAP21ST           1       12.200

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE          N        MEAN
BAP21ST           1       12.200
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE          N        MEAN
BAP21ST           1       11.400

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE          N        MEAN
BAP21ST           1       11.200

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE          N        MEAN
BAP21ST           1       11.400
```

Table 3- ANOVA must probable alcohol among plots, between vineyard installations and inside plots for 2006 year

```
ONE-WAY AOV FOR MAP06 BY Parc
SOURCE     DF       SS          MS          F        P
-------  ----  ---------  ---------   ------   ------
BETWEEN    3     3.49896    1.16632     3.83   0.0571
WITHIN     8     2.43447    0.30431
TOTAL     11     5.93342
                          CHI-SQ     DF        P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES      1.23      3     0.7459
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.28734
COCHRAN'S Q                         0.5450
LARGEST VAR / SMALLEST VAR        4.0612
EFlFeCTIVE CELL SIZE                                3.0
                              SAMPLE      GROUP
   Parc          MEAN       SIZE      STD DEV
---------   ----------   ------   ----------
Am             13.383       3        0.4661
Ba             13.433       3        0.8145
BC             12.567       3        0.4163
Ca             12.167       3        0.4041
TOTAL          12.888      12        0.5516
CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY AOV FOR MAP06 BY Inst
SOURCE     DF       SS          MS          F        P
-------  ----  ---------  ---------   ------   ------
BETWEEN    1     3.25521    3.25521    12.15   0.0059
WITHIN    10     2.67822    0.26782
TOTAL     11     5.93342
                          CHI-SQ     DF        P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES      0.48      1     0.4864
COCHRAN'S Q                         0.6590
LARGEST VAR / SMALLEST VAR        1.9324
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.49790
EFlFeCTIVE CELL SIZE                                6.0
                              SAMPLE      GROUP
   Inst          MEAN       SIZE      STD DEV
---------   ----------   ------   ----------
PT             13.408       6        0.5941
VA             12.367       6        0.4274
TOTAL          12.888      12        0.5175
CASES INCLUDED 12     MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE            N         MEAN
MAP06               1       12.900

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE            N         MEAN
MAP06               1       13.830

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE            N         MEAN
MAP06               1       13.420
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE            N         MEAN
MAP06               1       13.800

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE            N         MEAN
MAP06               1       14.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE            N         MEAN
MAP06               1       12.500
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE            N         MEAN
MAP06               1       12.900

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE            N         MEAN
MAP06               1       12.100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE            N         MEAN
MAP06               1       12.700
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE            N         MEAN
MAP06               1       12.400

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE            N         MEAN
MAP06               1       11.700

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE            N         MEAN
MAP06               1       12.400
```

Table 4- ANOVA must total acidity among plots, between vineyard installations and inside plots for 2005 year

```
ONE-WAY AOV FOR BAT21ST BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     2.13649     0.71216     28.63   0.0001
WITHIN      8     0.19900     0.02488
TOTAL      11     2.33549
                        CHI-SQ     DF       P
BARTLETT'S TEST OF      ------   ------   ------
   EQUAL VARIANCES     2.95      3     0.3996
COCHRAN'S Q                   0.3642
LARGEST VAR / SMALLEST VAR    19.070
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.22910
EFlFeCTIVE CELL SIZE                              3.0
                          SAMPLE      GROUP
   Parc          MEAN      SIZE      STD DEV
---------    ----------   ------   ----------
Am             3.9167       3        0.1815
Ba             4.3133       3        0.1904
BC             3.1900       3        0.0436
Ca             3.5167       3        0.1686
TOTAL          3.7342      12        0.1577
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR BAT21ST BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     1.74041     1.74041     29.25   0.0003
WITHIN     10     0.59508     0.05951
TOTAL      11     2.33549
                        CHI-SQ     DF       P
BARTLETT'S TEST OF      ------   ------   ------
   EQUAL VARIANCES     0.31      1     0.5756
COCHRAN'S Q                   0.6291
LARGEST VAR / SMALLEST VAR    1.6959
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.28015
EFlFeCTIVE CELL SIZE                              6.0
                          SAMPLE      GROUP
   Inst          MEAN      SIZE      STD DEV
---------    ----------   -------   ----------
Pt             4.1150       6        0.2736
VA             3.3533       6        0.2101
TOTAL          3.7342      12        0.2439
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE           N         MEAN
BAT21ST            1       3.9900

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE           N         MEAN
BAT21ST            1       3.7100

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE           N         MEAN
BAT21ST            1       4.0500
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE           N         MEAN
BAT21ST            1       4.1300

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE           N         MEAN
BAT21ST            1       4.3000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE           N         MEAN
BAT21ST            1       4.5100
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE           N         MEAN
BAT21ST            1       3.1600

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE           N         MEAN
BAT21ST            1       3.1700

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE           N         MEAN
BAT21ST            1       3.2400
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE           N         MEAN
BAT21ST            1       3.4000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE           N         MEAN
BAT21ST            1       3.4400

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE           N         MEAN
BAT21ST            1       3.7100
```

Table 5- ANOVA must total acidity among plots, between vineyard installations and inside plots for 2006 year

```
ONE-WAY AOV FOR MAT06 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----   ---------   ---------   ------   ------
BETWEEN     3     0.90149     0.30050     2.93   0.0993
WITHIN      8     0.81920     0.10240
TOTAL      11     1.72069
                        CHI-SQ      DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     0.94       3     0.8152
COCHRAN'S Q                    0.4456
LARGEST VAR / SMALLEST VAR     4.6281
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.06603
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE      STD DEV
---------    ----------  ------  ----------
Am             4.2667      3        0.1986
Ba             4.3033      3        0.2850
BC             3.6167      3        0.3262
Ca             4.0100      3        0.4272
TOTAL          4.0492     12        0.3200
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR MAT06 BY Inst
SOURCE     DF        SS          MS          F        P
-------  ----   ---------   ---------   ------   ------
BETWEEN     1     0.66741     0.66741     6.34   0.0305
WITHIN     10     1.05328     0.10533
TOTAL      11     1.72069
                        CHI-SQ      DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     1.55       1     0.2127
COCHRAN'S Q                    0.7690
LARGEST VAR / SMALLEST VAR     3.3283
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.09368
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE      GROUP
   Inst          MEAN     SIZE      STD DEV
---------    ----------  ------  ----------
PT             4.2850      6        0.2206
VA             3.8133      6        0.4025
TOTAL          4.0492     12        0.3245
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE           N        MEAN
MAT06              1      4.3500

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE           N        MEAN
MAT06              1      4.0400

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE           N        MEAN
MAT06              1      4.4100
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE           N        MEAN
MAT06              1      4.0200

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE           N        MEAN
MAT06              1      4.5900

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE           N        MEAN
MAT06              1      4.3000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE           N        MEAN
MAT06              1      3.2600

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE           N        MEAN
MAT06              1      3.6900

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE           N        MEAN
MAT06              1      3.9000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE           N        MEAN
MAT06              1      3.6100

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE           N        MEAN
MAT06              1      4.4600

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE           N        MEAN
MAT06              1      3.9600
```

Table 6- ANOVA must pH among plots, between vineyard installations and inside plots for 2005 year

```
ONE-WAY AOV FOR BpH21ST BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.02660     0.00887     2.86   0.1043
WITHIN      8     0.02480     0.00310
TOTAL      11     0.05140
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     3.92      3    0.2703
COCHRAN'S Q                   0.5188
LARGEST VAR / SMALLEST VAR     27.571
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.00192
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE      GROUP
   Parc         MEAN     SIZE      STD DEV
---------    ----------  ------   ----------
Am              3.9200     3        0.0361
Ba              3.8467     3        0.0802
BC              3.9767     3        0.0153
Ca              3.9367     3        0.0666
TOTAL           3.9200    12        0.0557
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR BpH21ST BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.01613     0.01613     4.57   0.0581
WITHIN     10     0.03527     0.00353
TOTAL      11     0.05140
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     0.54      1    0.4626
COCHRAN'S Q                   0.6673
LARGEST VAR / SMALLEST VAR     2.0057
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.00210
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE      GROUP
   Inst         MEAN     SIZE      STD DEV
---------    ----------  ------   ----------
Pt              3.8833     6        0.0686
VA              3.9567     6        0.0484
TOTAL           3.9200    12        0.0594
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE           N        MEAN
BpH21ST            1      3.9500

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE           N        MEAN
BpH21ST            1      3.9300

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE           N        MEAN
BpH21ST            1      3.8800
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE           N        MEAN
BpH21ST            1      3.8400

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE           N        MEAN
BpH21ST            1      3.9300

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE           N        MEAN
BpH21ST            1      3.7700
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE           N        MEAN
BpH21ST            1      3.9900

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE           N        MEAN
BpH21ST            1      3.9800

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE           N        MEAN
BpH21ST            1      3.9600
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE           N        MEAN
BpH21ST            1      3.9800

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE           N        MEAN
BpH21ST            1      3.9700

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE           N        MEAN
BpH21ST            1      3.8600
```

Table 7- ANOVA must pH among plots, between vineyard installations and inside plots for 2006 year

```
ONE-WAY AOV FOR MpH06 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.01100     0.00367     1.05   0.4210
WITHIN      8     0.02787     0.00348
TOTAL      11     0.03887
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     1.53      3     0.6760
COCHRAN'S Q                    0.4976
LARGEST VAR / SMALLEST VAR     7.4286
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  6.111E-05
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE      GROUP
   Parc         MEAN     SIZE      STD DEV
---------   ----------  ------   ----------
Am              3.6833     3        0.0306
Ba              3.6533     3        0.0833
BC              3.7233     3        0.0513
Ca              3.6467     3        0.0586
TOTAL           3.6767    12        0.0590
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR MpH06 BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1    8.333E-04   8.333E-04    0.22   0.6498
WITHIN     10      0.03803     0.00380
TOTAL      11      0.03887
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     0.05      1     0.8280
COCHRAN'S Q                    0.5508
LARGEST VAR / SMALLEST VAR     1.2263
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -4.950E-04
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE      GROUP
   Inst         MEAN     SIZE      STD DEV
---------   ----------  ------   ----------
PT              3.6683     6        0.0585
VA              3.6850     6        0.0647
TOTAL           3.6767    12        0.0617
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE          N         MEAN
MpH06             1       3.7100

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE          N         MEAN
MpH06             1       3.6900

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE          N         MEAN
MpH06             1       3.6500
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE          N         MEAN
MpH06             1       3.6800

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE          N         MEAN
MpH06             1       3.7200

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE          N         MEAN
MpH06             1       3.5600
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE          N         MEAN
MpH06             1       3.7800

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE          N         MEAN
MpH06             1       3.6800

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE          N         MEAN
MpH06             1       3.7100
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE          N         MEAN
MpH06             1       3.6900

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE          N         MEAN
MpH06             1       3.6700

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE          N         MEAN
MpH06             1       3.5800
```

Figure 1- Must probable alchool (2005)

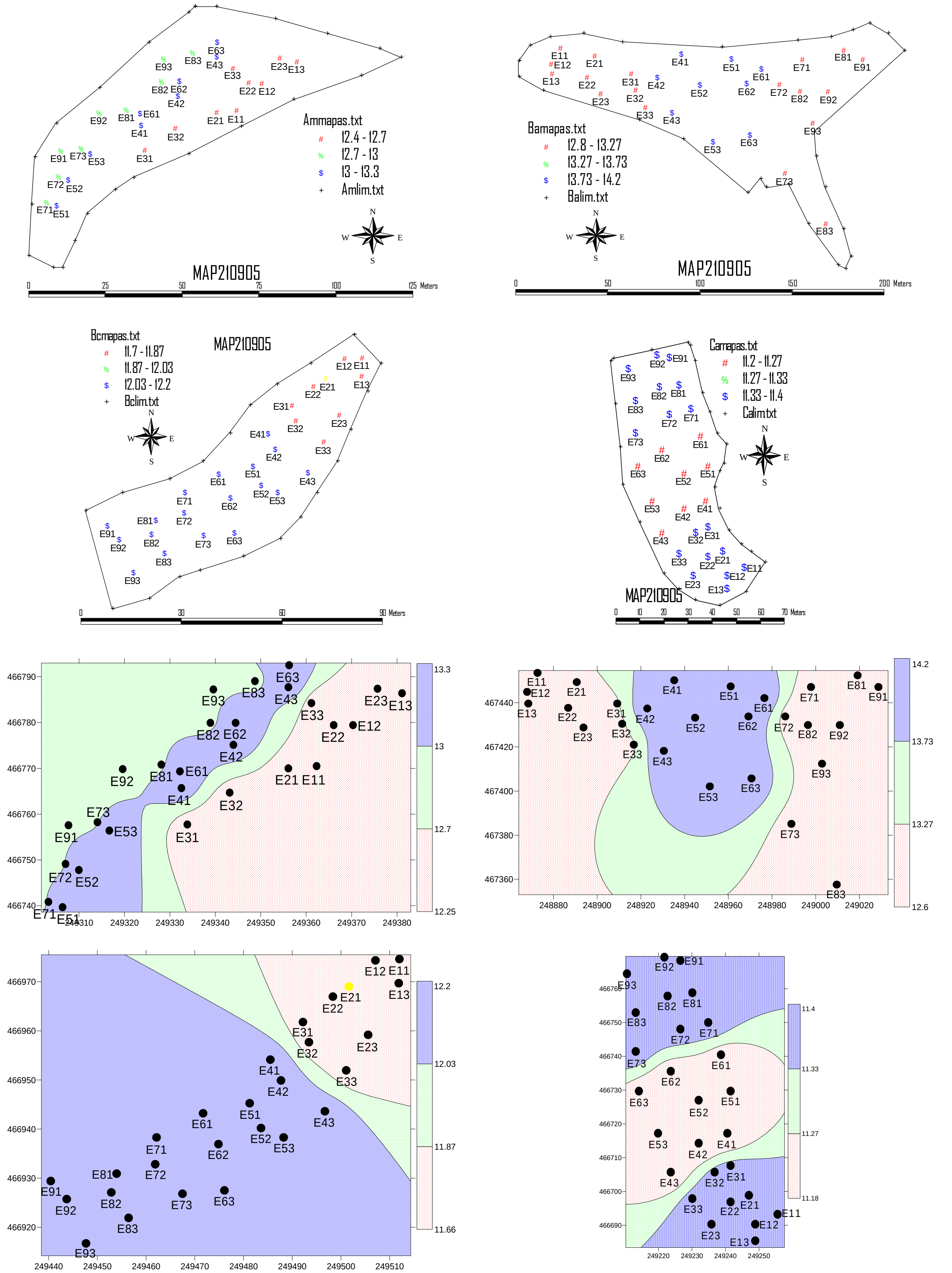


Figure 2- Must probable alchool (2006)

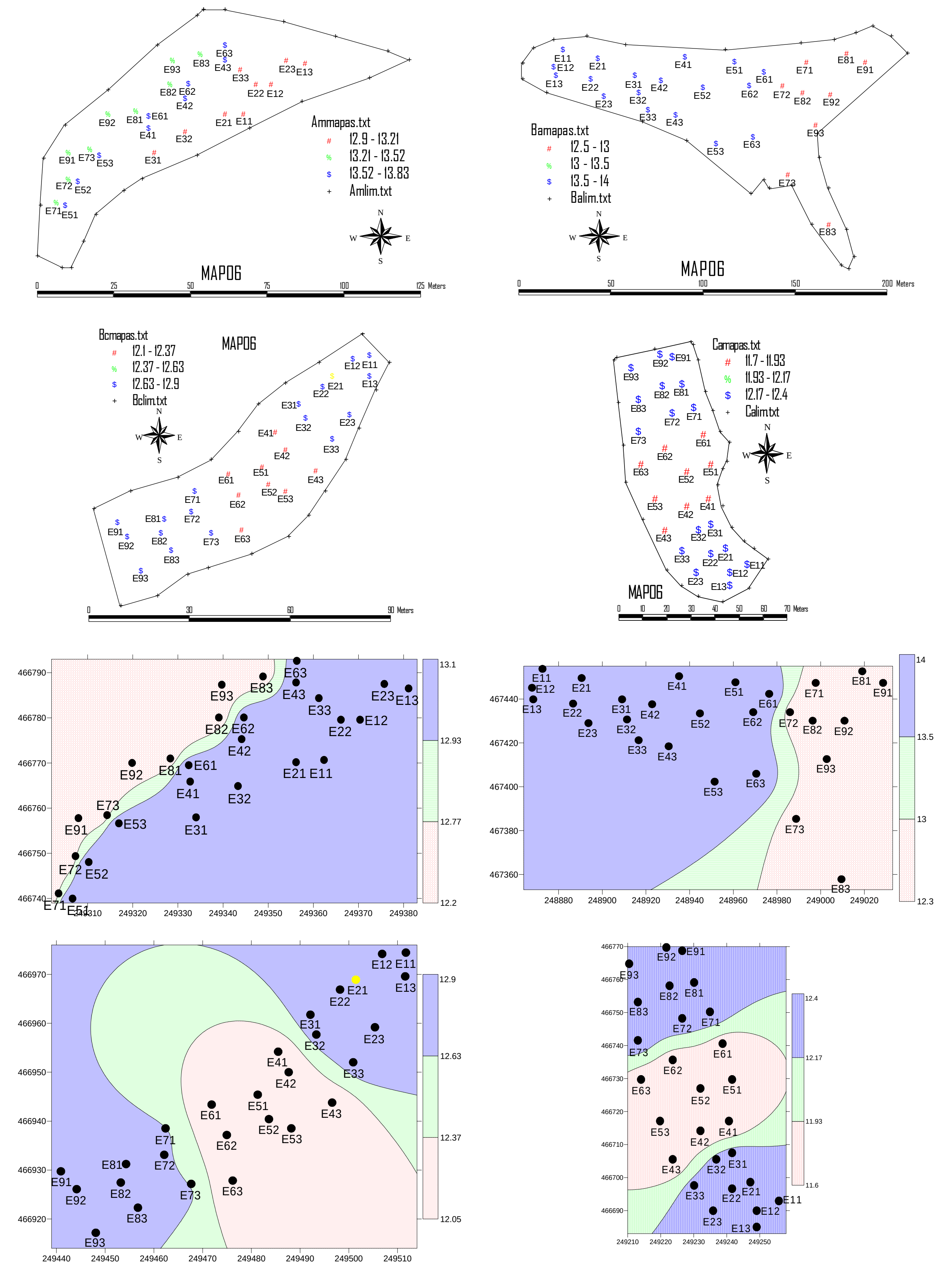


Figure 3- Must total acidity (2005)

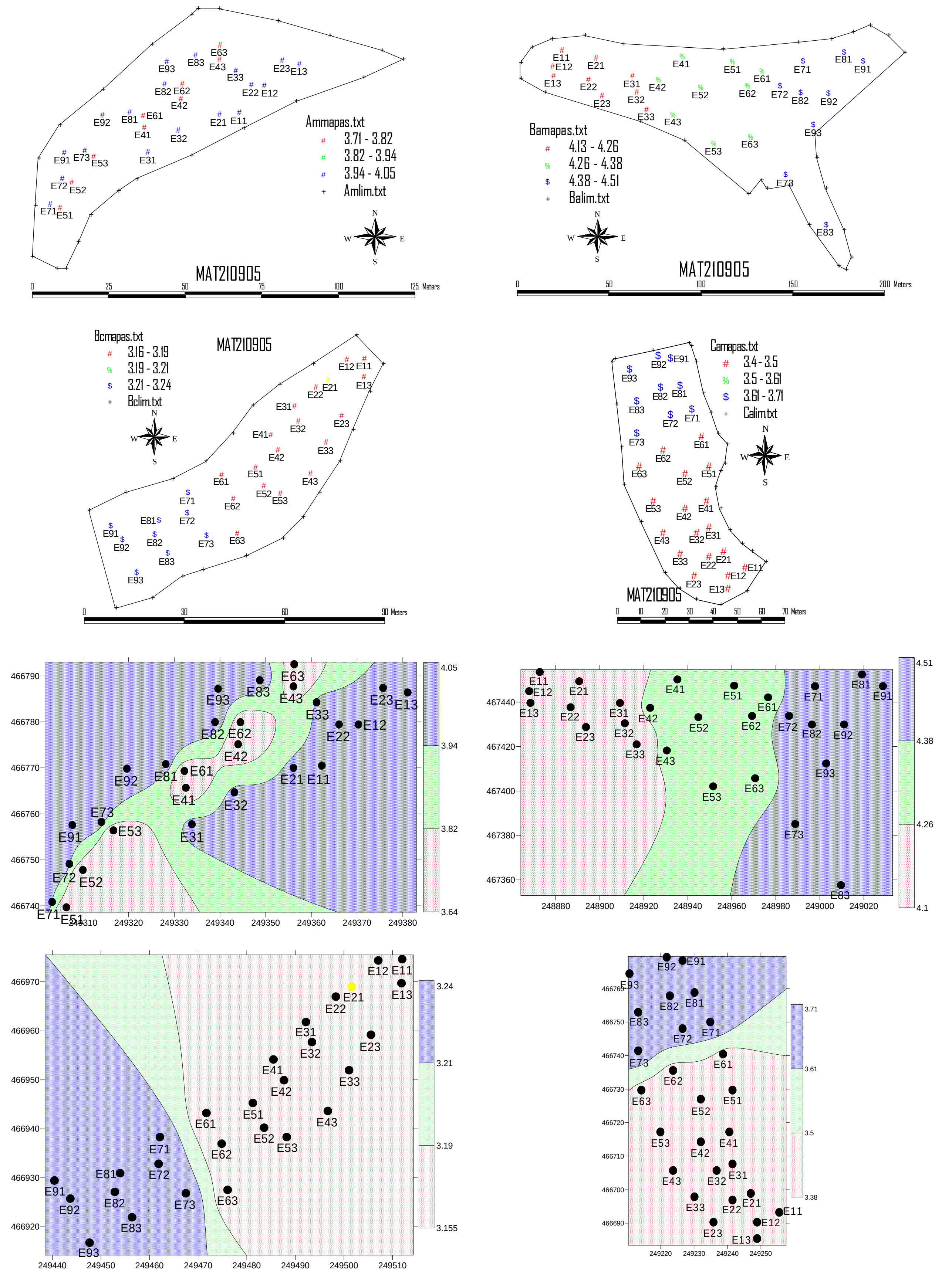


Figure 4- Must total acidity (2006)

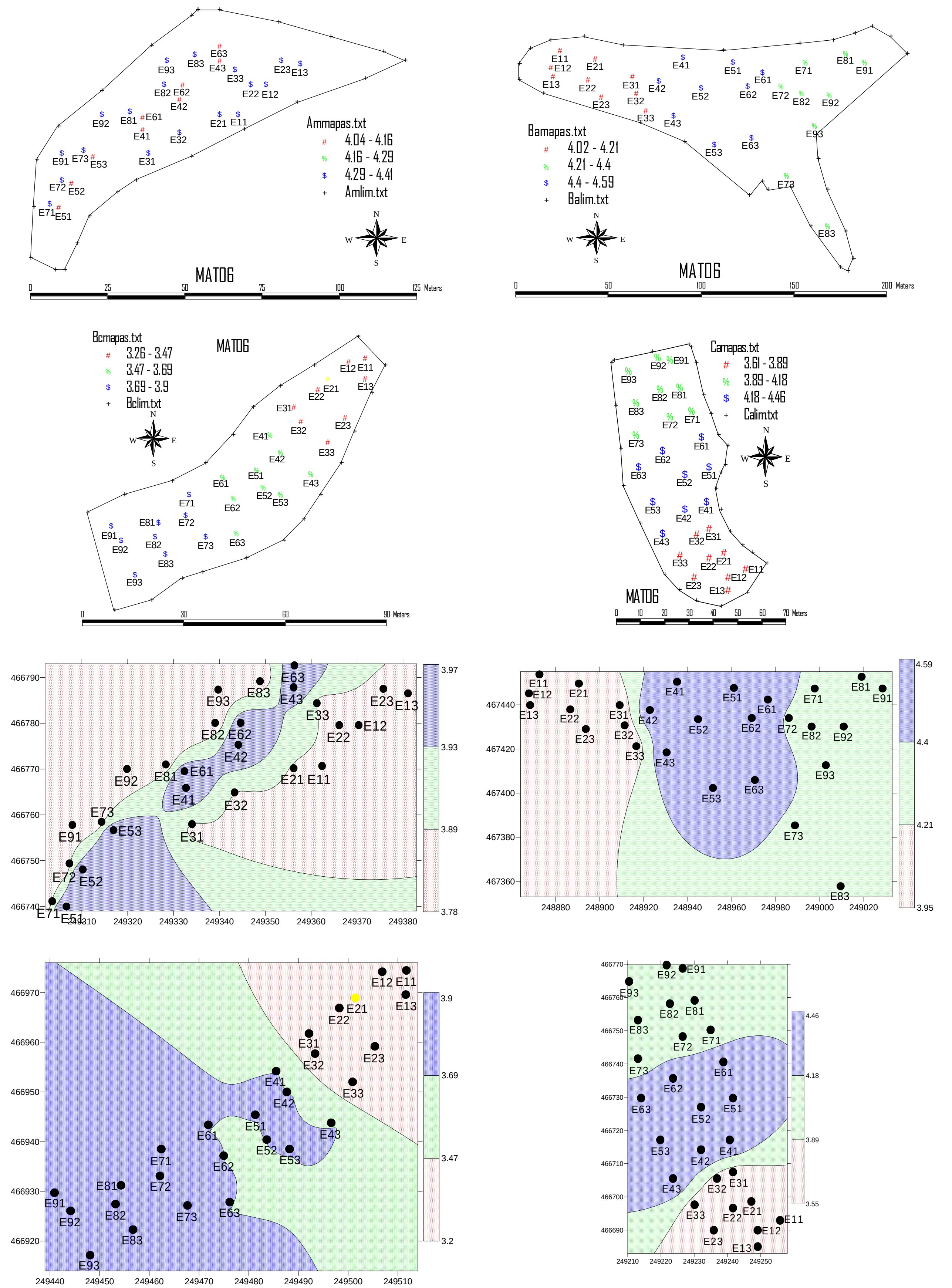


Figure 5- Must pH (2005)

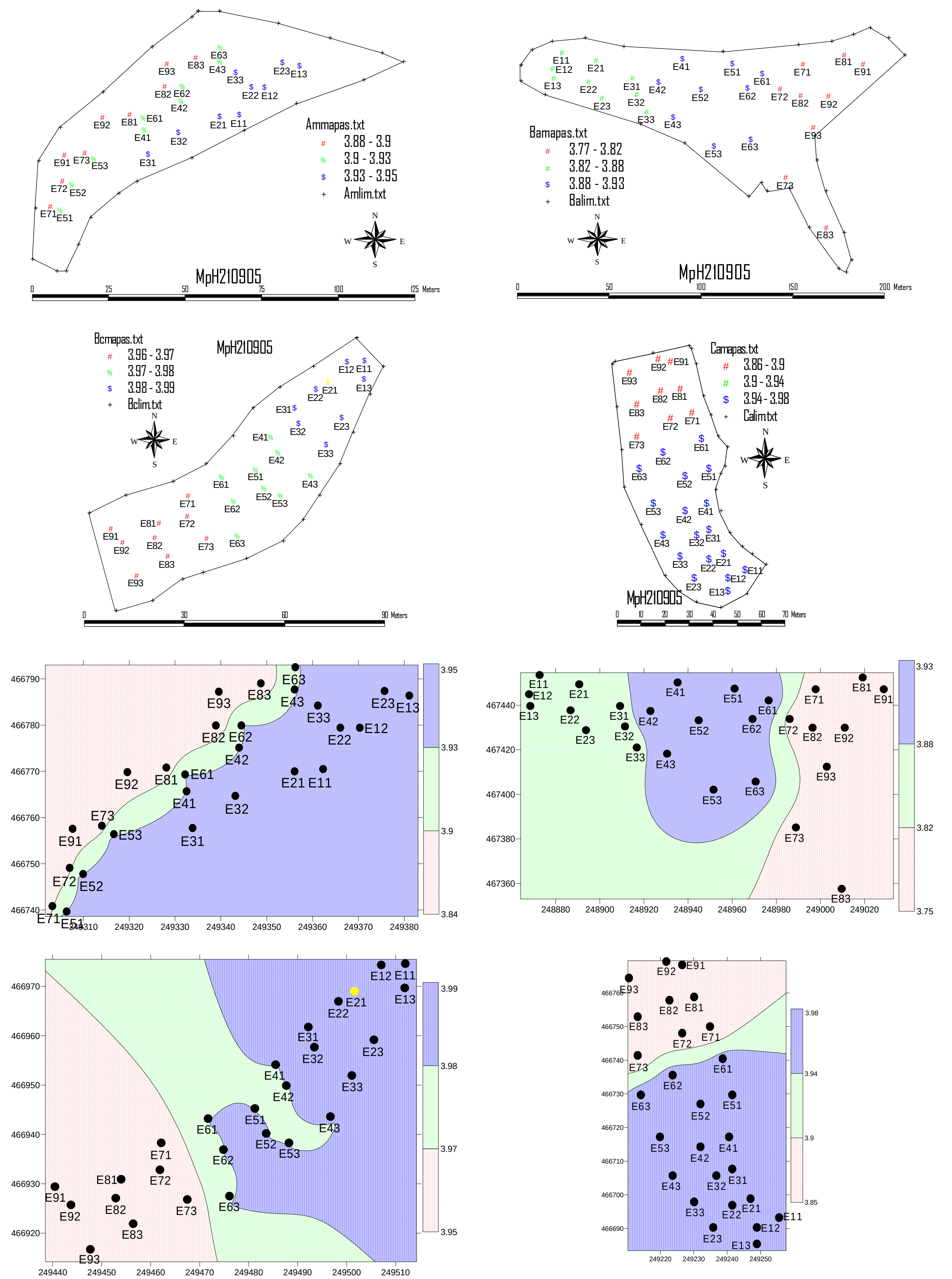
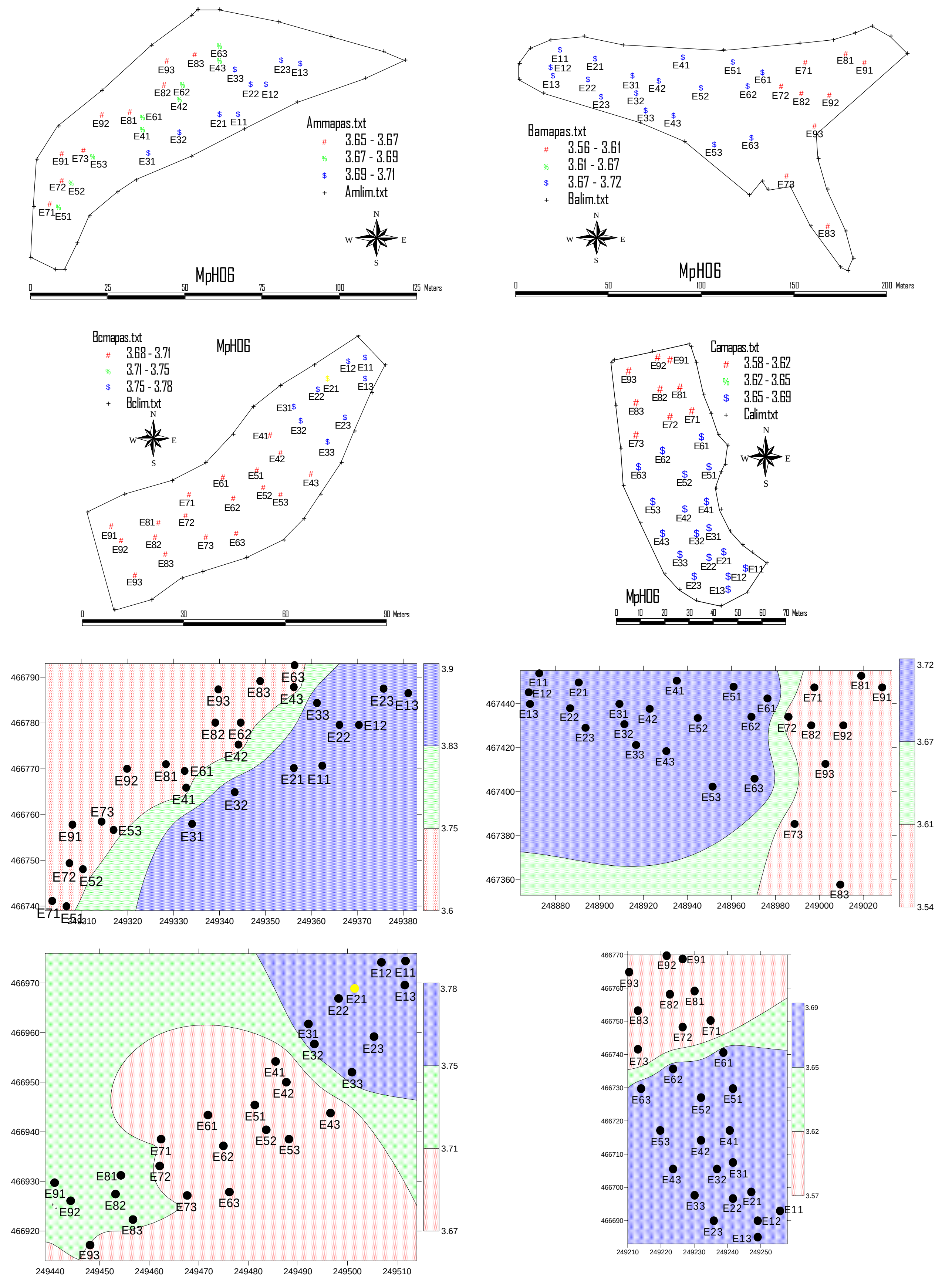


Figure 6- Must pH (2006)



Annex - Wine (AnVinho)

Tables and figures

Table 1- Microvinification data according plots and installations

Year 2005:

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool	3	12.510	0.6219	11.830	13.050
VMVol	3	0.9900	0.0000	0.9900	0.9900
VExSeP	3	27.900	0.8544	27.000	28.700
VAcRe05	3	1.6667	0.0577	1.6000	1.7000
VExSeT	3	26.233	0.8021	25.400	27.000
VpH05	3	3.8433	0.0902	3.7500	3.9300
VAcTt05	3	4.9167	0.2386	4.6500	5.1100
VAcVl05	3	0.3800	0.0100	0.3700	0.3900
VAcFx05	3	4.4433	0.2325	4.1800	4.6200
VFenTt05	3	51.100	18.901	29.600	65.100
VCor05	3	9.8600	0.9824	9.0700	10.960
VTon05	3	0.7433	0.0208	0.7200	0.7600
VCinza05	3	3.0300	0.1931	2.8200	3.2000
VAlc05	3	29.933	2.7099	27.100	32.500
VPO405	3	0.3667	0.1155	0.3000	0.5000
VAnt	3	263.67	205.26	130.00	500.00
VSO2L05	3	27.667	5.1316	22.000	32.000
VSO2T05	3	83.000	6.5574	77.000	90.000

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool	3	13.000	0.9367	12.250	14.050
VMVol	3	0.9900	0.0000	0.9900	0.9900
VExSeP	3	29.333	2.6160	26.900	32.100
VAcRe05	3	1.7333	0.3215	1.5000	2.1000
VExSeT	3	27.600	2.3065	25.400	30.000
VpH05	3	3.9100	0.1249	3.8100	4.0500
VAcTt05	3	4.6933	0.2491	4.5300	4.9800
VAcVl05	3	0.3133	0.0551	0.2500	0.3500
VAcFx05	3	4.3033	0.2268	4.1300	4.5600
VFenTt05	3	67.200	4.8662	64.000	72.800
VCor05	3	10.477	1.0961	9.6500	11.720
VTon05	3	0.7300	0.0436	0.6800	0.7600
VCinza05	3	3.3900	0.5502	2.9600	4.0100
VAlc05	3	34.500	5.7026	28.900	40.300
VPO405	3	0.5000	0.1732	0.4000	0.7000
VAnt	3	373.00	27.875	342.00	396.00
VSO2L05	3	27.333	3.0551	24.000	30.000
VSO2T05	3	61.333	7.5056	57.000	70.000

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool	3	11.913	0.2201	11.690	12.130
VMVol	3	0.9900	0.0000	0.9900	0.9900
VExSeP	3	27.800	1.1533	26.900	29.100
VAcRe05	3	1.4333	0.0577	1.4000	1.5000
VExSeT	3	26.367	1.1930	25.400	27.700
VpH05	3	3.9133	0.0404	3.8900	3.9600
VAcTt05	3	4.5367	0.4658	4.2100	5.0700
VAcVl05	3	0.4000	0.0755	0.3200	0.4700
VAcFx05	3	4.0367	0.4790	3.6200	4.5600
VFenTt05	3	57.333	5.2482	51.600	61.900
VCor05	3	10.793	1.2286	10.020	12.210
VTon05	3	0.7300	0.0300	0.7000	0.7600
VCinza05	3	3.2300	0.1300	3.1500	3.3800
VAlc05	3	31.100	1.2166	30.300	32.500
VPO405	3	0.4667	0.2082	0.3000	0.7000
VAnt	3	391.33	132.67	285.00	540.00
VSO2L05	3	31.333	3.7859	27.000	34.000
VSO2T05	3	81.000	8.5440	73.000	90.000

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool	3	10.967	0.1893	10.750	11.100
VMVol	3	0.9900	0.0000	0.9900	0.9900
VExSeP	3	26.067	0.8386	25.100	26.600
VAcRe05	3	1.3333	0.0577	1.3000	1.4000
VExSeT	3	24.733	0.8083	23.800	25.200
VpH05	3	3.8900	0.0700	3.8100	3.9400
VAcTt05	3	4.3133	0.2483	4.1100	4.5900
VAcVl05	3	0.4800	0.0458	0.4300	0.5200
VAcFx05	3	3.7133	0.2603	3.4600	3.9800
VFenTt05	3	49.833	1.1846	49.100	51.200
VCor05	3	7.5733	0.4712	7.0300	7.8700
VTon05	3	0.8100	0.0500	0.7600	0.8600
VCinza05	3	2.8800	0.2551	2.5900	3.0700
VAlc05	3	29.700	3.5553	25.700	32.500
VPO405	3	0.4000	0.1000	0.3000	0.5000
VAnt	3	475.00	131.30	333.00	592.00
VSO2L05	3	35.333	11.015	28.000	48.000
VSO2T05	3	83.333	20.207	65.000	105.00

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool	6	12.755	0.7601	11.830	14.050
VMVol	6	0.9900	0.0000	0.9900	0.9900
VExSeP	6	28.617	1.9094	26.900	32.100
VAcRe05	6	1.7000	0.2098	1.5000	2.1000
VExSeT	6	26.917	1.7163	25.400	30.000
VpH05	6	3.8767	0.1041	3.7500	4.0500
VAcTt05	6	4.8050	0.2501	4.5300	5.1100
VAcVl05	6	0.3467	0.0509	0.2500	0.3900
VAcFx05	6	4.3733	0.2192	4.1300	4.6200
VFenTt05	6	59.150	15.170	29.600	72.800
VCor05	6	10.168	0.9903	9.0700	11.720
VTon05	6	0.7367	0.0314	0.6800	0.7600
VCinza05	6	3.2100	0.4182	2.8200	4.0100
VAlc05	6	32.217	4.7119	27.100	40.300
VPO405	6	0.4333	0.1506	0.3000	0.7000
VAnt	6	318.33	144.05	130.00	500.00
VSO2L05	6	27.500	3.7815	22.000	32.000
VSO2T05	6	72.167	13.438	57.000	90.000

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool	6	11.440	0.5501	10.750	12.130
VMVol	6	0.9900	0.0000	0.9900	0.9900
VExSeP	6	26.933	1.3095	25.100	29.100
VAcRe05	6	1.3833	0.0753	1.3000	1.5000
VExSeT	6	25.550	1.2771	23.800	27.700
VpH05	6	3.9017	0.0527	3.8100	3.9600
VAcTt05	6	4.4250	0.3555	4.1100	5.0700
VAcVl05	6	0.4400	0.0710	0.3200	0.5200
VAcFx05	6	3.8750	0.3876	3.4600	4.5600
VFenTt05	6	53.583	5.3342	49.100	61.900
VCor05	6	9.1833	1.9502	7.0300	12.210
VTon05	6	0.7700	0.0573	0.7000	0.8600
VCinza05	6	3.0550	0.2637	2.5900	3.3800
VAlc05	6	30.400	2.4972	25.700	32.500
VPO405	6	0.4333	0.1506	0.3000	0.7000
VAnt	6	433.17	126.63	285.00	592.00
VSO2L05	6	33.333	7.6855	27.000	48.000
VSO2T05	6	82.167	13.934	65.000	105.00

Year 2006:

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool06	3	13.400	0.1852	13.220	13.590
VMVol06	3	0.9914	0.0010	0.9906	0.9926
VAcRe06	3	1.7367	0.1115	1.6100	1.8200
VExSeT06	3	27.423	1.3951	26.440	29.020
VpH06	3	3.8100	0.1513	3.6900	3.9800
VAcVl06	3	0.5133	0.0751	0.4700	0.6000
VAcFx06	3	4.3800	0.2352	4.1100	4.5400
VAcTt06	3	4.9700	0.2722	4.6600	5.1700
VFenTt06	3	38.700	14.523	22.340	50.070
VCor06	3	5.9233	0.2715	5.6100	6.0900
VTon06	3	0.7233	0.0321	0.7000	0.7600
VCinza06	3	3.0067	0.7596	2.5000	3.8800
VAlc06	3	27.367	4.8456	23.150	32.660
VPO406	3	0.3533	0.0379	0.3100	0.3800
VAnt06	3	162.33	104.47	76.800	278.76
VSO2L06	3	29.320	5.5270	23.880	34.930
VSO2T06	3	90.697	7.7318	82.620	98.030

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool06	3	13.817	0.6449	13.100	14.350
VMVol06	3	0.9919	0.0035	0.9916	0.9923
VAcRe06	3	1.8333	0.1155	1.7000	1.9000
VExSeT06	3	29.633	0.8505	28.800	30.500
VpH06	3	3.9667	0.1721	3.7700	4.0900
VAcVl06	3	0.6567	0.0252	0.6300	0.6800
VAcFx06	3	3.9333	0.1629	3.8200	4.1200
VAcTt06	3	4.7533	0.1877	4.6400	4.9700
VFenTt06	3	54.400	0.5196	54.100	55.000
VCor06	3	7.2033	0.0723	7.1200	7.2500
VTon06	3	0.7333	0.0666	0.6600	0.7900
VCinza06	3	2.9067	0.5712	2.3900	3.5200
VAlc06	3	33.267	3.8371	28.900	36.100
VPO406	3	0.5000	0.1000	0.4000	0.6000
VAnt06	3	344.67	16.773	334.00	364.00
VSO2L06	3	31.333	3.0551	28.000	34.000
VSO2T06	3	78.667	4.0415	75.000	83.000

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool06	3	12.700	0.2598	12.400	12.850
VMVol06	3	0.9918	0.0017	0.9916	0.9919
VAcRe06	3	1.4667	0.0577	1.4000	1.5000
VExSeT06	3	26.367	0.7024	25.700	27.100
VpH06	3	3.8600	0.0624	3.8100	3.9300
VAcVl06	3	0.4300	0.0721	0.3700	0.5100
VAcFx06	3	3.9367	0.1060	3.8400	4.0500
VAcTt06	3	4.4700	0.0900	4.3800	4.5600
VFenTt06	3	40.600	2.7731	38.900	43.800
VCor06	3	5.7733	0.5040	5.3100	6.3100
VTon06	3	0.7167	0.0503	0.6700	0.7700
VCinza06	3	2.9767	0.1650	2.8400	3.1600
VAlc06	3	25.900	3.4176	22.300	29.100
VPO406	3	0.6000	0.1000	0.5000	0.7000
VAnt06	3	272.67	20.257	250.00	289.00
VSO2L06	3	31.000	3.6056	28.000	35.000
VSO2T06	3	75.000	5.0000	70.000	80.000

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool06	3	11.917	0.6331	11.200	12.400
VMVol06	3	0.9924	0.0007	0.9920	0.9932
VAcRe06	3	1.3667	0.0577	1.3000	1.4000
VExSeT06	3	25.633	0.5859	25.200	26.300
VpH06	3	3.7900	0.0964	3.7200	3.9000
VAcVl06	3	0.3933	0.0321	0.3700	0.4300
VAcFx06	3	3.9200	0.1833	3.7200	4.0800
VAcTt06	3	4.4067	0.1464	4.2500	4.5400
VFenTt06	3	36.900	3.3779	33.000	38.900
VCor06	3	4.3533	0.8534	3.3700	4.9000
VTon06	3	0.7533	0.0603	0.6900	0.8100
VCinza06	3	2.8167	0.4688	2.4700	3.3500
VAlc06	3	23.700	2.4637	21.400	26.300
VPO406	3	0.4000	0.0000	0.4000	0.4000
VAnt06	3	235.33	33.232	197.00	256.00
VSO2L06	3	34.333	1.1547	33.000	35.000
VSO2T06	3	85.000	8.6603	75.000	90.000

DESCRIPTIVE STATISTICS FOR Inst = PT

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool06	6	13.608	0.4818	13.100	14.350
VMVol06	6	0.9917	0.0007	0.9906	0.9926
VAcRe06	6	1.7850	0.1145	1.6100	1.9000
VExSeT06	6	28.528	1.5916	26.440	30.500
VpH06	6	3.8883	0.1685	3.6900	4.0900
VAcVl06	6	0.5850	0.0931	0.4700	0.6800
VAcFx06	6	4.1567	0.3043	3.8200	4.5400
VAcTt06	6	4.8617	0.2405	4.6400	5.1700
VFenTt06	6	46.550	12.587	22.340	55.000
VCor06	6	6.5633	0.7233	5.6100	7.2500
VTon06	6	0.7283	0.0471	0.6600	0.7900
VCinza06	6	2.9567	0.6035	2.3900	3.8800
VAlc06	6	30.317	5.0719	23.150	36.100
VPO406	6	0.4267	0.1050	0.3100	0.6000
VAnt06	6	253.50	120.22	76.800	364.00
VSO2L06	6	30.327	4.1435	23.880	34.930
VSO2T06	6	84.682	8.5943	75.000	98.030

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
VAlcool06	6	12.308	0.6094	11.200	12.850
VMVol06	6	0.9921	0.0006	0.9916	0.9932
VAcRe06	6	1.4167	0.0753	1.3000	1.5000
VExSeT06	6	26.000	0.7043	25.200	27.100
VpH06	6	3.8250	0.0822	3.7200	3.9300
VAcVl06	6	0.4117	0.0538	0.3700	0.5100
VAcFx06	6	3.9283	0.1342	3.7200	4.0800
VAcTt06	6	4.4383	0.1141	4.2500	4.5600
VFenTt06	6	38.750	3.4274	33.000	43.800
VCor06	6	5.0633	0.9989	3.3700	6.3100
VTon06	6	0.7350	0.0536	0.6700	0.8100
VCinza06	6	2.8967	0.3263	2.4700	3.3500
VAlc06	6	24.800	2.9244	21.400	29.100
VPO406	6	0.5000	0.1265	0.4000	0.7000
VAnt06	6	254.00	32.000	197.00	289.00
VSO2L06	6	32.667	3.0111	28.000	35.000
VSO2T06	6	80.000	8.3666	70.000	90.000

Table 2- ANOVA alcohol among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year**.**

```
ONE-WAY AOV FOR VAlcool BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------    ------   ------
BETWEEN     3     6.89209     2.29736     6.81    0.0136
WITHIN      8     2.69713     0.33714
TOTAL      11     9.58923
                            CHI-SQ    DF       P
BARTLETT'S TEST OF         ------   ------   ------
   EQUAL VARIANCES     5.11     3    0.1638
COCHRAN'S Q                    0.6507
LARGEST VAR / SMALLEST VAR     24.488
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.65341
EFlFeCTIVE CELL SIZE                            3.0
                               SAMPLE      GROUP
   Parc           MEAN          SIZE      STD DEV
---------     ----------     ------   ----------
Am             12.510          3         0.6219
Ba             13.000          3         0.9367
BC             11.913          3         0.2201
Ca             10.967          3         0.1893
TOTAL          12.098         12         0.5806
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAlcool BY INT
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------    ------   ------
BETWEEN     1     5.18768     5.18768    11.79    0.0064
WITHIN     10     4.40155     0.44016
TOTAL      11     9.58923
                            CHI-SQ    DF       P
BARTLETT'S TEST OF         ------   ------   ------
   EQUAL VARIANCES     0.47     1    0.4942
COCHRAN'S Q                    0.6563
LARGEST VAR / SMALLEST VAR     1.9095
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.79125
EFlFeCTIVE CELL SIZE                            6.0
                               SAMPLE      GROUP
   INT            MEAN          SIZE      STD DEV
---------     ----------     ------   ----------
Pt             12.755          6         0.7601
VA             11.440          6         0.5501
TOTAL          12.098         12         0.6634
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE            N        MEAN
VAlcool             1      11.830

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE            N        MEAN
VAlcool             1      13.050

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE            N        MEAN
VAlcool             1      12.650
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE            N        MEAN
VAlcool             1      12.700

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE            N        MEAN
VAlcool             1      14.050

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE            N        MEAN
VAlcool             1      12.250
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE            N        MEAN
VAlcool             1      11.690

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE            N        MEAN
VAlcool             1      11.920

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE            N        MEAN
VAlcool             1      12.130
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE            N        MEAN
VAlcool             1      11.050

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE            N        MEAN
VAlcool             1      10.750

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE            N        MEAN
VAlcool             1      11.100
```

Table 3- ANOVA alcohol among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VAlcool06 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     6.25083     2.08361     9.07   0.0059
WITHIN      8     1.83693     0.22962
TOTAL      11     8.08777
                         CHI-SQ     DF        P
BARTLETT'S TEST OF      ------   ------   ------
   EQUAL VARIANCES       3.27       3     0.3521
COCHRAN'S Q                        0.4527
LARGEST VAR / SMALLEST VAR         12.123
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.61800
EFlFeCTIVE CELL SIZE                             3.0
                            SAMPLE      GROUP
   Parc          MEAN        SIZE      STD DEV
---------    ----------    ------    ----------
Am             13.400        3        0.1852
Ba             13.817        3        0.6449
BC             12.700        3        0.2598
Ca             11.917        3        0.6331
TOTAL          12.958       12        0.4792
CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY AOV FOR VAlcool06 BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     5.07000     5.07000    16.80   0.0021
WITHIN     10     3.01777     0.30178
TOTAL      11     8.08777
                         CHI-SQ     DF        P
BARTLETT'S TEST OF      ------   ------   ------
   EQUAL VARIANCES       0.25       1     0.6180
COCHRAN'S Q                        0.6154
LARGEST VAR / SMALLEST VAR         1.6000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.79470
EFlFeCTIVE CELL SIZE                             6.0
                            SAMPLE      GROUP
   Inst          MEAN        SIZE      STD DEV
---------    ----------    ------    ----------
PT             13.608        6        0.4818
VA             12.308        6        0.6094
TOTAL          12.958       12        0.5493
CASES INCLUDED 12     MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE          N         MEAN
VAlcool06         1       13.220

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE          N         MEAN
VAlcool06         1       13.390

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE          N         MEAN
VAlcool06         1       13.590
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE          N         MEAN
VAlcool06         1       14.350

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE          N         MEAN
VAlcool06         1       14.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE          N         MEAN
VAlcool06         1       13.100
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE          N         MEAN
VAlcool06         1       12.850

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE          N         MEAN
VAlcool06         1       12.400

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE          N         MEAN
VAlcool06         1       12.850
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE          N         MEAN
VAlcool06         1       12.400

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE          N         MEAN
VAlcool06         1       11.200

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE          N         MEAN
VAlcool06         1       12.150
```

Table 4- ANOVA VMVol for wine among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VMVol05 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3    2.680E-06   8.933E-07     2.83   0.1065
WITHIN      8    2.527E-06   3.158E-07
TOTAL      11    5.207E-06
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     5.00      3    0.1715
COCHRAN'S Q                    0.7203
LARGEST VAR / SMALLEST VAR     30.333

COMPONENT OF VARIANCE FOR BETWEEN GROUPS  1.925E-07
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------   ----------
Am             0.9926      3     9.539E-04
Ba             0.9926      3     1.732E-04
BC             0.9932      3     2.646E-04
Ca             0.9937      3     5.033E-04
TOTAL          0.9930     12     5.620E-04
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VMVol05 BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1    2.253E-06   2.253E-06     7.63   0.0201
WITHIN     10    2.953E-06   2.953E-07
TOTAL      11    5.207E-06
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     0.35      1    0.5527
COCHRAN'S Q                    0.6366
LARGEST VAR / SMALLEST VAR     1.7516
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  3.263E-07
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------   ----------
Pt             0.9926      6     6.132E-04
VA             0.9935      6     4.633E-04
TOTAL          0.9930     12     5.434E-04
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE            N         MEAN
VMVol05             1       0.9937

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE            N         MEAN
VMVol05             1       0.9920

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE            N         MEAN
VMVol05             1       0.9921
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE            N         MEAN
VMVol05             1       0.9928

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE            N         MEAN
VMVol05             1       0.9925

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE            N         MEAN
VMVol05             1       0.9925
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE            N         MEAN
VMVol05             1       0.9934

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE            N         MEAN
VMVol05             1       0.9929

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE            N         MEAN
VMVol05             1       0.9933
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE            N         MEAN
VMVol05             1       0.9938

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE            N         MEAN
VMVol05             1       0.9942

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE            N         MEAN
VMVol05             1       0.9932
```

Table 5- ANOVA VMVol for wine among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VMVOL06 BY PARC
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3   1.636E-06  5.453E-07    1.27  0.3482
WITHIN     8   3.433E-06  4.292E-07
TOTAL     11   5.069E-06

                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    4.83     3    0.1850

COCHRAN'S Q                    0.6524
LARGEST VAR / SMALLEST VAR     37.333

COMPONENT OF VARIANCE FOR BETWEEN GROUPS  3.870E-08
EFFECTIVE CELL SIZE                             3.0

                        SAMPLE     GROUP
   PARC          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.9914      3    1.058E-03
Ba             0.9919      3    3.512E-04
BC             0.9918      3    1.732E-04
Ca             0.9924      3    6.658E-04
TOTAL          0.9919     12    6.551E-04

CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VMVOL06 BY INST
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1   6.075E-07  6.075E-07    1.36  0.2703
WITHIN    10   4.462E-06  4.462E-07
TOTAL     11   5.069E-06

                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.45     1    0.5039

COCHRAN'S Q                    0.6530
LARGEST VAR / SMALLEST VAR     1.8816

COMPONENT OF VARIANCE FOR BETWEEN GROUPS  2.689E-08
EFFECTIVE CELL SIZE                             6.0

                        SAMPLE     GROUP
   INST          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
PT             0.9917      6    7.633E-04
VA             0.9921      6    5.565E-04
TOTAL          0.9919     12    6.680E-04

CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE          N        MEAN
VMVol06           1      0.9926

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE          N        MEAN
VMVol06           1      0.9906

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE          N        MEAN
VMVol06           1      0.9910
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE          N        MEAN
VMVol06           1      0.9919

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE          N        MEAN
VMVol06           1      0.9916

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE          N        MEAN
VMVol06           1      0.9923
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE          N        MEAN
VMVol06           1      0.9919

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE          N        MEAN
VMVol06           1      0.9919

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE          N        MEAN
VMVol06           1      0.9916
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE          N        MEAN
VMVol06           1      0.9921

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE          N        MEAN
VMVol06           1      0.9932

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE          N        MEAN
VMVol06           1      0.9920
```

Table 6- ANOVA wine dry extract determination among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VExSeP BY Parc
SOURCE     DF       SS          MS          F       P
-------   ----   ---------   ---------   ------  ------
BETWEEN     3     16.0892     5.36306     2.23   0.1618
WITHIN      8     19.2133     2.40167
TOTAL      11     35.3025
                        CHI-SQ     DF        P
BARTLETT'S TEST OF     ------   ------   ------
   EQUAL VARIANCES      3.25       3     0.3548
COCHRAN'S Q                     0.7124
LARGEST VAR / SMALLEST VAR      9.7299
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.98713
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE      GROUP
   Parc         MEAN     SIZE      STD DEV
---------   ----------   ------   ----------
Am             27.900       3       0.8544
Ba             29.333       3       2.6160
BC             27.800       3       1.1533
Ca             26.067       3       0.8386
TOTAL          27.775      12       1.5497
CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY AOV FOR VExSeP BY INT
SOURCE     DF       SS          MS          F       P
-------   ----   ---------   ---------   ------  ------
BETWEEN     1     8.50083     8.50083     3.17   0.1053
WITHIN     10     26.8017     2.68017
TOTAL      11     35.3025
                        CHI-SQ     DF        P
BARTLETT'S TEST OF     ------   ------   ------
   EQUAL VARIANCES      0.63       1     0.4267
COCHRAN'S Q                     0.6801
LARGEST VAR / SMALLEST VAR      2.1262
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.97011
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE      GROUP
   INT          MEAN     SIZE      STD DEV
---------   ----------   ------   ----------
Pt             28.617       6       1.9094
VA             26.933       6       1.3095
TOTAL          27.775      12       1.6371
CASES INCLUDED 12     MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE          N        MEAN
VExSeP            1      28.700

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE          N        MEAN
VExSeP            1      28.000

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE          N        MEAN
VExSeP            1      27.000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE          N        MEAN
VExSeP            1      29.000

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE          N        MEAN
VExSeP            1      32.100

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE          N        MEAN
VExSeP            1      26.900
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE          N        MEAN
VExSeP            1      27.400

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE          N        MEAN
VExSeP            1      26.900

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE          N        MEAN
VExSeP            1      29.100
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE          N        MEAN
VExSeP            1      26.500

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE          N        MEAN
VExSeP            1      26.600

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE          N        MEAN
VExSeP            1      25.100
```

Table 7- ANOVA wine dry extract determination among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VExSeT06 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     27.3102     9.10341    10.39   0.0039
WITHIN      8     7.01247     0.87656
TOTAL      11     34.3227
                          CHI-SQ     DF       P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES        1.50       3     0.6821
COCHRAN'S Q                         0.5551
LARGEST VAR / SMALLEST VAR          5.6686
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     2.74228
EFlFeCTIVE CELL SIZE                             3.0
                            SAMPLE      GROUP
   Parc          MEAN        SIZE      STD DEV
---------    ----------    ------    ----------
Am             27.423        3         1.3951
Ba             29.633        3         0.8505
BC             26.367        3         0.7024
Ca             25.633        3         0.5859
TOTAL          27.264       12         0.9362
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VExSeT06 BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     19.1774     19.1774    12.66   0.0052
WITHIN     10     15.1453     1.51453
TOTAL      11     34.3227
                          CHI-SQ     DF       P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES        2.74       1     0.0981
COCHRAN'S Q                         0.8363
LARGEST VAR / SMALLEST VAR          5.1070
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     2.94381
EFlFeCTIVE CELL SIZE                             6.0
                            SAMPLE      GROUP
   Inst          MEAN        SIZE      STD DEV
---------    ----------    ------    ----------
PT             28.528        6         1.5916
VA             26.000        6         0.7043
TOTAL          27.264       12         1.2307
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE            N         MEAN
VExSeT06            1       29.020

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE            N         MEAN
VExSeT06            1       26.440

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE            N         MEAN
VExSeT06            1       26.81
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE            N         MEAN
VExSeT06            1       30.500

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE            N         MEAN
VExSeT06            1       29.600

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE            N         MEAN
VExSeT06            1       28.800
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE            N         MEAN
VExSeT06            1       27.100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE            N         MEAN
VExSeT06            1       25.700

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE            N         MEAN
VExSeT06            1       26.300
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE            N         MEAN
VExSeT06            1       26.300

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE            N         MEAN
VExSeT06            1       25.400

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE            N         MEAN
VExSeT06            1       25.200
```

Table 8- ANOVA sugar wine among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VAcRe05 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3     0.32250    0.10750     3.79  0.0584
WITHIN      8     0.22667    0.02833
TOTAL      11     0.54917
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES      8.48      3     0.0370
COCHRAN'S Q                    0.9118
LARGEST VAR / SMALLEST VAR      31.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.02639
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE      GROUP
   Parc          MEAN      SIZE     STD DEV
---------   ----------   ------  ----------
Am             1.6667       3       0.0577
Ba             1.7333       3       0.3215
BC             1.4333       3       0.0577
Ca             1.3333       3       0.0577
TOTAL          1.5417      12       0.1683
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAcRe05 BY INT
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1     0.30083    0.30083    12.11  0.0059
WITHIN     10     0.24833    0.02483
TOTAL      11     0.54917
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES      4.12      1     0.0425
COCHRAN'S Q                    0.8859
LARGEST VAR / SMALLEST VAR      7.7647
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.04600
EFlFeCTIVE CELL SIZE                              6.0
                        SAMPLE      GROUP
   INT           MEAN      SIZE     STD DEV
---------   ----------   ------  ----------
Pt             1.7000       6       0.2098
VA             1.3833       6       0.0753
TOTAL          1.5417      12       0.1576
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE          N        MEAN
VAcRe05            1      1.7000

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE          N        MEAN
VAcRe05            1      1.7000

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE          N        MEAN
VAcRe05            1      1.6000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE          N        MEAN
VAcRe05            1      1.6000

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE          N        MEAN
VAcRe05            1      2.1000

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE          N        MEAN
VAcRe05            1      1.5000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE          N        MEAN
VAcRe05            1      1.4000

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE          N        MEAN
VAcRe05            1      1.5000

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE          N        MEAN
VAcRe05            1      1.4000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE          N        MEAN
VAcRe05            1      1.3000

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE          N        MEAN
VAcRe05            1      1.4000

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE          N        MEAN
VAcRe05            1      1.3000
```

Table 9- ANOVA sugar wine among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VAcRe06 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.43603     0.14534     17.92   0.0007
WITHIN      8     0.06487     0.00811
TOTAL      11     0.50089
                        CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES      1.41      3     0.7028
COCHRAN'S Q                    0.4111
LARGEST VAR / SMALLEST VAR     4.0000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04574
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------   ------   ----------
Am             1.7367       3       0.1115
Ba             1.8333       3       0.1155
BC             1.4667       3       0.0577
Ca             1.3667       3       0.0577
TOTAL          1.6008      12       0.0900
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAcRe06 BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.40701     0.40701     43.35   0.0001
WITHIN     10     0.09388     0.00939
TOTAL      11     0.50089
                        CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES      0.78      1     0.3780
COCHRAN'S Q                    0.6982
LARGEST VAR / SMALLEST VAR     2.3135
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.06627
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE      GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------   ------   ----------
PT             1.7850       6       0.1145
VA             1.4167       6       0.0753
TOTAL          1.6008      12       0.0969
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE            N        MEAN
VAcRe06             1       1.8200

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE            N        MEAN
VAcRe06             1       1.6100

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE            N        MEAN
VAcRe06             1       1.7800
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE            N        MEAN
VAcRe06             1       1.7000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE            N        MEAN
VAcRe06             1       1.9000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE            N        MEAN
VAcRe06             1       1.9000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE            N        MEAN
VAcRe06             1       1.5000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE            N        MEAN
VAcRe06             1       1.4000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE            N        MEAN
VAcRe06             1       1.5000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE            N        MEAN
VAcRe06             1       1.4000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE            N        MEAN
VAcRe06             1       1.4000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE            N        MEAN
VAcRe06             1       1.3000
```

Table 10- ANOVA pH wine vinification among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VpH05 BY Parc
SOURCE    DF        SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.00936    0.00312    0.41  0.7488
WITHIN     8     0.06053    0.00757
TOTAL     11     0.06989
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.94     3    0.5850
COCHRAN'S Q                  0.5154
LARGEST VAR / SMALLEST VAR     9.5510
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00148
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             3.8433      3       0.0902
Ba             3.9100      3       0.1249
BC             3.9133      3       0.0404
Ca             3.8900      3       0.0700
TOTAL          3.8892     12       0.0870
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VpH05 BY INT
SOURCE    DF        SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.00187    0.00187    0.28  0.6110
WITHIN    10     0.06802    0.00680
TOTAL     11     0.06989
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.96     1    0.1616
COCHRAN'S Q                  0.7959
LARGEST VAR / SMALLEST VAR     3.8992
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -8.211E-04
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE     GROUP
   INT          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             3.8767      6       0.1041
VA             3.9017      6       0.0527
TOTAL          3.8892     12       0.0825
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE          N        MEAN
VpH05               1      3.9300

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE          N        MEAN
VpH05               1      3.8500

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE          N        MEAN
VpH05               1      3.7500
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE          N        MEAN
VpH05               1      3.8700

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE          N        MEAN
VpH05               1      4.0500

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE          N        MEAN
VpH05               1      3.8100
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE          N        MEAN
VpH05               1      3.9600

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE          N        MEAN
VpH05               1      3.8900

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE          N        MEAN
VpH05               1      3.8900
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE          N        MEAN
VpH05               1      3.9400

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE          N        MEAN
VpH05               1      3.9200

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE          N        MEAN
VpH05               1      3.8100
```

Table 11- ANOVA pH wine vinification among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VpH06 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3    0.05620    0.01873    1.14  0.3899
WITHIN      8    0.13147    0.01643
TOTAL      11    0.18767
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     1.80     3    0.6154
COCHRAN'S Q                    0.4508
LARGEST VAR / SMALLEST VAR     7.5983
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  7.667E-04
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             3.8100      3       0.1513
Ba             3.9667      3       0.1721
BC             3.8600      3       0.0624
Ca             3.7900      3       0.0964
TOTAL          3.8567     12       0.1282
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VpH06 BY Inst
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1    0.01203    0.01203    0.69  0.4271
WITHIN     10    0.17563    0.01756
TOTAL      11    0.18767
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     2.17     1    0.1411
COCHRAN'S Q                    0.8078
LARGEST VAR / SMALLEST VAR     4.2040
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -9.217E-04
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE      GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
PT             3.8883      6       0.1685
VA             3.8250      6       0.0822
TOTAL          3.8567     12       0.1325
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE          N        MEAN
VpH06             1      3.9800

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE          N        MEAN
VpH06             1      3.7600

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE          N        MEAN
VpH06             1      3.6900
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE          N        MEAN
VpH06             1      4.0900

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE          N        MEAN
VpH06             1      4.0400

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE          N        MEAN
VpH06             1      3.7700
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE          N        MEAN
VpH06             1      3.9300

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE          N        MEAN
VpH06             1      3.8100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE          N        MEAN
VpH06             1      3.8400
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE          N        MEAN
VpH06             1      3.9000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE          N        MEAN
VpH06             1      3.7500

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE          N        MEAN
VpH06             1      3.7200
```

Table 12- ANOVA total acidity vinification among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VAcTt05 BY Parc
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    0.58283    0.19428    1.95  0.1994
WITHIN     8    0.79507    0.09938
TOTAL     11    1.37790
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    1.20     3    0.7528
COCHRAN'S Q                 0.5457
LARGEST VAR / SMALLEST VAR     3.8103
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.03163
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            4.9167      3       0.2386
Ba            4.6933      3       0.2491
BC            4.5367      3       0.4658
Ca            4.3133      3       0.2483
TOTAL         4.6150     12       0.3153
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAcTt05 BY INT
SOURCE    DF       SS          MS         F       P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    0.43320    0.43320    4.59  0.0579
WITHIN    10    0.94470    0.09447
TOTAL     11    1.37790
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.55     1    0.4579
COCHRAN'S Q                 0.6689
LARGEST VAR / SMALLEST VAR     2.0206
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.05645
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE     GROUP
   INT          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            4.8050      6       0.2501
VA            4.4250      6       0.3555
TOTAL         4.6150     12       0.3074
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE          N        MEAN
VAcTt05            1      5.1100

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE          N        MEAN
VAcTt05            1      4.6500

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE          N        MEAN
VAcTt05            1      4.9900
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE          N        MEAN
VAcTt05            1      4.9800

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE          N        MEAN
VAcTt05            1      4.5700

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE          N        MEAN
VAcTt05            1      4.5300
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE          N        MEAN
VAcTt05            1      4.2100

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE          N        MEAN
VAcTt05            1      5.0700

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE          N        MEAN
VAcTt05            1      4.3300
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE          N        MEAN
VAcTt05            1      4.5900

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE          N        MEAN
VAcTt05            1      4.1100

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE          N        MEAN
VAcTt05            1      4.2400
```

Table 13- ANOVA total acidity vinification among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VAcTt06 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.61407     0.20469     5.90   0.0200
WITHIN      8     0.27773     0.03472
TOTAL      11     0.89180
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     1.93      3     0.5875
COCHRAN'S Q                   0.5336
LARGEST VAR / SMALLEST VAR    9.1481
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.05666
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   Parc         MEAN     SIZE      STD DEV
---------   ----------  ------   ----------
Am             4.9700      3       0.2722
Ba             4.7533      3       0.1877
BC             4.4700      3       0.0900
Ca             4.4067      3       0.1464
TOTAL          4.6500     12       0.1863
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAcTt06 BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.53763     0.53763    15.18   0.0030
WITHIN     10     0.35417     0.03542
TOTAL      11     0.89180
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     2.32      1     0.1275
COCHRAN'S Q                   0.8162
LARGEST VAR / SMALLEST VAR    4.4417
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.08370
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE      GROUP
   Inst         MEAN     SIZE      STD DEV
---------   ----------  ------   ----------
PT             4.8617      6       0.2405
VA             4.4383      6       0.1141
TOTAL          4.6500     12       0.1882
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE           N        MEAN
VAcTt06            1      5.0800

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE           N        MEAN
VAcTt06            1      4.6600

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE           N        MEAN
VAcTt06            1      5.1700
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE           N        MEAN
VAcTt06            1      4.6400

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE           N        MEAN
VAcTt06            1      4.6500

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE           N        MEAN
VAcTt06            1      4.9700
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE           N        MEAN
VAcTt06            1      4.5600

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE           N        MEAN
VAcTt06            1      4.4700

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE           N        MEAN
VAcTt06            1      4.3800
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE           N        MEAN
VAcTt06            1      4.4300

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE           N        MEAN
VAcTt06            1      4.5400

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE           N        MEAN
VAcTt06            1      4.2500
```

Table 14- ANOVA volatile acidity vinification among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VAcVl05 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.04240     0.01413     5.17   0.0281
WITHIN      8     0.02187     0.00273
TOTAL      11     0.06427
                        CHI-SQ     DF        P
BARTLETT'S TEST OF     ------   ------   ------
   EQUAL VARIANCES       4.52      3     0.2103
COCHRAN'S Q                     0.5213
LARGEST VAR / SMALLEST VAR      57.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.00380
EFlFeCTIVE CELL SIZE                             3.0
                              SAMPLE      GROUP
   Parc          MEAN       SIZE      STD DEV
---------    ----------    ------   ----------
Am              0.3800        3        0.0100
Ba              0.3133        3        0.0551
BC              0.4000        3        0.0755
Ca              0.4800        3        0.0458
TOTAL           0.3933       12        0.0523
CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY AOV FOR VAcVl05 BY INT
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.02613     0.02613     6.85   0.0257
WITHIN     10     0.03813     0.00381
TOTAL      11     0.06427
                        CHI-SQ     DF        P
BARTLETT'S TEST OF     ------   ------   ------
   EQUAL VARIANCES       0.50      1     0.4810
COCHRAN'S Q                     0.6608
LARGEST VAR / SMALLEST VAR      1.9485
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.00372
EFlFeCTIVE CELL SIZE                             6.0
                              SAMPLE      GROUP
   INT           MEAN       SIZE      STD DEV
---------    ----------    ------   ----------
Pt              0.3467        6        0.0509
VA              0.4400        6        0.0710
TOTAL           0.3933       12        0.0618
CASES INCLUDED 12     MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE            N        MEAN
VAcVl05               1       0.3900

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE            N        MEAN
VAcVl05               1       0.3800

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE            N        MEAN
VAcVl05               1       0.3700
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE            N        MEAN
VAcVl05               1       0.3400

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE            N        MEAN
VAcVl05               1       0.3500

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE            N        MEAN
VAcVl05               1       0.2500
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE            N        MEAN
VAcVl05               1       0.4700

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE            N        MEAN
VAcVl05               1       0.4100

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE            N        MEAN
VAcVl05               1       0.3200
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE            N        MEAN
VAcVl05               1       0.4900

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE            N        MEAN
VAcVl05               1       0.5200

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE            N        MEAN
VAcVl05               1       0.4300
```

Table 15- ANOVA volatile acidity vinification among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VAcVl06 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3    0.12297    0.04099   13.12  0.0019
WITHIN      8    0.02500    0.00313
TOTAL      11    0.14797
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     2.66      3    0.4478
COCHRAN'S Q                    0.4507
LARGEST VAR / SMALLEST VAR     8.8947
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.01262
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Am             0.5133      3       0.0751
Ba             0.6567      3       0.0252
BC             0.4300      3       0.0721
Ca             0.3933      3       0.0321
TOTAL          0.4983     12       0.0559
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAcVl06 BY Inst
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1    0.09013    0.09013   15.59  0.0027
WITHIN     10    0.05783    0.00578
TOTAL      11    0.14797
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     1.30      1    0.2538
COCHRAN'S Q                    0.7496
LARGEST VAR / SMALLEST VAR     2.9931
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.01406
EFlFeCTIVE CELL SIZE                              6.0
                        SAMPLE      GROUP
   Inst          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
PT             0.5850      6       0.0931
VA             0.4117      6       0.0538
TOTAL          0.4983     12       0.0760
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE           N        MEAN
VAcVl06            1      0.4700

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE           N        MEAN
VAcVl06            1      0.4700

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE           N        MEAN
VAcVl06            1      0.6000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE           N        MEAN
VAcVl06            1      0.6600

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE           N        MEAN
VAcVl06            1      0.6300

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE           N        MEAN
VAcVl06            1      0.6800
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE           N        MEAN
VAcVl06            1      0.4100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE           N        MEAN
VAcVl06            1      0.5100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE           N        MEAN
VAcVl06            1      0.3700
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE           N        MEAN
VAcVl06            1      0.3800

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE           N        MEAN
VAcVl06            1      0.3700

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE           N        MEAN
VAcVl06            1      0.4300
```

Table 16- ANOVA fix acidity vinification among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VAcFx05 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.93123     0.31041     3.08   0.0901
WITHIN      8     0.80527     0.10066
TOTAL      11     1.73649
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     1.43     3     0.6978
COCHRAN'S Q                  0.5698
LARGEST VAR / SMALLEST VAR   4.4608
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.06992
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   Parc          MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
Am             4.4433      3      0.2325
Ba             4.3033      3      0.2268
BC             4.0367      3      0.4790
Ca             3.7133      3      0.2603
TOTAL          4.1242     12      0.3173
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAcFx05 BY INT
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.74501     0.74501     7.51   0.0208
WITHIN     10     0.99148     0.09915
TOTAL      11     1.73649
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     1.40     1     0.2364
COCHRAN'S Q                  0.7576
LARGEST VAR / SMALLEST VAR   3.1255
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.10764
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE     GROUP
   INT           MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
Pt             4.3733      6      0.2192
VA             3.8750      6      0.3876
TOTAL          4.1242     12      0.3149
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N        MEAN
VAcFx05              1       4.6200

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N        MEAN
VAcFx05              1       4.1800

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N        MEAN
VAcFx05              1       4.5300
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N        MEAN
VAcFx05              1       4.5600

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N        MEAN
VAcFx05              1       4.1300

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N        MEAN
VAcFx05              1       4.2200
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N        MEAN
VAcFx05              1       3.6200

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N        MEAN
VAcFx05              1       4.5600

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N        MEAN
VAcFx05              1       3.9300
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N        MEAN
VAcFx05              1       3.9800

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N        MEAN
VAcFx05              1       3.4600

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE           N        MEAN
VAcFx05              1       3.7000
```

Table 17- ANOVA fix acidity vinification among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VAcFx06 BY Parc
SOURCE     DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3    0.45609    0.15203    4.80  0.0338
WITHIN      8    0.25333    0.03167
TOTAL      11    0.70942
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.99     3    0.8043
COHRAN'S Q                    0.4366
LARGEST VAR / SMALLEST VAR      4.9228
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.04012
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Am             4.3800      3       0.2352
Ba             3.9333      3       0.1629
BC             3.9367      3       0.1060
Ca             3.9200      3       0.1833
TOTAL          4.0425     12       0.1780
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAcFx06 BY Inst
SOURCE     DF       SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1    0.15641    0.15641    2.83  0.1235
WITHIN     10    0.55302    0.05530
TOTAL      11    0.70942
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     2.76     1    0.0969
COCHRAN'S Q                    0.8371
LARGEST VAR / SMALLEST VAR      5.1389
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01685
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
PT             4.1567      6       0.3043
VA             3.9283      6       0.1342
TOTAL          4.0425     12       0.2352
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE           N         MEAN
VAcFx06            1       4.5400

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE           N         MEAN
VAcFx06            1       4.1100

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE           N         MEAN
VAcFx06            1       4.4900
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE           N         MEAN
VAcFx06            1       3.8200

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE           N         MEAN
VAcFx06            1       3.8600

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE           N         MEAN
VAcFx06            1       4.1200
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE           N         MEAN
VAcFx06            1       4.0500

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE           N         MEAN
VAcFx06            1       3.8400

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE           N         MEAN
VAcFx06            1       3.9200
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE           N         MEAN
VAcFx06            1       3.9600

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE           N         MEAN
VAcFx06            1       4.0800

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE           N         MEAN
VAcFx06            1       3.7200
```

Table 18- ANOVA phenol vinification among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VFenTt05 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3     566.153    188.718     1.84  0.2178
WITHIN      8     819.753    102.469
TOTAL      11     1385.91
                              CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES      9.63       3    0.0219
COCHRAN'S Q                    0.8716
LARGEST VAR / SMALLEST VAR      254.57
COMPONENT OF VARIANCE FOR BETWEEN GROUPS      28.7495
EFlFeCTIVE CELL SIZE                                3.0
                                SAMPLE      GROUP
   Parc            MEAN      SIZE       STD DEV
---------    ----------   ------    ----------
Am              51.100      3        18.901
Ba              67.200      3        4.8662
BC              57.333      3        5.2482
Ca              49.833      3        1.1846
TOTAL           56.367     12        10.123
CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY AOV FOR VFenTt05 BY INT
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1     92.9633    92.9633     0.72  0.4163
WITHIN     10     1292.94    129.294
TOTAL      11     1385.91
                              CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES      4.26       1    0.0390
COCHRAN'S Q                    0.8900
LARGEST VAR / SMALLEST VAR      8.0881
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    -6.05517
EFlFeCTIVE CELL SIZE                                6.0
                                SAMPLE      GROUP
   INT             MEAN      SIZE       STD DEV
---------    ----------   ------    ----------
Pt              59.150      6        15.170
VA              53.583      6        5.3342
TOTAL           56.367     12        11.371
CASES INCLUDED 12     MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE          N          MEAN
VFenTt05            1        65.100

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE          N          MEAN
VFenTt05            1        58.600

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE          N          MEAN
VFenTt05            1        29.600
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE          N          MEAN
VFenTt05            1        64.800

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE          N          MEAN
VFenTt05            1        72.800

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE          N          MEAN
VFenTt05            1        64.000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE          N          MEAN
VFenTt05            1        58.500

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE          N          MEAN
VFenTt05            1        51.600

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE          N          MEAN
VFenTt05            1        61.900
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE          N          MEAN
VFenTt05            1        49.100

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE          N          MEAN
VFenTt05            1        51.200

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE          N          MEAN
VFenTt05            1        49.200
```

Table 19- ANOVA phenol vinification among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VFenTt06 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3     572.790     190.930     3.32  0.0778
WITHIN      8     460.567     57.5708
TOTAL      11     1033.36
                          CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    12.74      3     0.0052
COCHRAN'S Q                    0.9159
LARGEST VAR / SMALLEST VAR     781.16
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     44.4531
EFlFeCTIVE CELL SIZE                             3.0
                                SAMPLE      GROUP
   Parc            MEAN      SIZE      STD DEV
---------   ----------  ------  ----------
Am              38.700       3       14.523
Ba              54.400       3       0.5196
BC              40.600       3       2.7731
Ca              36.900       3       3.3779
TOTAL           42.650      12       7.5875
CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY AOV FOR VFenTt06 BY Inst
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1     182.520     182.520     2.15  0.1737
WITHIN     10     850.837     85.0837
TOTAL      11     1033.36
                          CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     6.17      1     0.0130
COCHRAN'S Q                    0.9310
LARGEST VAR / SMALLEST VAR     13.486
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     16.2394
EFlFeCTIVE CELL SIZE                             6.0
                                SAMPLE      GROUP
   Inst            MEAN      SIZE      STD DEV
---------   ----------  ------  ----------
PT              46.550       6       12.587
VA              38.750       6       3.4274
TOTAL           42.650      12       9.2241
CASES INCLUDED 12     MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE            N         MEAN
VFenTt06            1       50.070

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE            N         MEAN
VFenTt06            1       43.690

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE            N         MEAN
VFenTt06            1       22.340
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE            N         MEAN
VFenTt06            1       55.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE            N         MEAN
VFenTt06            1       54.100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE            N         MEAN
VFenTt06            1       54.100
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE            N         MEAN
VFenTt06            1       39.100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE            N         MEAN
VFenTt06            1       43.800

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE            N         MEAN
VFenTt06            1       38.900
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE            N         MEAN
VFenTt06            1       38.800

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE            N         MEAN
VFenTt06            1       33.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE            N         MEAN
VFenTt06            1       38.900
```

Table 20- ANOVA wine colour intensity among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VCor05 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     19.0337     6.34456     6.51   0.0154
WITHIN      8     7.79600     0.97450
TOTAL      11     26.8297
                          CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     1.39      3     0.7071
COCHRAN'S Q                     0.3872
LARGEST VAR / SMALLEST VAR      6.7982
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    1.79002
EFlFeCTIVE CELL SIZE                             3.0
                               SAMPLE      GROUP
   Parc           MEAN          SIZE      STD DEV
---------     ----------     ------     ----------
Am              9.8600         3         0.9824
Ba              10.477         3         1.0961
BC              10.793         3         1.2286
Ca              7.5733         3         0.4712
TOTAL           9.6758        12         0.9872
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VCor05 BY INT
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     2.91067     2.91067     1.22   0.2958
WITHIN     10     23.9190     2.39190
TOTAL      11     26.8297
                          CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     1.94      1     0.1632
COCHRAN'S Q                     0.7950
LARGEST VAR / SMALLEST VAR      3.8780
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.08646
EFlFeCTIVE CELL SIZE                             6.0
                               SAMPLE      GROUP
   INT            MEAN          SIZE      STD DEV
---------     ----------     ------     ----------
Pt              10.168         6         0.9903
VA              9.1833         6         1.9502
TOTAL           9.6758        12         1.5466
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE            N          MEAN
VCor05                1        9.5500

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE            N          MEAN
VCor05                1        10.960

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE            N          MEAN
VCor05                1        9.0700
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE            N          MEAN
VCor05                1        9.6500

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE            N          MEAN
VCor05                1        11.720

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE            N          MEAN
VCor05                1        10.060
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE            N          MEAN
VCor05                1        10.020

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE            N          MEAN
VCor05                1        10.150

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE            N          MEAN
VCor05                1        12.210
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE            N          MEAN
VCor05                1        7.8200

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE            N          MEAN
VCor05                1        7.8700

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE            N          MEAN
VCor05                1        7.0300
```

Table 21- ANOVA wine colour intensity among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VCor06 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    12.2322    4.07740    15.37  0.0011
WITHIN     8    2.12247    0.26531
TOTAL     11    14.3547
                         CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     7.02      3    0.0713
COCHRAN'S Q                     0.6862
LARGEST VAR / SMALLEST VAR      139.15
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     1.27070
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE      GROUP
   Parc         MEAN     SIZE      STD DEV
---------   ----------  ------  ----------
Am             5.9233     3        0.2715
Ba             7.2033     3        0.0723
BC             5.7733     3        0.5040
Ca             4.3533     3        0.8534
TOTAL          5.8133    12        0.5151
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VCor06 BY Inst
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     6.75000    6.75000    8.88  0.0138
WITHIN    10     7.60467    0.76047
TOTAL     11     14.3547
                         CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.47      1    0.4949
COCHRAN'S Q                     0.6561
LARGEST VAR / SMALLEST VAR      1.9075
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.99826
EFlFeCTIVE CELL SIZE                              6.0
                        SAMPLE      GROUP
   Inst         MEAN     SIZE      STD DEV
---------   ----------  ------  ----------
PT             6.5633     6        0.7233
VA             5.0633     6        0.9989
TOTAL          5.8133    12        0.8720
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE           N        MEAN
VCor06             1      6.0700

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE           N        MEAN
VCor06             1      6.0900

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE           N        MEAN
VCor06             1      5.6100
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE           N        MEAN
VCor06             1      7.2500

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE           N        MEAN
VCor06             1      7.2400

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE           N        MEAN
VCor06             1      7.1200
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE           N        MEAN
VCor06             1      5.3100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE           N        MEAN
VCor06             1      6.3100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE           N        MEAN
VCor06             1      5.7000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE           N        MEAN
VCor06             1      4.9000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE           N        MEAN
VCor06             1      3.3700

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE           N        MEAN
VCor06             1      4.7900
```

Table 22- ANOVA wine tonality intensity among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year**.**

```
ONE-WAY AOV FOR VTon05 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.01320     0.00440     3.07   0.0909
WITHIN      8     0.01147     0.00143
TOTAL      11     0.02467
                          CHI-SQ     DF       P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES     1.36       3     0.7142
COCHRAN'S Q                    0.4360
LARGEST VAR / SMALLEST VAR     5.7692
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  9.889E-04
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   Parc         MEAN     SIZE      STD DEV
---------   ----------  ------   ----------
Am            0.7433      3        0.0208
Ba            0.7300      3        0.0436
BC            0.7300      3        0.0300
Ca            0.8100      3        0.0500
TOTAL         0.7533     12        0.0379
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VTon05 BY INT
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.00333     0.00333     1.56   0.2398
WITHIN     10     0.02133     0.00213
TOTAL      11     0.02467
                          CHI-SQ     DF       P
BARTLETT'S TEST OF        ------   ------   ------
   EQUAL VARIANCES     1.55       1     0.2132
COCHRAN'S Q                    0.7688
LARGEST VAR / SMALLEST VAR     3.3243
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  2.000E-04
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE      GROUP
   INT          MEAN     SIZE      STD DEV
---------   ----------  ------   ----------
Pt            0.7367      6        0.0314
VA            0.7700      6        0.0573
TOTAL         0.7533     12        0.0462
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N        MEAN
VTon05               1      0.7600

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N        MEAN
VTon05               1      0.7200

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N        MEAN
VTon05               1      0.7500
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N        MEAN
VTon05               1      0.7500

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N        MEAN
VTon05               1      0.7600

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N        MEAN
VTon05               1      0.6800
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N        MEAN
VTon05               1      0.7600

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N        MEAN
VTon05               1      0.7300

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N        MEAN
VTon05               1      0.7000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N        MEAN
VTon05               1      0.8100

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N        MEAN
VTon05               1      0.7600

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE           N        MEAN
VTon05               1      0.8600
```

Table 23- ANOVA wine tonality intensity among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VTon06 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    3     0.00230   7.667E-04    0.26   0.8498
WITHIN     8     0.02327     0.00291
TOTAL     11     0.02557
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.88      3    0.8314
COSCHRAN'S Q                    0.3811
LARGEST VAR / SMALLEST VAR      4.2903
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -7.139E-04
EFlFeCTIVE CELL SIZE                               3.0
                            SAMPLE      GROUP
   Parc          MEAN        SIZE      STD DEV
---------    ----------   ------   ----------
Am             0.7233        3        0.0321
Ba             0.7333        3        0.0666
BC             0.7167        3        0.0503
Ca             0.7533        3        0.0603
TOTAL          0.7317       12        0.0539
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VTon06 BY Inst
SOURCE     DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN    1   1.333E-04   1.333E-04    0.05   0.8235
WITHIN    10     0.02543     0.00254
TOTAL     11     0.02557
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.08      1    0.7833
COCHRAN'S Q                     0.5642
LARGEST VAR / SMALLEST VAR      1.2947
COMPONENT OF VARIANCE FOR BETWEEN GROUPS -4.017E-04
EFlFeCTIVE CELL SIZE                               6.0
                            SAMPLE      GROUP
   Inst          MEAN        SIZE      STD DEV
---------    ----------   ------   ----------
PT             0.7283        6        0.0471
VA             0.7350        6        0.0536
TOTAL          0.7317       12        0.0504
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE             N        MEAN
VTon06               1      0.7600

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE             N        MEAN
VTon06               1      0.7100

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE             N        MEAN
VTon06               1      0.7000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE             N        MEAN
VTon06               1      0.7900

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE             N        MEAN
VTon06               1      0.7500

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE             N        MEAN
VTon06               1      0.6600
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE             N        MEAN
VTon06               1      0.7700

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE             N        MEAN
VTon06               1      0.6700

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE             N        MEAN
VTon06               1      0.7100
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE             N        MEAN
VTon06               1      0.7600

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE             N        MEAN
VTon06               1      0.8100

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE             N        MEAN
VTon06               1      0.6900
```

Table 24- ANOVA wine ashes among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VCinza05 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN     3     0.45022     0.15007     1.42   0.3060
WITHIN      8     0.84400     0.10550
TOTAL      11     1.29422
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     3.81      3    0.2831
COCHRAN'S Q                   0.7173
LARGEST VAR / SMALLEST VAR    17.911
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.01486
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
Am             3.0300      3       0.1931
Ba             3.3900      3       0.5502
BC             3.2300      3       0.1300
Ca             2.8800      3       0.2551
TOTAL          3.1325     12       0.3248
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VCinza05 BY INT
SOURCE     DF        SS          MS          F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN     1     0.07207     0.07207     0.59   0.4603
WITHIN     10     1.22215     0.12222
TOTAL      11     1.29423
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.93      1    0.3339
COCHRAN'S Q                   0.7155
LARGEST VAR / SMALLEST VAR    2.5145
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    -0.00836
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE     GROUP
   INT           MEAN     SIZE    STD DEV
---------   ----------  ------  ----------
Pt             3.2100      6       0.4182
VA             3.0550      6       0.2637
TOTAL          3.1325     12       0.3496
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N         MEAN
VCinza05             1       3.0700

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N         MEAN
VCinza05             1       3.2000

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N         MEAN
VCinza05             1       2.8200
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N         MEAN
VCinza05             1       3.2000

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N         MEAN
VCinza05             1       4.0100

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N         MEAN
VCinza05             1       2.9600
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N         MEAN
VCinza05             1       3.1600

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N         MEAN
VCinza05             1       3.3800

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N         MEAN
VCinza05             1       3.1500
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N         MEAN
VCinza05             1       3.0700

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N         MEAN
VCinza05             1       2.9800

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE           N         MEAN
VCinza05             1       2.5900
```

Table 25- ANOVA wine ashes among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VCinza06 BY Parc
SOURCE    DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3    0.06420    0.02140    0.07  0.9720
WITHIN     8    2.30027    0.28753
TOTAL     11    2.36447
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     2.98      3    0.3940
COHRAN'S Q                  0.5016
LARGEST VAR / SMALLEST VAR     21.185
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.08871
EFlFeCTIVE CELL SIZE                          3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             3.0067      3       0.7596
Ba             2.9067      3       0.5712
BC             2.9767      3       0.1650
Ca             2.8167      3       0.4688
TOTAL          2.9267     12       0.5362
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VCinza06 BY Inst
SOURCE    DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1    0.01080    0.01080    0.05  0.8347
WITHIN    10    2.35367    0.23537
TOTAL     11    2.36447
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     1.62      1    0.2030
COCHRAN'S Q                  0.7738
LARGEST VAR / SMALLEST VAR     3.4214
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.03743
EFlFeCTIVE CELL SIZE                          6.0
                        SAMPLE      GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
PT             2.9567      6       0.6035
VA             2.8967      6       0.3263
TOTAL          2.9267     12       0.4851
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE          N        MEAN
VCinza06          1      3.8800

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE          N        MEAN
VCinza06          1      2.5000

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE          N        MEAN
VCinza06          1      2.6400
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE          N        MEAN
VCinza06          1      3.5200

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE          N        MEAN
VCinza06          1      2.3900

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE          N        MEAN
VCinza06          1      2.8100
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE          N        MEAN
VCinza06          1      3.1600

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE          N        MEAN
VCinza06          1      2.9300

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE          N        MEAN
VCinza06          1      2.8400
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE          N        MEAN
VCinza06          1      3.3500

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE          N        MEAN
VCinza06          1      2.6300

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE          N        MEAN
VCinza06          1      2.4700
```

Table 26- ANOVA wine ashes alcalinity among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VAlc05 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     44.1225     14.7075     1.09   0.4074
WITHIN      8     107.967     13.4958
TOTAL      11     152.089
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     3.32      3     0.3451
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.40389
COCHRAN'S Q                    0.6024
LARGEST VAR / SMALLEST VAR     21.973
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.40389
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------   ------   ----------
Am             29.933      3        2.7099
Ba             34.500      3        5.7026
BC             31.100      3        1.2166
Ca             29.700      3        3.5553
TOTAL          31.308     12        3.6737
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAlc05 BY INT
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     9.90083     9.90083     0.70   0.4235
WITHIN     10     142.188     14.2188
TOTAL      11     152.089
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     1.72      1     0.1896
COCHRAN'S Q                    0.7807
LARGEST VAR / SMALLEST VAR     3.5602
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.71967
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE     GROUP
   INT           MEAN     SIZE     STD DEV
---------   ----------   ------   ----------
Pt             32.217      6        4.7119
VA             30.400      6        2.4972
TOTAL          31.308     12        3.7708
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N        MEAN
VAlc05               1       32.500

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N        MEAN
VAlc05               1       30.200

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N        MEAN
VAlc05               1       27.100
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N        MEAN
VAlc05               1       34.300

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N        MEAN
VAlc05               1       40.300

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N        MEAN
VAlc05               1       28.900
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N        MEAN
VAlc05               1       32.500

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N        MEAN
VAlc05               1       30.300

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N        MEAN
VAlc05               1       30.500
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N        MEAN
VAlc05               1       32.500

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N        MEAN
VAlc05               1       30.900

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE           N        MEAN
VAlc05               1       25.700
```

Table 27- ANOVA wine ashes alcalinity among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VAlc06 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     150.776     50.2586     3.59   0.0657
WITHIN      8     111.906     13.9882
TOTAL      11     262.681
                         CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     0.74      3     0.8642
COCHRAN'S Q                     0.4196
LARGEST VAR / SMALLEST VAR      3.8681
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     12.0901
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------   ------   ----------
Am             27.367      3        4.8456
Ba             33.267      3        3.8371
BC             25.900      3        3.4176
Ca             23.700      3        2.4637
TOTAL          27.558     12        3.7401
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAlc06 BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     91.3008     91.3008     5.33   0.0436
WITHIN     10     171.381     17.1381
TOTAL      11     262.681
                         CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     1.31      1     0.2517
COCHRAN'S Q                     0.7505
LARGEST VAR / SMALLEST VAR      3.0080
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     12.3605
EFlFeCTIVE CELL SIZE                              6.0
                        SAMPLE      GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------   ------   ----------
PT             30.317      6        5.0719
VA             24.800      6        2.9244
TOTAL          27.558     12        4.1398
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE           N         MEAN
VAlc06             1       32.660

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE           N         MEAN
VAlc06             1       26.290

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE           N         MEAN
VAlc06             1       23.150
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE           N         MEAN
VAlc06             1       34.800

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE           N         MEAN
VAlc06             1       36.100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE           N         MEAN
VAlc06             1       28.900
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE           N         MEAN
VAlc06             1       29.100

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE           N         MEAN
VAlc06             1       26.300

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE           N         MEAN
VAlc06             1       22.300
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE           N         MEAN
VAlc06             1       23.400

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE           N         MEAN
VAlc06             1       26.300

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE           N         MEAN
VAlc06             1       21.400
```

Table 28- ANOVA wine inorganic phosphorous (PO_4) among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VP0405 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.03333     0.01111     0.46   0.7180
WITHIN      8     0.19333     0.02417
TOTAL      11     0.22667
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     1.12      3     0.7721
COSHRAN'S Q                    0.4483
LARGEST VAR / SMALLEST VAR     4.3333
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00435
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------   ------   ----------
Am             0.3667       3       0.1155
Ba             0.5000       3       0.1732
BC             0.4667       3       0.2082
Ca             0.4000       3       0.1000
TOTAL          0.4333      12       0.1555
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N         MEAN
VP0405               1       0.5000

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N         MEAN
VP0405               1       0.3000

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N         MEAN
VP0405               1       0.3000

DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N         MEAN
VP0405               1       0.4000

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N         MEAN
VP0405               1       0.4000

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N         MEAN
VP0405               1       0.7000

DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N         MEAN
VP0405               1       0.3000

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N         MEAN
VP0405               1       0.7000

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N         MEAN
VP0405               1       0.4000

DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N         MEAN
VP0405               1       0.5000

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N         MEAN
VP0405               1       0.3000

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE           N         MEAN
VP0405               1       0.4000
```

Table 29- ANOVA wine inorganic phosphorous (PO_4) among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VPO406 BY Parc
SOURCE    DF        SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.10840    0.03613    6.74  0.0140
WITHIN     8     0.04287    0.00536
TOTAL     11     0.15127
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01026
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.3533      3       0.0379
Ba             0.5000      3       0.1000
BC             0.6000      3       0.1000
Ca             0.4000      3       0.0000
TOTAL          0.4633     12       0.0732
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VPO406 BY Inst
SOURCE    DF        SS          MS         F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.01613    0.01613    1.19  0.3002
WITHIN    10     0.13513    0.01351
TOTAL     11     0.15127
                    CHI-SQ    DF       P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES    0.16     1    0.6923
COCHRAN'S Q                  0.5920
LARGEST VAR / SMALLEST VAR   1.4510
COMPONENT OF VARIANCE FOR BETWEEN GROUPS  4.367E-04
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE     GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
PT             0.4267      6       0.1050
VA             0.5000      6       0.1265
TOTAL          0.4633     12       0.1162
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE          N        MEAN
VPO406            1      0.3700

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE          N        MEAN
VPO406            1      0.3800

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE          N        MEAN
VPO406            1      0.3100
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE          N        MEAN
VPO406            1      0.5000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE          N        MEAN
VPO406            1      0.6000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE          N        MEAN
VPO406            1      0.4000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE          N        MEAN
VPO406            1      0.5000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE          N        MEAN
VPO406            1      0.7000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE          N        MEAN
VPO406            1      0.6000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE          N        MEAN
VPO406            1      0.4000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE          N        MEAN
VPO406            1      0.4000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE          N        MEAN
VPO406            1      0.4000
```

Table 30- ANOVA wine anthocyanins among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VAnt05 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3      106644     35547.9      2.84   0.1057
WITHIN      8      100141     12517.7
TOTAL      11      206785
                      CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     3.27      3     0.3520
COCHRAN'S Q                    0.3515
LARGEST VAR / SMALLEST VAR     22.652
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    7676.73
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------    ----------  ------   ----------
Am             214.33      3        120.23
Ba             373.00      3        27.875
BC             391.33      3        132.67
Ca             475.00      3        131.30
TOTAL          363.42     12        111.88
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAnt05 BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     58380.8     58380.8      3.93   0.0754
WITHIN     10      148404     14840.4
TOTAL      11      206785
                      CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     0.03      1     0.8634
COCHRAN'S Q                    0.5403
LARGEST VAR / SMALLEST VAR     1.1752
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    7256.72
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE      GROUP
   Inst          MEAN     SIZE     STD DEV
---------    ----------  ------   ----------
PT             293.67      6        116.81
VA             433.17      6        126.63
TOTAL          363.42     12        121.82
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N        MEAN
VAnt               1      352.00

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N        MEAN
VAnt               1      161.00

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N        MEAN
VAnt               1      130.00
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N        MEAN
VAnt               1      342.00

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N        MEAN
VAnt               1      396.00

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N        MEAN
VAnt               1      381.00
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N        MEAN
VAnt               1      349.00

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N        MEAN
VAnt               1      285.00

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N        MEAN
VAnt               1      540.00
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N        MEAN
VAnt               1      500.00

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N        MEAN
VAnt               1      333.00

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE           N        MEAN
VAnt               1      592.00
```

Table 31- ANOVA wine anthocyanins among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VAnt06 BY Parc
SOURCE     DF        SS          MS         F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN     3    51961.4     17320.5     5.45   0.0246
WITHIN      8    25418.1     3177.27
TOTAL      11    77379.5
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    7.11      3     0.0686
COCHRAN'S Q                  0.8587
LARGEST VAR / SMALLEST VAR   38.791
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    4714.40
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
   Parc         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            162.33      3       104.47
Ba            344.67      3       16.773
BC            272.67      3       20.257
Ca            235.33      3       33.232
TOTAL         253.75     12       56.367
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VAnt06 BY Inst
SOURCE     DF        SS          MS         F        P
-------  ----  ---------   ---------   ------   ------
BETWEEN     1    0.75501     0.75501     0.00   0.9923
WITHIN     10    77378.8     7737.88
TOTAL      11    77379.5
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    6.35      1     0.0117
COCHRAN'S Q                  0.9338
LARGEST VAR / SMALLEST VAR   14.113
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -1289.52
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE     GROUP
   Inst         MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
PT            253.50      6       120.22
VA            254.00      6       32.000
TOTAL         253.75     12       87.965
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE          N        MEAN
VAnt06            1      278.76

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE          N        MEAN
VAnt06            1      131.43

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE          N        MEAN
VAnt06            1      76.800
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE          N        MEAN
VAnt06            1      364.00

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE          N        MEAN
VAnt06            1      334.00

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE          N        MEAN
VAnt06            1      336.00
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE          N        MEAN
VAnt06            1      279.00

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE          N        MEAN
VAnt06            1      289.00

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE          N        MEAN
VAnt06            1      250.00
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE          N        MEAN
VAnt06            1      256.00

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE          N        MEAN
VAnt06            1      197.00

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE          N        MEAN
VAnt06            1      253.00
```

Table 32- ANOVA sulphur anhydride first application for wine among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VSO2L05 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     126.250    42.0833     0.98  0.4480
WITHIN     8     342.667    42.8333
TOTAL     11     468.917
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     3.42      3    0.3318
COCHRAN'S Q                    0.7082
LARGEST VAR / SMALLEST VAR     13.000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.25000
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             27.667      3       5.1316
Ba             27.333      3       3.0551
BC             31.333      3       3.7859
Ca             35.333      3       11.015
TOTAL          30.417     12       6.5447
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VSO2L05 BY INT
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1     102.083    102.083     2.78  0.1262
WITHIN     10     366.833    36.6833
TOTAL      11     468.917
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     2.12      1    0.1457
COCHRAN'S Q                    0.8051
LARGEST VAR / SMALLEST VAR     4.1305
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    10.9000
EFlFeCTIVE CELL SIZE                              6.0
                        SAMPLE      GROUP
   INT           MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt             27.500      6       3.7815
VA             33.333      6       7.6855
TOTAL          30.417     12       6.0567
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE          N        MEAN
VSO2L05             1      32.000

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE          N        MEAN
VSO2L05             1      29.000

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE          N        MEAN
VSO2L05             1      22.000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE          N        MEAN
VSO2L05             1      30.000

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE          N        MEAN
VSO2L05             1      28.000

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE          N        MEAN
VSO2L05             1      24.000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE          N        MEAN
VSO2L05             1      34.000

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE          N        MEAN
VSO2L05             1      33.000

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE          N        MEAN
VSO2L05             1      27.000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE          N        MEAN
VSO2L05             1      28.000

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE          N        MEAN
VSO2L05             1      30.000

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE          N        MEAN
VSO2L05             1      48.000
```

Table 33- ANOVA sulphur anhydride first application for wine among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year**.**

```
ONE-WAY AOV FOR VSO2L06 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3    39.1737    13.0579    0.96  0.4557
WITHIN      8    108.428    13.5535
TOTAL      11    147.602
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     3.18      3    0.3647
COCHRAN'S Q                    0.5635
LARGEST VAR / SMALLEST VAR     22.910
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.16519
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             29.320      3       5.5270
Ba             31.333      3       3.0551
BC             31.000      3       3.6056
Ca             34.333      3       1.1547
TOTAL          31.497     12       3.6815
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VSO2L06 BY Inst
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1    16.4268    16.4268    1.25  0.2893
WITHIN     10    131.175    13.1175
TOTAL      11    147.602
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.46      1    0.4997
COCHRAN'S Q                    0.6544
LARGEST VAR / SMALLEST VAR     1.8936
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.55155
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE      GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
PT             30.327      6       4.1435
VA             32.667      6       3.0111
TOTAL          31.497     12       3.6218
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE          N        MEAN
VSO2L06           1      34.930

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE          N        MEAN
VSO2L06           1      29.150

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE          N        MEAN
VSO2L06           1      23.880
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE          N        MEAN
VSO2L06           1      32.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE          N        MEAN
VSO2L06           1      28.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE          N        MEAN
VSO2L06           1      34.000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE          N        MEAN
VSO2L06           1      35.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE          N        MEAN
VSO2L06           1      28.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE          N        MEAN
VSO2L06           1      30.000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE          N        MEAN
VSO2L06           1      33.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE          N        MEAN
VSO2L06           1      35.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE          N        MEAN
VSO2L06           1      35.000
```

Table 34- ANOVA sulphur anhydride second application for wine among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR VSO2T05 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     1012.33     337.444      2.32   0.1513
WITHIN      8     1161.33     145.167
TOTAL      11     2173.67
                         CHI-SQ    DF        P
BARTLETT'S TEST OF       ------  ------   ------
   EQUAL VARIANCES        3.01     3     0.3906
COCHRAN'S Q                       0.7032
LARGEST VAR / SMALLEST VAR        9.4961
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    64.0926
EFlFeCTIVE CELL SIZE                             3.0
                             SAMPLE      GROUP
   Parc          MEAN         SIZE      STD DEV
---------    ----------     ------    ----------
Am             83.000          3        6.5574
Ba             61.333          3        7.5056
BC             81.000          3        8.5440
Ca             83.333          3       20.207
TOTAL          77.167         12       12.049
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VSO2T05 BY Inst
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     300.000     300.000      1.60   0.2344
WITHIN     10     1873.67     187.367
TOTAL      11     2173.67
                         CHI-SQ    DF        P
BARTLETT'S TEST OF       ------  ------   ------
   EQUAL VARIANCES        0.01     1     0.9383
COCHRAN'S Q                       0.5181
LARGEST VAR / SMALLEST VAR        1.0753
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    18.7722
EFlFeCTIVE CELL SIZE                             6.0
                             SAMPLE      GROUP
   Inst          MEAN         SIZE      STD DEV
---------    ----------     ------    ----------
Pt             72.167          6       13.438
VA             82.167          6       13.934
TOTAL          77.167         12       13.688
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N          MEAN
VSO2T05              1        77.000

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N          MEAN
VSO2T05              1        82.000

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N          MEAN
VSO2T05              1        90.000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N          MEAN
VSO2T05              1        70.000

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N          MEAN
VSO2T05              1        57.000

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N          MEAN
VSO2T05              1        57.000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N          MEAN
VSO2T05              1        73.000

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N          MEAN
VSO2T05              1        90.000

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N          MEAN
VSO2T05              1        80.000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N          MEAN
VSO2T05              1        80.000

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N          MEAN
VSO2T05              1        65.000

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE           N          MEAN
VSO2T05              1        105.00
```

Table 35- ANOVA sulphur anhydride second application for wine among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR VSO2T06 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3     432.835    144.278     3.28  0.0797
WITHIN      8     352.230    44.0287
TOTAL      11     785.065
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     1.19      3    0.7553
COCHRAN'S Q                   0.4259
LARGEST VAR / SMALLEST VAR    4.5918
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     33.4166
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             90.697      3        7.7318
Ba             78.667      3        4.0415
BC             75.000      3        5.0000
Ca             85.000      3        8.6603
TOTAL          82.341     12        6.6354
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR VSO2T06 BY Inst
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1    65.7540    65.7540     0.91  0.3616
WITHIN     10    719.311    71.9311
TOTAL      11    785.065
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.00      1    0.9543
COCHRAN'S Q                   0.5134
LARGEST VAR / SMALLEST VAR    1.0552
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    -1.02951
EFlFeCTIVE CELL SIZE                              6.0
                        SAMPLE      GROUP
   Inst          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
PT             84.682      6        8.5943
VA             80.000      6        8.3666
TOTAL          82.341     12        8.4812
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG1
VARIABLE           N         MEAN
VSO2T06            1       82.620

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG2
VARIABLE           N         MEAN
VSO2T06            1       98.030

DESCRIPTIVE STATISTICS FOR PaEtG3 = AmG3
VARIABLE           N         MEAN
VSO2T06            1       91.440
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG1
VARIABLE           N         MEAN
VSO2T06            1       83.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG2
VARIABLE           N         MEAN
VSO2T06            1       78.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BaG3
VARIABLE           N         MEAN
VSO2T06            1       75.000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG1
VARIABLE           N         MEAN
VSO2T06            1       80.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG2
VARIABLE           N         MEAN
VSO2T06            1       75.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = BCG3
VARIABLE           N         MEAN
VSO2T06            1       70.000
```

```
DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG1
VARIABLE           N         MEAN
VSO2T06            1       75.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG2
VARIABLE           N         MEAN
VSO2T06            1       90.000

DESCRIPTIVE STATISTICS FOR PaEtG3 = CaG3
VARIABLE           N         MEAN
VSO2T06            1       90.000
```

Table 36- Data from taste wine test according plots installation and installation forms**.**

Year 2005:

DESCRIPTIVE STATISTICS FOR Parc = Am

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor05	3	3.7767	3.6700	3.8300
PrAroma05	3	3.5000	3.3300	3.6700
PrFrVer05	3	1.9967	1.8300	2.1600
PrFloral05	3	0.2200	0.0000	0.3300
PrCorpo05	3	3.3867	3.3300	3.5000
PrAdst05	3	3.1667	3.0000	3.5000
PrAcTt05	3	3.0000	3.0000	3.0000
PrFinal05	3	12.720	12.500	12.830

DESCRIPTIVE STATISTICS FOR Parc = Ba

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor05	3	3.8900	3.5000	4.1700
PrAroma05	3	3.5533	3.3300	3.8300
PrFrVer05	3	2.1667	2.0000	2.5000
PrFloral05	3	0.5000	0.3300	0.6700
PrCorpo05	3	3.3367	3.1700	3.6700
PrAdst05	3	3.4433	3.0000	3.8300
PrAcTt05	3	3.0000	3.0000	3.0000
PrFinal05	3	13.000	12.670	13.500

DESCRIPTIVE STATISTICS FOR Parc = BC

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor05	3	3.5033	3.1700	4.1700
PrAroma05	3	3.4433	3.3300	3.5000
PrFrVer05	3	2.2200	2.0000	2.3300
PrFloral05	3	0.8867	0.5000	1.3300
PrCorpo05	3	3.4433	3.3300	3.5000
PrAdst05	3	3.1667	3.0000	3.3300
PrAcTt05	3	3.0000	3.0000	3.0000
PrFinal05	3	13.000	12.500	13.830

DESCRIPTIVE STATISTICS FOR Parc = Ca

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor05	3	3.1100	2.8300	3.5000
PrAroma05	3	3.0567	2.6700	3.6700
PrFrVer05	3	1.8900	1.5000	2.5000
PrFloral05	3	0.8333	0.6700	1.0000
PrCorpo05	3	2.7767	2.6700	2.8300
PrAdst05	3	2.7233	2.0000	3.1700
PrAcTt05	3	3.0000	3.0000	3.0000
PrFinal05	3	11.557	10.670	12.170

DESCRIPTIVE STATISTICS FOR Inst = Pt

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor05	6	3.8333	3.5000	4.1700
PrAroma05	6	3.5267	3.3300	3.8300
PrFrVer05	6	2.0817	1.8300	2.5000
PrFloral05	6	0.3600	0.0000	0.6700
PrCorpo05	6	3.3617	3.1700	3.6700
PrAdst05	6	3.3050	3.0000	3.8300
PrAcTt05	6	3.0000	3.0000	3.0000
PrFinal05	6	12.860	12.500	13.500

DESCRIPTIVE STATISTICS FOR Inst = VA

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor05	6	3.3067	2.8300	4.1700
PrAroma05	6	3.2500	2.6700	3.6700
PrFrVer05	6	2.0550	1.5000	2.5000
PrFloral05	6	0.8600	0.5000	1.3300
PrCorpo05	6	3.1100	2.6700	3.5000
PrAdst05	6	2.9450	2.0000	3.3300
PrAcTt05	6	3.0000	3.0000	3.0000
PrFinal05	6	12.278	10.670	13.830

Year 2006:

DESCRIPTIVE STATISTICS FOR PARC = Am

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor06	3	3.1667	3.0600	3.2200
PrAroma06	3	3.2000	3.0300	3.3700
PrFrVer06	3	1.9367	1.7700	2.1000
PrFloral06	3	0.0000	0.0000	0.0000
PrCorpo06	3	2.8167	2.7600	2.9300
PrAdst06	3	2.9267	2.7600	3.2600
PrAcTt06	3	2.6700	2.6700	2.6700
PrFinal06	3	11.890	11.670	12.000

DESCRIPTIVE STATISTICS FOR PARC = Ba

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor06	3	3.5000	3.5000	3.5000
PrAroma06	3	2.8900	2.6700	3.0000
PrFrVer06	3	2.0567	1.6700	2.5000
PrFloral06	3	0.1100	0.0000	0.3300
PrCorpo06	3	2.9467	2.6700	3.1700
PrAdst06	3	3.1667	3.0000	3.3300
PrAcTt06	3	2.6700	2.6700	2.6700
PrFinal06	3	12.113	11.670	12.500

DESCRIPTIVE STATISTICS FOR PARC = BC

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor06	3	2.9967	2.8300	3.3300
PrAroma06	3	3.0533	2.8300	3.3300
PrFrVer06	3	1.9433	1.8300	2.0000
PrFloral06	3	0.2200	0.0000	0.3300
PrCorpo06	3	2.6700	2.1700	3.1700
PrAdst06	3	2.8333	2.5000	3.3300
PrAcTt06	3	2.6700	2.6700	2.6700
PrFinal06	3	11.667	11.330	12.000

DESCRIPTIVE STATISTICS FOR PARC = Ca

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor06	3	2.1667	2.0000	2.3300
PrAroma06	3	3.2200	3.0000	3.3300
PrFrVer06	3	2.1100	1.8300	2.5000
PrFloral06	3	0.0000	0.0000	0.0000
PrCorpo06	3	2.2200	1.8300	2.5000
PrAdst06	3	2.6100	2.3300	2.8300
PrAcTt06	3	2.7800	2.5000	3.1700
PrFinal06	3	11.277	11.170	11.330

DESCRIPTIVE STATISTICS FOR INST = PT

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor06	6	3.3333	3.0600	3.5000
PrAroma06	6	3.0450	2.6700	3.3700
PrFrVer06	6	1.9967	1.6700	2.5000
PrFloral06	6	0.0550	0.0000	0.3300
PrCorpo06	6	2.8817	2.6700	3.1700
PrAdst06	6	3.0467	2.7600	3.3300
PrAcTt06	6	2.6700	2.6700	2.6700
PrFinal06	6	12.002	11.670	12.500

DESCRIPTIVE STATISTICS FOR INST = VA

VARIABLE	N	MEAN	MINIMUM	MAXIMUM
PrInCor06	6	2.5817	2.0000	3.3300
PrAroma06	6	3.1367	2.8300	3.3300
PrFrVer06	6	2.0267	1.8300	2.5000
PrFloral06	6	0.1100	0.0000	0.3300
PrCorpo06	6	2.4450	1.8300	3.1700
PrAdst06	6	2.7217	2.3300	3.3300
PrAcTt06	6	2.7250	2.5000	3.1700
PrFinal06	6	11.472	11.170	12.000

Table 37- ANOVA wine colour intensity among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR PrInCor05 BY Parc
SOURCE     DF        SS          MS           F        P
-------   ----   ---------   ---------    ------   ------
BETWEEN     3     1.08347     0.36116      2.47   0.1362
WITHIN      8     1.16893     0.14612
TOTAL      11     2.25240
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     3.95      3     0.2666
COCHRAN'S Q                    0.5703
LARGEST VAR / SMALLEST VAR     39.062
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.07168
EFlFeCTIVE CELL SIZE                             3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Am             3.7767      3       0.0924
Ba             3.8900      3       0.3483
BC             3.5033      3       0.5774
Ca             3.1100      3       0.3483
TOTAL          3.5700     12       0.3823
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR PrInCor05 BY INT
SOURCE     DF        SS          MS           F        P
-------   ----   ---------   ---------    ------   ------
BETWEEN     1     0.83213     0.83213      5.86   0.0360
WITHIN     10     1.42027     0.14203
TOTAL      11     2.25240
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     2.09      1     0.1482
COCHRAN'S Q                    0.8036
LARGEST VAR / SMALLEST VAR     4.0918
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.11502
EFlFeCTIVE CELL SIZE                             6.0
                        SAMPLE      GROUP
   INT           MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Pt             3.8333      6       0.2362
VA             3.3067      6       0.4778
TOTAL          3.5700     12       0.3769
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N        MEAN
PrInCor05            1      3.8300

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N        MEAN
PrInCor05            1      3.8300

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N        MEAN
PrInCor05            1      3.6700
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N        MEAN
PrInCor05            1      4.0000

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N        MEAN
PrInCor05            1      4.1700

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N        MEAN
PrInCor05            1      3.5000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N        MEAN
PrInCor05            1      3.1700

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N        MEAN
PrInCor05            1      4.1700

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N        MEAN
PrInCor05            1      3.1700
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N        MEAN
PrInCor05            1      3.5000

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N        MEAN
PrInCor05            1      3.0000

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE           N        MEAN
PrInCor05            1      2.8300
```

Table 38- ANOVA wine colour intensity among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR PrInCor06 BY PARC
SOURCE     DF        SS           MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3      2.89503     0.96501    32.41   0.0001
WITHIN      8      0.23820     0.02978
TOTAL      11      3.13323
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.31174
EFFECTIVE CELL SIZE                             3.0
                         SAMPLE      GROUP
   PARC          MEAN     SIZE      STD DEV
---------    ----------   ------   ----------
Am             3.1667      3         0.0924
Ba             3.5000      3         0.0000
BC             2.9967      3         0.2887
Ca             2.1667      3         0.1650
TOTAL          2.9575     12         0.1726
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR PrInCor06 BY INST
SOURCE     DF        SS           MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1      1.69501     1.69501    11.79   0.0064
WITHIN     10      1.43822     0.14382
TOTAL      11      3.13322
                    CHI-SQ     DF       P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES    3.67      1     0.0553
COCHRAN'S Q                    0.8722
LARGEST VAR / SMALLEST VAR     6.8277
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.25853
EFFECTIVE CELL SIZE                             6.0
                         SAMPLE      GROUP
   INST          MEAN     SIZE      STD DEV
---------    ----------   ------   ----------
PT             3.3333      6         0.1917
VA             2.5817      6         0.5009
TOTAL          2.9575     12         0.3792
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = AmG1
VARIABLE          N        MEAN
PrInCor06         1       3.2200

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG2
VARIABLE          N        MEAN
PrInCor06         1       3.2200

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG3
VARIABLE          N        MEAN
PrInCor06         1       3.0600
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BaG1
VARIABLE          N        MEAN
PrInCor06         1       3.5000

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG2
VARIABLE          N        MEAN
PrInCor06         1       3.5000

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG3
VARIABLE          N        MEAN
PrInCor06         1       3.5000
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BCG1
VARIABLE          N        MEAN
PrInCor06         1       2.8300

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG2
VARIABLE          N        MEAN
PrInCor06         1       3.3300

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG3
VARIABLE          N        MEAN
PrInCor06         1       2.8300
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = CaG1
VARIABLE          N        MEAN
PrInCor06         1       2.3300

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG2
VARIABLE          N        MEAN
PrInCor06         1       2.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG3
VARIABLE          N        MEAN
PrInCor06         1       2.1700
```

Table 39- ANOVA wine aroma among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR PrAroma05 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.45817    0.15272    1.56  0.2731
WITHIN     8     0.78340    0.09792
TOTAL     11     1.24157
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     4.76     3    0.1905
COCHRAN'S Q                    0.7366
LARGEST VAR / SMALLEST VAR     29.952
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.01827
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            3.5000      3       0.1700
Ba            3.5533      3       0.2542
BC            3.4433      3       0.0981
Ca            3.0567      3       0.5372
TOTAL         3.3883     12       0.3129
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR PrAroma05 BY INT
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.22963    0.22963    2.27  0.1629
WITHIN    10     1.01193    0.10119
TOTAL     11     1.24157
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     2.22     1    0.1360
COCHRAN'S Q                    0.8109
LARGEST VAR / SMALLEST VAR     4.2889
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.02141
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE      GROUP
   INT           MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Pt            3.5267      6       0.1956
VA            3.2500      6       0.4051
TOTAL         3.3883     12       0.3181
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE          N        MEAN
PrAroma05           1      3.6700

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE          N        MEAN
PrAroma05           1      3.5000

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE          N        MEAN
PrAroma05           1      3.3300
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE          N        MEAN
PrAroma05           1      3.8300

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE          N        MEAN
PrAroma05           1      3.5000

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE          N        MEAN
PrAroma05           1      3.3300
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE          N        MEAN
PrAroma05           1      3.3300

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE          N        MEAN
PrAroma05           1      3.5000

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE          N        MEAN
PrAroma05           1      3.5000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE          N        MEAN
PrAroma05           1      3.6700

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE          N        MEAN
PrAroma05           1      2.8300

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE          N        MEAN
PrAroma05           1      2.6700
```

Table 40- ANOVA wine aroma among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR PrAroma06 BY PARC
SOURCE     DF       SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.21103     0.07034     1.69   0.2449
WITHIN      8     0.33227     0.04153
TOTAL      11     0.54329
                       CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.31     3     0.9574
COHRAN'S Q                   0.3890
LARGEST VAR / SMALLEST VAR      2.2364
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.00960
EFFECTIVE CELL SIZE                              3.0
                        SAMPLE      GROUP
   PARC          MEAN     SIZE     STD DEV
---------   ----------   ------   ----------
Am             3.2000       3       0.1700
Ba             2.8900       3       0.1905
BC             3.0533       3       0.2542
Ca             3.2200       3       0.1905
TOTAL          3.0908      12       0.2038
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR PrAroma06 BY INST
SOURCE     DF       SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.02521     0.02521     0.49   0.5014
WITHIN     10     0.51808     0.05181
TOTAL      11     0.54329
                       CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.02     1     0.8983
COCHRAN'S Q                   0.5299
LARGEST VAR / SMALLEST VAR      1.1274
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    -0.00443
EFFECTIVE CELL SIZE                              6.0
                        SAMPLE      GROUP
   INST          MEAN     SIZE     STD DEV
---------   ----------   ------   ----------
PT             3.0450       6       0.2343
VA             3.1367       6       0.2207
TOTAL          3.0908      12       0.2276
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = AmG1
VARIABLE            N        MEAN
PrAroma06           1      3.3700

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG2
VARIABLE            N        MEAN
PrAroma06           1      3.2000

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG3
VARIABLE            N        MEAN
PrAroma06           1      3.0300
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BaG1
VARIABLE            N        MEAN
PrAroma06           1      3.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG2
VARIABLE            N        MEAN
PrAroma06           1      3.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG3
VARIABLE            N        MEAN
PrAroma06           1      2.6700
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BCG1
VARIABLE            N        MEAN
PrAroma06           1      3.3300

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG2
VARIABLE            N        MEAN
PrAroma06           1      2.8300

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG3
VARIABLE            N        MEAN
PrAroma06           1      3.0000
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = CaG1
VARIABLE            N        MEAN
PrAroma06           1      3.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG2
VARIABLE            N        MEAN
PrAroma06           1      3.3300

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG3
VARIABLE            N        MEAN
PrAroma06           1      3.3300
```

Table 41- ANOVA wine aroma red fruits among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR PrFrVer05 BY Parc
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3    0.20883    0.06961    0.64  0.6088
WITHIN      8    0.86633    0.10829
TOTAL      11    1.07517
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     2.92      3    0.4044
COCHRAN'S Q                    0.6609
LARGEST VAR / SMALLEST VAR     10.513
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.01289
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE     GROUP
   Parc          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Am             1.9967       3      0.1650
Ba             2.1667       3      0.2887
BC             2.2200       3      0.1905
Ca             1.8900       3      0.5351
TOTAL          2.0683      12      0.3291
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR PrFrVer05 BY INT
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1    0.00213    0.00213    0.02  0.8907
WITHIN     10    1.07303    0.10730
TOTAL      11    1.07517
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     1.35      1    0.2451
COCHRAN'S Q                    0.7535
LARGEST VAR / SMALLEST VAR     3.0571
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.01753
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE     GROUP
   INT           MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Pt             2.0817       6      0.2300
VA             2.0550       6      0.4021
TOTAL          2.0683      12      0.3276
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N        MEAN
PrFrVer05          1       2.1600

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N        MEAN
PrFrVer05          1       1.8300

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N        MEAN
PrFrVer05          1       2.0000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N        MEAN
PrFrVer05          1       2.5000

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N        MEAN
PrFrVer05          1       2.0000

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N        MEAN
PrFrVer05          1       2.0000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N        MEAN
PrFrVer05          1       2.3300

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N        MEAN
PrFrVer05          1       2.0000

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N        MEAN
PrFrVer05          1       2.3300
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N        MEAN
PrFrVer05          1       2.5000

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N        MEAN
PrFrVer05          1       1.5000
DESCRIPTIVE STATISTICS FOR PaEt = CaG3

VARIABLE           N        MEAN
PrFrVer05          1       1.6700
```

Table 42- ANOVA wine aroma red fruits among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR PrFrVer06 BY PARC
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3     0.06597    0.02199    0.26  0.8493
WITHIN      8     0.66560    0.08320
TOTAL      11     0.73157
                      CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     3.57      3    0.3123
COCHRAN'S Q                     0.5247
LARGEST VAR / SMALLEST VAR      18.128
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.02040
EFFECTIVE CELL SIZE                             3.0
                        SAMPLE      GROUP
   PARC          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am            1.9367       3       0.1650
Ba            2.0567       3       0.4179
BC            1.9433       3       0.0981
Ca            2.1100       3       0.3483
TOTAL         2.0117      12       0.2884
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR PrFrVer06 BY INST
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1     0.00270    0.00270    0.04  0.8512
WITHIN     10     0.72887    0.07289
TOTAL      11     0.73157
                      CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.13      1    0.7197
COCHRAN'S Q                     0.5836
LARGEST VAR / SMALLEST VAR      1.4013
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.01170
EFFECTIVE CELL SIZE                             6.0
                        SAMPLE      GROUP
   INST          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
PT            1.9967       6       0.2917
VA            2.0267       6       0.2464
TOTAL         2.0117      12       0.2700
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = AmG1
VARIABLE           N         MEAN
PrFrVer06          1       2.1000

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG2
VARIABLE           N         MEAN
PrFrVer06          1       1.7700

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG3
VARIABLE           N         MEAN
PrFrVer06          1       1.9400
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BaG1
VARIABLE           N         MEAN
PrFrVer06          1       2.5000

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG2
VARIABLE           N         MEAN
PrFrVer06          1       2.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG3
VARIABLE           N         MEAN
PrFrVer06          1       1.6700
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BCG1
VARIABLE           N         MEAN
PrFrVer06          1       1.8300

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG2
VARIABLE           N         MEAN
PrFrVer06          1       2.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG3
VARIABLE           N         MEAN
PrFrVer06          1       2.0000
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = CaG1
VARIABLE           N         MEAN
PrFrVer06          1       1.8300

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG2
VARIABLE           N         MEAN
PrFrVer06          1       2.5000

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG3
VARIABLE           N         MEAN
PrFrVer06          1       2.0000
```

Table 43- ANOVA wine aroma flower intensity among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR PrFloral05 BY Parc
SOURCE     DF         SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3     0.87187    0.29062     4.35  0.0427
WITHIN      8     0.53413    0.06677
TOTAL      11     1.40600
                      CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     2.29      3    0.5149
COCHRAN'S Q                     0.6539
LARGEST VAR / SMALLEST VAR      6.4125
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.07462
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   Parc          MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
Am             0.2200      3       0.1905
Ba             0.5000      3       0.1700
BC             0.8867      3       0.4179
Ca             0.8333      3       0.1650
TOTAL          0.6100     12       0.2584
CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY AOV FOR PrFloral05 BY INT
SOURCE     DF         SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1     0.75000    0.75000    11.43  0.0070
WITHIN     10     0.65600    0.06560
TOTAL      11     1.40600
                      CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.28      1    0.5975
COCHRAN'S Q                     0.6220
LARGEST VAR / SMALLEST VAR      1.6452
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.11407
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE      GROUP
   INT           MEAN    SIZE     STD DEV
---------   ----------  ------  ----------
Pt             0.3600      6       0.2227
VA             0.8600      6       0.2857
TOTAL          0.6100     12       0.2561
CASES INCLUDED 12     MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE            N         MEAN
PrFloral05            1       0.0000

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE            N         MEAN
PrFloral05            1       0.3300

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE            N         MEAN
PrFloral05            1       0.3300
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE            N         MEAN
PrFloral05            1       0.6700

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE            N         MEAN
PrFloral05            1       0.3300

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE            N         MEAN
PrFloral05            1       0.5000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE            N         MEAN
PrFloral05            1       0.8300

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE            N         MEAN
PrFloral05            1       1.3300

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE            N         MEAN
PrFloral05            1       0.5000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE            N         MEAN
PrFloral05            1       0.6700

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE            N         MEAN
PrFloral05            1       0.8300

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE            N         MEAN
PrFloral05            1       1.0000
```

Table 44- ANOVA wine aroma flower intensity among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR PrFloral06 BY PARC
SOURCE     DF        SS          MS          F        P
------- ----  ---------   ---------   ------   ------
BETWEEN    3     0.09983     0.03328     1.83   0.2192
WITHIN     8     0.14520     0.01815
TOTAL     11     0.24503
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.00504
EFFECTIVE CELL SIZE                              3.0
                               SAMPLE      GROUP
   PARC           MEAN          SIZE      STD DEV
---------    ----------     ------    ----------
Am              0.0000         3        0.0000
Ba              0.1100         3        0.1905
BC              0.2200         3        0.1905
Ca              0.0000         3        0.0000
TOTAL           0.0825        12        0.1347
CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY AOV FOR PrFloral06 BY INST
SOURCE     DF        SS          MS          F        P
------- ----  ---------   ---------   ------   ------
BETWEEN    1     0.00908     0.00908     0.38   0.5490
WITHIN    10     0.23595     0.02360
TOTAL     11     0.24503
                    CHI-SQ    DF        P
BARTLETT'S TEST OF  ------  ------   ------
   EQUAL VARIANCES    0.25      1    0.6180
COCHRAN'S Q                    0.6154
LARGEST VAR / SMALLEST VAR     1.6000
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    -0.00242
EFFECTIVE CELL SIZE                              6.0
                               SAMPLE      GROUP
   INST           MEAN          SIZE      STD DEV
---------    ----------     ------    ----------
PT              0.0550         6        0.1347
VA              0.1100         6        0.1704
TOTAL           0.0825        12        0.1536
CASES INCLUDED 12     MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = AmG1
VARIABLE            N        MEAN
PrFloral06            1       0.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG2
VARIABLE            N        MEAN
PrFloral06            1       0.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG3
VARIABLE            N        MEAN
PrFloral06            1       0.0000
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BaG1
VARIABLE            N        MEAN
PrFloral06            1       0.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG2
VARIABLE            N        MEAN
PrFloral06            1       0.3300

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG3
VARIABLE            N        MEAN
PrFloral06            1       0.0000
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BCG1
VARIABLE            N        MEAN
PrFloral06            1       0.3300

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG2
VARIABLE            N        MEAN
PrFloral06            1       0.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG3
VARIABLE            N        MEAN
PrFloral06            1       0.3300
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = CaG1
VARIABLE            N        MEAN
PrFloral06            1       0.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG2
VARIABLE            N        MEAN
PrFloral06            1       0.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG3
VARIABLE            N        MEAN
PrFloral06            1       0.0000
```

Table 45- ANOVA wine body among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR PrCorpo05 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.86042     0.28681    10.32   0.0040
WITHIN      8     0.22227     0.02778
TOTAL      11     1.08269
                         CHI-SQ     DF       P
BARTLETT'S TEST OF       ------   ------   ------
   EQUAL VARIANCES        3.64      3     0.3028
COSHRAN'S Q                         0.7499
LARGEST VAR / SMALLEST VAR          9.7656
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.08634
EFlFeCTIVE CELL SIZE                             3.0
                               SAMPLE      GROUP
   Parc            MEAN         SIZE      STD DEV
---------       ----------     ------   ----------
Am                3.3867         3        0.0981
Ba                3.3367         3        0.2887
BC                3.4433         3        0.0981
Ca                2.7767         3        0.0924
TOTAL             3.2358        12        0.1667
CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY AOV FOR PrCorpo05 BY INT
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.19001     0.19001     2.13   0.1753
WITHIN     10     0.89268     0.08927
TOTAL      11     1.08269
                         CHI-SQ     DF       P
BARTLETT'S TEST OF       ------   ------   ------
   EQUAL VARIANCES        1.82      1     0.1767
COCHRAN'S Q                         0.7875
LARGEST VAR / SMALLEST VAR          3.7062
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.01679
EFlFeCTIVE CELL SIZE                             6.0
                               SAMPLE      GROUP
   INT             MEAN         SIZE      STD DEV
---------       ----------     ------   ----------
Pt                3.3617         6        0.1948
VA                3.1100         6        0.3750
TOTAL             3.2358        12        0.2988
CASES INCLUDED 12     MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N        MEAN
PrCorpo05          1       3.5000

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N        MEAN
PrCorpo05          1       3.3300

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N        MEAN
PrCorpo05          1       3.3300
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N        MEAN
PrCorpo05          1       3.1700

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N        MEAN
PrCorpo05          1       3.6700

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N        MEAN
PrCorpo05          1       3.1700
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N        MEAN
PrCorpo05          1       3.5000

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N        MEAN
PrCorpo05          1       3.5000

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N        MEAN
PrCorpo05          1       3.3300
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N        MEAN
PrCorpo05          1       2.8300

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N        MEAN
PrCorpo05          1       2.8300

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE           N        MEAN
PrCorpo05          1       2.6700
```

Table 46- ANOVA wine body among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR PrCorpo06 BY PARC
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3     0.90113    0.30038    2.70  0.1165
WITHIN      8     0.89113    0.11139
TOTAL      11     1.79227
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     3.47     3    0.3242
COCHRAN'S Q                   0.5611
LARGEST VAR / SMALLEST VAR    25.952
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.06300
EFFECTIVE CELL SIZE                             3.0
                        SAMPLE      GROUP
   PARC          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             2.8167       3      0.0981
Ba             2.9467       3      0.2542
BC             2.6700       3      0.5000
Ca             2.2200       3      0.3483
TOTAL          2.6633      12      0.3338
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR PrCorpo06 BY INST
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1     0.57203    0.57203    4.69  0.0556
WITHIN     10     1.22023    0.12202
TOTAL      11     1.79227
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     3.25     1    0.0713
COCHRAN'S Q                   0.8575
LARGEST VAR / SMALLEST VAR    6.0175
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.07500
EFFECTIVE CELL SIZE                             6.0
                        SAMPLE      GROUP
   INST          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
PT             2.8817       6      0.1865
VA             2.4450       6      0.4575
TOTAL          2.6633      12      0.3493
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = AmG1
VARIABLE           N        MEAN
PrCorpo06          1       2.9300

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG2
VARIABLE           N        MEAN
PrCorpo06          1       2.7600

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG3
VARIABLE           N        MEAN
PrCorpo06          1       2.7600
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BaG1
VARIABLE           N        MEAN
PrCorpo06          1       3.1700

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG2
VARIABLE           N        MEAN
PrCorpo06          1       3.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG3
VARIABLE           N        MEAN
PrCorpo06          1       2.6700
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BCG1
VARIABLE           N        MEAN
PrCorpo06          1       2.1700

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG2
VARIABLE           N        MEAN
PrCorpo06          1       3.1700

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG3
VARIABLE           N        MEAN
PrCorpo06          1       2.6700
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = CaG1
VARIABLE           N        MEAN
PrCorpo06          1       2.5000

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG2
VARIABLE           N        MEAN
PrCorpo06          1       1.8300

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG3
VARIABLE           N        MEAN
PrCorpo06          1       2.3300
```

Table 47- ANOVA wine astringency among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR PrAdst05 BY Parc
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     0.79843     0.26614     1.55   0.2743
WITHIN      8     1.36967     0.17121
TOTAL      11     2.16810
                          CHI-SQ     DF        P
BARTLETT'S TEST OF    ------  ------  ------
   EQUAL VARIANCES     2.80      3     0.4237
COHRAN'S Q                      0.5835
LARGEST VAR / SMALLEST VAR      14.674
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.03165
EFlFeCTIVE CELL SIZE                              3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Am             3.1667      3       0.2887
Ba             3.4433      3       0.4179
BC             3.1667      3       0.1650
Ca             2.7233      3       0.6322
TOTAL          3.1250     12       0.4138
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR PrAdst05 BY INT
SOURCE     DF        SS          MS          F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     0.38880     0.38880     2.19   0.1701
WITHIN     10     1.77930     0.17793
TOTAL      11     2.16810
                          CHI-SQ     DF        P
BARTLETT'S TEST OF    ------  ------  ------
   EQUAL VARIANCES     0.40      1     0.5259
COCHRAN'S Q                     0.6455
LARGEST VAR / SMALLEST VAR      1.8209
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.03514
EFlFeCTIVE CELL SIZE                              6.0
                        SAMPLE      GROUP
   INT           MEAN     SIZE     STD DEV
---------    ----------  ------  ----------
Pt             3.3050      6       0.3552
VA             2.9450      6       0.4793
TOTAL          3.1250     12       0.4218
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE           N        MEAN
PrAdst05           1       3.0000

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE           N        MEAN
PrAdst05           1       3.5000

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE           N        MEAN
PrAdst05           1       3.0000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE           N        MEAN
PrAdst05           1       3.5000

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE           N        MEAN
PrAdst05           1       3.8300

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE           N        MEAN
PrAdst05           1       3.0000
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE           N        MEAN
PrAdst05           1       3.3300

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE           N        MEAN
PrAdst05           1       3.0000

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE           N        MEAN
PrAdst05           1       3.1700
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE           N        MEAN
PrAdst05           1       3.1700

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE           N        MEAN
PrAdst05           1       3.0000

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE           N        MEAN
PrAdst05           1       2.0000
```

Table 48- ANOVA wine astringency among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR PrAdst06 BY PARC
SOURCE     DF         SS          MS          F        P
-------  ----   ---------   ---------   ------   ------
BETWEEN     3     0.47809     0.15936     1.73   0.2375
WITHIN      8     0.73600     0.09200
TOTAL      11     1.21409
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     1.53      3    0.6756
COCHRAN'S Q                    0.5224
LARGEST VAR / SMALLEST VAR     7.0588
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.02245
EFFECTIVE CELL SIZE                             3.0
                        SAMPLE      GROUP
   PARC          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am              2.9267      3       0.2887
Ba              3.1667      3       0.1650
BC              2.8333      3       0.4384
Ca              2.6100      3       0.2553
TOTAL           2.8842     12       0.3033
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR PrAdst06 BY INST
SOURCE     DF         SS          MS          F        P
-------  ----   ---------   ---------   ------   ------
BETWEEN     1     0.31687     0.31687     3.53   0.0896
WITHIN     10     0.89722     0.08972
TOTAL      11     1.21409
                    CHI-SQ     DF        P
BARTLETT'S TEST OF  ------  ------  ------
   EQUAL VARIANCES     0.47      1    0.4915
COCHRAN'S Q                    0.6572
LARGEST VAR / SMALLEST VAR     1.9175
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.03786
EFFECTIVE CELL SIZE                             6.0
                        SAMPLE      GROUP
   INST          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
PT              3.0467      6       0.2480
VA              2.7217      6       0.3434
TOTAL           2.8842     12       0.2995
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = AmG1
VARIABLE          N        MEAN
PrAdst06          1      2.7600

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG2
VARIABLE          N        MEAN
PrAdst06          1      3.2600

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG3
VARIABLE          N        MEAN
PrAdst06          1      2.7600
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BaG1
VARIABLE          N        MEAN
PrAdst06          1      3.1700

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG2
VARIABLE          N        MEAN
PrAdst06          1      3.0000

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG3
VARIABLE          N        MEAN
PrAdst06          1      3.3300
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BCG1
VARIABLE          N        MEAN
PrAdst06          1      2.5000

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG2
VARIABLE          N        MEAN
PrAdst06          1      3.3300

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG3
VARIABLE          N        MEAN
PrAdst06          1      2.6700
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = CaG1
VARIABLE          N        MEAN
PrAdst06          1      2.8300

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG2
VARIABLE          N        MEAN
PrAdst06          1      2.3300

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG3
VARIABLE          N        MEAN
PrAdst06          1      2.6700
```

Table 49- ANOVA wine acidity among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

DESCRIPTIVE STATISTICS FOR PaEt = AmG1 VARIABLE N MEAN PrFloral05 1 3 DESCRIPTIVE STATISTICS FOR PaEt = AmG2 VARIABLE N MEAN PrFloral05 1 3 DESCRIPTIVE STATISTICS FOR PaEt = AmG3 VARIABLE N MEAN PrFloral05 1 3	DESCRIPTIVE STATISTICS FOR PaEt = BaG1 VARIABLE N MEAN PrFloral05 1 3 DESCRIPTIVE STATISTICS FOR PaEt = BaG2 VARIABLE N MEAN PrFloral05 1 3 DESCRIPTIVE STATISTICS FOR PaEt = BaG3 VARIABLE N MEAN PrFloral05 1 3
DESCRIPTIVE STATISTICS FOR PaEt = BCG1 VARIABLE N MEAN PrFloral05 1 3 DESCRIPTIVE STATISTICS FOR PaEt = BCG2 VARIABLE N MEAN PrFloral05 1 3 DESCRIPTIVE STATISTICS FOR PaEt = BCG3 VARIABLE N MEAN PrFloral05 1 3	DESCRIPTIVE STATISTICS FOR PaEt = CaG1 VARIABLE N MEAN PrFloral05 1 3 DESCRIPTIVE STATISTICS FOR PaEt = CaG2 VARIABLE N MEAN PrFloral05 1 3 DESCRIPTIVE STATISTICS FOR PaEt = CaG3 VARIABLE N MEAN PrFloral05 1 3

Table 50- ANOVA wine acidity among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR PrAcTt06 BY PARC
SOURCE    DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    3     0.02722    0.00907    0.30  0.8252
WITHIN     8     0.24260    0.03032
TOTAL     11     0.26982
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00708
EFFECTIVE CELL SIZE                             3.0
                        SAMPLE     GROUP
   PARC         MEAN     SIZE     STD DEV
---------  ----------  ------  ----------
Am             2.6700      3       0.0000
Ba             2.6700      3       0.0000
BC             2.6700      3       0.0000
Ca             2.7800      3       0.3483
TOTAL          2.6975     12       0.1741
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR PrAcTt06 BY INST
SOURCE    DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN    1     0.00907    0.00907    0.35  0.5683
WITHIN    10     0.26075    0.02607
TOTAL     11     0.26982
AT LEAST ONE GROUP VARIANCE IS NEAR ZERO;
VARIANCE-EQUALITY TESTS CANNOT BE COMPUTED.
COMPONENT OF VARIANCE FOR BETWEEN GROUPS   -0.00283
EFFECTIVE CELL SIZE                             6.0
                        SAMPLE     GROUP
   INST         MEAN     SIZE     STD DEV
---------  ----------  ------  ----------
PT             2.6700      6       0.0000
VA             2.7250      6       0.2284
TOTAL          2.6975     12       0.1615
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = AmG1
VARIABLE          N        MEAN
PrAcTt06          1      2.6700

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG2
VARIABLE          N        MEAN
PrAcTt06          1      2.6700

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG3
VARIABLE          N        MEAN
PrAcTt06          1      2.6700
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BaG1
VARIABLE          N        MEAN
PrAcTt06          1      2.6700

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG2
VARIABLE          N        MEAN
PrAcTt06          1      2.6700

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG3
VARIABLE          N        MEAN
PrAcTt06          1      2.6700
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BCG1
VARIABLE          N        MEAN
PrAcTt06          1      2.6700

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG2
VARIABLE          N        MEAN
PrAcTt06          1      2.6700

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG3
VARIABLE          N        MEAN
PrAcTt06          1      2.6700
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = CaG1
VARIABLE          N        MEAN
PrAcTt06          1      2.5000

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG2
VARIABLE          N        MEAN
PrAcTt06          1      3.1700

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG3
VARIABLE          N        MEAN
PrAcTt06          1      2.6700
```

Table 51- ANOVA wine classification among plots and between vineyard installations and descriptive statistics for inside plots for 2005 year.

```
ONE-WAY AOV FOR PrFinal05 BY Parc
SOURCE     DF        SS          MS         F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     3     4.25742     1.41914     4.14   0.0481
WITHIN      8     2.74527     0.34316
TOTAL      11     7.00269
                        CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     2.99      3     0.3936
COCHRAN'S Q                    0.4506
LARGEST VAR / SMALLEST VAR     17.039
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.35866
EFlFeCTIVE CELL SIZE                            3.0
                        SAMPLE      GROUP
   Parc          MEAN     SIZE     STD DEV
---------   ----------   ------   ----------
Am            12.720       3       0.1905
Ba            13.000       3       0.4403
BC            13.000       3       0.7238
Ca            11.557       3       0.7865
TOTAL         12.569      12       0.5858
CASES INCLUDED 12     MISSING CASES 0
```

```
ONE-WAY AOV FOR PrFinal05 BY INT
SOURCE     DF        SS          MS         F        P
-------   ----   ---------   ---------   ------   ------
BETWEEN     1     1.01501     1.01501     1.70   0.2221
WITHIN     10     5.98768     0.59877
TOTAL      11     7.00269
                        CHI-SQ     DF        P
BARTLETT'S TEST OF   ------   ------   ------
   EQUAL VARIANCES     4.79      1     0.0287
COCHRAN'S Q                    0.9035
LARGEST VAR / SMALLEST VAR     9.3593
COMPONENT OF VARIANCE FOR BETWEEN GROUPS    0.06937
EFlFeCTIVE CELL SIZE                            6.0
                        SAMPLE      GROUP
   INT           MEAN     SIZE     STD DEV
---------   ----------   ------   ----------
Pt            12.860       6       0.3400
VA            12.278       6       1.0402
TOTAL         12.569      12       0.7738
CASES INCLUDED 12     MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PaEt = AmG1
VARIABLE          N        MEAN
PrFinal05         1      12.830

DESCRIPTIVE STATISTICS FOR PaEt = AmG2
VARIABLE          N        MEAN
PrFinal05         1      12.500

DESCRIPTIVE STATISTICS FOR PaEt = AmG3
VARIABLE          N        MEAN
PrFinal05         1      12.830
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BaG1
VARIABLE          N        MEAN
PrFinal05         1      12.670

DESCRIPTIVE STATISTICS FOR PaEt = BaG2
VARIABLE          N        MEAN
PrFinal05         1      13.500

DESCRIPTIVE STATISTICS FOR PaEt = BaG3
VARIABLE          N        MEAN
PrFinal05         1      12.830
```

```
DESCRIPTIVE STATISTICS FOR PaEt = BCG1
VARIABLE          N        MEAN
PrFinal05         1      12.670

DESCRIPTIVE STATISTICS FOR PaEt = BCG2
VARIABLE          N        MEAN
PrFinal05         1      13.830

DESCRIPTIVE STATISTICS FOR PaEt = BCG3
VARIABLE          N        MEAN
PrFinal05         1      12.500
```

```
DESCRIPTIVE STATISTICS FOR PaEt = CaG1
VARIABLE          N        MEAN
PrFinal05         1      12.170

DESCRIPTIVE STATISTICS FOR PaEt = CaG2
VARIABLE          N        MEAN
PrFinal05         1      11.830

DESCRIPTIVE STATISTICS FOR PaEt = CaG3
VARIABLE          N        MEAN
PrFinal05         1      10.670
```

Table 52- ANOVA wine classification among plots and between vineyard installations and descriptive statistics for inside plots for 2006 year.

```
ONE-WAY AOV FOR PrFinal06 BY PARC
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     3    1.14567    0.38189    4.61  0.0374
WITHIN      8    0.66340    0.08293
TOTAL      11    1.80907
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     3.40      3    0.3343
COCHRAN'S Q                   0.5265
LARGEST VAR / SMALLEST VAR      20.465
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.09965
EFFECTIVE CELL SIZE                              3.0
                        SAMPLE      GROUP
   PARC          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
Am             11.890      3      0.1905
Ba             12.113      3      0.4179
BC             11.667      3      0.3350
Ca             11.277      3      0.0924
TOTAL          11.737     12      0.2880
CASES INCLUDED 12    MISSING CASES 0
```

```
ONE-WAY AOV FOR PrFinal06 BY INST
SOURCE     DF        SS          MS          F        P
-------  ----  ---------  ---------  ------  ------
BETWEEN     1    0.84270    0.84270    8.72  0.0145
WITHIN     10    0.96637    0.09664
TOTAL      11    1.80907
                        CHI-SQ     DF        P
BARTLETT'S TEST OF  ------   ------   ------
   EQUAL VARIANCES     0.00      1    0.9525
COCHRAN'S Q                   0.5140
LARGEST VAR / SMALLEST VAR      1.0575
COMPONENT OF VARIANCE FOR BETWEEN GROUPS     0.12434
EFFECTIVE CELL SIZE                              6.0
                        SAMPLE      GROUP
   INST          MEAN     SIZE     STD DEV
---------   ----------  ------  ----------
PT             12.002      6      0.3152
VA             11.472      6      0.3065
TOTAL          11.737     12      0.3109
CASES INCLUDED 12    MISSING CASES 0
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = AmG1
VARIABLE          N        MEAN
PrFinal06          1      12.000

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG2
VARIABLE          N        MEAN
PrFinal06          1      11.670

DESCRIPTIVE STATISTICS FOR PAETG3 = AmG3
VARIABLE          N        MEAN
PrFinal06          1      12.000
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BaG1
VARIABLE          N        MEAN
PrFinal06          1      12.500

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG2
VARIABLE          N        MEAN
PrFinal06          1      12.170

DESCRIPTIVE STATISTICS FOR PAETG3 = BaG3
VARIABLE          N        MEAN
PrFinal06          1      11.670
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = BCG1
VARIABLE          N        MEAN
PrFinal06          1      12.000

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG2
VARIABLE          N        MEAN
PrFinal06          1      11.670

DESCRIPTIVE STATISTICS FOR PAETG3 = BCG3
VARIABLE          N        MEAN
PrFinal06          1      11.330
```

```
DESCRIPTIVE STATISTICS FOR PAETG3 = CaG1
VARIABLE          N        MEAN
PrFinal06          1      11.170

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG2
VARIABLE          N        MEAN
PrFinal06          1      11.330

DESCRIPTIVE STATISTICS FOR PAETG3 = CaG3
VARIABLE          N        MEAN
PrFinal06          1      11.330
```

Figure 1- Spacial and cartographic distribution of wine alcohol in different plots, for 2005 year

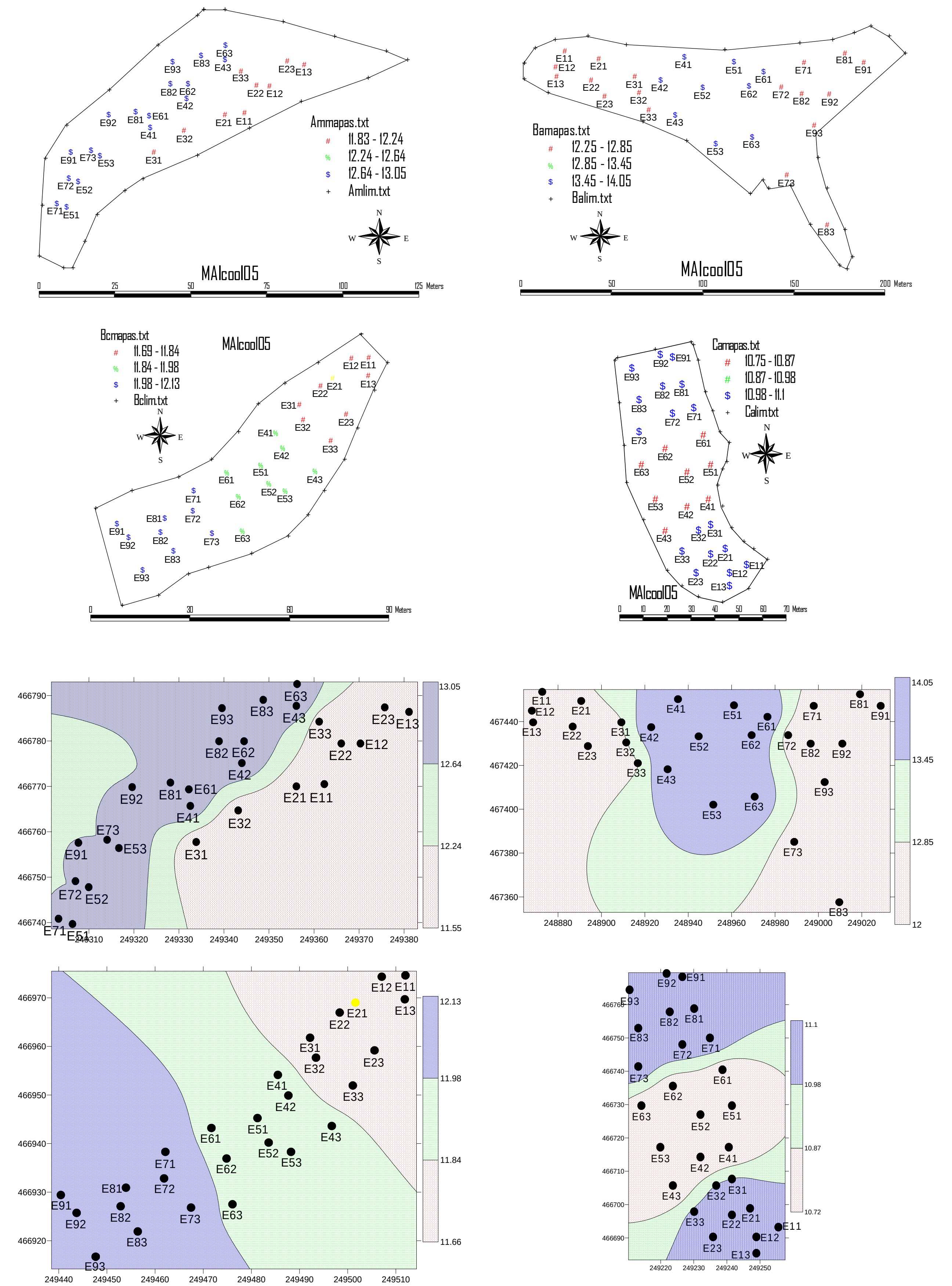


Figure 2- Spacial and cartographic distribution of wine alcohol in different plots, for 2006 year

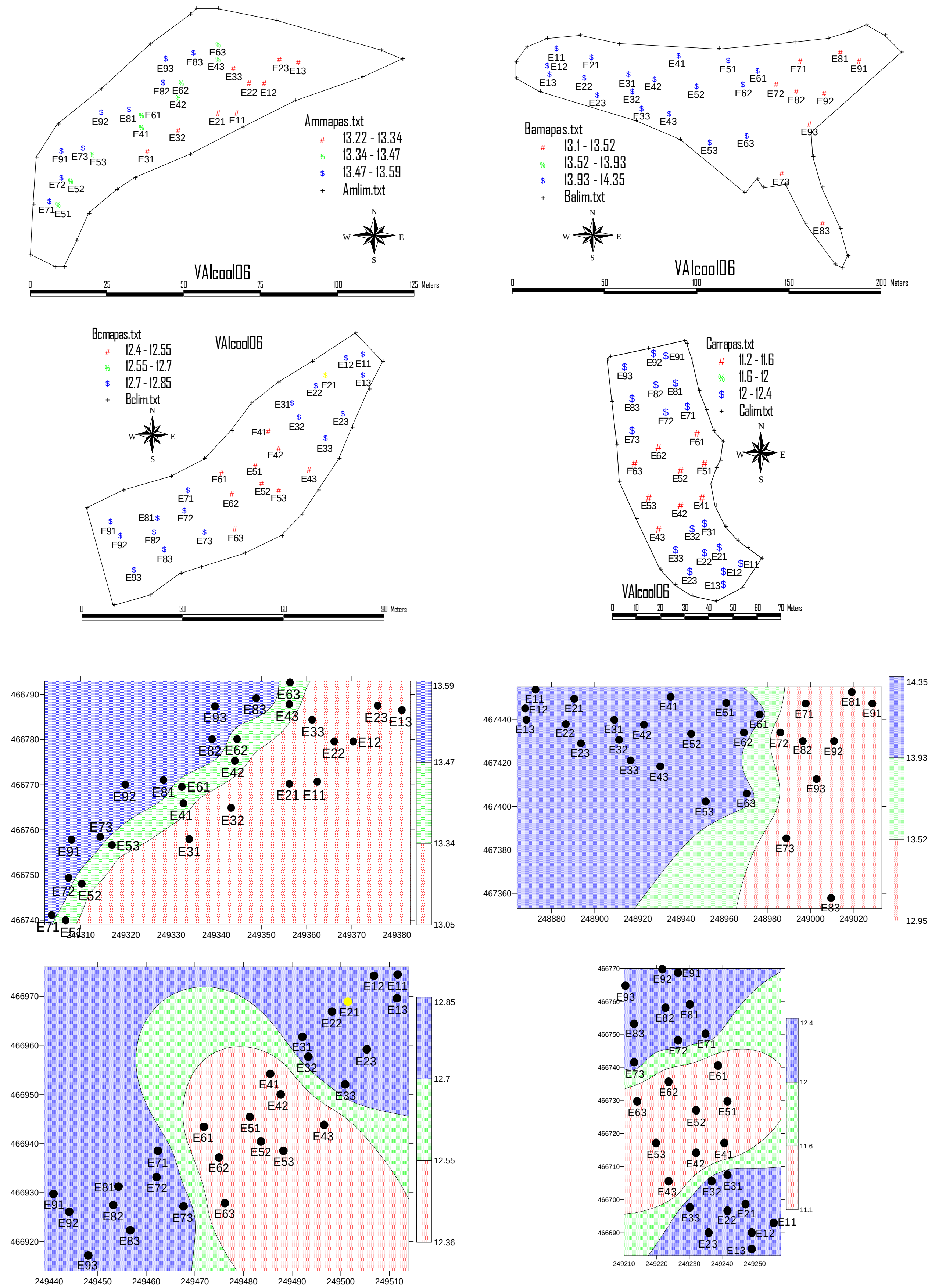


Figure 3- Spacial and cartographic distribution of wine dry extract in different plots, for 2005 year

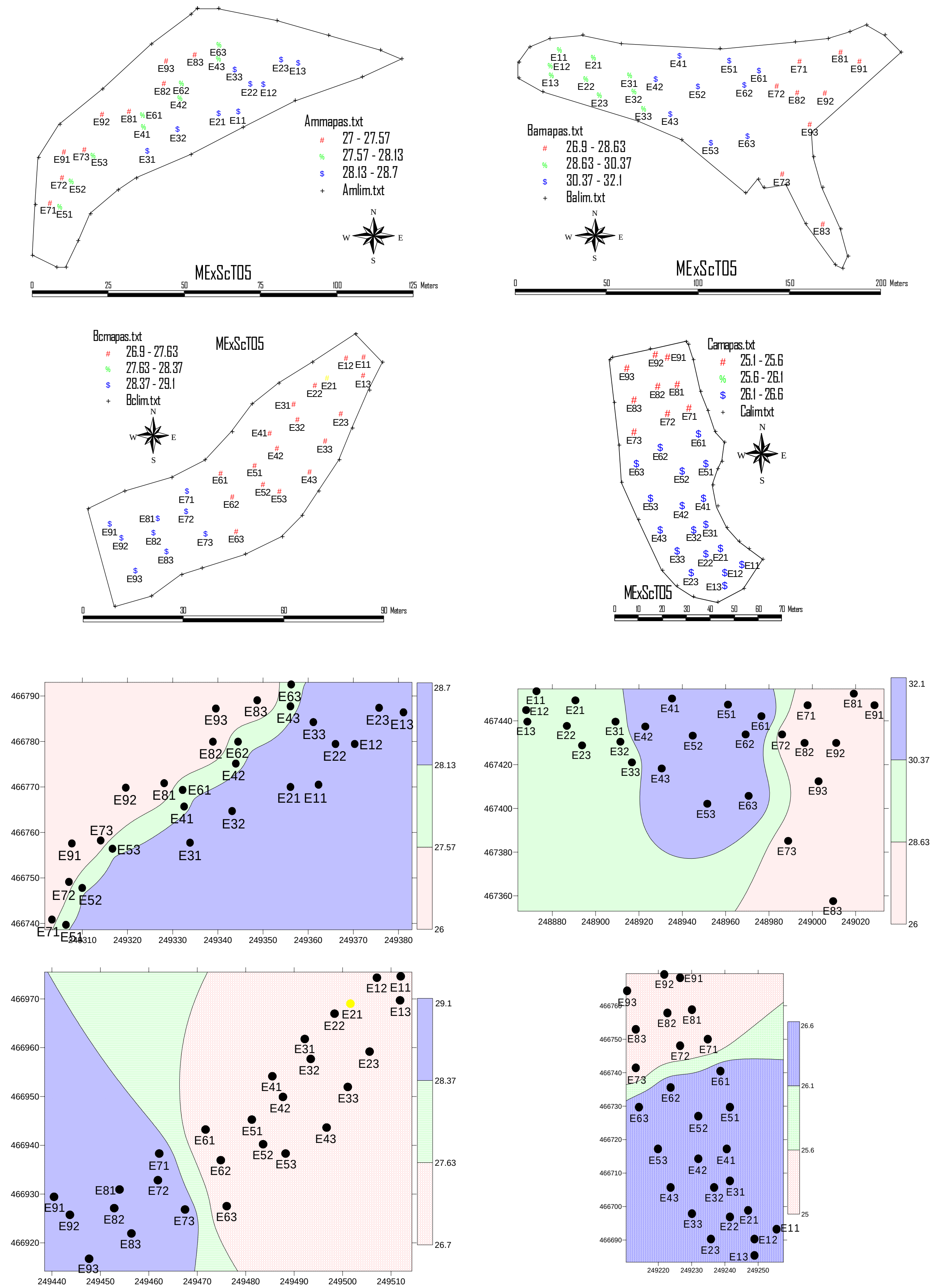


Figure 4- Spacial and cartographic distribution of wine dry extract in different plots, for 2006 year

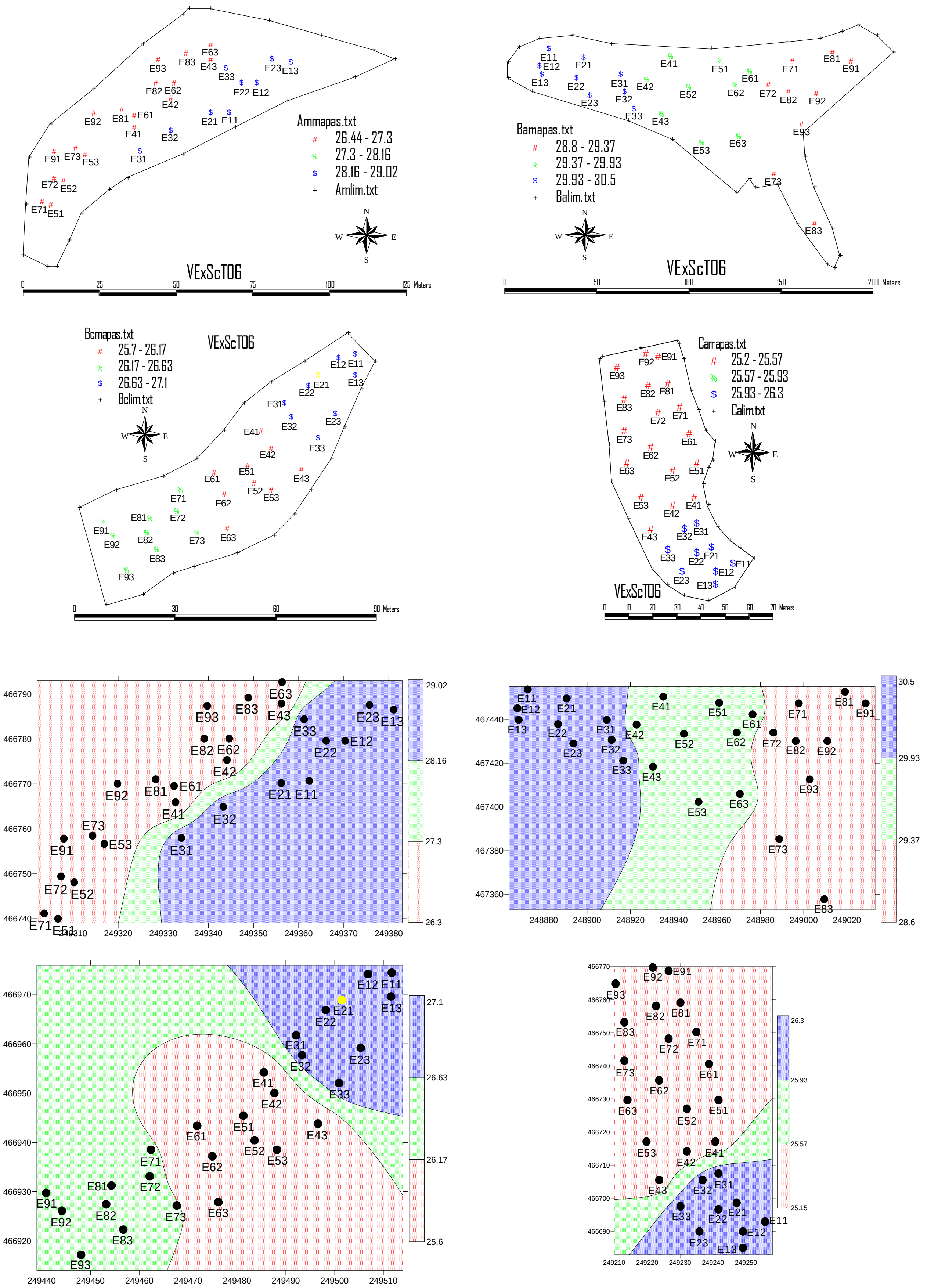


Figure 5- Spacial and cartographic distribution of wine sugar in different plots, for 2005 year

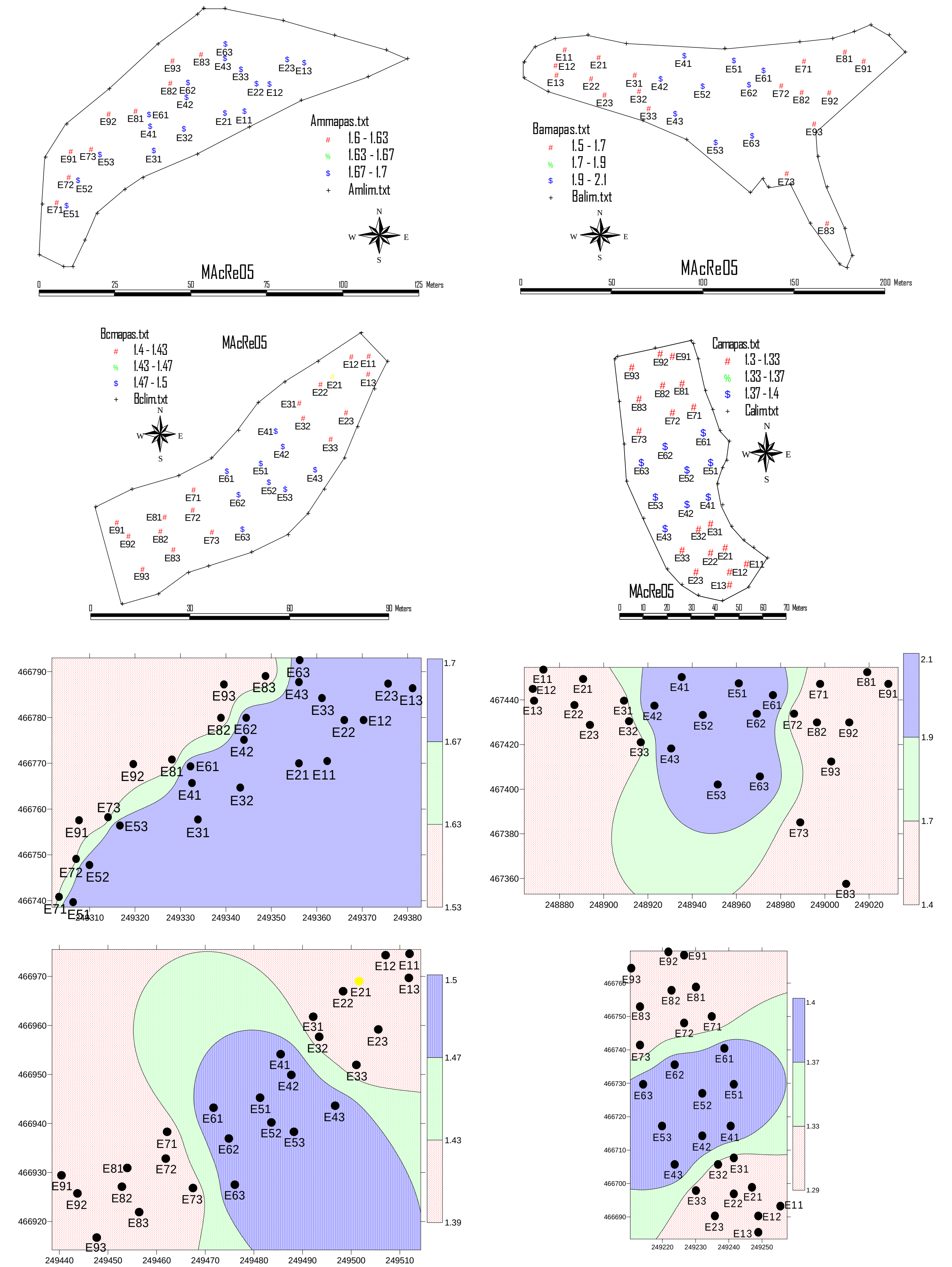


Figure 6- Spacial and cartographic distribution of wine sugar o in different plots, for 2006 year

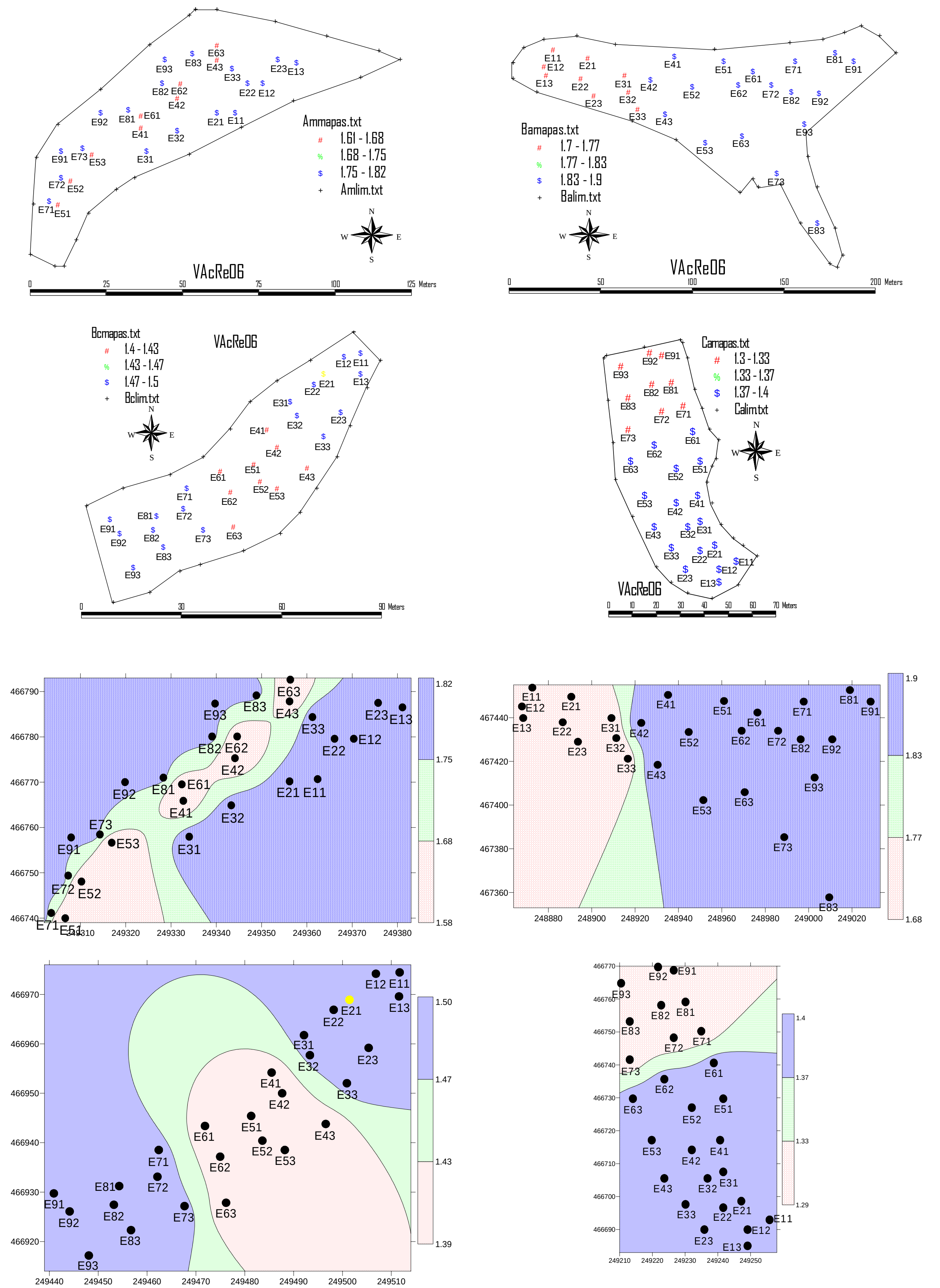


Figure 7- Spacial and cartographic distribution of wine pH in different plots, for 2005 year

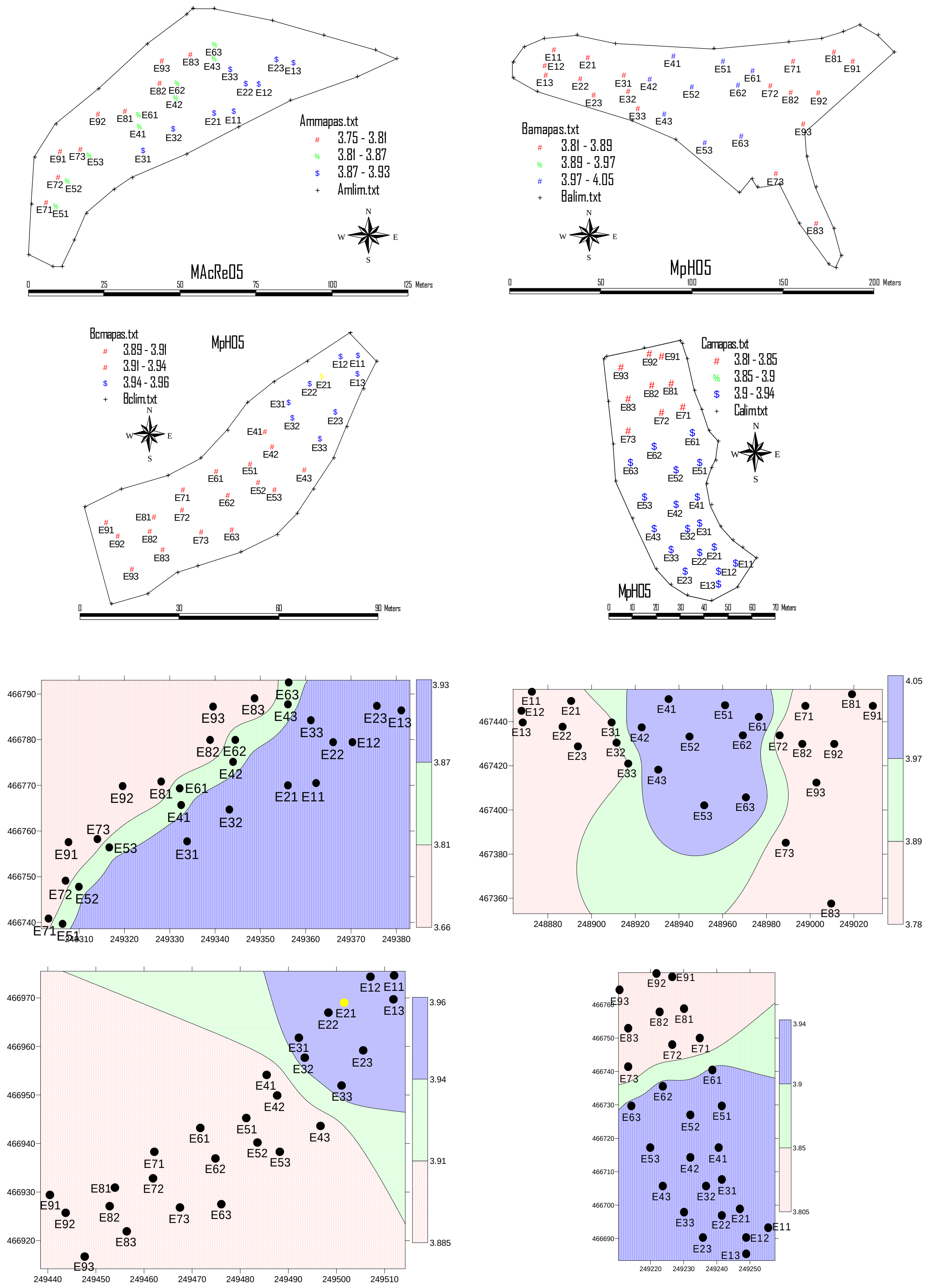


Figure 8- Spacial and cartographic distribution of wine pH in different plots, for 2006 year

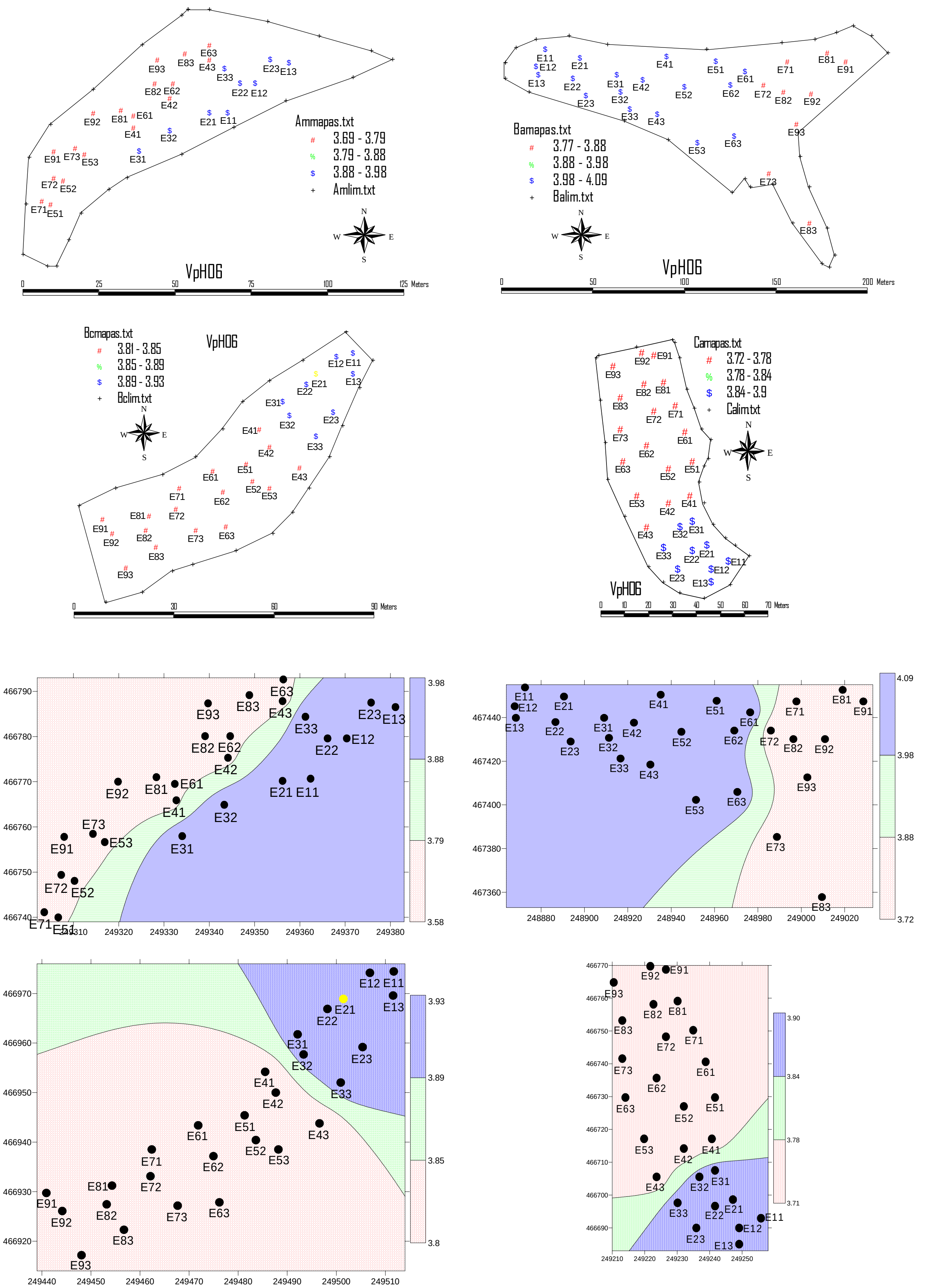


Figure 9- Spacial and cartographic distribution of wine total acidity in different plots, for 2005 year

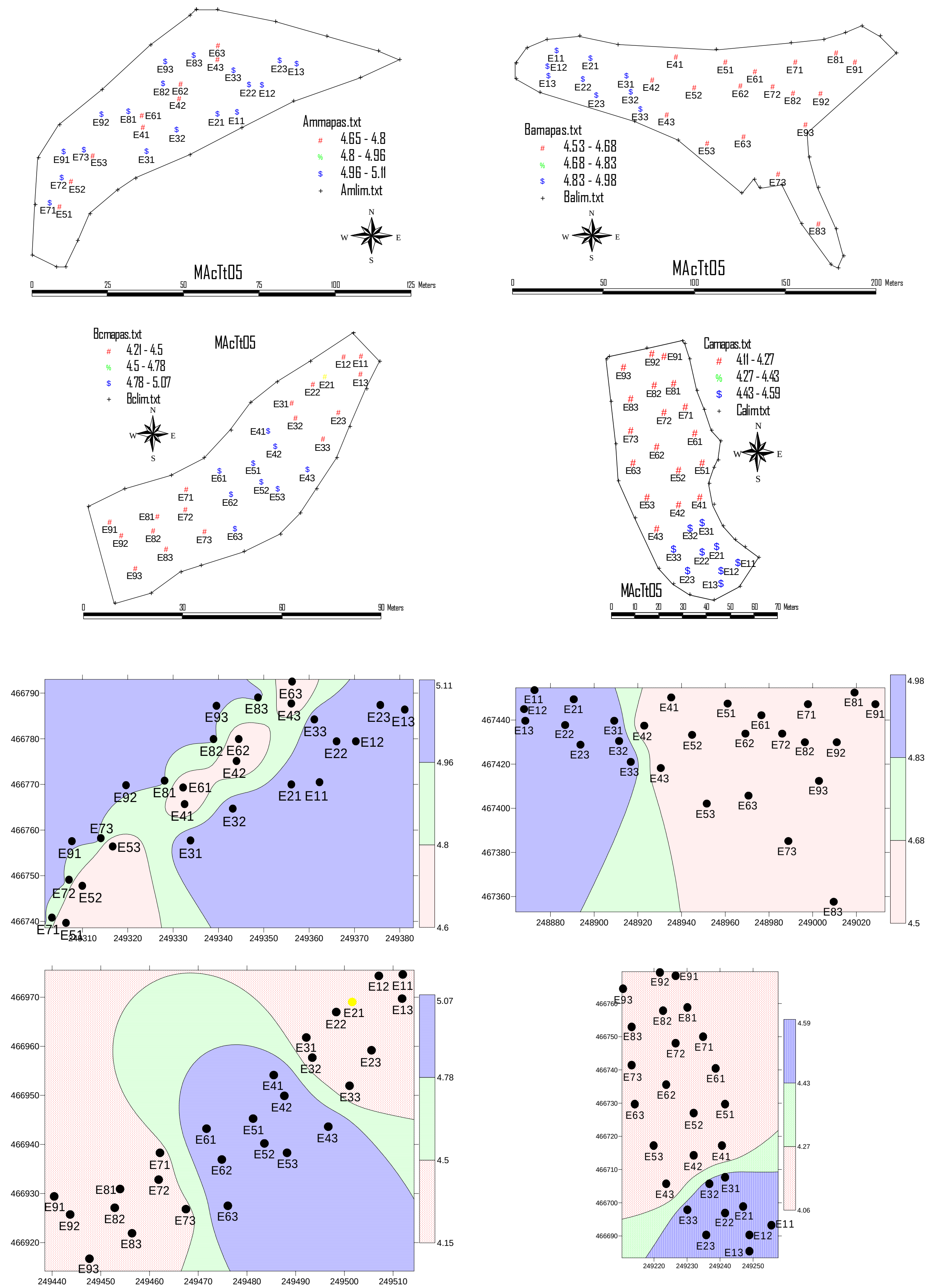


Figure 10- Spacial and cartographic distribution of wine total acidity in different plots, for 2006 year

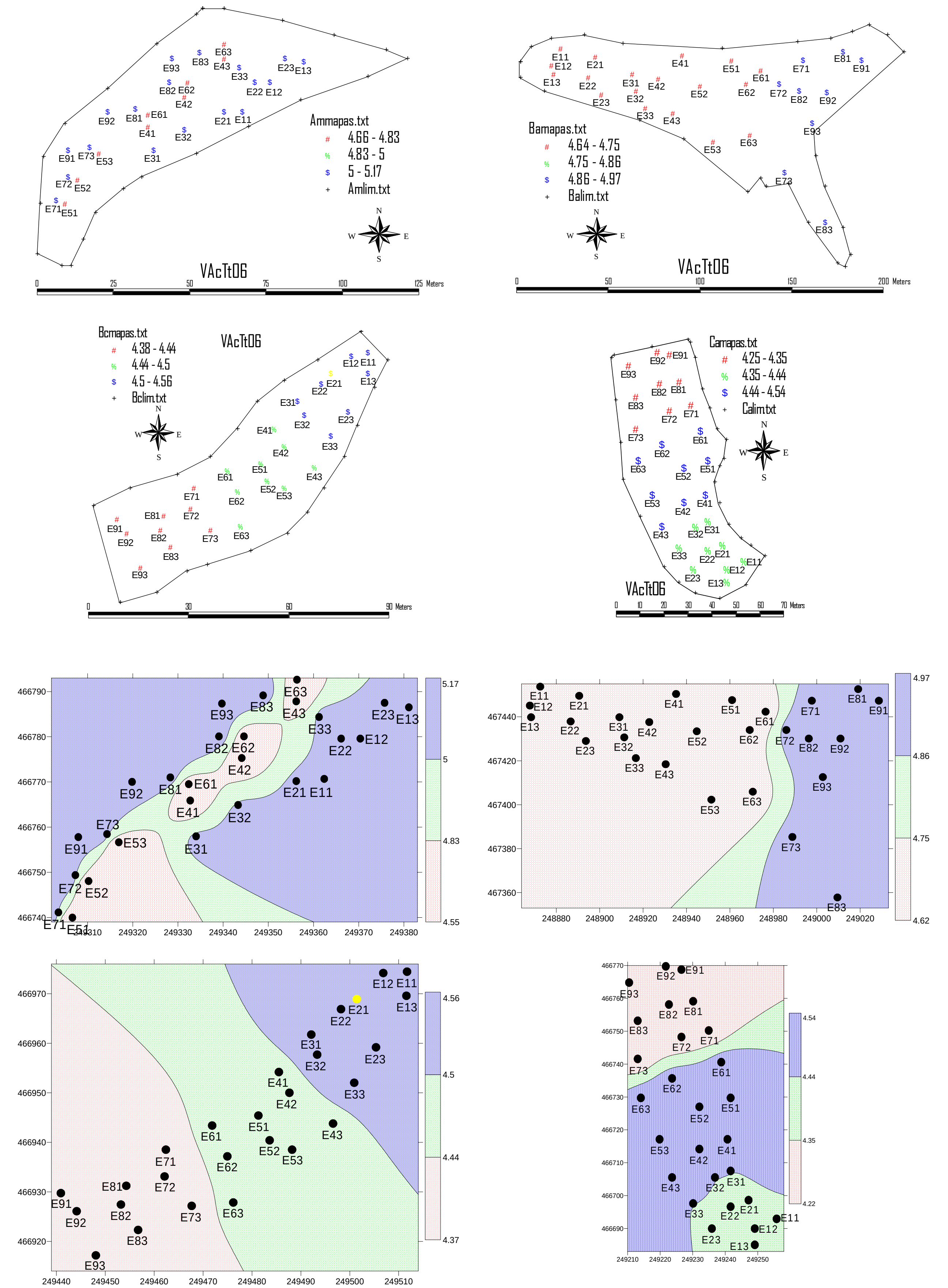


Figure 11- Spacial and cartographic distribution of wine volatility acidity in different plots, for 2005 year

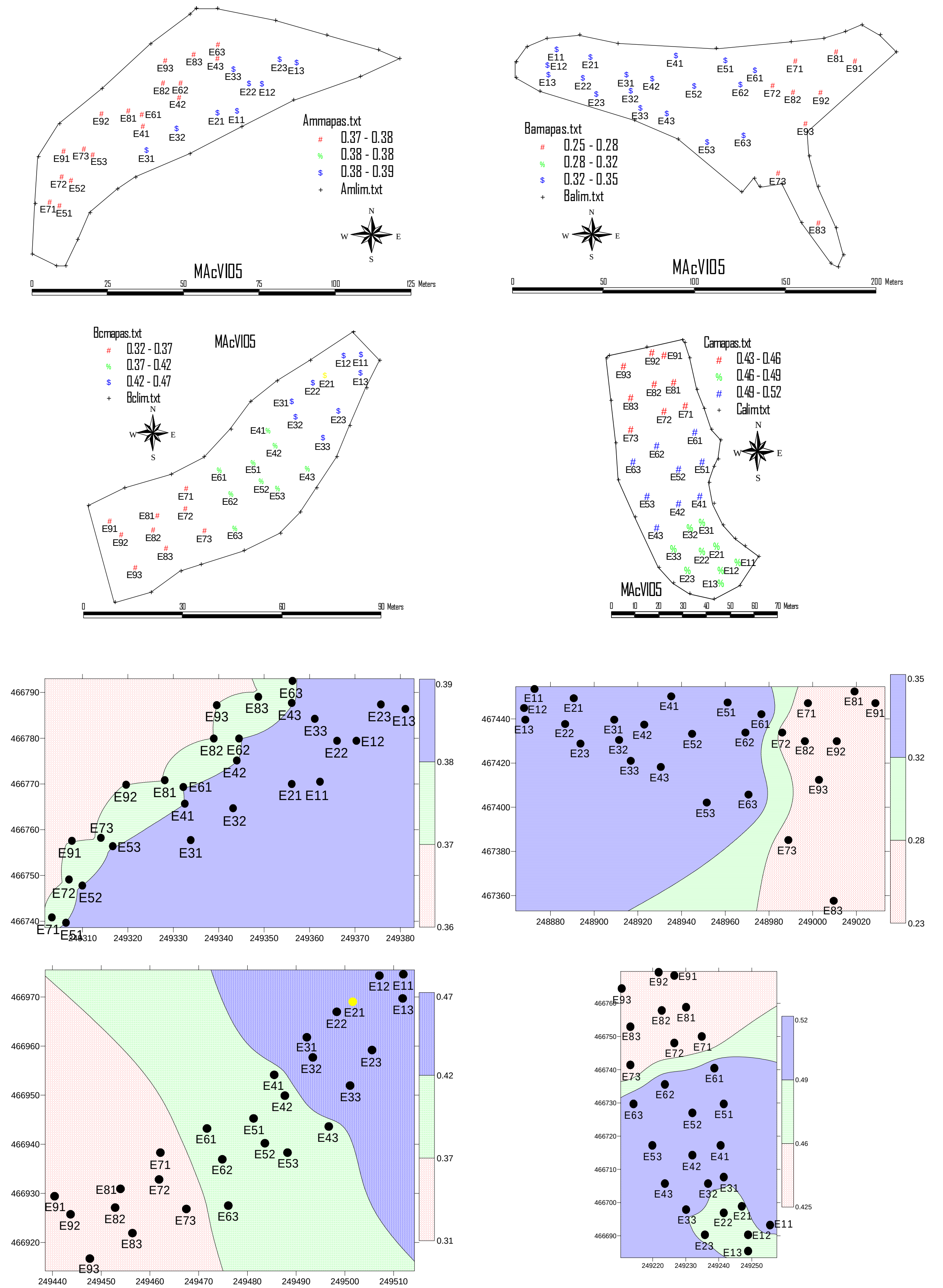


Figure 12- Spacial and cartographic distribution of wine volatility acidity in different plots, for 2006 year

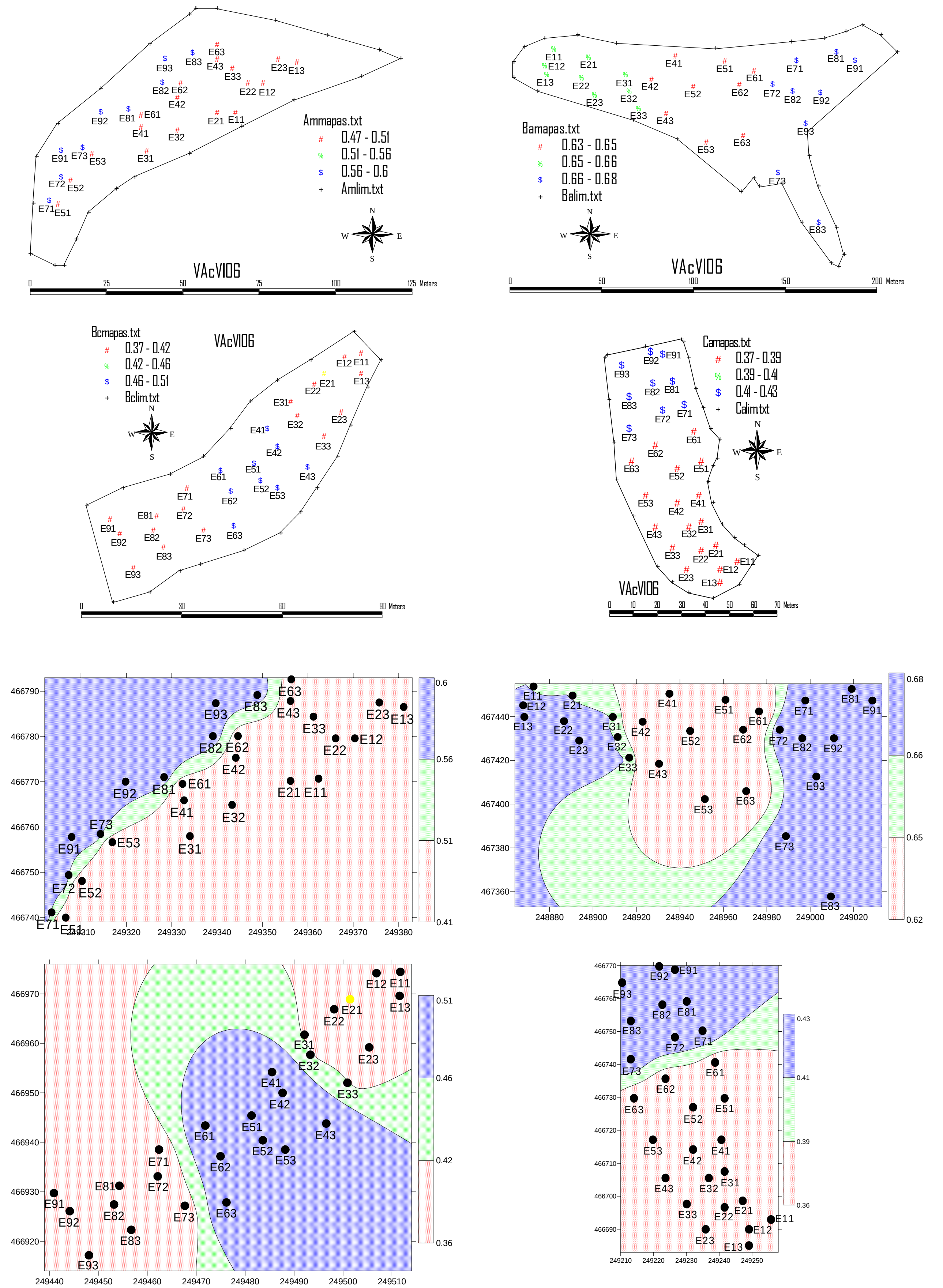


Figure 13- Spacial and cartographic distribution of wine fix acidity in different plots, for 2005 year

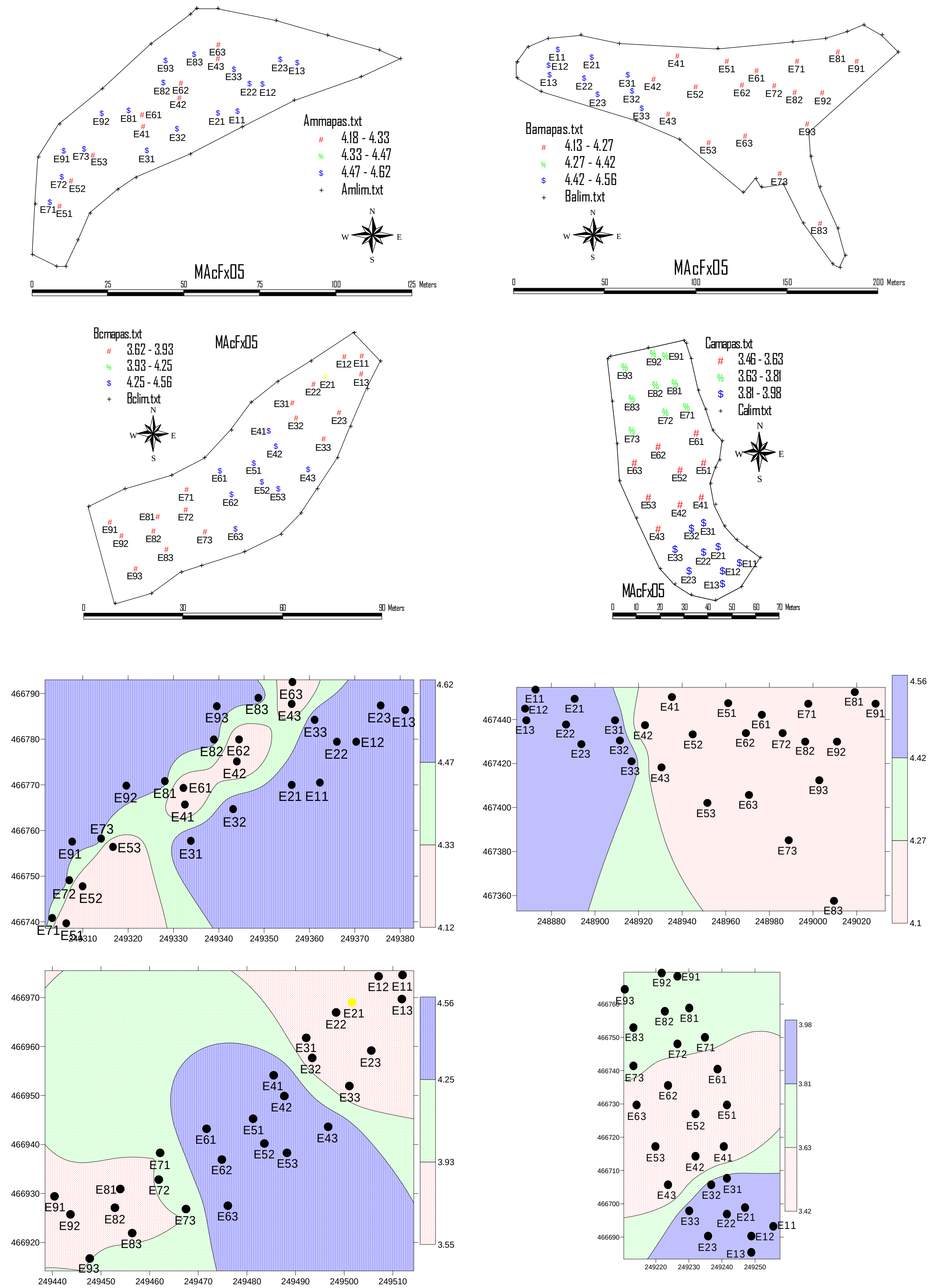


Figure 14- Spacial and cartographic distribution of wine fix acidity in different plots, for 2006 year

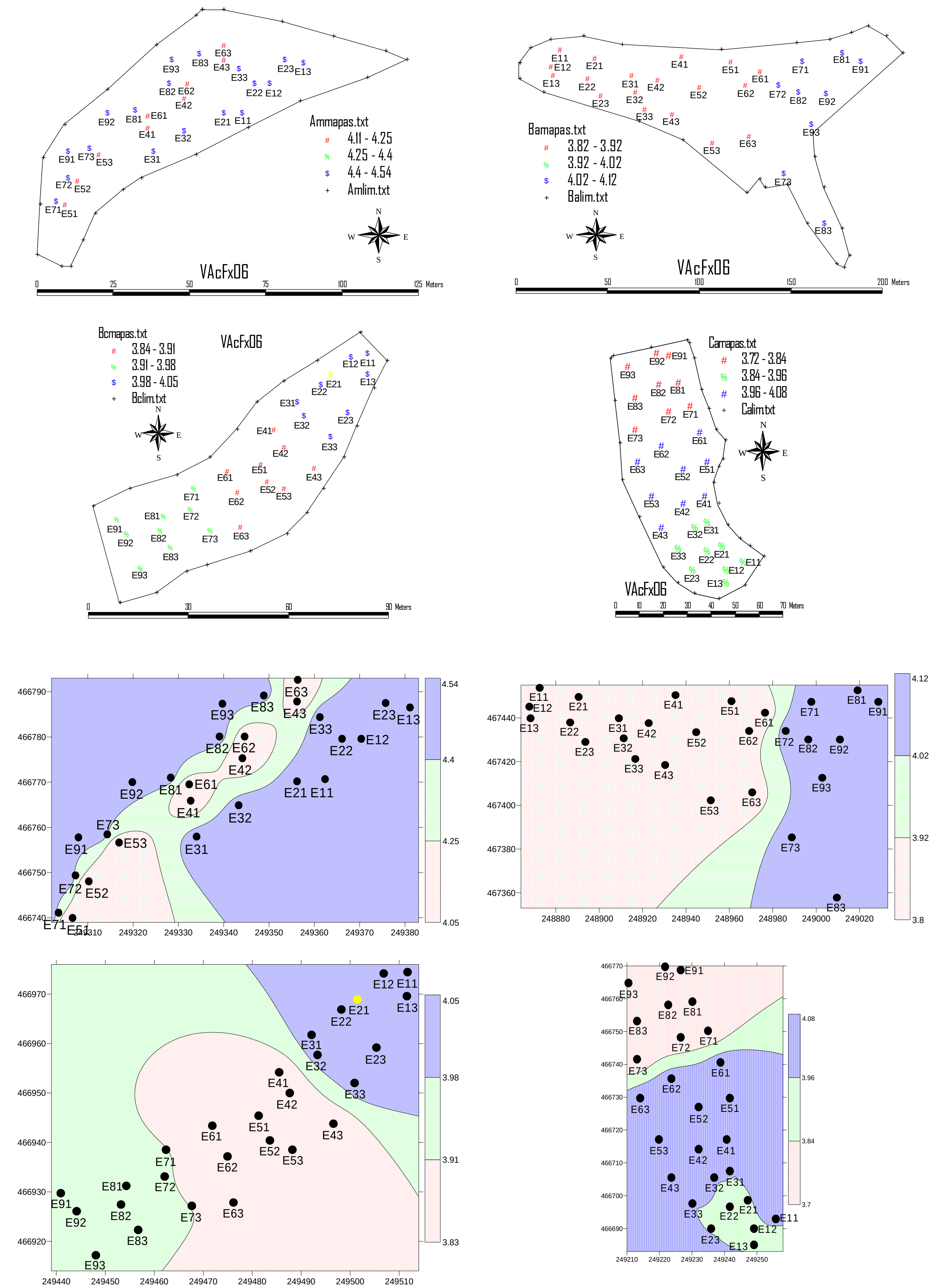


Figure 15- Spacial and cartographic distribution of phenolic wine (MDO280) in different plots, for 2005 year

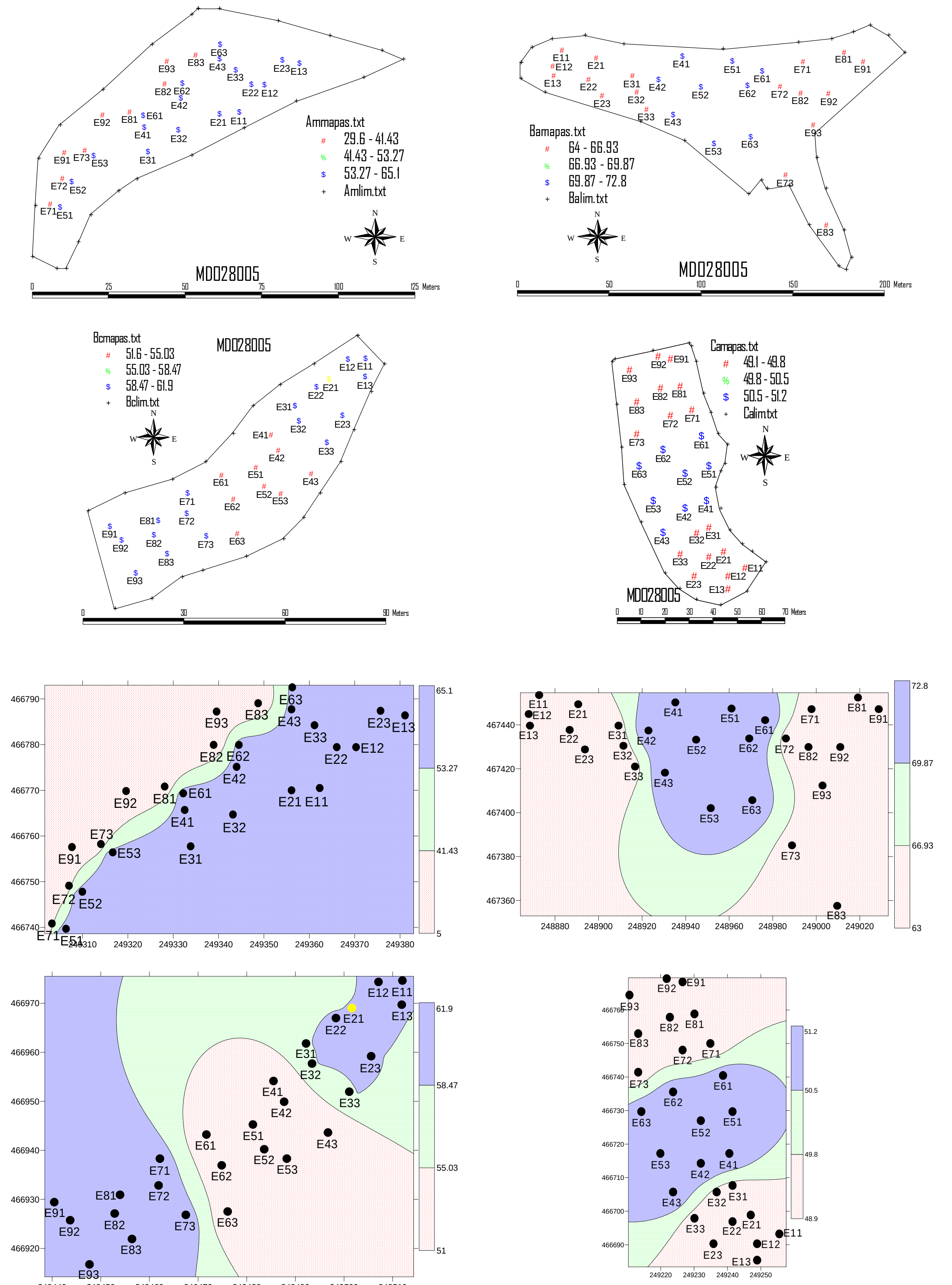


Figure 16- Spacial and cartographic distribution of phenolic wine (MDO280) in different plots, for 2006 year

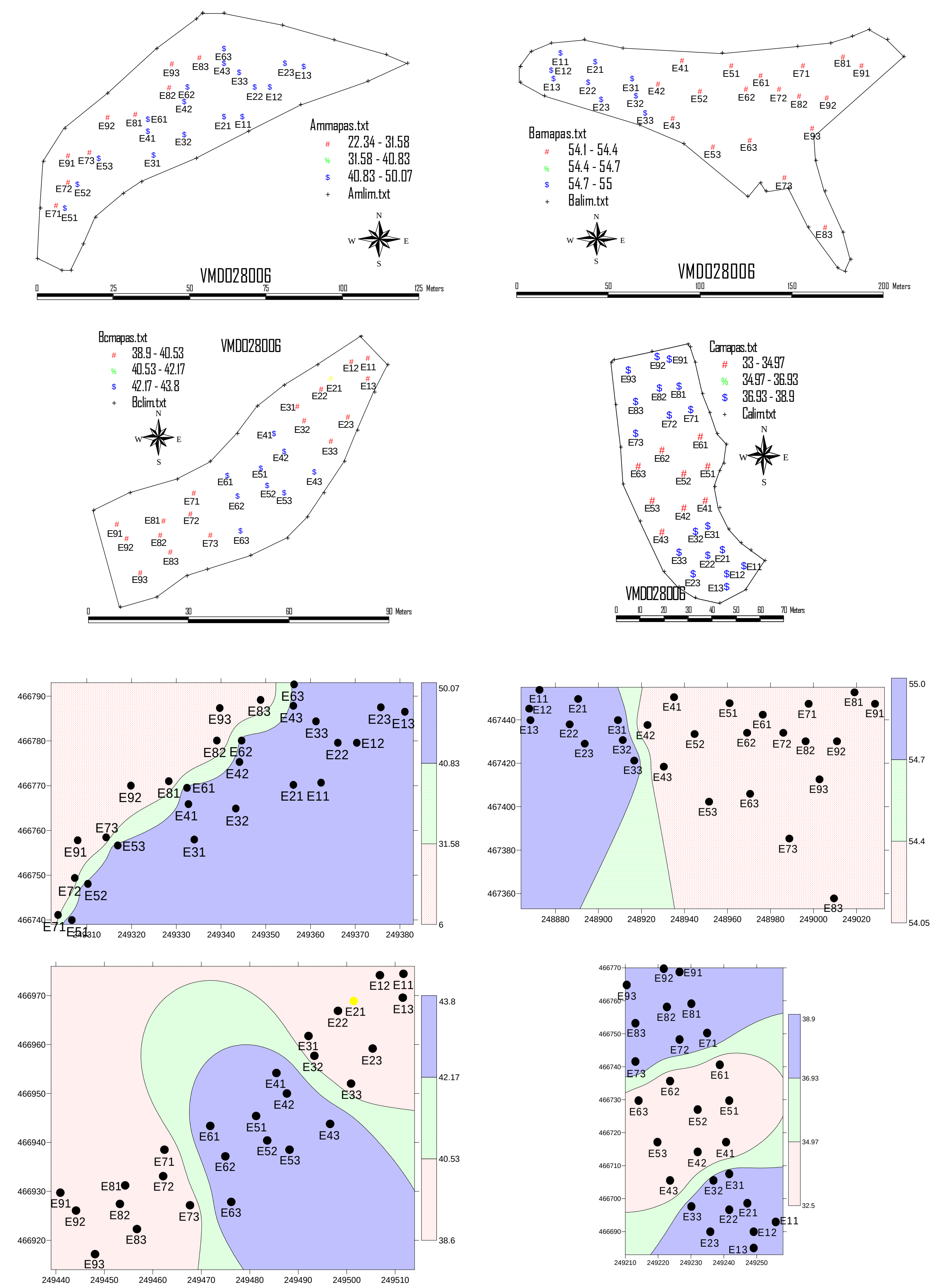


Figure 17- Spacial and cartographic distribution of colour wine in different plots, for 2005 year

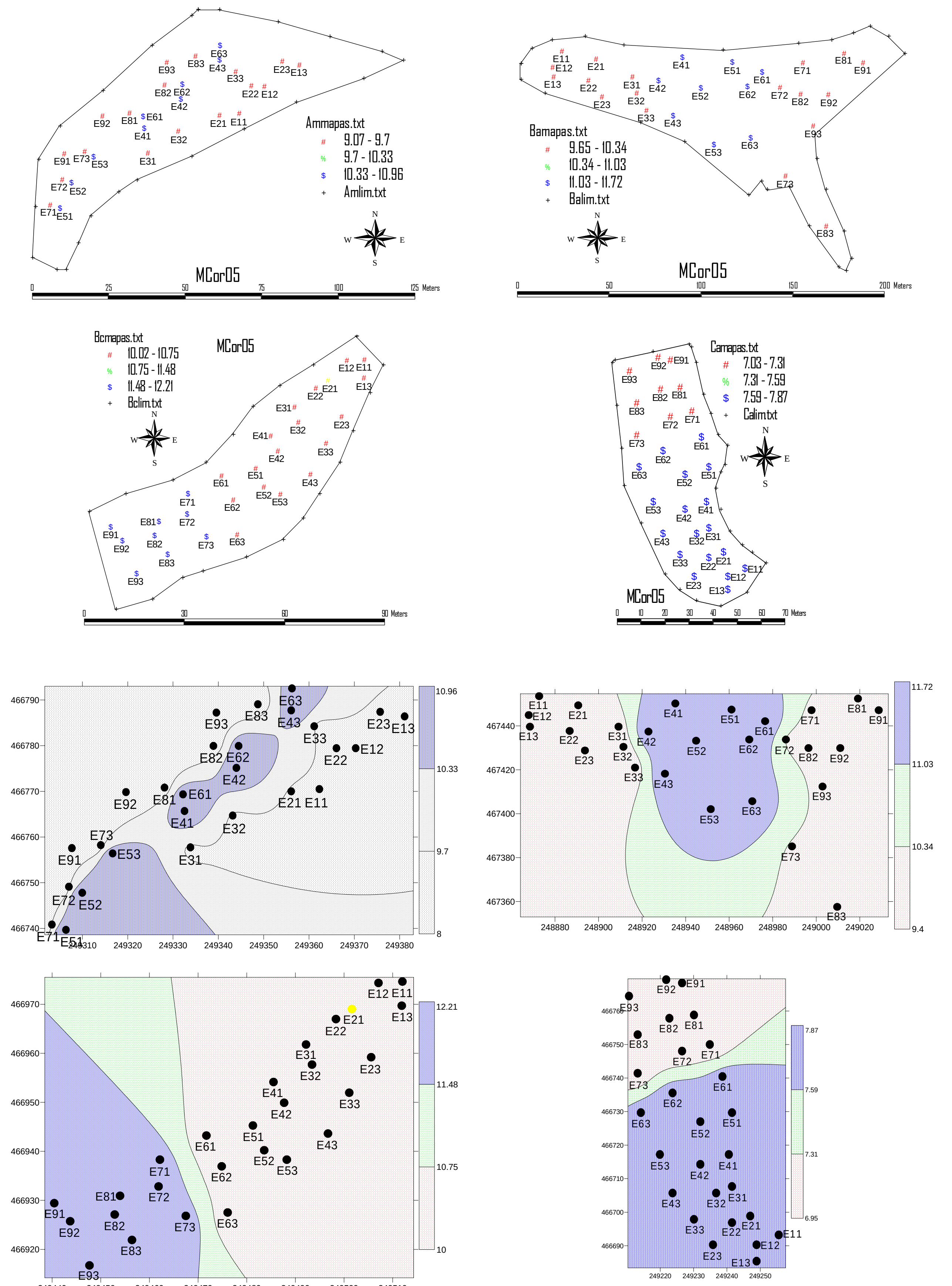


Figure 18- Spacial and cartographic distribution of colour wine in different plots, for 2006 year

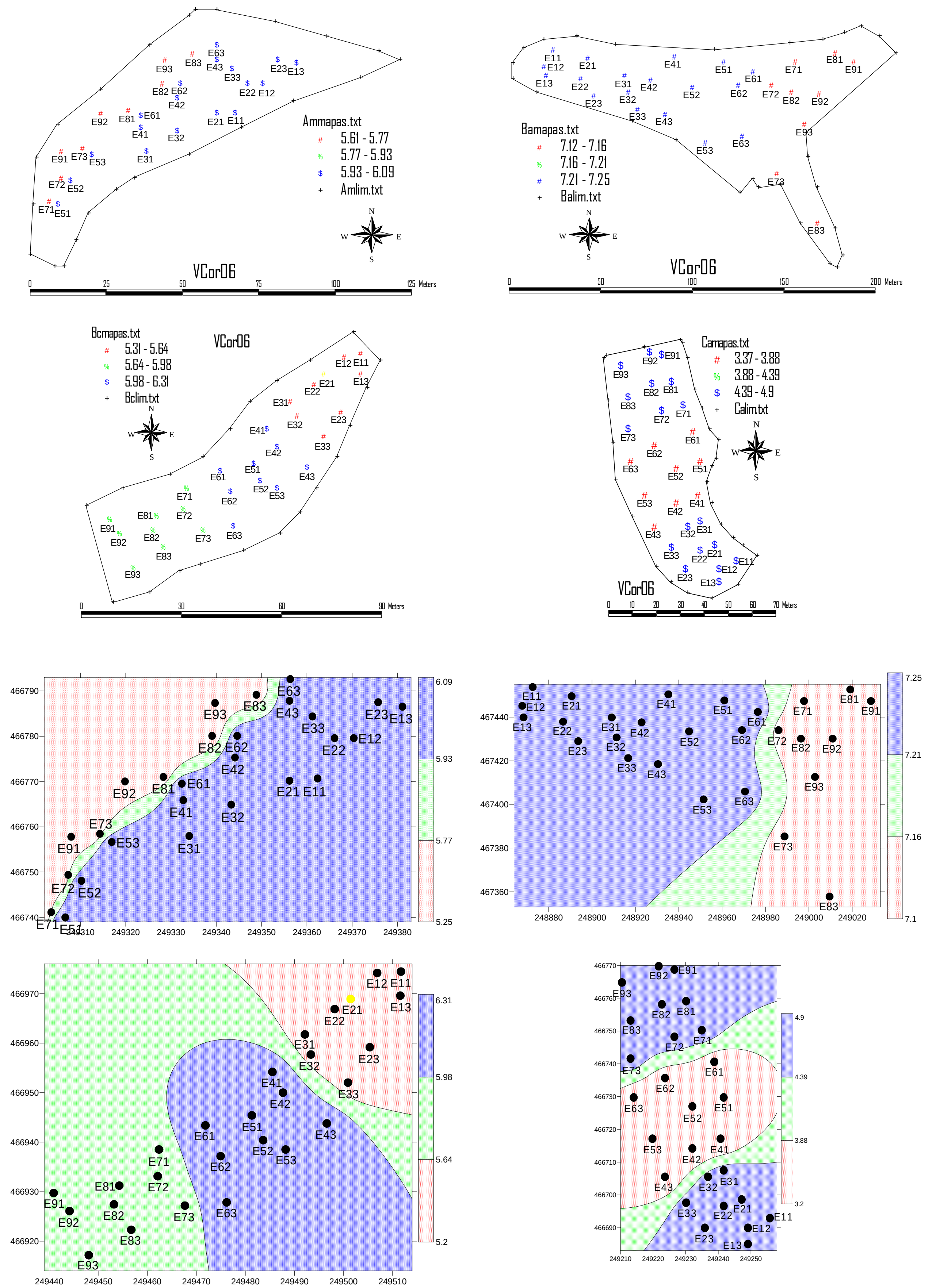


Figure 19- Spacial and cartographic distribution of tonality wine in different plots, for 2005 year

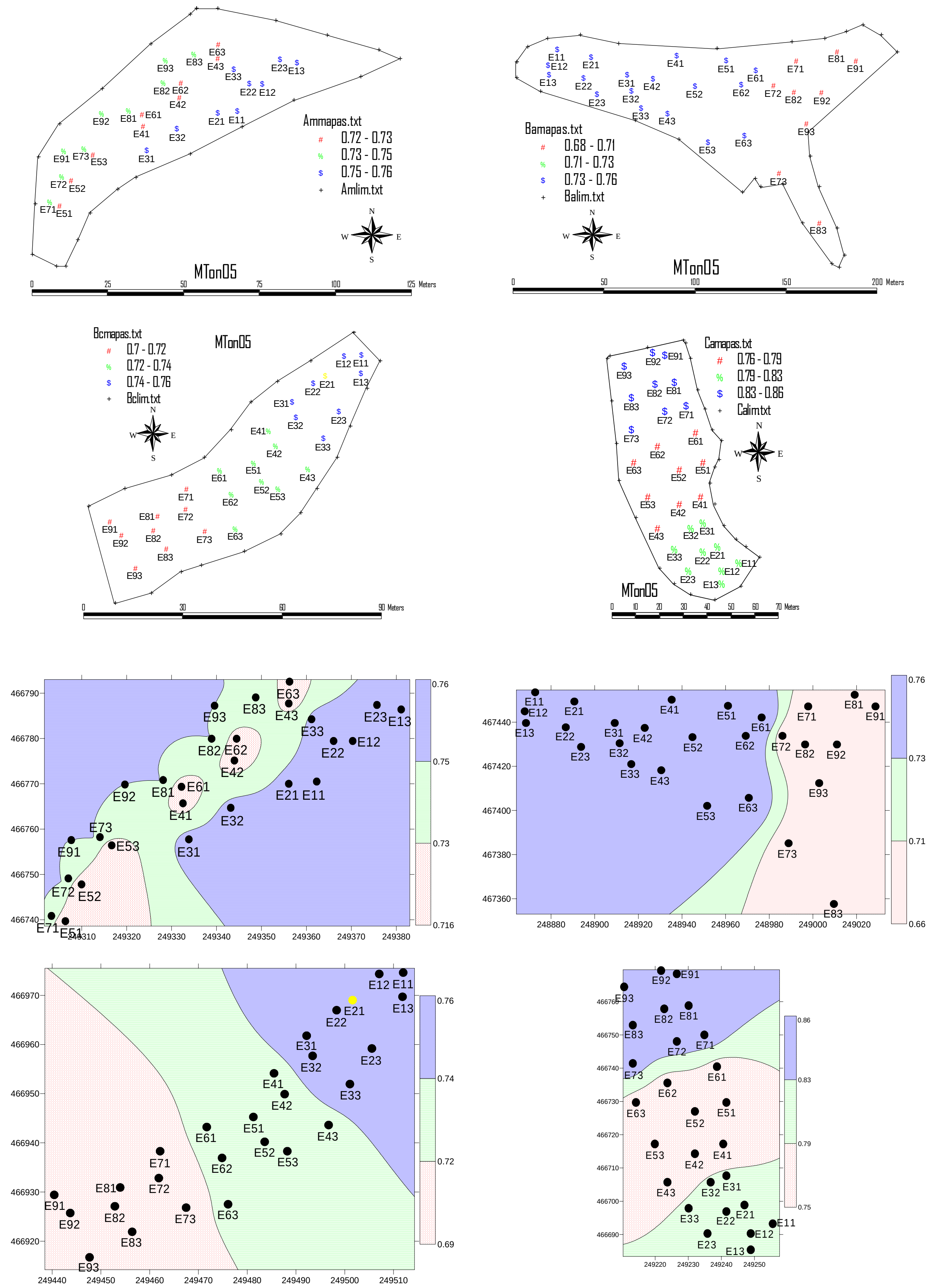


Figure 20- Spacial and cartographic distribution of tonality wine in different plots, for 2006 year

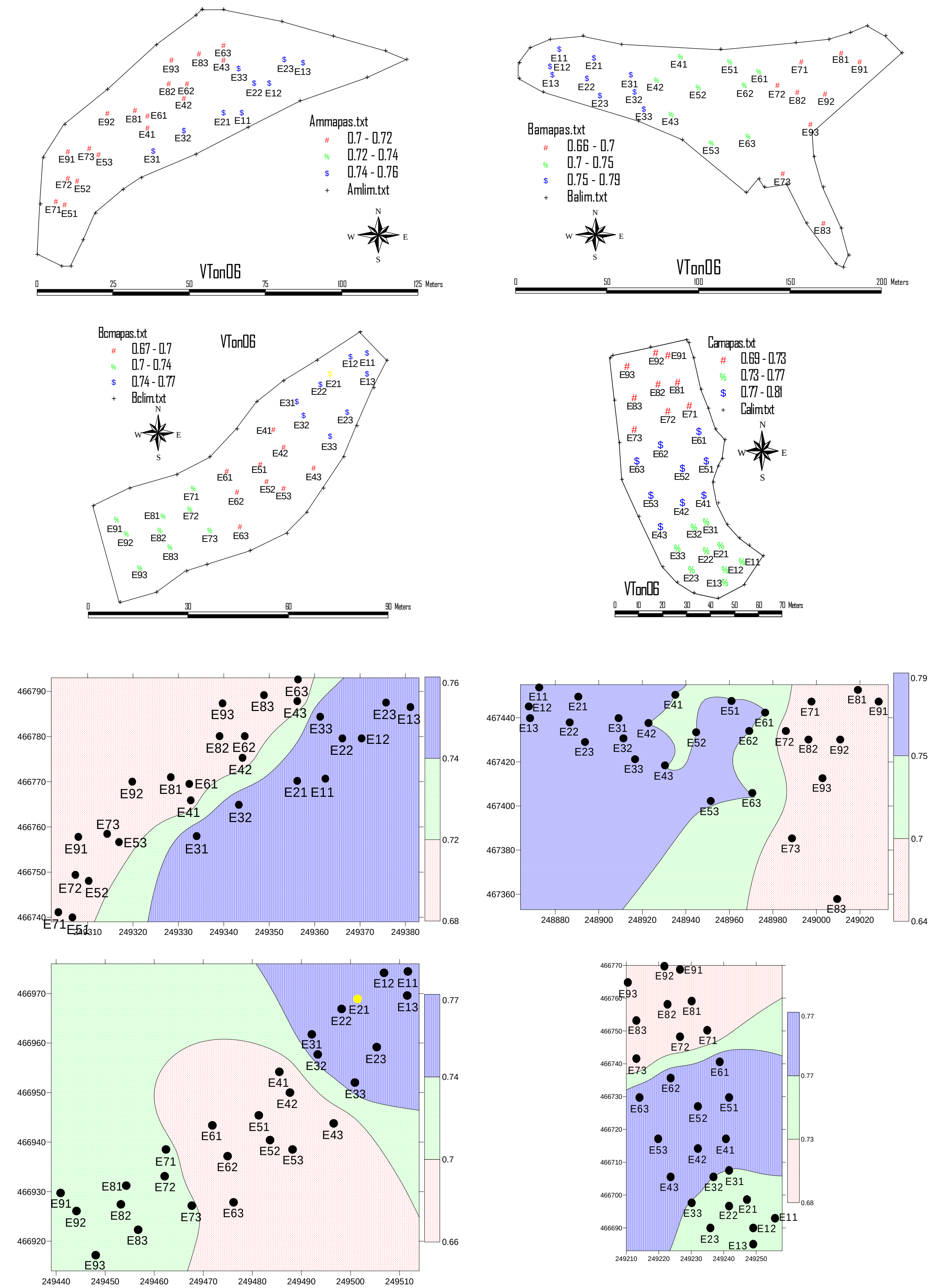


Figure 21- Spacial and cartographic distribution of wine ashes in different plots, for 2005 year

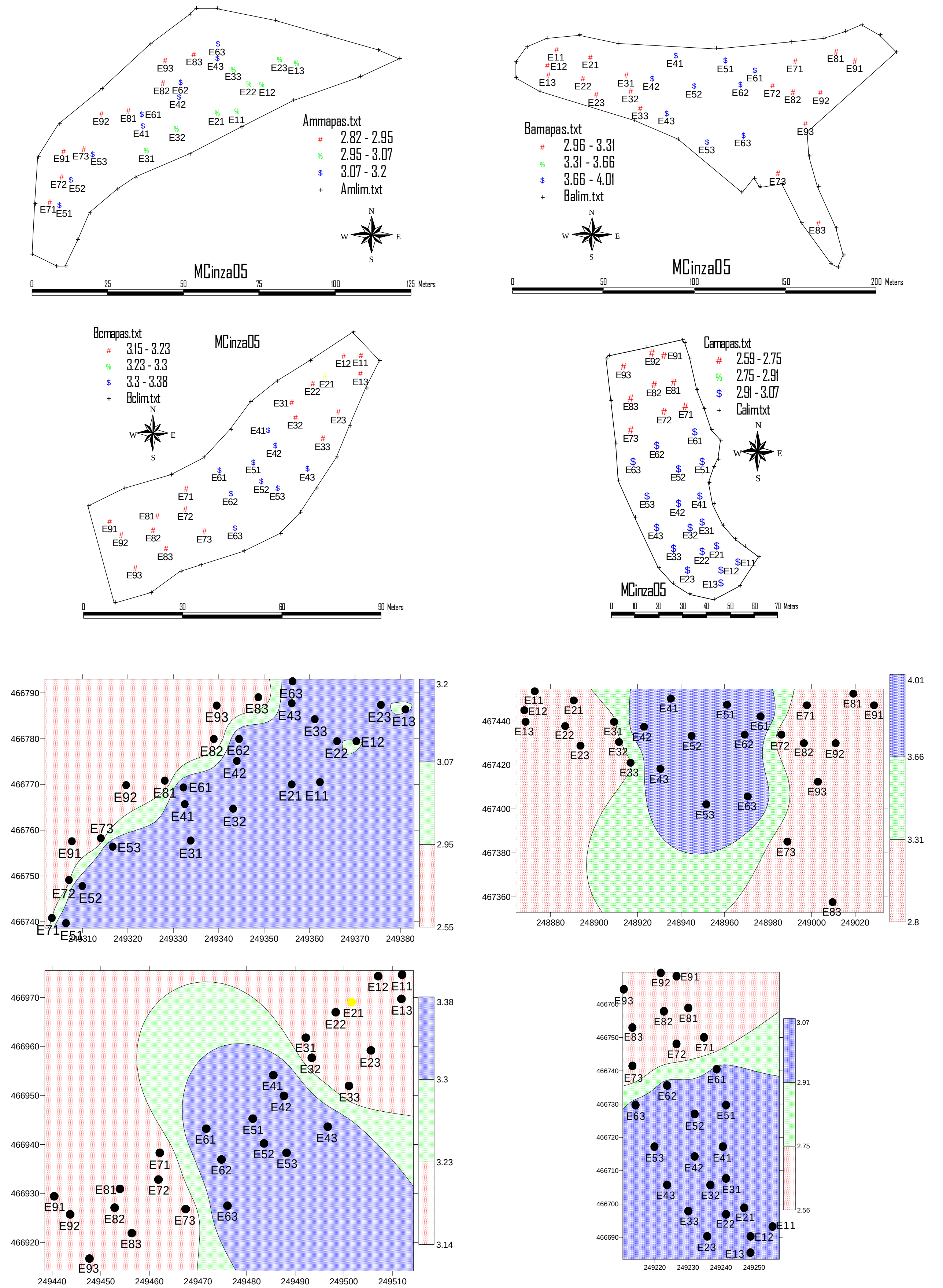


Figure 22- Spacial and cartographic distribution of wine ashes in different plots, for 2006 year

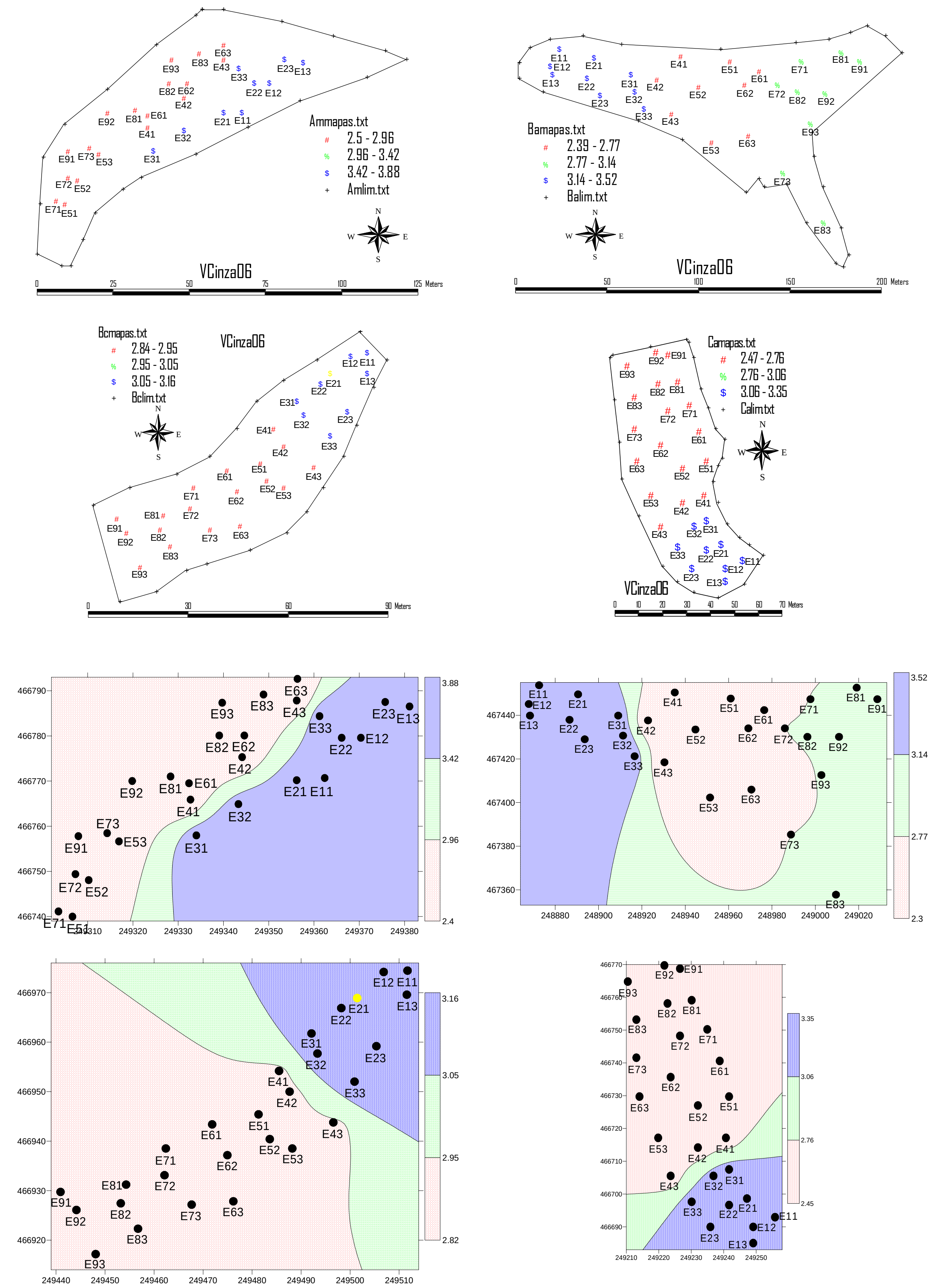


Figure 23- Spacial and cartographic distribution of wine ashes alcalinity in different plots, for 2005 year

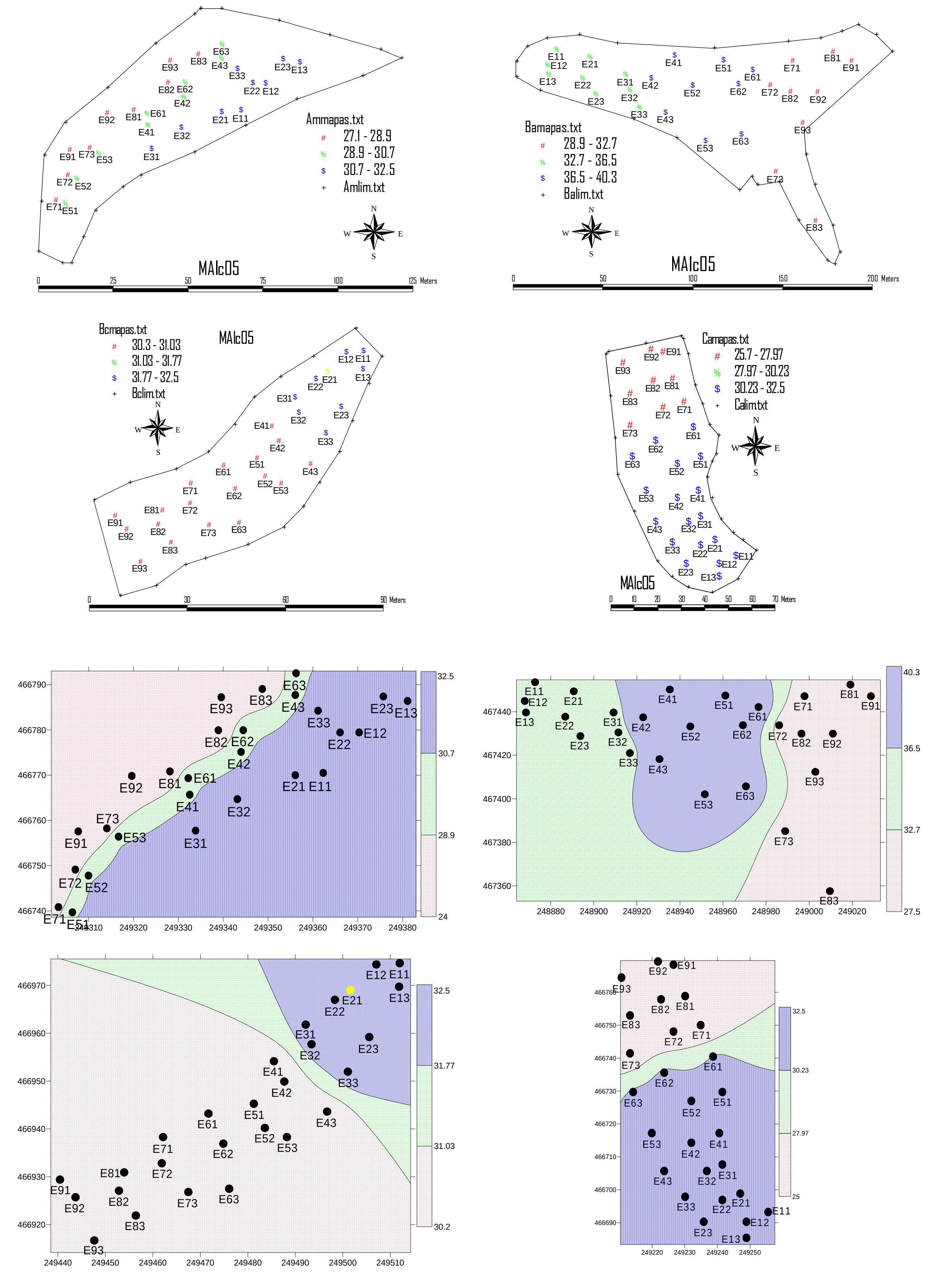


Figure 24- Spacial and cartographic distribution of wine ashes alcalinity in different plots, for 2006 year

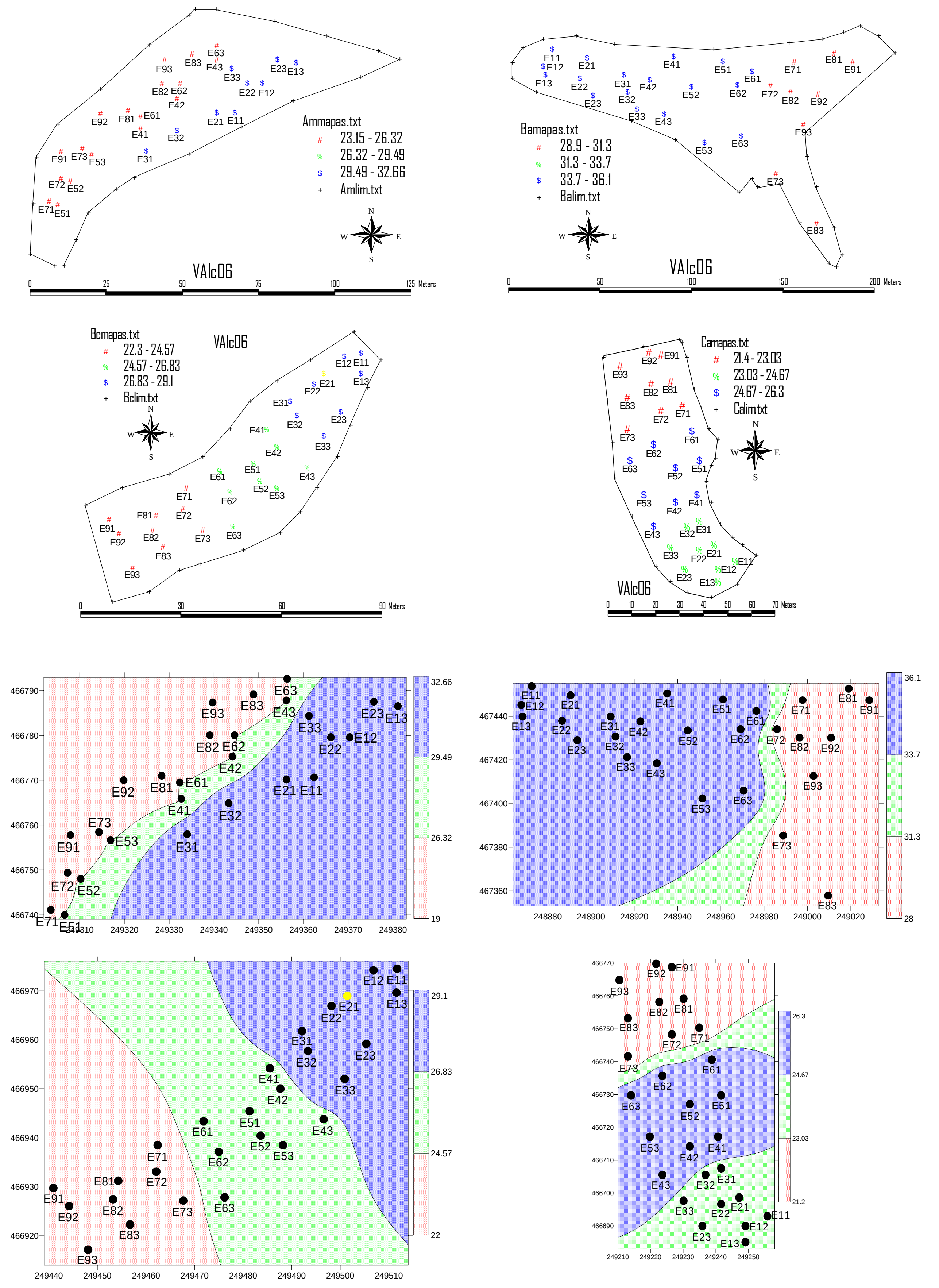


Figure 25- Spacial and cartographic distribution of wine inorganic phosphorous in different plots, for 2005 year

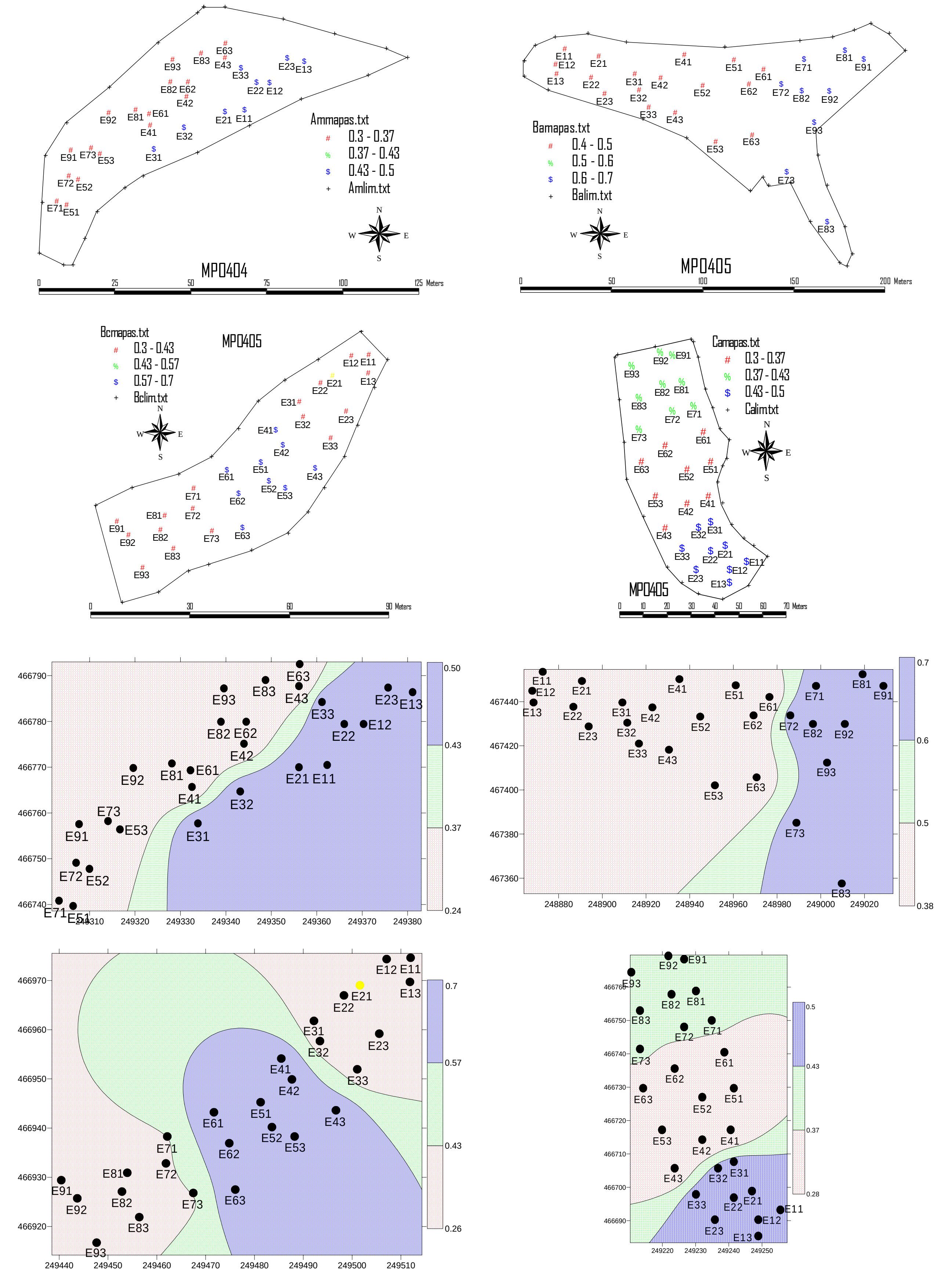
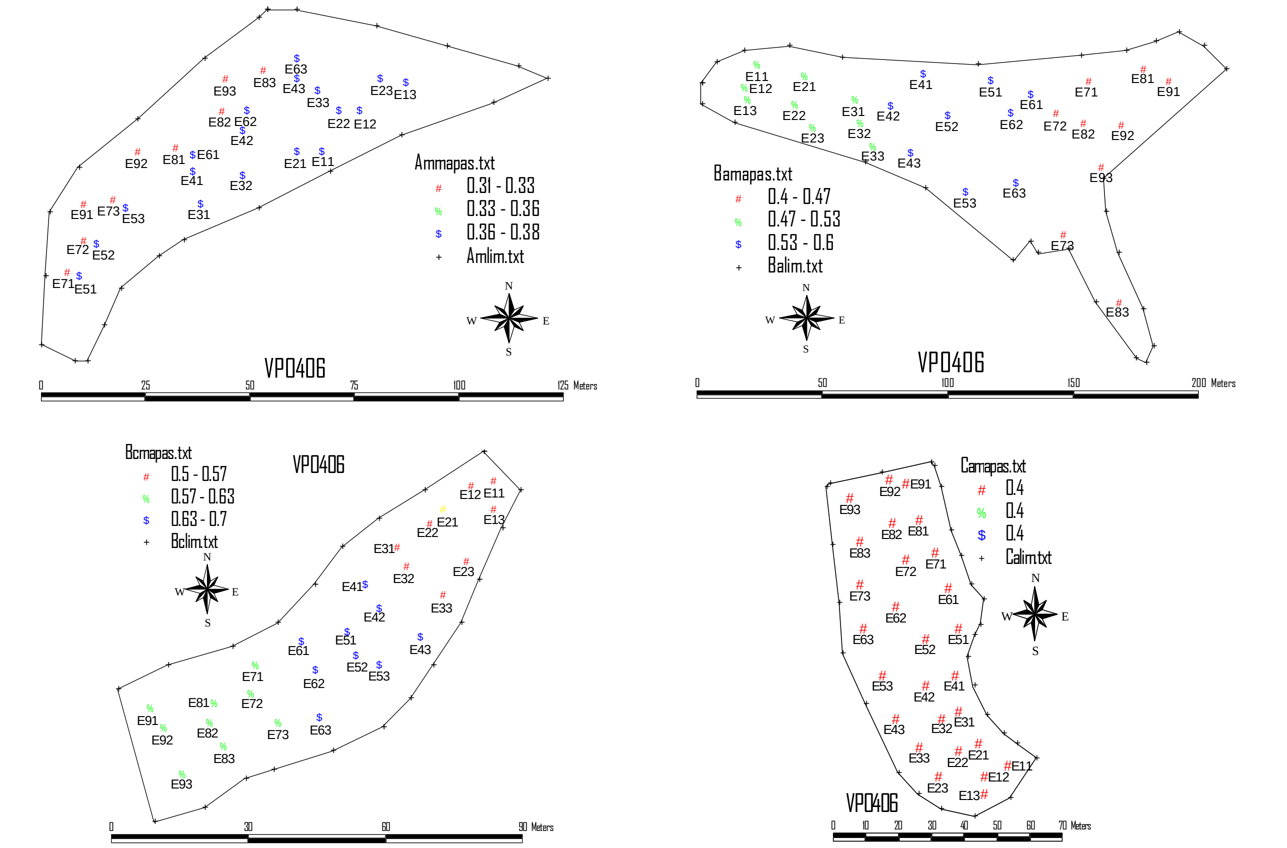
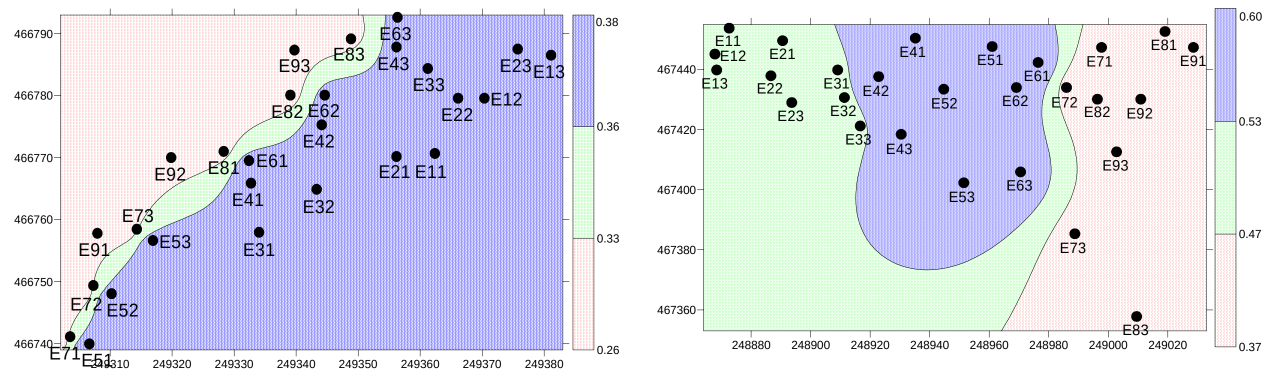


Figure 26- Spacial and cartographic distribution of wine inorganic phosphorous in different plots, for 2006 year





???

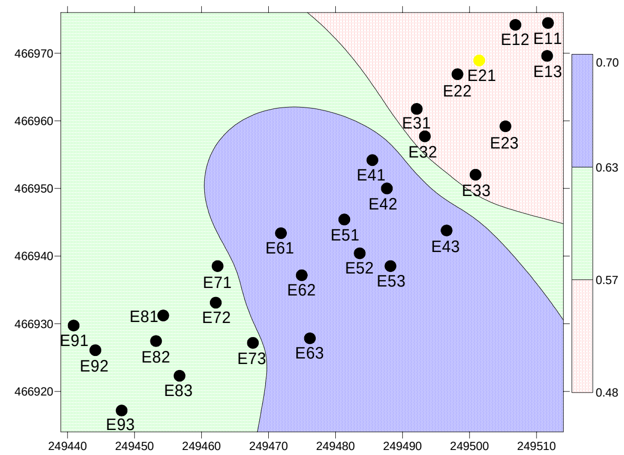


Figure 27- Spacial and cartographic distribution of wine anthocyanins in different plots, for 2005 year

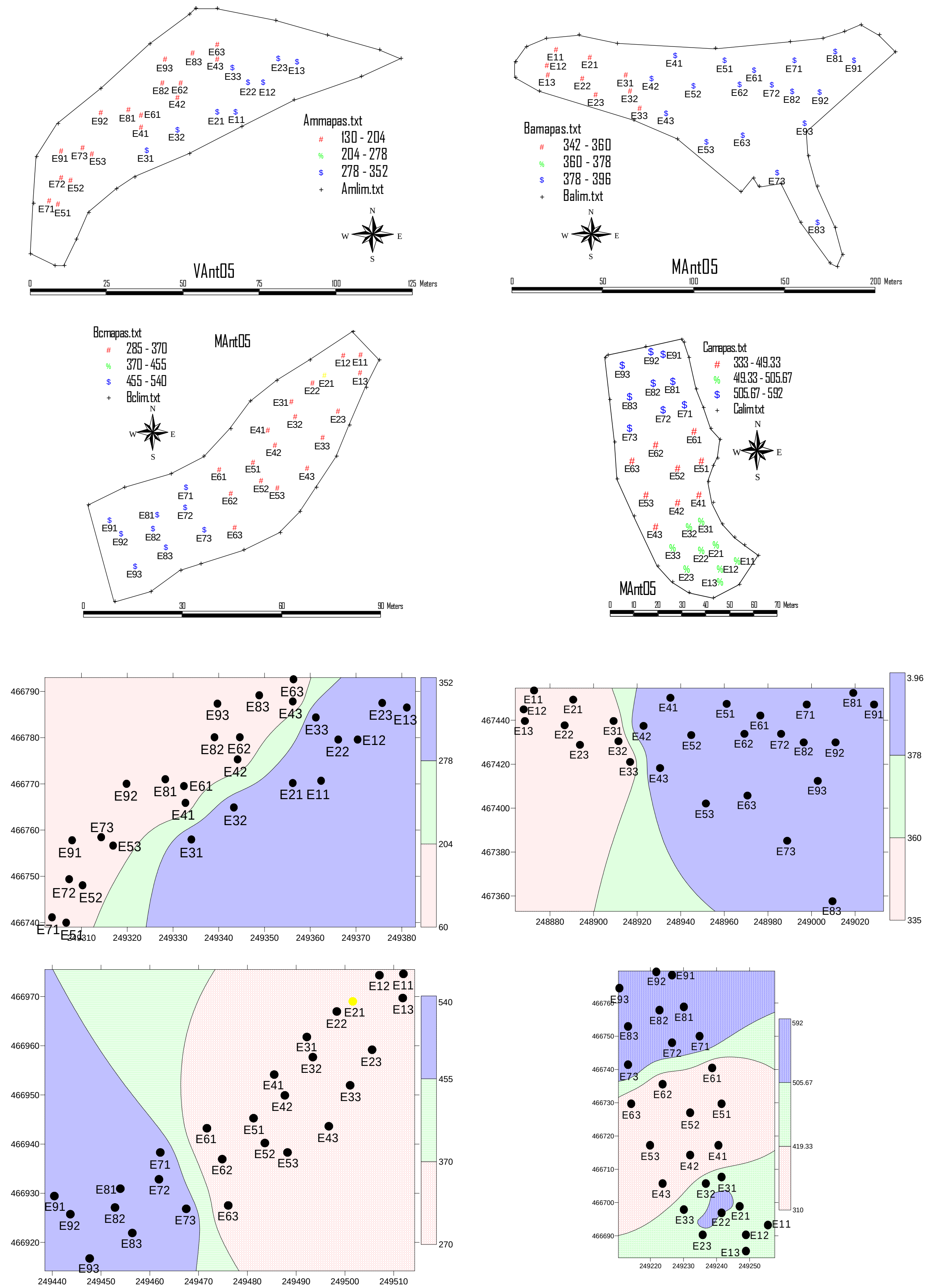


Figure 28- Spacial and cartographic distribution of wine anthocyanins in different plots, for 2006 year

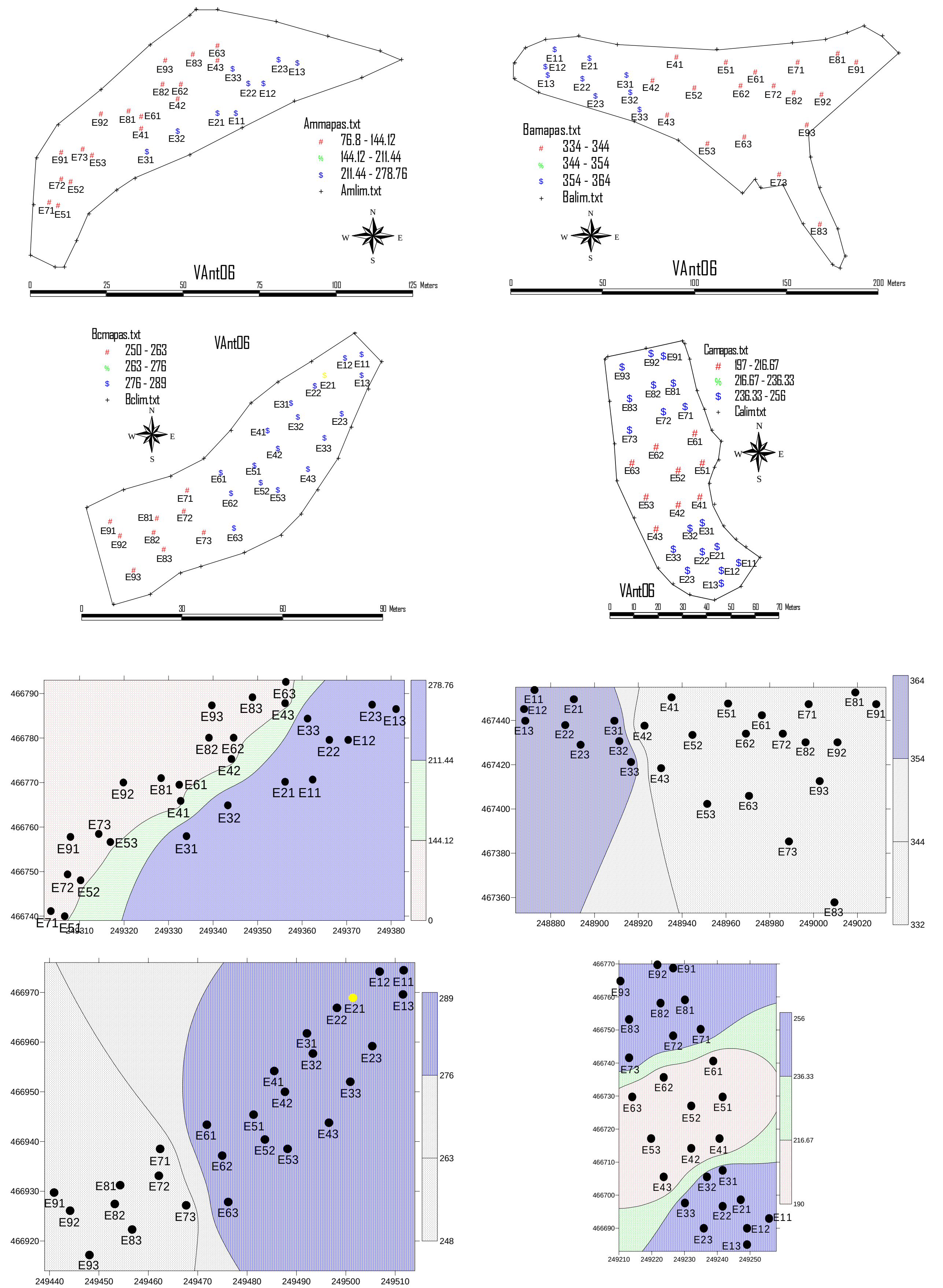


Figure 29- Spacial and cartographic distribution of free wine sulphur in different plots, for 2005 year

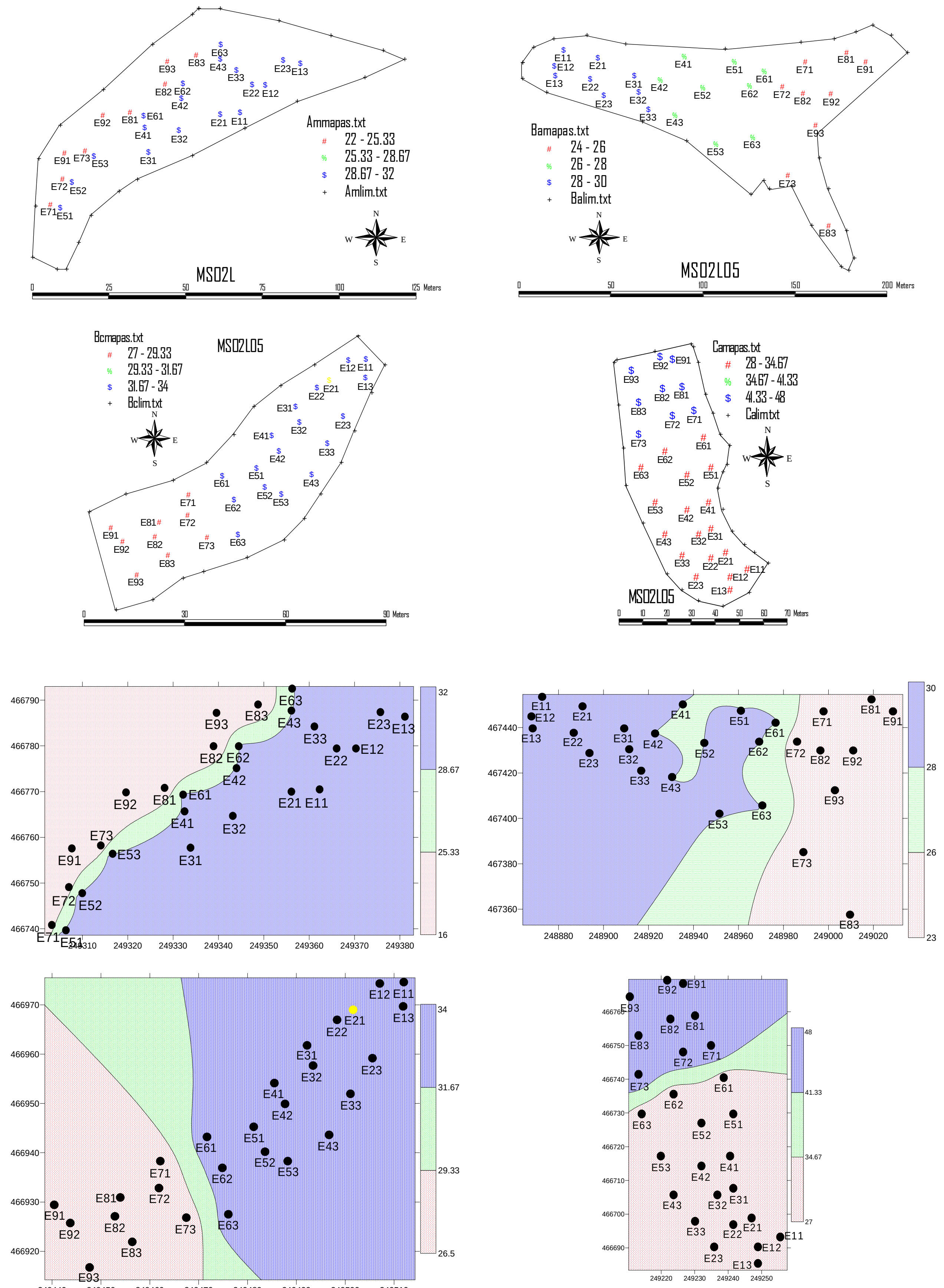


Figure 30- Spacial and cartographic distribution of free wine sulphur in different plots, for 2006 year

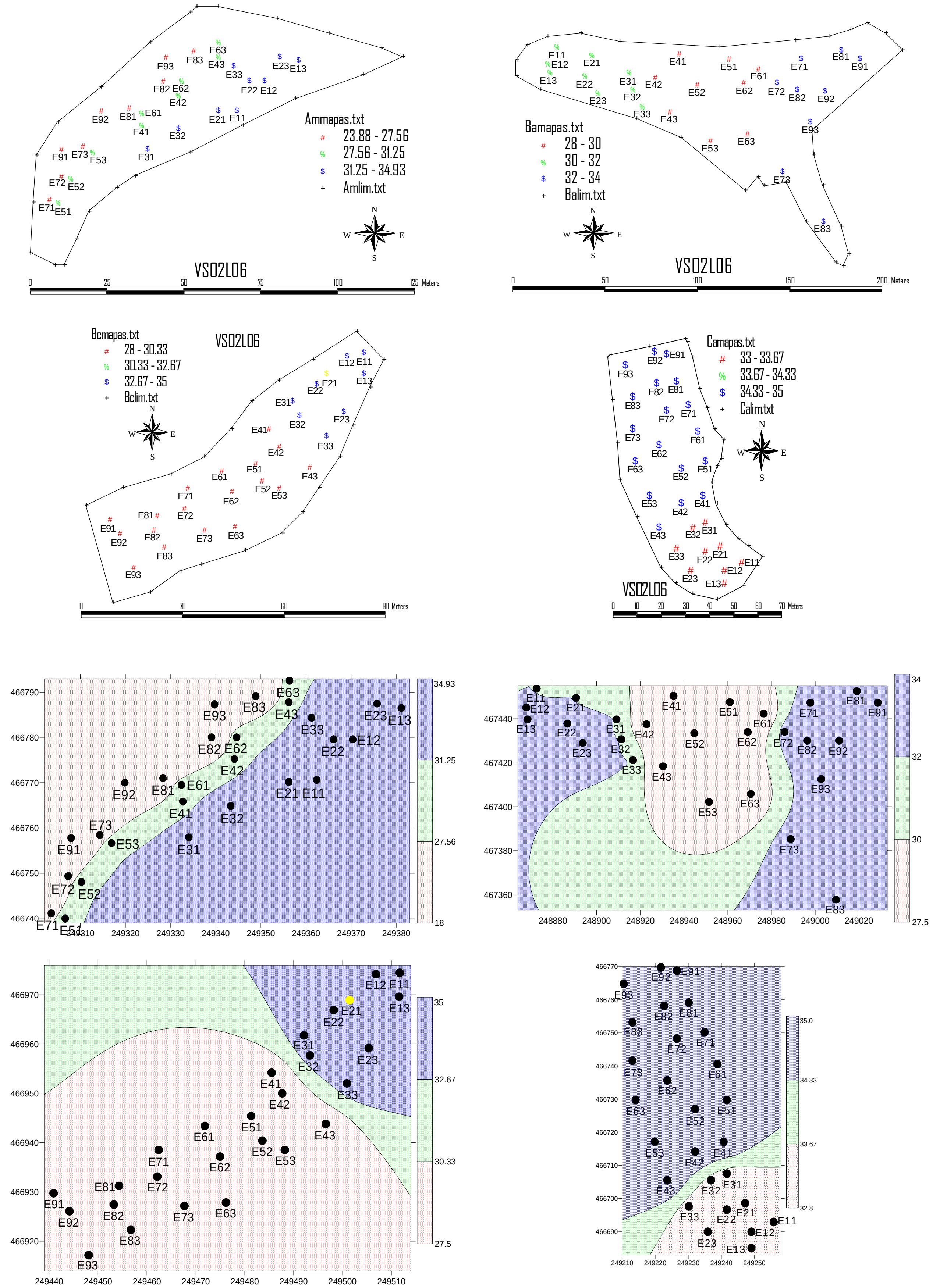


Figure 31- Spacial and cartographic distribution of total wine sulphur in different plots, for 2005 year

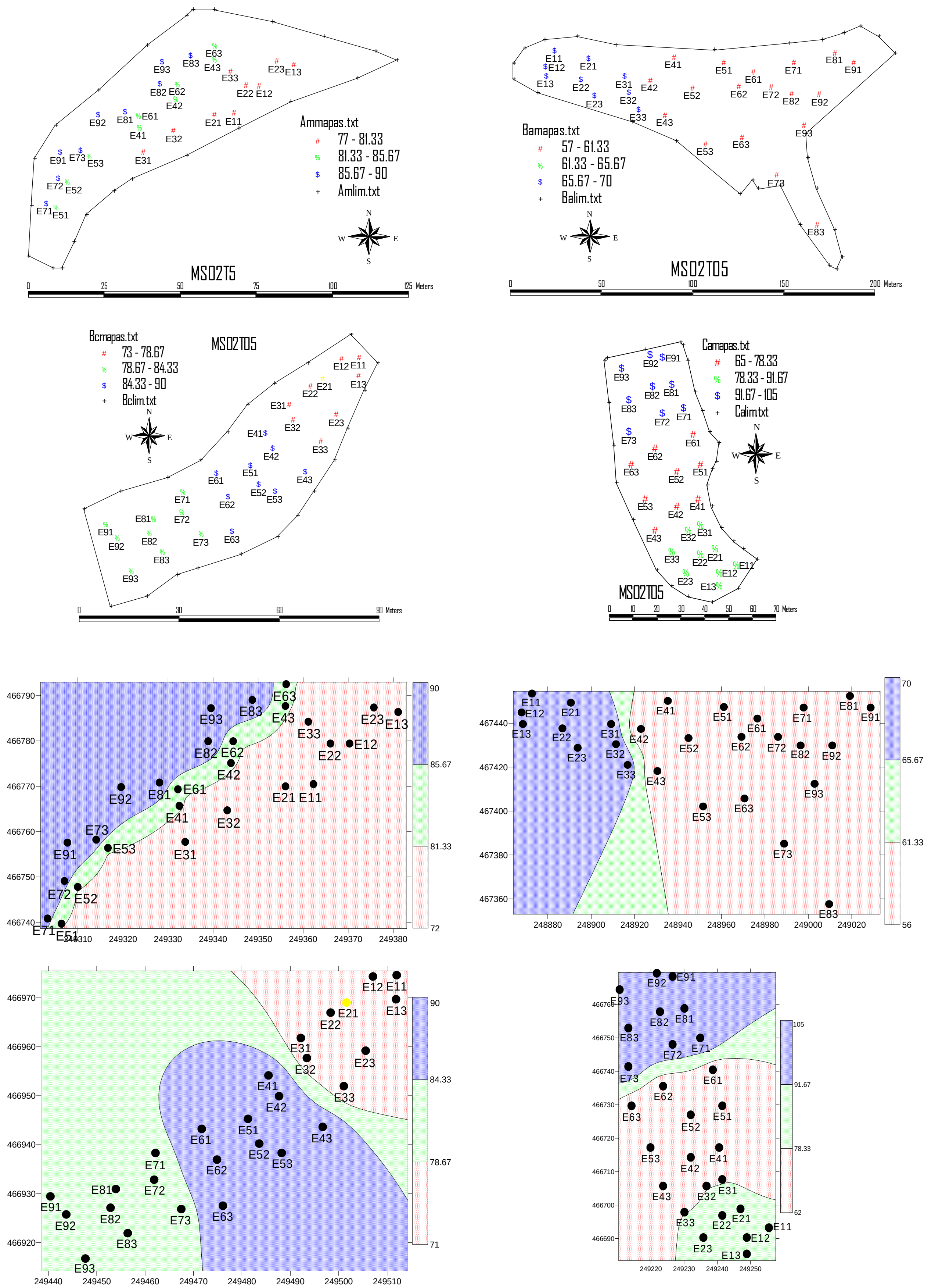


Figure 32- Spacial and cartographic distribution of total wine sulphur in different plots, for 2006 year

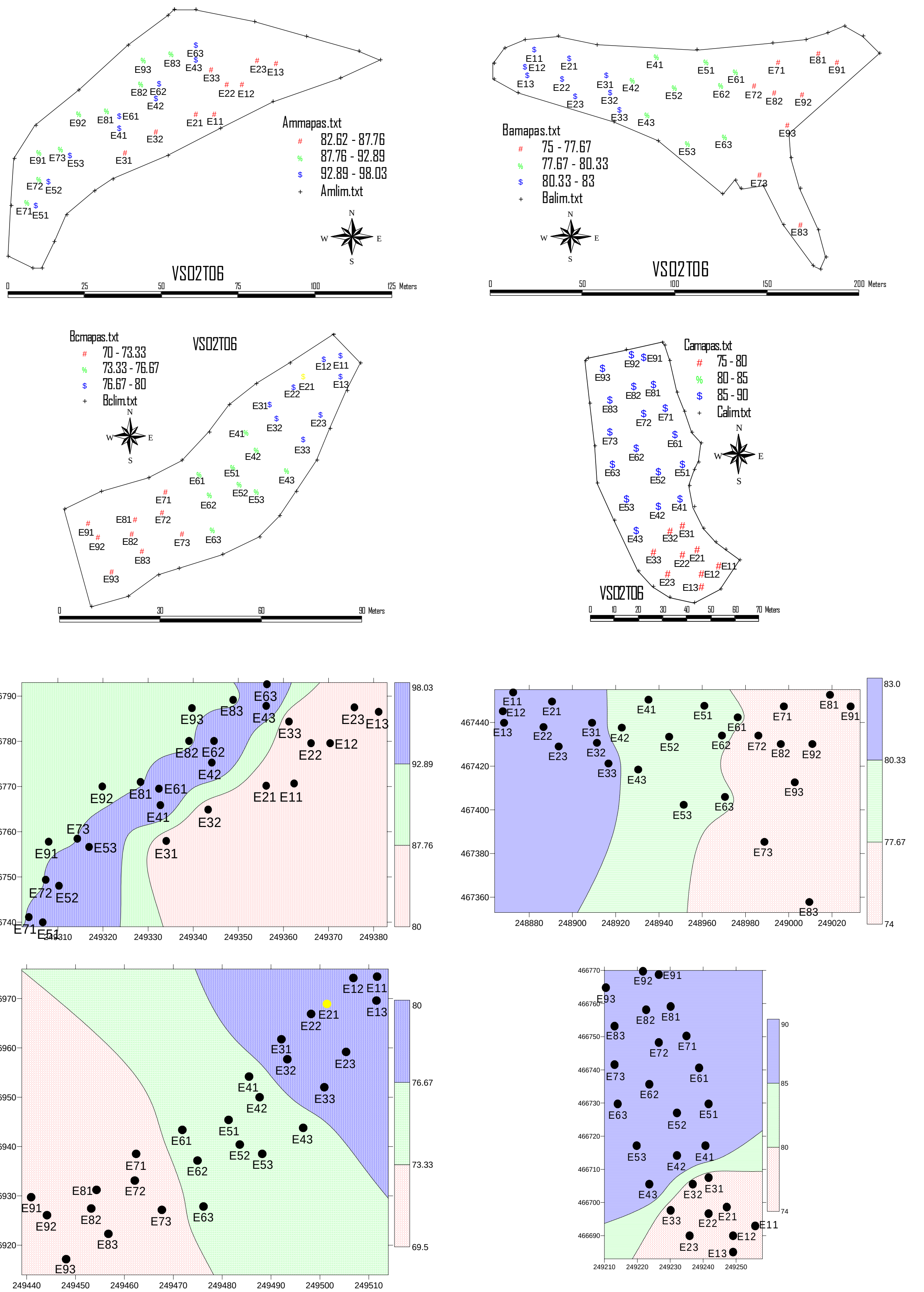


Figure 33- Spacial and cartographic distribution of wine colour in different plots, for 2005 year

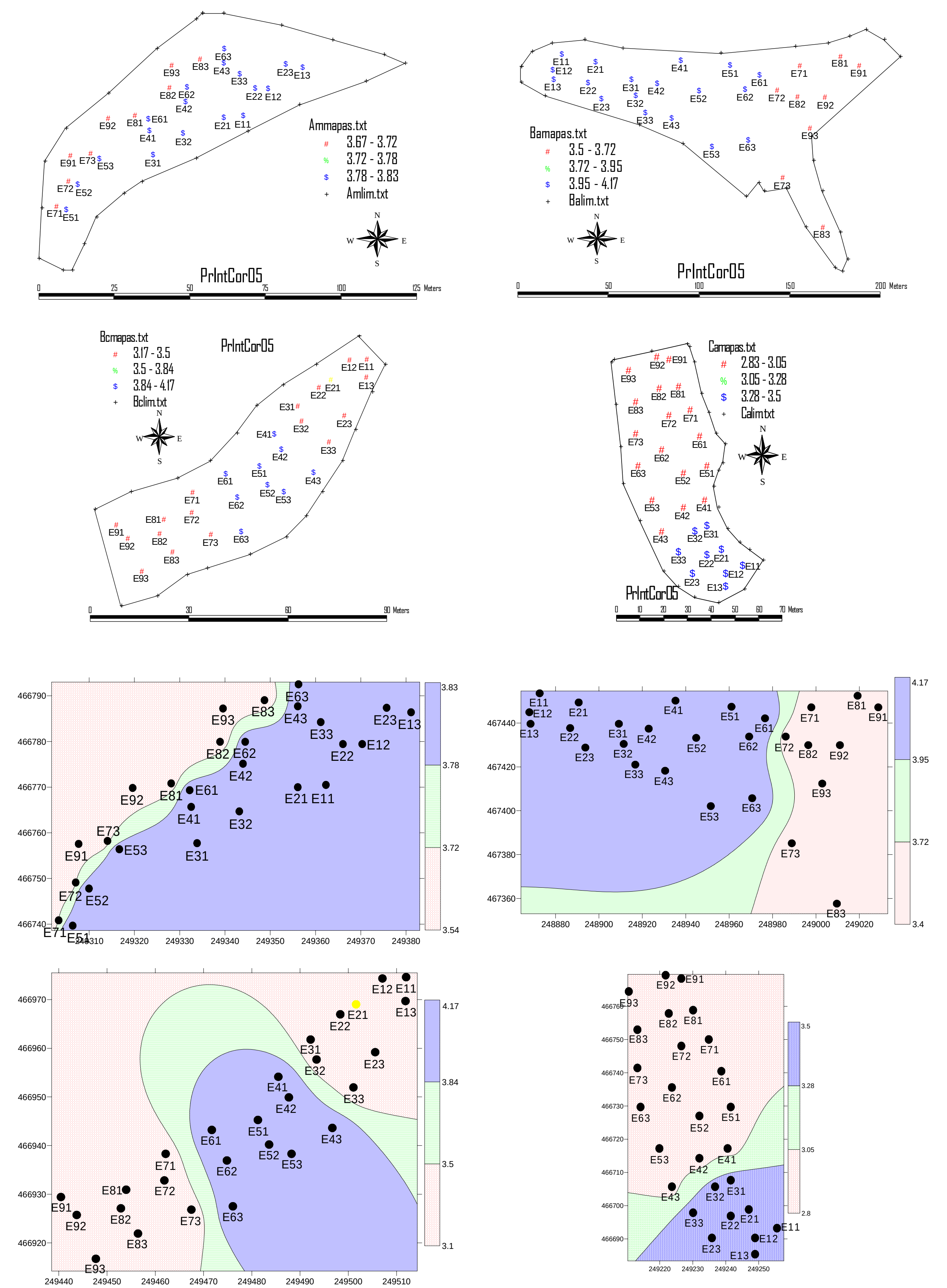
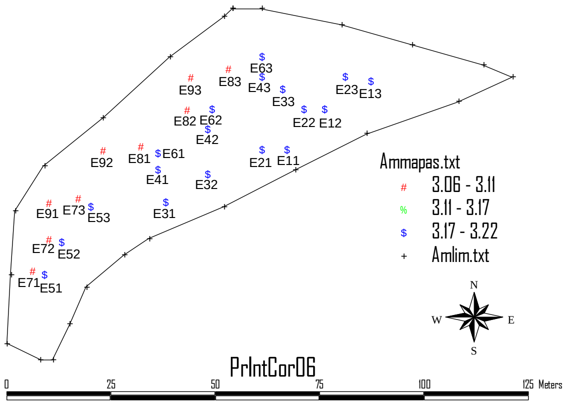
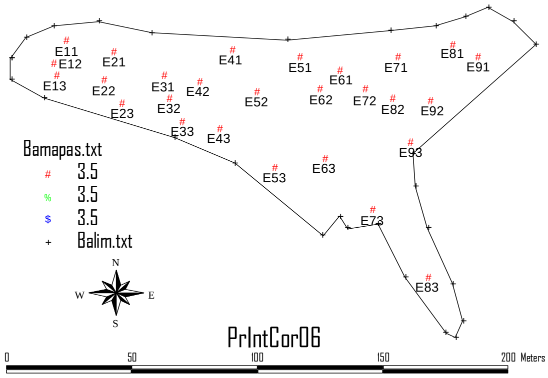
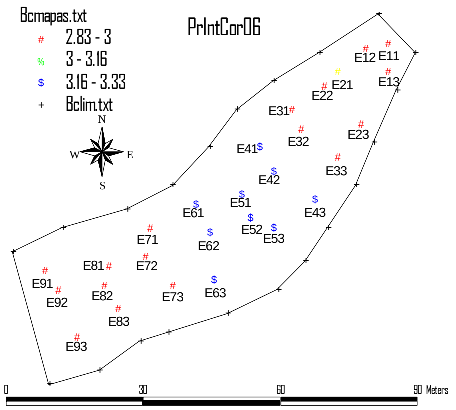
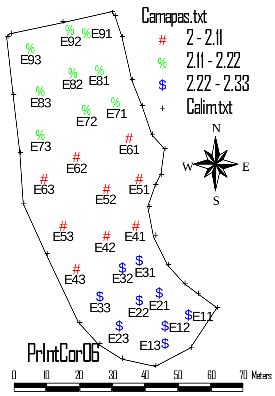


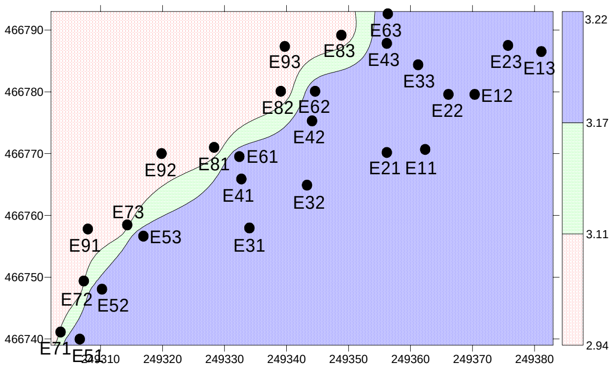
Figure 34- Spacial and cartographic distribution of wine colour in different plots, for 2006 year



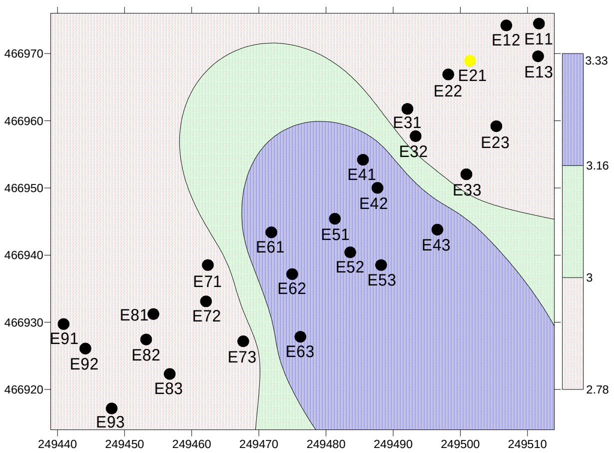








No variation



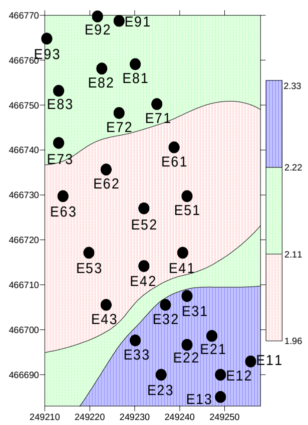


Figure 35- Spacial and cartographic distribution of wine aroma in different plots, for 2005 year

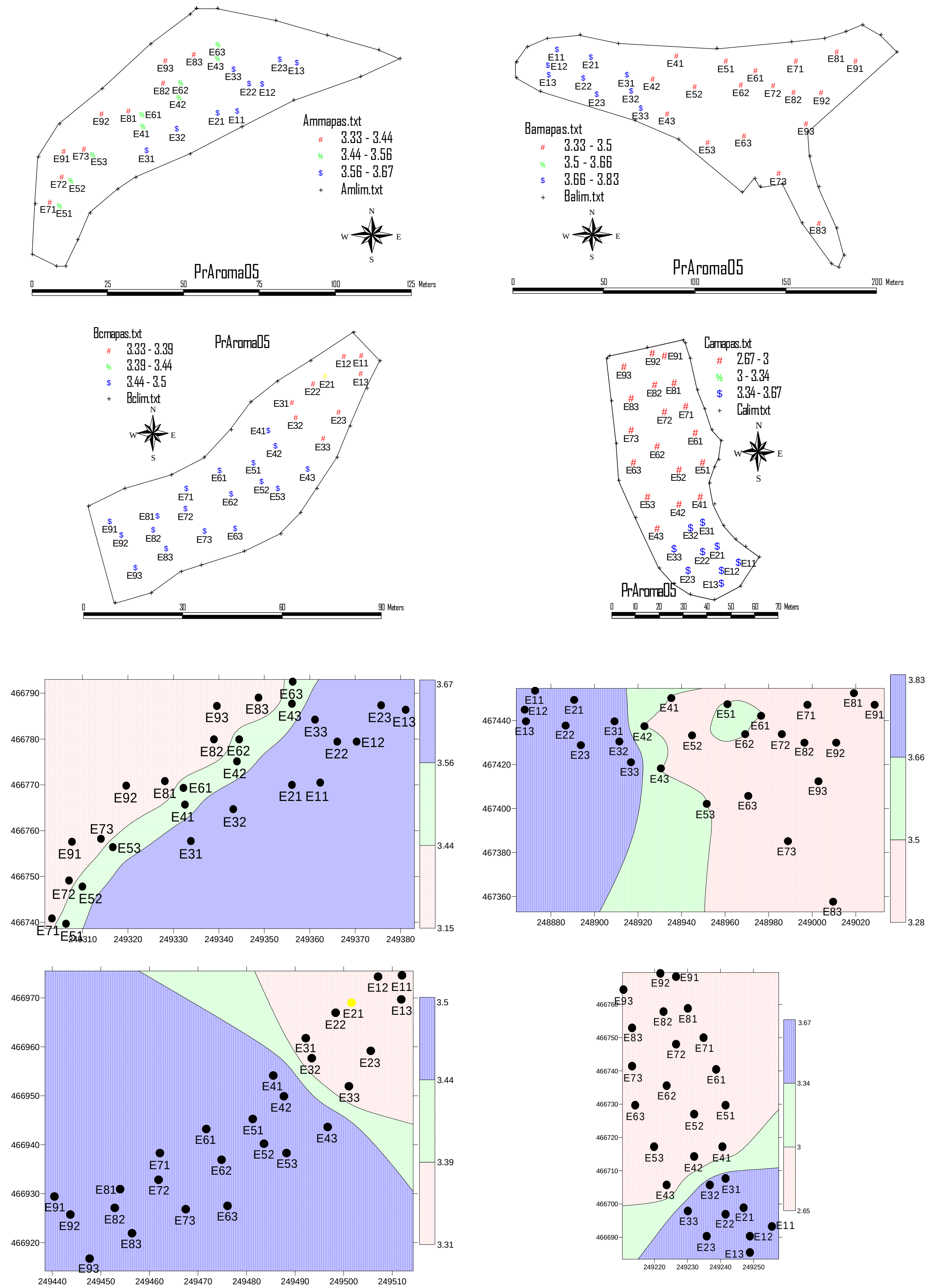


Figure 36- Spacial and cartographic distribution of wine aroma in different plots, for 2006 year

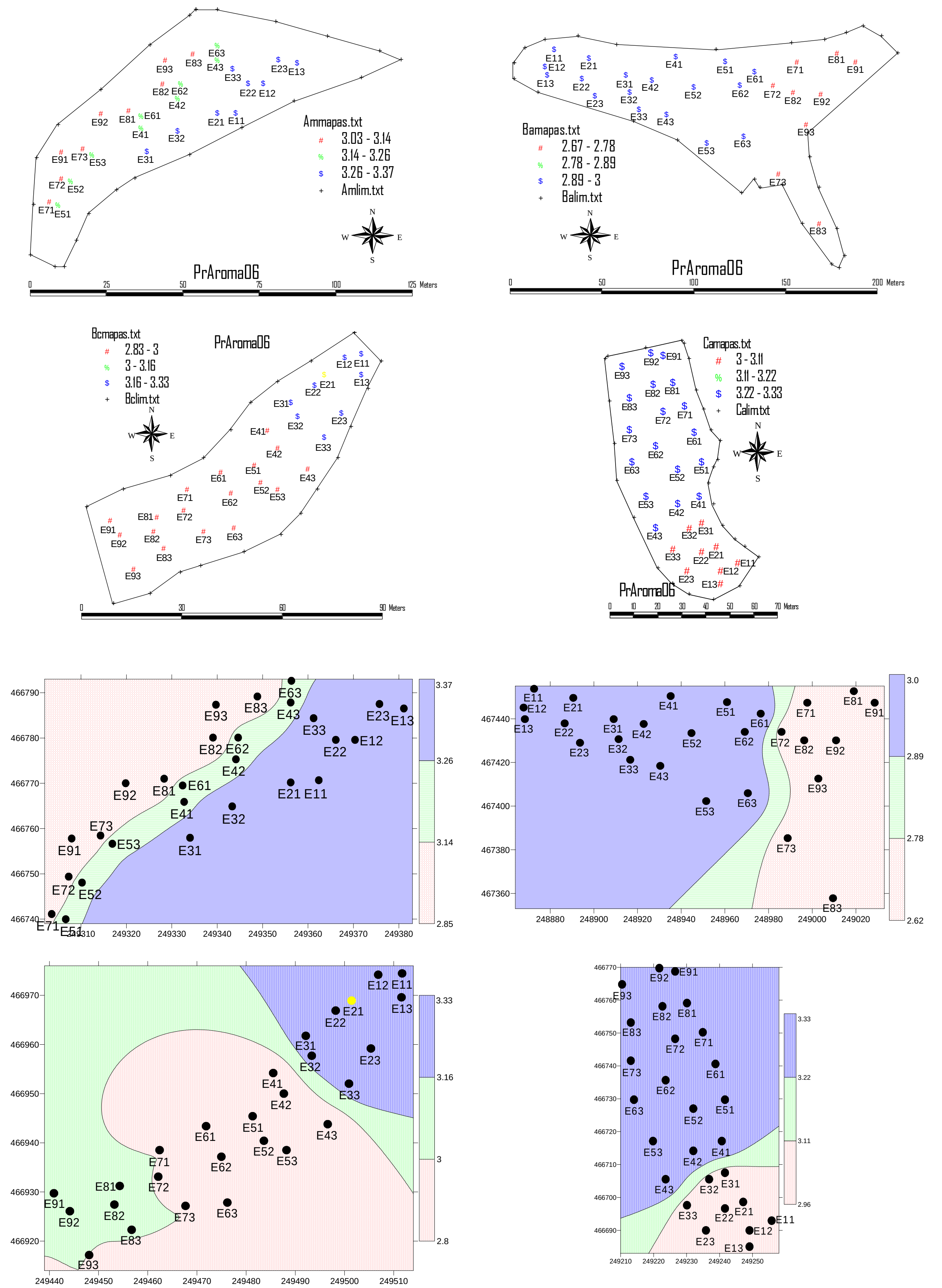


Figure 37- Spacial and cartographic distribution of red fruit aroma in different plots, for 2005 year

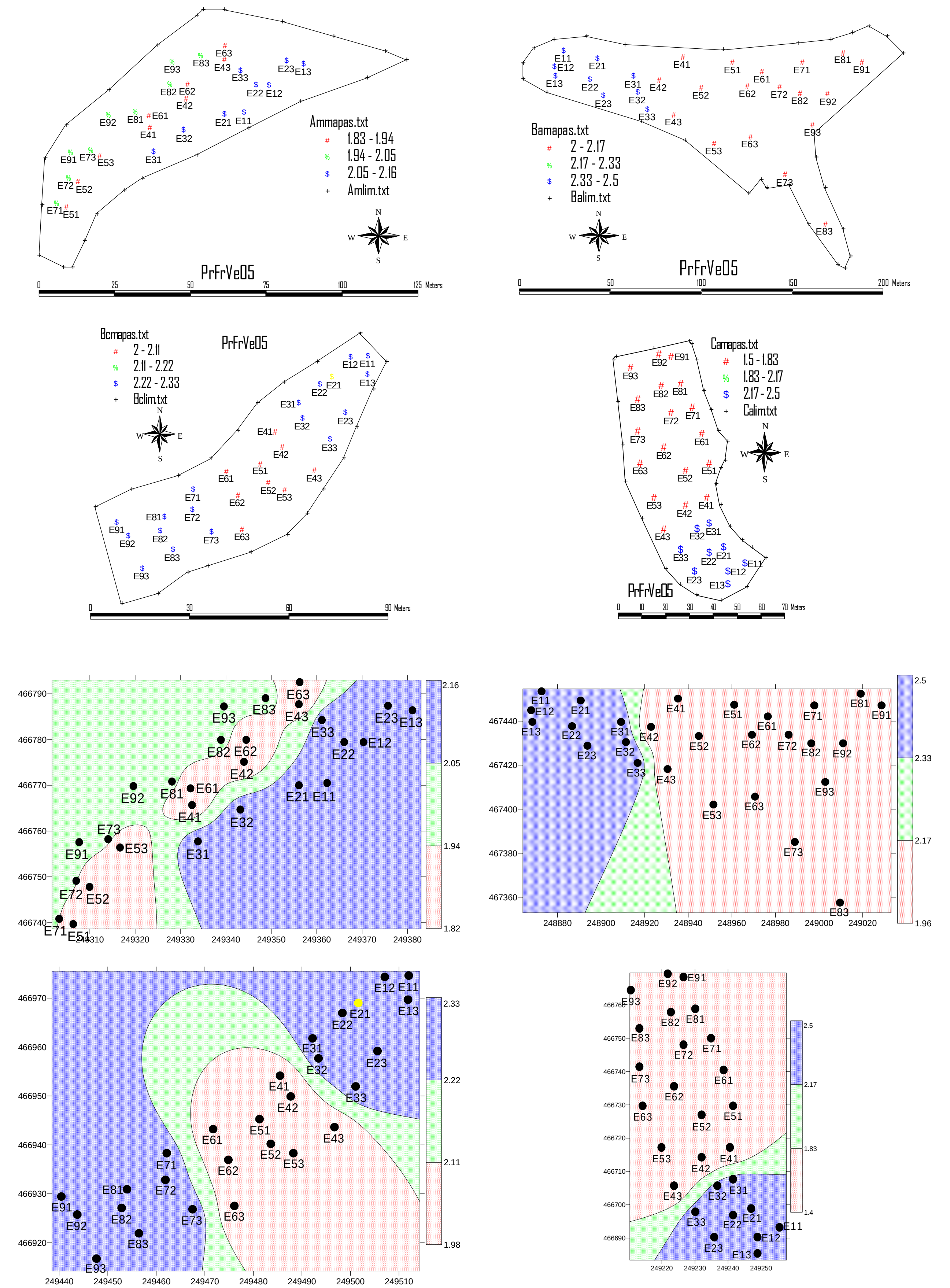


Figure 38- Spacial and cartographic distribution of red fruit aroma in different plots, for 2006 year

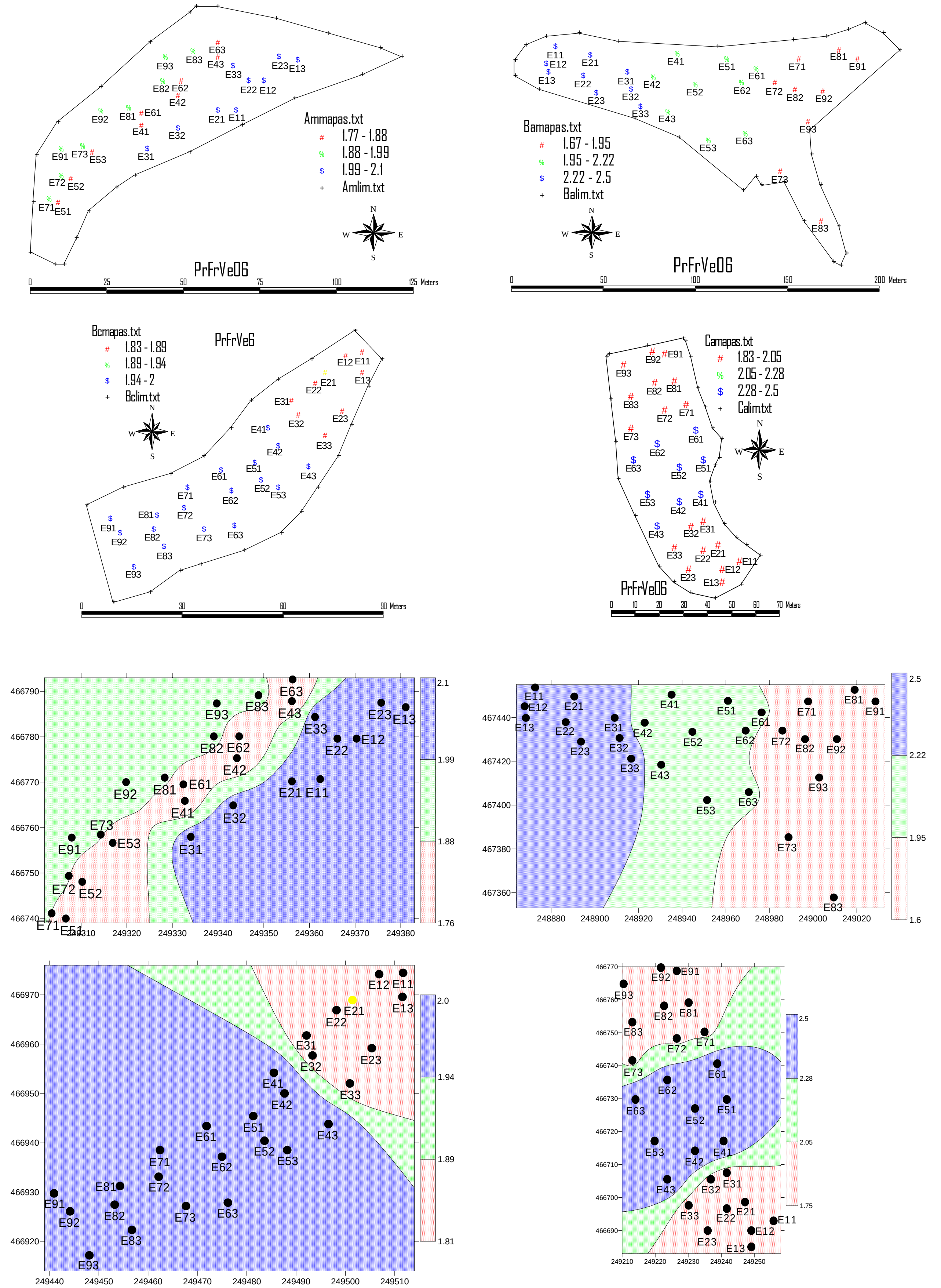


Figure 39- Spacial and cartographic distribution of wine flower aroma in different plots, for 2006 year

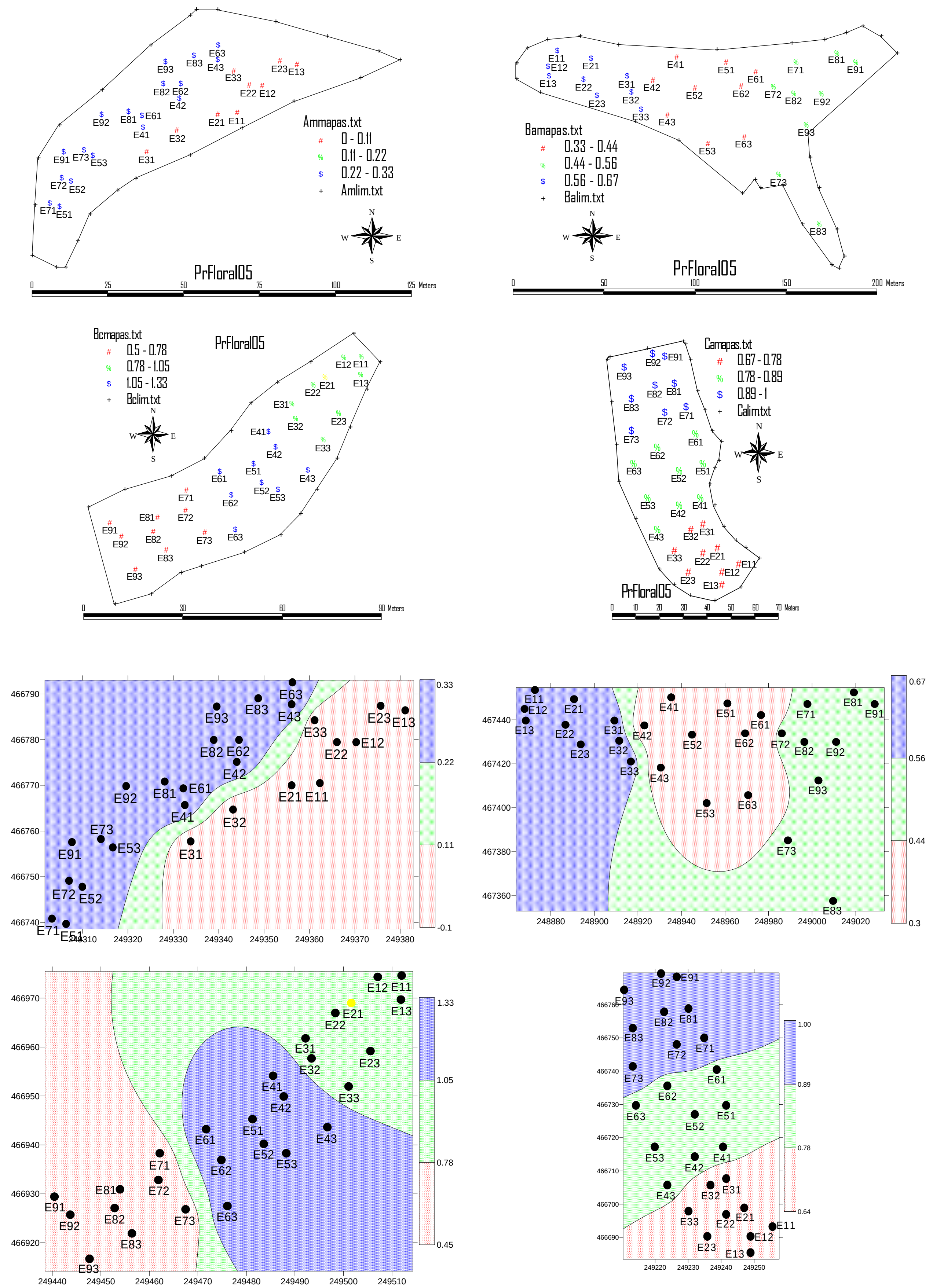
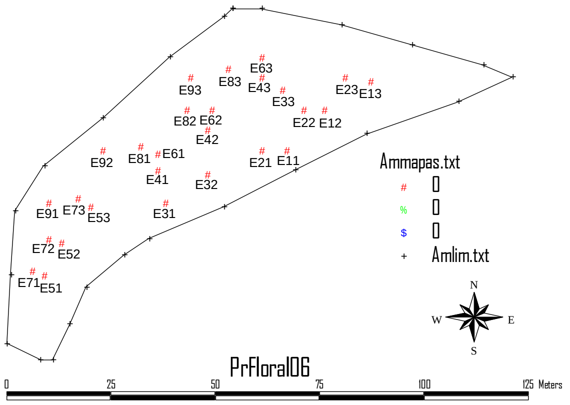
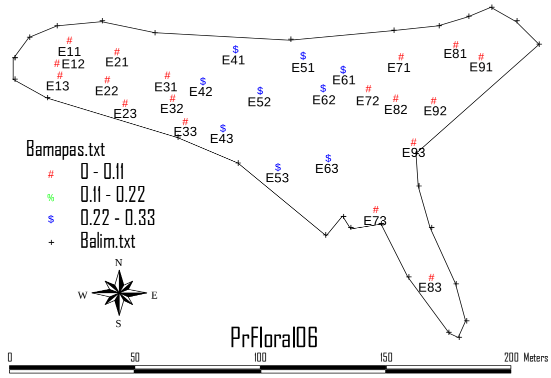
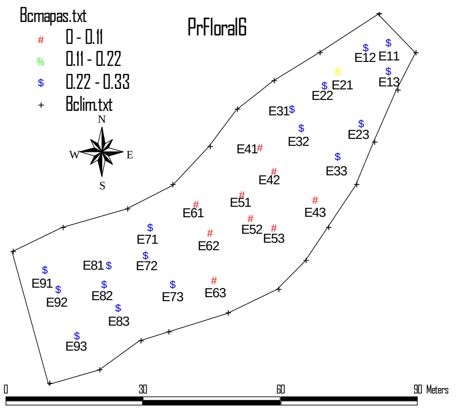
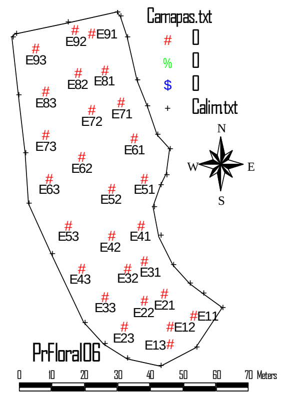


Figure 40- Spacial and cartographic distribution of wine flower aroma in different plots, for 2006 year

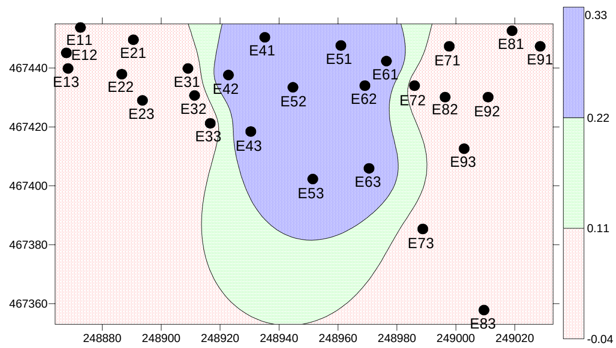








No variation



No variation

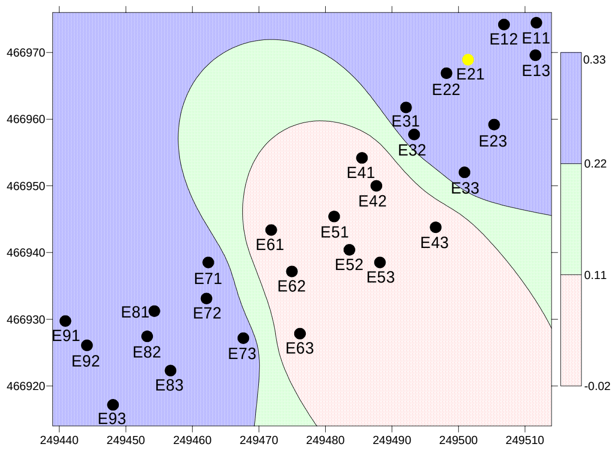


Figure 41- Spacial and cartographic distribution of body wine in different plots, for 2005 year

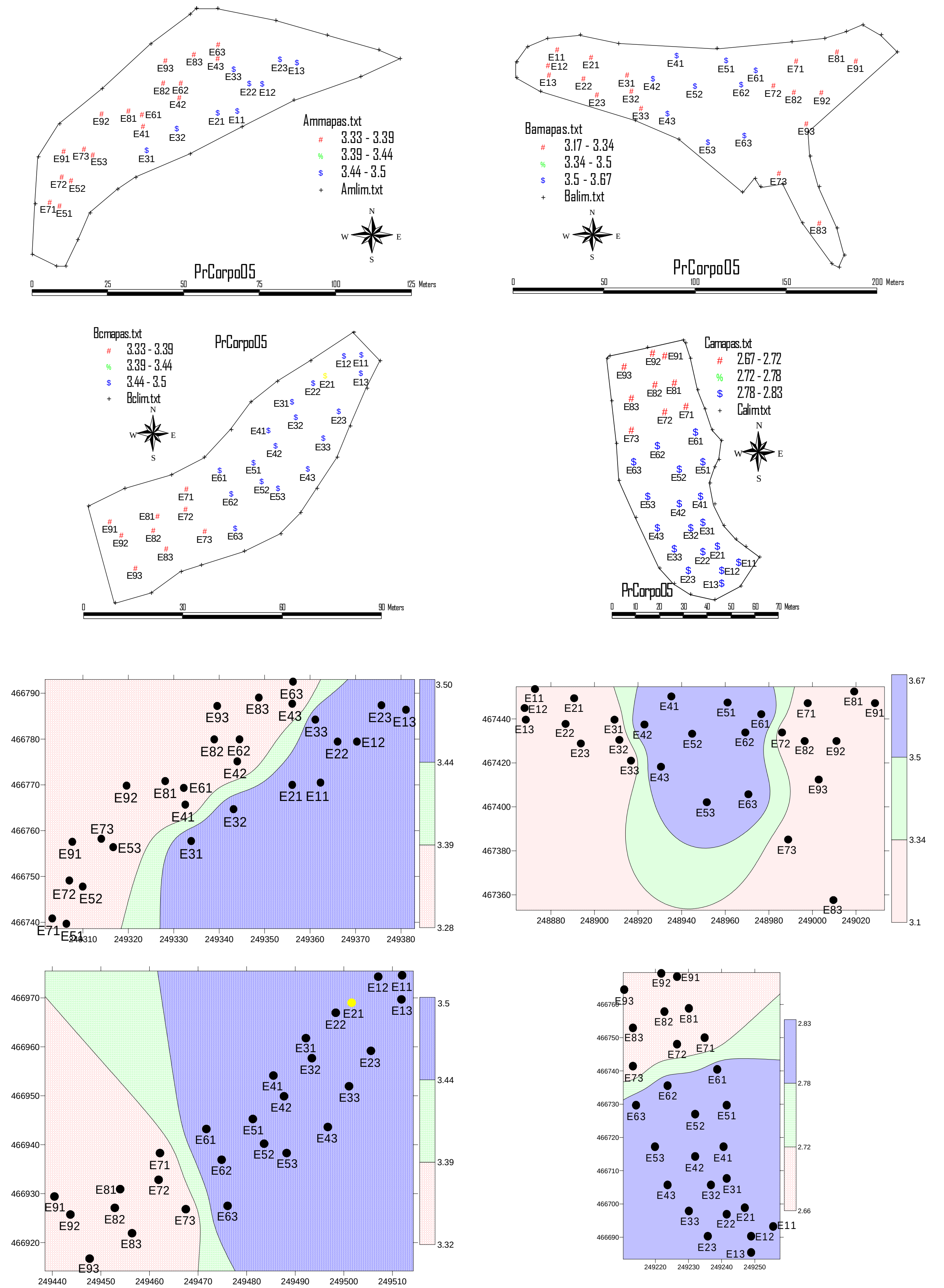


Figure 42- Spacial and cartographic distribution of body wine in different plots, for 2006 year

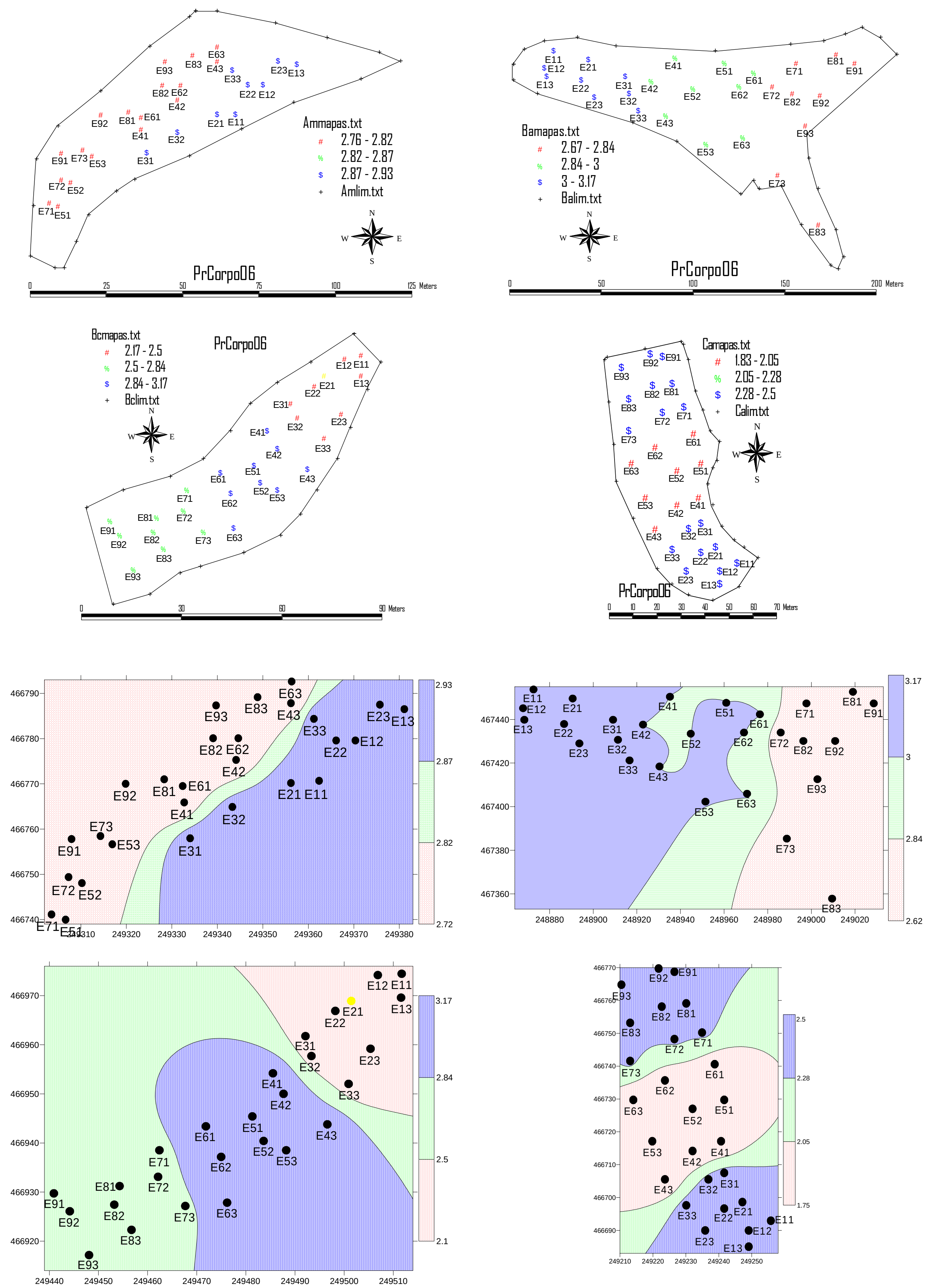


Figure 43- Spacial and cartographic distribution of wine astringency in different plots, for 2005 year

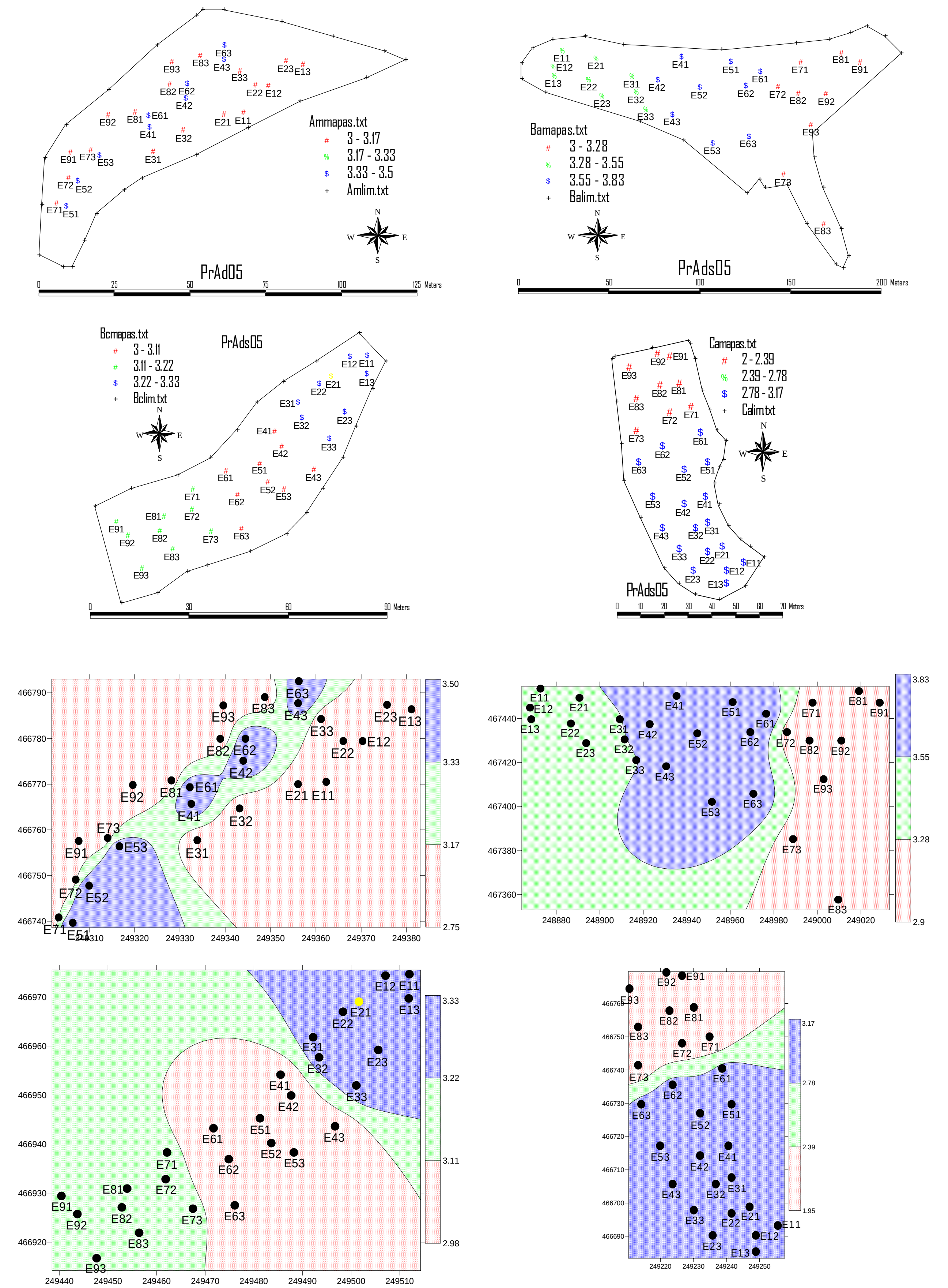


Figure 44- Spacial and cartographic distribution of wine astringency in different plots, for 2006 year

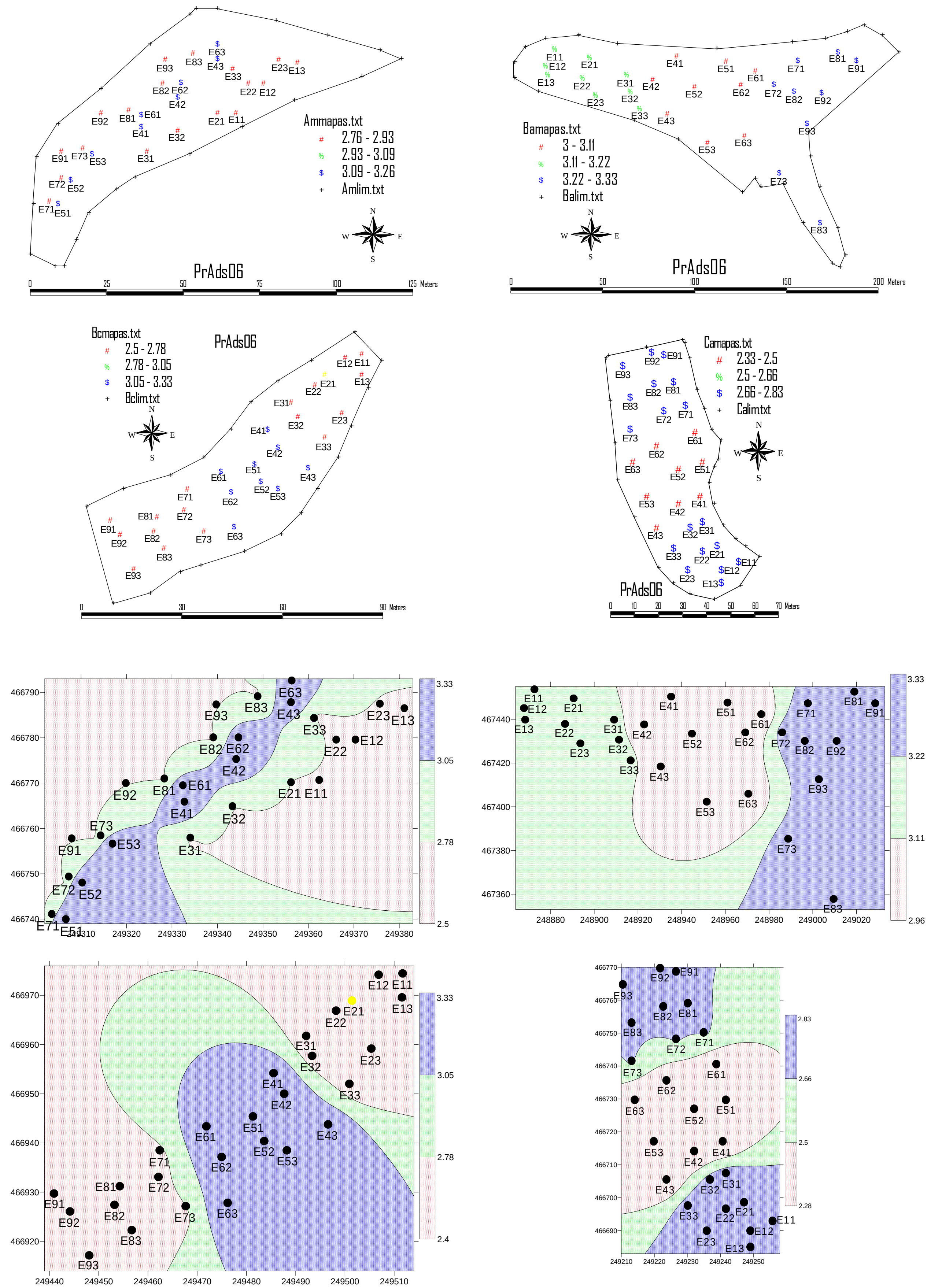


Figure 45- Spacial and cartographic distribution of wine classification in different plots, for 2005 year

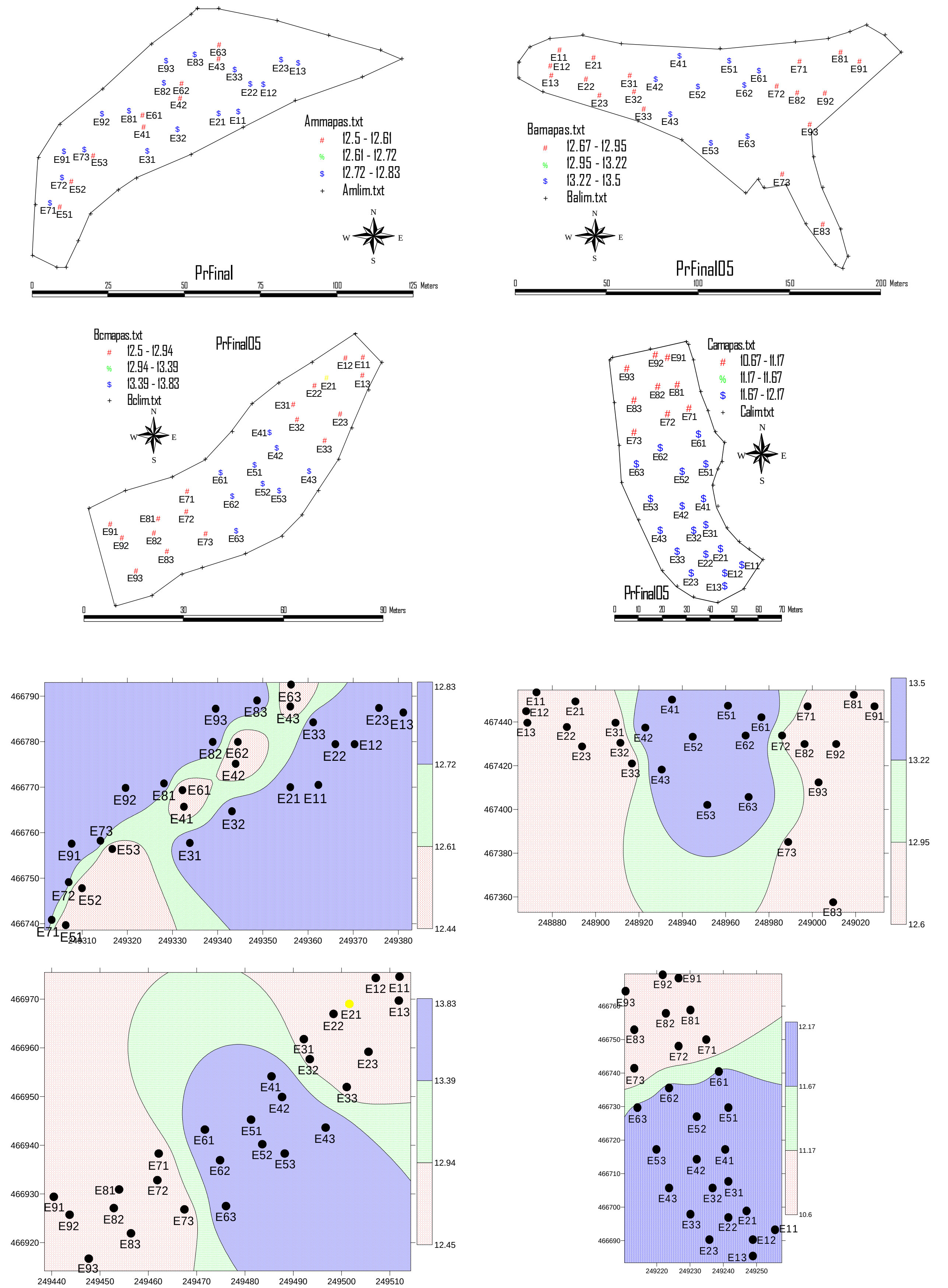
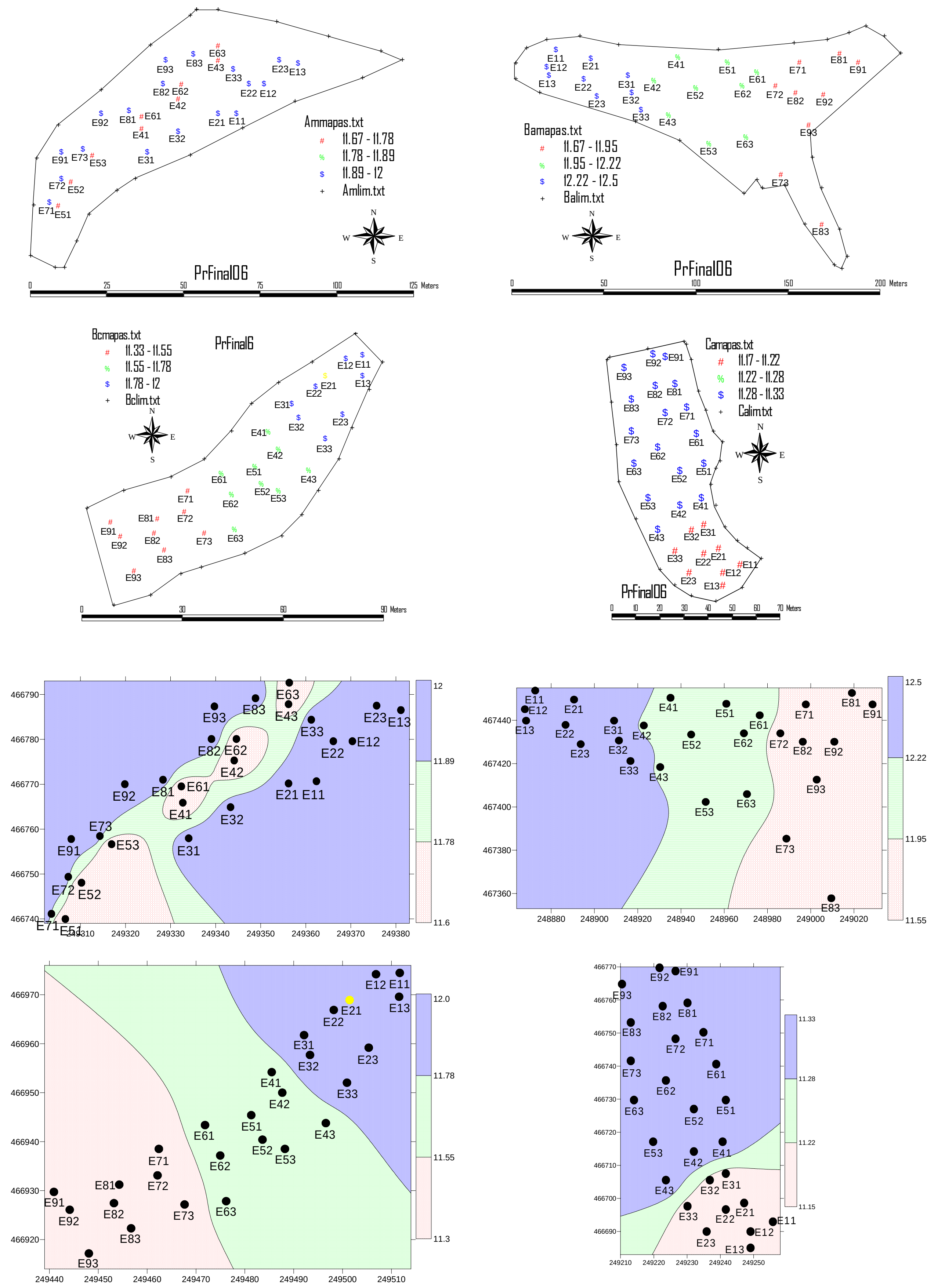


Figure 46- Spacial and cartographic distribution of wine classification in different plots, for 2006 year



Annex - Final results

Table 1- Pearson correlations georeferenced data**.**

	ClTp05	ClHm05	SlTp05	PlTp05	SPAD05	FIAr170605	FIPS170605	ClTp06	ClHm06	SlTp06	PlTp06	SPAD06
ClTp05	1.000	-0.920**	0.779**	0.748**	0.331**	-0.092	-0.360**	0.375**	-0.275**	0.080	0.165	0.409**
ClHm05	-0.920**	1.000	-0.784**	-0.816**	-0.311**	0.153	0.546**	-0.213*	0.118	0.046	-0.122	-0.405**
SlTp05	0.779**	-0.784**	1.000	0.784**	0.208	-0.182	-0.354**	0.119	-0.046	0.188	0.186	0.275**
PlTp05	0.748**	-0.816**	0.784**	1.000	0.279**	-0.150	-0.499**	0.112	0.067	0.137	0.417**	0.211*
SPAD05	0.331**	-0.311**	0.208*	0.279**	1.000	0.088	-0.198*	0.002	-0.009	-0.171	0.029	0.368**
FIAr170605	-0.092	0.153	-0.182	-0.150	0.088	1.000	0.311**	0.013	0.004	-0.052	-0.003	-0.117
FIPS170605	-0.360**	0.546**	-0.354**	-0.499**	-0.198	0.311**	1.000	0.277**	-0.368**	0.247**	-0.007	-0.264**
ClTp06	0.375**	-0.213*	0.119	0.112	0.002	0.013	0.277**	1.000	-0.908**	0.360**	0.439**	0.112
ClHm06	-0.275**	0.118	-0.046	0.067	-0.009	0.004	-0.368**	-0.908**	1.000	-0.272**	-0.249**	-0.170
SlTp06	0.080	0.046	0.188	0.137	-0.171	-0.052	0.247**	0.360**	-0.272**	1.000	0.539**	-0.194**
PlTp06	0.165	-0.122	0.186	0.417**	0.029	-0.003	-0.007	0.439**	-0.249**	0.539**	1.000	-0.132
SPAD06	0.409**	-0.405**	0.275**	0.211*	0.368**	-0.117	-0.264**	0.112	-0.170	-0.194**	-0.132	1.000
FIAr210606	**-0.077**	-0.077	0.102	-0.134	-0.073	0.019	-0.036	0.095	-0.075	0.133	0.169	0.013
FIPS210606	**-0.023**	-0.023	0.058	-0.118	-0.049	0.100	-0.194*	0.220*	-0.147	0.056	0.148	0.168
FIAr240706	**0.112**	0.401**	-0.408**	0.282**	0.217*	0.234	-0.233*	0.323**	-0.308**	0.244*	0.190*	0.220*
FIPS240706	**0.133**	0.112	-0.029	0.110	0.123	0.006	-0.135	0.314**	-0.274**	0.255**	0.223*	0.184

Table 1 (cont)

	FlAr210606	FlPS210606	FlAr240706	FlPS240706
ClTp05	-0.077	-0.023	0.112	0.133
ClHm05	0.102	0.058	-0.029	-0.049
SlTp05	-0.134	-0.118	0.110	0.171
PlTp05	-0.073	-0.049	0.123	0.153
SPAD05	0.019	0.100	0.006	-0.007
FlAr170605	-0.036	-0.194*	-0.135	-0.185
FlPS170605	-0.013	-0.004	0.078	0.052
ClTp06	0.095	0.220*	0.323**	0.314**
ClHm06	-0.075	-0.147	-0.308**	-0.274**
SlTp06	0.133	0.056	0.244*	0.255**
PlTp06	0.169	0.148	0.190*	0.223*
SPAD06	0.013	0.168	0.220*	0.184
FlAr210606	1.000	0.205*	0.035	-0.074
FlPS210606	0.205*	1.000	0.124	0.076
FlAr240706	0.035	0.124	1.000	0.870**
FlPS240706	-0.074	0.076	0.870**	1.000

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 2- Pearson correlations for data station.

	CITp05	CIHm05	SITp05	PITp05	SPAD05	FIAr170605	FIPS170605	FIN170605	FIP170605	FIK170605	PIPd080306	SI20pHH2O	SI40pHH2O	SI20pHKCl	SI40pHKCl
CITp05	1.000	-0.943**	0.825**	0.793**	0.433**	-0.170	-0.413*	0.646**	-0.105	0.095	-0.486**	0.561**	0.590**	0.641**	0.655**
CIHm05	-0.943**	1.000	-0.829**	-0.855**	-0.424**	0.209	0.612**	-0.700**	0.277	-0.122	0.500**	-0.440**	-0.465**	-0.533**	-0.537**
SITp05	0.825**	-0.829**	1.000	0.819**	0.225	-0.269	-0.418*	0.549**	-0.144	0.256	-0.550**	0.461**	0.473**	0.438**	0.436**
PITp05	0.793**	-0.855**	0.819**	1.000	0.351*	-0.253	-0.592**	0.667**	-0.197	0.318	-0.414*	0.345*	0.334*	0.324	0.289
SPAD05	0.433**	-0.424**	0.225	0.351	1.000	0.101	-0.320	0.566**	-0.429**	0.004	0.294	0.107	0.087	0.471**	0.413*
FIAr170605	-0.170	0.209	-0.269	-0.253	0.101	1.000	0.362*	-0.226	0.067	-0.248	0.165	-0.347*	-0.270	-0.301	-0.240
FIPS170605	-0.413*	0.612**	-0.418*	-0.592**	-0.320	0.362*	1.000	-0.608**	0.508**	-0.282	0.290	-0.031	0.095	-0.128	-0.035
FIN170605	0.646**	-0.700**	0.549**	0.667**	0.566**	-0.226	-0.608**	1.000	-0.441**	0.255	-0.168	0.182	0.155	0.435**	0.435**
FIP170605	-0.105	0.277	-0.144	-0.197	-0.429**	0.067	0.508**	-0.441**	1.000	-0.305	-0.061	0.285	0.308	-0.204	-0.141
FIK170605	0.095	-0.122	0.256	0.318	0.004	-0.248	-0.282	0.255	-0.305	1.000	-0.044	-0.090	-0.210	0.177	0.073
PIPd080306	-0.486**	0.500**	-0.550**	-0.414	0.294	0.165	0.290	-0.168	-0.061	-0.044	1.000	-0.392*	-0.405*	-0.229	-0.289
SI20pHH2O	0.561**	-0.440**	0.461**	0.345	0.107	-0.347*	-0.031	0.182	0.285	-0.090	-0.392*	1.000	0.931**	0.686	0.641**
SI40pHH2O	0.590**	-0.465**	0.473**	0.334	0.087	-0.270	0.095	0.155	0.308	-0.210	-0.405*	0.931**	1.000	0.633**	0.676**
SI20pHKCl	0.641**	-0.533**	0.438**	0.324	0.471**	-0.301	-0.128	0.435**	-0.204	0.177	-0.229	0.686**	0.633**	1.000	0.940**
SI40pHKCl	0.655**	-0.537**	0.436**	0.289	0.413*	-0.240	-0.035	0.435**	-0.141	0.073	-0.289	0.641**	0.676**	0.940**	1.000
SI20MO	0.532**	-0.543**	0.407*	0.379	0.515**	-0.082	-0.318	0.575**	-0.543**	0.276	-0.130	-0.075	-0.024	0.515**	0.521**
SI40MO	0.507**	-0.515**	0.425**	0.360	0.541**	-0.101	-0.218	0.483**	-0.502**	0.282	-0.040	-0.030	0.031	0.537**	0.542**
SI20P2O5	-0.417*	0.323	-0.348*	-0.128	0.074	0.250	-0.044	0.049	-0.273	0.267	0.392*	-0.844**	-0.823**	-0.509**	-0.483**
SI40P2O5	-0.317	0.236	-0.321	-0.067	0.188	0.136	-0.156	0.178	-0.272	0.269	0.422*	-0.667**	-0.755**	-0.362*	-0.402*
SI20K2O5	-0.597**	0.610**	-0.527**	-0.637**	-0.223	-0.036	0.494**	-0.435**	-0.015	-0.121	0.430**	-0.501**	-0.402*	-0.294	-0.256
SI40K2O5	-0.603	0.621**	-0.543**	-0.609**	0.018	-0.016	0.383*	-0.317	-0.122	-0.038	0.488**	-0.461**	-0.460**	-0.124	-0.152
SI20Ca	0.156	0.042	0.102	-0.045	-0.191	-0.104	0.450**	-0.216	0.660**	-0.233	-0.222	0.690**	0.726**	0.266	0.321
SI40Ca	0.117	0.067	0.056	-0.067	-0.203	-0.058	0.483**	-0.222	0.583**	-0.216	-0.231	0.657**	0.682**	0.282	0.325
SI20Mg	0.674**	-0.783**	0.695**	0.829**	0.264	-0.240	-0.725**	0.655**	-0.283	0.219	-0.366*	0.281	0.251	0.185	0.162
SI40Mg	0.690**	-0.808**	0.703**	0.850**	0.312	-0.177	-0.698**	0.629**	-0.295	0.193	-0.349*	0.242	0.249	0.177	0.182
SI20K	-0.088	0.190	-0.092	-0.256	-0.054	-0.195	0.425**	-0.104	-0.021	0.074	0.005	-0.029	0.111	0.201	0.294
SI40K	-0.381*	0.427**	-0.333*	-0.497**	-0.023	-0.186	0.376*	-0.202	-0.156	-0.102	0.298	-0.287	-0.184	-0.006	0.063
SI20Na	0.288	-0.112	0.208	0.028	-0.030	-0.151	0.234	0.004	0.315	-0.226	-0.380*	0.634**	0.653**	0.362*	0.427**
SI40Na	0.289	-0.126	0.275	0.112	-0.105	-0.186	0.127	-0.018	0.353*	-0.123	-0.445**	0.582**	0.565**	0.273	0.313
SI20BH2O	0.303	-0.363*	0.361*	0.435**	0.238	-0.031	-0.279	0.491**	-0.250	0.482**	0.032	-0.249	-0.288	0.149	0.097
SI40BH2O	0.089	-0.188	0.129	0.445**	-0.062	-0.180	-0.367*	0.226	-0.090	0.334*	-0.086	-0.121	-0.235	-0.150	-0.254

Table 2 (cont)

	SI20MO	SI40MO	SI20P2O5	SI40P2O5	SI20K2O5	SI40K2O5	SI20Ca	SI40Ca	SI20Mg	SI40Mg	SI20K	SI40K	SI20Na	SI40Na
ClTp05	0.532**	0.507**	-0.417*	-0.317	-0.597**	-0.603**	0.156	0.117	0.674**	0.690**	-0.088	-0.381*	0.288	0.289
ClHm05	-0.543**	-0.515**	0.323	0.236	0.610**	0.621**	0.042	0.067	-0.783**	-0.808**	0.190	0.427**	-0.112	-0.126
SlTp05	0.407*	0.425**	-0.348*	-0.321	-0.527**	-0.543**	0.102	0.056	0.695**	0.703**	-0.092	-0.333*	0.208	0.275
PlTp05	0.379*	0.360*	-0.128	-0.067	-0.637**	-0.609**	-0.045	-0.067	0.829**	0.850**	-0.256	-0.497**	0.028	0.112
SPAD05	0.515**	0.541**	0.074	0.188	-0.223	0.018	-0.191	-0.203	0.264	0.312	-0.054	-0.023	-0.030	-0.105
FlAr170605	-0.082	-0.101	0.250	0.136	-0.036	-0.016	-0.104	-0.058	-0.240	-0.177	-0.195	-0.186	-0.151	-0.186
FlPS170605	-0.318	-0.218	-0.044	-0.156	0.494**	0.383*	0.450**	0.483**	-0.725**	-0.698**	0.425**	0.376*	0.234	0.127
FlN170605	0.575**	0.483**	0.049	0.178	-0.435**	-0.317	-0.216	-0.222	0.655**	0.629**	-0.104	-0.202	0.004	-0.018
FlP170605	-0.543**	-0.502**	-0.273	-0.272	-0.015	-0.122	0.660**	0.583**	-0.283	-0.295	-0.021	-0.156	0.315	0.353*
FlK170605	0.276	0.282	0.267	0.269	-0.121	-0.038	-0.233	-0.216	0.219	0.193	0.074	-0.102	-0.226	-0.123
PlPd080306	-0.130	-0.040	0.392*	0.422*	0.430**	0.488**	-0.222	-0.231	-0.366*	-0.349*	0.005	0.298	-0.380*	-0.445**
SI20pHH2O	-0.075	-0.030	-0.844**	-0.667**	-0.501**	-0.461**	0.690**	0.657**	0.281	0.242	-0.029	-0.287	0.634**	0.582**
SI40pHH2O	-0.024	0.031	-0.823**	-0.755**	-0.402*	-0.460**	0.726**	0.682**	0.251	0.249	0.111	-0.184	0.653**	0.565**
SI20pHKCl	0.515**	0.537**	-0.509**	-0.362*	-0.294	-0.124	0.266	0.282	0.185	0.177	0.201	-0.006	0.362*	0.273
SI40pHKCl	0.521**	0.542**	-0.483**	-0.402*	-0.256	-0.152	0.321	0.325	0.162	0.182	0.294	0.063	0.427	0.313
SI20MO	1.000	0.880**	0.147	0.149	0.066	0.131	-0.278	-0.251	0.328	0.338*	0.382*	0.231	-0.049	-0.115
SI40MO	0.880**	1.000	0.138	0.120	0.082	0.165	-0.236	-0.210	0.222	0.284	0.373*	0.295	-0.108	-0.143
SI20P2O5	0.147	0.138	1.000	0.881**	0.418*	0.478**	-0.581**	-0.509**	-0.148	-0.089	0.101	0.270	-0.472**	-0.369*
SI40P2O5	0.149	0.120	0.881**	1.000	0.289	0.439**	-0.510**	-0.451**	-0.078	-0.063	0.006	0.205	-0.359*	-0.291
SI20K2O5	0.066	0.082	0.418*	0.289	1.000	0.860**	-0.110	-0.037	-0.586**	-0.567**	0.618**	0.794**	-0.090	-0.157
SI40K2O5	0.131	0.165	0.478**	0.439**	0.860**	1.000	-0.141	-0.087	-0.597**	-0.590**	0.550**	0.803**	-0.101	-0.156
SI20Ca	-0.278	-0.236	-0.581**	-0.510**	-0.110	-0.141	1.000	0.936**	-0.091	-0.115	0.318	0.052	0.795**	0.722**
SI40Ca	-0.251	-0.210	-0.509**	-0.451**	-0.037	-0.087	0.936**	1.000	-0.115	-0.119	0.338*	0.039	0.805**	0.712**
SI20Mg	0.328	0.222	-0.148	-0.078	-0.586**	-0.597**	-0.091	-0.115	1.000	0.977**	-0.298	-0.503**	0.100	0.160
SI40Mg	0.338*	0.284	-0.089	-0.063	-0.567**	-0.590**	-0.115	-0.119	0.977**	1.000	-0.293	-0.491**	0.073	0.145
SI20K	0.382*	0.373*	0.101	0.006	0.618**	0.550**	0.318	0.338*	-0.298	-0.293	1.000	0.777	0.377*	0.250
SI40K	0.231	0.295	0.270	0.205	0.794**	0.803**	0.052	0.039	-0.503**	-0.491**	0.777**	1.000	0.102	0.047
SI20Na	-0.049	-0.108	-0.472**	-0.359*	-0.090	-0.101	0.795**	0.805**	0.100	0.073	0.377*	0.102	1.000	0.919**
SI40Na	-0.115	-0.143	-0.369*	-0.291	-0.157	-0.156	0.722**	0.712**	0.160	0.145	0.250	0.047	0.919**	1.000
SI20BH2O	0.558**	0.540**	0.406*	0.421*	-0.043	0.009	-0.358*	-0.373*	0.242	0.259	0.035	-0.050	-0.374*	-0.310
SI40BH2O	0.062	0.048	0.315	0.346*	-0.147	-0.037	-0.222	-0.194	0.351*	0.340*	-0.152	-0.184	-0.214	-0.103

Table 2 (cont)

	SI20BH2O	SI40BH2O	SI20AT	SI40AT	SI20SBT	SI40SBT	SI20CTCe	SI40CTCe	SI20GSBe	SI40GSBe	CITp06	CIHm06	SITp06	PITp06
CITp05	0.303	0.089	-0.491**	-0.438**	0.237	0.234	0.208	0.201	0.488**	0.409*	0.383*	-0.281	0.103	0.191
CIHm05	-0.363*	-0.188	0.372*	0.333*	-0.076	-0.083	-0.051	-0.056	-0.338*	-0.277	-0.217	0.119	0.057	-0.151
SITp05	0.361*	0.129	-0.329	-0.295	0.184	0.166	0.166	0.144	0.366*	0.307	0.122	-0.043	0.169	0.156
PITp05	0.435**	0.445**	-0.173	-0.101	0.043	0.075	0.032	0.069	0.243	0.174	0.110	0.078	0.158	0.421*
SPAD05	0.238	-0.062	-0.322	-0.300	-0.149	-0.159	-0.177	-0.189	0.270	0.238	0.021	-0.026	-0.201	0.050
FIAr170605	-0.031	-0.180	0.333*	0.290	-0.153	-0.068	-0.133	-0.044	-0.296	-0.228	-0.016	0.037	-0.268	-0.051
FIPS170605	-0.279	-0.367*	0.085	0.033	0.270	0.344*	0.285	0.355*	0.052	0.132	0.324	-0.438**	0.327	-0.023
FIN170605	0.491**	0.226	-0.254	-0.245	-0.064	-0.097	-0.085	-0.120	0.228	0.174	0.143	-0.027	0.101	0.214
FIP170605	-0.250	-0.090	-0.010	0.070	0.529**	0.508**	0.545**	0.526**	0.214	0.152	0.238	-0.213	0.285	0.031
FIK170605	0.482**	0.334*	-0.053	-0.047	-0.175	-0.189	-0.185	-0.196	0.010	0.017	-0.154	0.276	0.263	0.274
PIPd080306	0.032	-0.086	0.196	0.197	-0.285	-0.296	-0.279	-0.284	-0.168	-0.095	-0.155	0.157	-0.062	-0.033
SI20pHH2O	-0.249	-0.121	-0.799**	-0.671**	0.715**	0.667**	0.679**	0.622**	0.843**	0.708**	0.390*	-0.430**	0.386*	0.112
SI40pHH2O	-0.288	-0.235	-0.695**	-0.656**	0.732**	0.700**	0.705**	0.657**	0.784**	0.724**	0.477**	-0.548**	0.305	0.063
SI20pHKCl	0.149	-0.150	-0.870**	-0.830**	0.297	0.286	0.243	0.220	0.752**	0.682**	0.455**	-0.503**	0.254	0.109
SI40pHKCl	0.097	-0.254	-0.795**	-0.833**	0.338*	0.339*	0.291	0.274	0.725**	0.709**	0.512**	-0.584**	0.199	0.019
SI20MO	0.558**	0.062	-0.188	-0.238	-0.206	-0.177	-0.226	-0.201	0.036	0.039	0.195	-0.179	-0.143	0.019
SI40MO	0.540**	0.048	-0.209	-0.264	-0.192	-0.155	-0.213	-0.182	0.082	0.112	0.218	-0.228	-0.031	0.010
SI20P2O5	0.406*	0.315	0.697**	0.590**	-0.596**	-0.509**	-0.563**	-0.468**	-0.676**	-0.552**	-0.326	0.428**	-0.147	0.049
SI40P2O5	0.421*	0.346*	0.487**	0.546**	-0.505**	-0.447**	-0.485	-0.409*	-0.499**	-0.515**	-0.305	0.410*	-0.068	0.123
SI20K2O5	-0.043	-0.147	0.380*	0.258	-0.209	-0.138	-0.188	-0.118	-0.403*	-0.284	-0.097	-0.060	-0.037	-0.236
SI40K2O5	0.009	-0.037	0.217	0.144	-0.217	-0.200	-0.208	-0.193	-0.298	-0.245	-0.161	0.015	0.026	-0.165
SI20Ca	-0.358*	-0.222	-0.428**	-0.316	0.955**	0.898**	0.954**	0.889**	0.628**	0.522**	0.354*	-0.437**	0.484**	0.117
SI40Ca	-0.373*	-0.194	-0.429**	-0.311	0.905**	0.974**	0.903**	0.968**	0.636**	0.554**	0.299	-0.408*	0.498**	0.078
SI20Mg	0.242	0.351*	-0.085	-0.041	0.078	0.076	0.074	0.073	0.153	0.113	-0.149	0.320	-0.089	0.132
SI40Mg	0.259	0.340*	-0.048	-0.035	0.040	0.076	0.038	0.074	0.133	0.129	-0.160	0.312	-0.140	0.109
SI20K	0.035	-0.152	0.001	-0.064	0.267	0.295	0.276	0.296	-0.001	0.020	0.290	-0.415*	0.211	-0.029
SI40K	-0.050	-0.184	0.145	0.054	-0.010	-0.053	0.000	-0.051	-0.216	-0.187	0.076	-0.256	0.088	-0.153
SI20Na	-0.374*	-0.214	-0.441**	-0.360*	0.805**	0.804**	0.798**	0.789**	0.605**	0.504**	0.172	-0.287	0.309	-0.129
SI40Na	-0.310	-0.103	-0.332*	-0.282	0.734**	0.707**	0.734**	0.695**	0.501**	0.418*	0.089	-0.156	0.329*	-0.097
SI20BH2O	1.000	0.395*	0.093	0.083	-0.353*	-0.332*	-0.358*	-0.331*	-0.150	-0.150	0.072	0.113	0.141	0.336*
SI40BH2O	0.395*	1.000	0.284	0.386*	-0.168	-0.129	-0.152	-0.098	-0.287	-0.382*	-0.088	0.337*	0.238	0.351*

Table 2 (cont)

	FlAr210606	FlPS210606	SPAD210606	FlN210606	FlP210606	FlK210606	FlCa210606	FlMg210606	FlB210606	FlFe210606	FlCu210606	FlZn210606	FlMn210606	FlAr240706
ClTp05	-0.407*	-0.061	0.496**	0.717**	0.328	-0.029	0.733**	0.570**	-0.552**	0.420*	-0.772**	0.572**	-0.635**	0.147
ClHm05	0.432**	0.077	-0.493**	-0.698**	-0.162	-0.009	-0.693**	-0.505**	0.459**	-0.493**	0.762**	-0.541**	0.553**	-0.034
SlTp05	-0.264	-0.207	0.370*	0.498**	0.116	0.217	0.806**	0.245	-0.645**	0.668**	-0.727**	0.655**	-0.585**	0.132
PlTp05	-0.219	-0.109	0.284	0.594**	0.079	0.031	0.755**	0.246	-0.461**	0.632**	-0.574**	0.425**	-0.452**	0.162
SPAD05	-0.440**	0.044	0.371*	0.647**	0.214	-0.099	0.292	0.532**	0.100	-0.007	-0.238	0.206	-0.065	0.029
FlAr170605	-0.372*	-0.063	-0.329	-0.141	-0.174	-0.258	-0.221	0.168	0.386*	-0.115	0.140	-0.053	0.499**	-0.357*
FlPS170605	0.122	0.053	-0.278	-0.401*	0.202	-0.019	-0.307	-0.146	-0.042	-0.485**	0.214	-0.297	0.099	0.198
FlN170605	-0.176	0.136	0.596**	0.712**	0.120	0.018	0.623**	0.240	-0.302	0.492**	-0.482**	0.517**	-0.378*	0.145
FlP170605	0.250	-0.027	-0.222	-0.238	0.408*	-0.218	-0.092	-0.123	-0.188	-0.120	0.179	-0.333*	-0.074	0.158
FlK170605	-0.067	0.006	0.070	0.050	-0.254	0.389*	0.298	-0.214	-0.193	0.353*	-0.057	0.255	-0.044	-0.011
PlPd080306	0.122	0.164	-0.082	-0.096	-0.003	-0.165	-0.471**	-0.134	0.493**	-0.419*	0.510**	-0.450**	0.378*	-0.005
Sl20pHH2O	0.069	0.150	0.310	0.227	0.384*	0.033	0.500**	0.173	-0.669**	0.132	-0.548**	0.280	-0.743**	0.305
Sl40pHH2O	-0.038	0.045	0.313	0.269	0.372*	0.011	0.459**	0.243	-0.723**	0.067	-0.612**	0.269	-0.779**	0.358*
Sl20pHKCl	-0.247	0.253	0.551**	0.493**	0.352*	0.153	0.540**	0.403*	-0.507**	-0.047	-0.612**	0.429**	-0.626**	0.242
Sl40pHKCl	-0.255	0.150	0.517**	0.490**	0.396*	0.139	0.510**	0.415*	-0.558**	-0.043	-0.652**	0.412*	-0.679**	0.254
Sl20MO	-0.572**	-0.002	0.451**	0.557**	0.043	0.152	0.490**	0.501**	-0.173	0.112	-0.470**	0.421*	-0.168	-0.054
Sl40MO	-0.548**	-0.015	0.461**	0.592**	0.121	0.209	0.465**	0.424**	-0.240	0.020	-0.542**	0.384*	-0.220	-0.016
Sl20P2O5	-0.042	-0.132	-0.300	-0.122	-0.173	0.054	-0.298	-0.236	0.519**	-0.022	0.485**	-0.268	0.582**	-0.190
Sl40P2O5	0.026	-0.006	-0.153	-0.051	-0.014	-0.043	-0.222	-0.160	0.511**	0.000	0.479**	-0.234	0.453**	-0.170
Sl20K2O5	0.080	-0.029	-0.162	-0.395*	-0.045	0.154	-0.485**	-0.221	0.295	-0.489**	0.445**	-0.335	0.358*	0.010
Sl40K2O5	0.087	0.065	-0.124	-0.316	0.032	0.221	-0.417*	-0.227	0.354*	-0.520**	0.492**	-0.328	0.371*	-0.076
Sl20Ca	0.192	-0.120	-0.088	-0.107	0.467**	-0.014	0.216	-0.070	-0.595**	-0.048	-0.207	0.019	-0.539**	0.235
Sl40Ca	0.179	-0.157	-0.111	-0.159	0.458**	-0.027	0.214	-0.081	-0.559**	-0.049	-0.199	0.039	-0.532**	0.224
Sl20Mg	-0.179	-0.137	0.286	0.430**	-0.076	-0.122	0.586**	0.184	-0.279	0.661**	-0.436**	0.337*	-0.368*	-0.099
Sl40Mg	-0.239	-0.236	0.245	0.459**	-0.039	-0.123	0.561**	0.214	-0.261	0.631**	-0.465**	0.330*	-0.353*	-0.103
Sl20K	-0.071	-0.064	0.020	-0.072	0.228	0.381*	0.002	-0.098	-0.308	-0.255	-0.089	-0.032	-0.170	0.267
Sl40K	0.110	-0.009	0.002	-0.163	0.076	0.245	-0.274	-0.152	0.010	-0.461**	0.183	-0.182	0.046	0.124
Sl20Na	0.152	-0.253	0.029	-0.044	0.433**	-0.088	0.273	0.032	-0.499**	0.128	-0.268	0.215	-0.578**	0.206
Sl40Na	0.178	-0.327	-0.058	-0.096	0.395*	-0.099	0.281	-0.018	-0.462**	0.186	-0.259	0.177	-0.492**	0.135
Sl20BH2O	-0.212	0.152	0.181	0.282	-0.042	0.153	0.470**	-0.001	-0.074	0.387*	-0.188	0.276	0.103	-0.041
Sl40BH2O	0.163	0.108	0.026	0.140	-0.122	0.058	0.255	-0.315	-0.077	0.407*	0.054	0.017	0.046	0.106

Table 2 (cont)

	FIPS240706	FIPA240706	SPAD240706	FIN240706	FIP240706	FIK240706	FICa240706	FIMg240706	FIB240706	FIFe240706	FICu240706	FIZn240706	FIMn240706	PIPd160107
CITp05	0.167	0.094	0.318	0.458**	-0.248	0.450**	0.507**	0.207	-0.495**	-0.216	0.108	-0.721**	-0.625**	0.290
CIHm05	-0.075	-0.113	-0.323	-0.509**	0.316	-0.560**	-0.509**	-0.200	0.432**	0.055	-0.142	0.652**	0.525**	-0.243
SITp05	0.226	0.278	0.217	0.431**	-0.302	0.666**	0.480**	-0.128	-0.625**	-0.055	0.194	-0.799**	-0.670**	0.179
PITp05	0.216	0.180	0.177	0.538**	-0.305	0.644**	0.530**	0.053	-0.473	0.151	0.170	-0.552**	-0.414*	0.121
SPAD05	-0.096	-0.332*	0.592**	0.151	-0.307	-0.021	0.159	0.170	0.038	-0.178	-0.097	-0.067	-0.152	0.385*
FIAr170605	-0.360*	-0.121	0.066	-0.221	-0.063	-0.264	-0.347*	0.184	0.412*	-0.180	-0.068	0.343*	0.466**	-0.195
FIPS170605	0.177	0.013	-0.163	-0.430**	0.416*	-0.525**	-0.283	0.021	-0.030	-0.353*	-0.134	0.161	0.141	-0.165
FIN170605	0.090	-0.107	0.267	0.478**	-0.393*	0.418*	0.250	-0.102	-0.391*	0.169	0.228	-0.370*	-0.507**	0.372*
FIP170605	0.168	0.078	-0.423*	-0.140	0.534**	-0.336*	-0.041	0.075	-0.112	-0.021	-0.182	0.024	0.004	-0.153
FIK170605	0.089	0.249	0.024	0.346*	-0.445**	0.384*	-0.039	-0.458**	-0.242	0.055	-0.011	-0.148	-0.117	-0.049
PIPd080306	-0.063	-0.161	0.109	-0.301	0.215	-0.540**	-0.303	-0.040	0.389*	0.058	-0.054	0.559**	0.440**	0.203
SI20pHH2O	0.360*	0.231	-0.054	0.143	0.048	0.253	0.486**	0.095	-0.605**	-0.167	-0.020	-0.569**	-0.702**	0.174
SI40pHH2O	0.402*	0.226	-0.017	0.091	0.060	0.210	0.489**	0.206	-0.655**	-0.265	-0.070	-0.652**	-0.680**	0.167
SI20pHKCl	0.243	0.071	0.349*	0.247	-0.169	0.206	0.336*	0.087	-0.489**	-0.390*	-0.051	-0.557**	-0.701**	0.373*
SI40pHKCl	0.217	-0.016	0.312	0.207	-0.118	0.190	0.312	0.158	-0.540**	-0.388*	-0.003	-0.594**	-0.717**	0.382*
SI20MO	-0.129	-0.210	0.619**	0.308	-0.414*	0.294	0.190	0.031	-0.149	-0.232	-0.018	-0.386*	-0.308	0.321
SI40MO	-0.069	-0.137	0.501**	0.282	-0.413*	0.188	0.190	0.006	-0.244	-0.309	0.022	-0.358*	-0.333*	0.301
SI20P2O5	-0.229	-0.162	-0.011	-0.017	-0.015	-0.167	-0.439**	-0.225	0.419*	0.205	0.122	0.491**	0.536**	-0.066
SI40P2O5	-0.220	-0.191	0.090	0.003	0.044	-0.146	-0.314	-0.186	0.377*	0.279	0.246	0.503**	0.422*	-0.001
SI20K2O5	-0.034	-0.108	-0.025	-0.424**	0.222	-0.438**	-0.368*	-0.236	0.268	-0.176	-0.131	0.355*	0.320	-0.066
SI40K2O5	-0.121	-0.142	0.065	-0.348*	0.190	-0.380*	-0.357*	-0.307	0.304	-0.160	-0.155	0.408*	0.258	-0.063
SI20Ca	0.293	0.220	-0.197	-0.113	0.293	-0.025	0.313	0.105	-0.493**	-0.139	-0.129	-0.333*	-0.398*	-0.104
SI40Ca	0.299	0.258	-0.247	-0.113	0.302	-0.044	0.269	0.072	-0.481**	-0.175	-0.135	-0.284	-0.354*	-0.077
SI20Mg	-0.041	0.110	0.140	0.480**	-0.292	0.752**	0.480**	0.091	-0.276	0.318	0.173	-0.428**	-0.259	0.191
SI40Mg	-0.046	0.109	0.144	0.437**	-0.303	0.714**	0.480**	0.142	-0.264	0.268	0.155	-0.420*	-0.213	0.192
SI20K	0.216	-0.040	0.183	-0.134	0.140	-0.089	-0.012	-0.098	-0.303	-0.274	-0.073	-0.186	-0.161	-0.021
SI40K	0.052	-0.136	0.119	-0.299	0.167	-0.298	-0.127	-0.184	-0.008	-0.199	0.014	0.155	-0.014	0.029
SI20Na	0.217	0.087	0.002	-0.086	0.145	0.177	0.431**	0.146	-0.437**	-0.068	0.073	-0.384*	-0.435**	0.075
SI40Na	0.178	0.144	-0.109	-0.008	0.135	0.239	0.463**	0.082	-0.383*	0.006	0.099	-0.326	-0.398*	0.027
SI20BH2O	-0.007	0.070	0.234	0.328	-0.233	0.131	-0.100	-0.224	-0.185	0.128	0.108	-0.154	-0.146	0.078
SI40BH2O	0.223	0.334*	-0.090	0.365*	-0.055	0.298	0.163	-0.277	-0.089	0.354*	0.219	0.022	0.111	-0.014

Table 2 (cont)

	ClTp05	ClHm05	SlTp05	PlTp05	SPAD05	FlAr170605	FlPS170605	FlN170605	FlP170605	FlK170605	PlPd080306	Sl20pHH2O	Sl40pHH2O	Sl20pHKCl	Sl40pHKCl
Sl20AT	-0.491**	0.372*	-0.329	-0.173	-0.322	0.333*	0.085	-0.254	-0.010	-0.053	0.196	-0.799**	-0.695**	-0.870**	-0.795**
Sl40AT	-0.438**	0.333*	-0.295	-0.101	-0.300	0.290	0.033	-0.245	0.070	-0.047	0.197	-0.671**	-0.656**	-0.830**	-0.833**
Sl20SBT	0.237	-0.076	0.184	0.043	-0.149	-0.153	0.270	-0.064	0.529**	-0.175	-0.285	0.715**	0.732**	0.297	0.338*
Sl40SBT	0.234	-0.083	0.166	0.075	-0.159	-0.068	0.344*	-0.097	0.508**	-0.189	-0.296	0.667**	0.700**	0.286	0.339*
Sl20CTCe	0.208	-0.051	0.166	0.032	-0.177	-0.133	0.285	-0.085	0.545**	-0.185	-0.279	0.679**	0.705**	0.243	0.291
Sl40CTCe	0.201	-0.056	0.144	0.069	-0.189	-0.044	0.355*	-0.120	0.526**	-0.196	-0.284	0.622**	0.657**	0.220	0.274
Sl20GSBe	0.488**	-0.338*	0.366*	0.243	0.270	-0.296	0.052	0.228	0.214	0.010	-0.168	0.843**	0.784**	0.752**	0.725**
Sl40GSBe	0.409*	-0.277	0.307	0.174	0.238	-0.228	0.132	0.174	0.152	0.017	-0.095	0.708**	0.724**	0.682**	0.709**
ClTp06	0.383*	-0.217	0.122	0.110	0.021	-0.016	0.324	0.143	0.238	-0.154	-0.155	0.390*	0.477**	0.455**	0.512**
ClHm06	-0.281	0.119	-0.043	0.078	-0.026	0.037	-0.438**	-0.027	-0.213	0.276	0.157	-0.430**	-0.548**	-0.503**	-0.584**
SlTp06	0.103	0.057	0.169	0.158	-0.201	-0.268	0.327	0.101	0.285	0.263	-0.062	0.386*	0.305	0.254	0.199
PlTp06	0.191	-0.151	0.156	0.421*	0.050	-0.051	-0.023	0.214	0.031	0.274	-0.033	0.112	0.063	0.109	0.019
FlAr210606	-0.407*	0.432**	-0.264	-0.219	-0.440**	-0.372*	0.122	-0.176	0.250	-0.067	0.122	0.069	-0.038	-0.247	-0.255
FlPS210606	-0.061	0.077	-0.207	-0.109	0.044	-0.063	0.053	0.136	-0.027	0.006	0.164	0.150	0.045	0.253	0.150
SPAD210606	0.496**	-0.493**	0.370*	0.284	0.371*	-0.329	-0.278	0.596**	-0.222	0.070	-0.082	0.310	0.313	0.551**	0.517
FlN210606	0.717**	-0.698**	0.498**	0.594**	0.647**	-0.141	-0.401*	0.712	-0.238	0.050	-0.096	0.227	0.269	0.493**	0.490**
FlP210606	0.328	-0.162	0.116	0.079	0.214	-0.174	0.202	0.120	0.408*	-0.254	-0.003	0.384*	0.372*	0.352*	0.396*
FlK210606	-0.029	-0.009	0.217	0.031	-0.099	-0.258	-0.019	0.018	-0.218	0.389*	-0.165	0.033	0.011	0.153	0.139
FlCa210606	0.733**	-0.693**	0.806**	0.755**	0.292	-0.221	-0.307	0.623**	-0.092	0.298	-0.471**	0.500**	0.459**	0.540**	0.510**
FlMg210606	0.570**	-0.505**	0.245	0.246	0.532**	0.168	-0.146	0.240	-0.123	-0.214	-0.134	0.173	0.243	0.403*	0.415*
FlB210606	-0.552**	0.459**	-0.645**	-0.461**	0.100	0.386*	-0.042	-0.302	-0.188	-0.193	0.493**	-0.669**	-0.723**	-0.507**	-0.558
FlFe210606	0.420*	-0.493**	0.668**	0.632**	-0.007	-0.115	-0.485**	0.492**	-0.120	0.353*	-0.419*	0.132	0.067	-0.047	-0.043
FlCu210606	-0.772**	0.762**	-0.727**	-0.574**	-0.238	0.140	0.214	-0.482**	0.179	-0.057	0.510**	-0.548**	-0.612**	-0.612**	-0.652**
FlZn210606	0.572**	-0.541**	0.655**	0.425**	0.206	-0.053	-0.297	0.517**	-0.333*	0.255	-0.450**	0.280	0.269	0.429**	0.412*
FlMn210606	-0.635**	0.553**	-0.585**	-0.452**	-0.065	0.499**	0.099	-0.378*	-0.074	-0.044	0.378*	-0.743**	-0.779**	-0.626**	-0.679**
FlAr240706	0.147	-0.034	0.132	0.162	0.029	-0.357*	0.198	0.145	0.158	-0.011	-0.005	0.305	0.358	0.242	0.254
FlPS240706	0.167	-0.075	0.226	0.216	-0.096	-0.360*	0.177	0.090	0.168	0.089	-0.063	0.360*	0.402*	0.243	0.217
FlPA240706	0.094	-0.113	0.278	0.180	-0.332*	-0.121	0.013	-0.107	0.078	0.249	-0.161	0.231	0.226	0.071	-0.016
SPAD240706	0.318	-0.323	0.217	0.177	0.592**	0.066	-0.163	0.267	-0.423*	0.024	0.109	-0.054	-0.017	0.349*	0.312

Table 2 (cont)

	SI20MO	SI40MO	SI20P2O5	SI40P2O5	SI20K2O5	SI40K2O5	SI20Ca	SI40Ca	SI20Mg	SI40Mg	SI20K	SI40K	SI20Na	SI40Na
SI20AT	-0.188	-0.209	0.697**	0.487**	0.380*	0.217	-0.428**	-0.429**	-0.085	-0.048	0.001	0.145	-0.441	-0.332*
SI40AT	-0.238	-0.264	0.590**	0.546**	0.258	0.144	-0.316	-0.311	-0.041	-0.035	-0.064	0.054	-0.360*	-0.282
SI20SBT	-0.206	-0.192	-0.596**	-0.505**	-0.209	-0.217	0.955**	0.905**	0.078	0.040	0.267	-0.010	0.805**	0.734**
SI40SBT	-0.177	-0.155	-0.509**	-0.447**	-0.138	-0.200	0.898**	0.974**	0.076	0.076	0.295	-0.053	0.804**	0.707**
SI20CTCe	-0.226	-0.213	-0.563**	-0.485**	-0.188	-0.208	0.954**	0.903**	0.074	0.038	0.276	0.000	0.798**	0.734**
SI40CTCe	-0.201	-0.182	-0.468**	-0.409*	-0.118	-0.193	0.889**	0.968**	0.073	0.074	0.296	-0.051	0.789**	0.695**
SI20GSBe	0.036	0.082	-0.676**	-0.499**	-0.403*	-0.298	0.628**	0.636**	0.153	0.133	-0.001	-0.216	0.605**	0.501**
SI40GSBe	0.039	0.112	-0.552**	-0.515**	-0.284	-0.245	0.522**	0.554**	0.113	0.129	0.020	-0.187	0.504**	0.418*
ClTp06	0.195	0.218	-0.326	-0.305	-0.097	-0.161	0.354*	0.299	-0.149	-0.160	0.290	0.076	0.172	0.089
ClHm06	-0.179	-0.228	0.428**	0.410*	-0.060	0.015	-0.437**	-0.408*	0.320	0.312	-0.415*	-0.256	-0.287	-0.156
SITp06	-0.143	-0.031	-0.147	-0.068	-0.037	0.026	0.484**	0.498**	-0.089	-0.140	0.211	0.088	0.309	0.329*
PITp06	0.019	0.010	0.049	0.123	-0.236	-0.165	0.117	0.078	0.132	0.109	-0.029	-0.153	-0.129	-0.097
FIAr210606	-0.572**	-0.548**	-0.042	0.026	0.080	0.087	0.192	0.179	-0.179	-0.239	-0.071	0.110	0.152	0.178
FIPS210606	-0.002	-0.015	-0.132	-0.006	-0.029	0.065	-0.120	-0.157	-0.137	-0.236	-0.064	-0.009	-0.253	-0.327
SPAD210606	0.451**	0.461**	-0.300	-0.153	-0.162	-0.124	-0.088	-0.111	0.286	0.245	0.020	0.002	0.029	-0.058
FIN210606	0.557**	0.592**	-0.122	-0.051	-0.395*	-0.316	-0.107	-0.159	0.430**	0.459**	-0.072	-0.163	-0.044	-0.096
FIP210606	0.043	0.121	-0.173	-0.014	-0.045	0.032	0.467**	0.458**	-0.076	-0.039	0.228	0.076	0.433**	0.395*
FIK210606	0.152	0.209	0.054	-0.043	0.154	0.221	-0.014	-0.027	-0.122	-0.123	0.381*	0.245	-0.088	-0.099
FICa210606	0.490**	0.465**	-0.298	-0.222	-0.485**	-0.417*	0.216	0.214	0.586**	0.561**	0.002	-0.274	0.273	0.281
FIMg210606	0.501**	0.424**	-0.236	-0.160	-0.221	-0.227	-0.070	-0.081	0.184	0.214	-0.098	-0.152	0.032	-0.018
FIB210606	-0.173	-0.240	0.519**	0.511**	0.295	0.354*	-0.595**	-0.559**	-0.279	-0.261	-0.308	0.010	-0.499**	-0.462**
FIFe210606	0.112	0.020	-0.022	0.000	-0.489**	-0.520**	-0.048	-0.049	0.661**	0.631**	-0.255	-0.461**	0.128	0.186
FICu210606	-0.470**	-0.542**	0.485	0.479	0.445**	0.492**	-0.207	-0.199	-0.436**	-0.465**	-0.089	0.183	-0.268	-0.259
FIZn210606	0.421*	0.384*	-0.268	-0.234	-0.335*	-0.328	0.019	0.039	0.337*	0.330*	-0.032	-0.182	0.215	0.177
FIMn210606	-0.168	-0.220	0.582**	0.453**	0.358*	0.371*	-0.539**	-0.532**	-0.368*	-0.353*	-0.170	0.046	-0.578**	-0.492**
FIAr240706	-0.054	-0.016	-0.190	-0.170	0.010	-0.076	0.235	0.224	-0.099	-0.103	0.267	0.124	0.206	0.135
FIPS240706	-0.129	-0.069	-0.229	-0.220	-0.034	-0.121	0.293	0.299	-0.041	-0.046	0.216	0.052	0.217	0.178
FIPA240706	-0.210	-0.137	-0.162	-0.191	-0.108	-0.142	0.220	0.258	0.110	0.109	-0.040	-0.136	0.087	0.144
SPAD240706	0.619**	0.501**	-0.011	0.090	-0.025	0.065	-0.197	-0.247	0.140	0.144	0.183	0.119	0.002	-0.109

Table 2 (cont)

	SI20BH2O	SI40BH2O	SI20AT	SI40AT	SI20SBT	SI40SBT	SI20CTCe	SI40CTCe	SI20GSBe	SI40GSBe	CITp06	CIHm06	SITp06	PITp06
SI20AT	0.093	0.284	1.000	0.893**	-0.463**	-0.410*	-0.405*	-0.341*	-0.913**	-0.803**	-0.368*	0.460**	-0.271	-0.045
SI40AT	0.083	0.386*	0.893**	1.000	-0.350*	-0.285	-0.295	-0.203	-0.811**	-0.864**	-0.333	0.450	-0.171	0.085
SI20SBT	-0.353*	-0.168	-0.463**	-0.350*	1.000	0.916**	0.998**	0.903**	0.644**	0.531**	0.267	-0.353*	0.442**	0.084
SI40SBT	-0.332*	-0.129	-0.410*	-0.285	0.916**	1.000	0.915**	0.996**	0.631**	0.546**	0.249	-0.333*	0.442**	0.080
SI20CTCe	-0.358*	-0.152	-0.405*	-0.295	0.998**	0.915**	1.000	0.907**	0.597**	0.489**	0.249	-0.331*	0.436**	0.084
SI40CTCe	-0.331*	-0.098	-0.341*	-0.203	0.903**	0.996**	0.907**	1.000	0.573**	0.482**	0.227	-0.303	0.437**	0.090
SI20GSBe	-0.150	-0.287	-0.913**	-0.811**	0.644**	0.631**	0.597**	0.573**	1.000	0.922**	0.320	-0.395*	0.399*	0.076
SI40GSBe	-0.150	-0.382*	-0.803**	-0.864**	0.531**	0.546**	0.489**	0.482**	0.922**	1.000	0.273	-0.361*	0.319	-0.016
CITp06	0.072	-0.088	-0.368*	-0.333*	0.267	0.249	0.249	0.227	0.320	0.273	1.000	-0.917**	0.450**	0.491**
CIHm06	0.113	0.337*	0.460**	0.450**	-0.353*	-0.333*	-0.331*	-0.303	-0.395*	-0.361*	-0.917**	1.000	-0.352*	-0.288
SITp06	0.141	0.238	-0.271	-0.171	0.442**	0.442**	0.436**	0.437**	0.399*	0.319	0.450**	-0.352*	1.000	0.592**
PITp06	0.336*	0.351*	-0.045	0.085	0.084	0.080	0.084	0.090	0.076	-0.016	0.491**	-0.288	0.592**	1.000
FIAr210606	-0.212	0.163	0.018	0.106	0.150	0.122	0.155	0.132	0.082	0.009	-0.066	0.108	0.479**	0.109
FIPS210606	0.152	0.108	-0.173	-0.148	-0.182	-0.223	-0.200	-0.240	0.008	-0.051	0.372*	-0.257	0.182	0.251
SPAD210606	0.181	0.026	-0.439**	-0.409*	0.021	-0.058	-0.010	-0.094	0.319	0.241	0.226	-0.265	-0.040	-0.123
FIN210606	0.282	0.140	-0.325	-0.248	-0.039	-0.077	-0.064	-0.098	0.275	0.188	0.410*	-0.336*	0.014	0.210
FIP210606	-0.042	-0.122	-0.358*	-0.213	0.400*	0.435**	0.386*	0.426**	0.440**	0.327	0.463**	-0.488**	0.335*	0.154
FIK210606	0.153	0.058	-0.104	-0.156	0.026	-0.045	0.019	-0.060	-0.013	0.008	0.142	-0.191	0.300	0.209
FICa210606	0.470**	0.255	-0.441**	-0.371*	0.270	0.291	0.246	0.265	0.490**	0.400*	0.306	-0.182	0.376*	0.350*
FIMg210606	-0.001	-0.315	-0.292	-0.305	-0.054	-0.041	-0.077	-0.068	0.200	0.195	0.202	-0.258	-0.377*	-0.113
FIB210606	-0.074	-0.077	0.481**	0.405*	-0.612**	-0.588**	-0.596**	-0.566**	-0.576**	-0.483**	-0.511**	0.496**	-0.589**	-0.262
FIFe210606	0.387*	0.407*	0.029	0.100	0.043	0.069	0.047	0.080	0.076	0.000	-0.223	0.395*	0.129	0.081
FICu210606	-0.188	0.054	0.456**	0.449	-0.288	-0.279	-0.263	-0.245	-0.433	-0.398*	-0.441**	0.461**	-0.154	-0.061
FIZn210606	0.276	0.017	-0.383*	-0.343*	0.137	0.108	0.114	0.080	0.320	0.250	0.114	-0.124	0.189	0.074
FIMn210606	0.103	0.046	0.655**	0.552**	-0.598**	-0.589**	-0.569**	-0.553**	-0.734**	-0.631**	-0.382*	0.416*	-0.429**	-0.082
FIAr240706	-0.041	0.106	-0.172	-0.090	0.150	0.179	0.142	0.177	0.209	0.116	0.465**	-0.437**	0.360*	0.265
FIPS240706	-0.007	0.223	-0.188	-0.087	0.228	0.262	0.221	0.262	0.241	0.149	0.421*	-0.365*	0.454**	0.329
FIPA240706	0.070	0.334*	-0.089	-0.019	0.243	0.265	0.244	0.269	0.136	0.113	0.044	0.037	0.345*	0.236
SPAD240706	0.234	-0.090	-0.152	-0.107	-0.160	-0.213	-0.176	-0.227	0.033	-0.032	-0.010	-0.048	-0.437**	-0.141

Table 2 (cont)

	FIAr210606	FIPS210606	SPAD210606	FIN210606	FIP210606	FIK210606	FICa210606	FIMg210606	FIB210606	FIFe210606	FICu210606	FIZn210606	FIMn210606	FIAr240706
SI20AT	0.018	-0.173	-0.439**	-0.325	-0.358*	-0.104	-0.441**	-0.292	0.481**	0.029	0.456**	-0.383*	0.655**	-0.172
SI40AT	0.106	-0.148	-0.409*	-0.248	-0.213	-0.156	-0.371*	-0.305	0.405*	0.100	0.449**	-0.343*	0.552**	-0.090
SI20SBT	0.150	-0.182	0.021	-0.039	0.400*	0.026	0.270	-0.054	-0.612**	0.043	-0.288	0.137	-0.598**	0.150
SI40SBT	0.122	-0.223	-0.058	-0.077	0.435**	-0.045	0.291	-0.041	-0.588**	0.069	-0.279	0.108	-0.589**	0.179
SI20CTCe	0.155	-0.200	-0.010	-0.064	0.386*	0.019	0.246	-0.077	-0.596**	0.047	-0.263	0.114	-0.569**	0.142
SI40CTCe	0.132	-0.240	-0.094	-0.098	0.426**	-0.060	0.265	-0.068	-0.566**	0.080	-0.245	0.080	-0.553**	0.177
SI20GSBe	0.082	0.008	0.319	0.275	0.440**	-0.013	0.490**	0.200	-0.576**	0.076	-0.433**	0.320	-0.734**	0.209
SI40GSBe	0.009	-0.051	0.241	0.188	0.327	0.008	0.400*	0.195	-0.483**	0.000	-0.398*	0.250	-0.631**	0.116
CITp06	-0.066	0.372*	0.226	0.410*	0.463**	0.142	0.306	0.202	-0.511**	-0.223	-0.441**	0.114	-0.382*	0.465**
CIHm06	0.108	-0.257	-0.265	-0.336*	-0.488**	-0.191	-0.182	-0.258	0.496**	0.395*	0.461**	-0.124	0.416*	-0.437**
SITp06	0.479**	0.182	-0.040	0.014	0.335*	0.300	0.376*	-0.377*	-0.589**	0.129	-0.154	0.189	-0.429**	0.360*
PITp06	0.109	0.251	-0.123	0.210	0.154	0.209	0.350*	-0.113	-0.262	0.081	-0.061	0.074	-0.082	0.265
FIAr210606	1.000	0.033	-0.287	-0.343*	0.068	0.020	-0.181	-0.702**	-0.084	0.107	0.350*	-0.162	-0.104	0.235
FIPS210606	0.033	1.000	0.336*	0.017	-0.126	-0.095	0.045	-0.009	0.066	-0.238	0.117	-0.235	0.081	0.265
SPAD210606	-0.287	0.336	1.000	0.627	0.058	-0.105	0.377*	0.343*	-0.282	0.049	-0.421*	0.389*	-0.410*	0.346*
FIN210606	-0.343*	0.017	0.627**	1.000	0.362*	-0.001	0.498**	0.485**	-0.354*	0.173	-0.589**	0.433**	-0.420*	0.302
FIP210606	0.068	-0.126	0.058	0.362*	1.000	0.045	0.119	0.165	-0.308	-0.139	-0.249	-0.010	-0.423*	0.308
FIK210606	0.020	-0.095	-0.105	-0.001	0.045	1.000	0.082	-0.315	-0.336*	0.073	-0.213	0.266	-0.136	0.072
FICa210606	-0.181	0.045	0.377*	0.498**	0.119	0.082	1.000	0.193	-0.689**	0.628**	-0.646**	0.582**	-0.535**	0.162
FIMg210606	-0.702**	-0.009	0.343*	0.485**	0.165	-0.315	0.193	1.000	0.083	-0.230	-0.330*	0.160	-0.109	-0.159
FIB210606	-0.084	0.066	-0.282	-0.354*	-0.308	-0.336*	-0.689**	0.083	1.000	-0.404*	0.695**	-0.493**	0.833**	-0.417*
FIFe210606	0.107	-0.238	0.049	0.173	-0.139	0.073	0.628**	-0.230	-0.404*	1.000	-0.311	0.552**	-0.272	0.016
FICu210606	0.350*	0.117	-0.421*	-0.589**	-0.249	-0.213	-0.646**	-0.330*	0.695**	-0.311	1.000	-0.569**	0.625**	-0.136
FIZn210606	-0.162	-0.235	0.389*	0.433**	-0.010	0.266	0.582**	0.160	-0.493**	0.552**	-0.569**	1.000	-0.408*	0.118
FIMn210606	-0.104	0.081	-0.410*	-0.420*	-0.423*	-0.136	-0.535**	-0.109	0.833**	-0.272	0.625**	-0.408*	1.000	-0.378*
FIAr240706	0.235	0.265	0.346*	0.302	0.308	0.072	0.162	-0.159	-0.417*	0.016	-0.136	0.118	-0.378*	1.000
FIPS240706	0.240	0.207	0.290	0.216	0.249	0.143	0.221	-0.288	-0.532**	0.135	-0.186	0.192	-0.458**	0.922**
FIPA240706	0.089	-0.060	-0.034	-0.126	-0.064	0.207	0.195	-0.390*	-0.433**	0.306	-0.173	0.218	-0.326	0.114
SPAD240706	-0.606**	-0.001	0.467**	0.402*	-0.034	-0.110	0.183	0.527**	0.105	-0.055	-0.244	0.212	0.005	0.111

Table 2 (cont)

	FIPS240706	FIPA240706	SPAD240706	FIN240706	FIP240706	FIK240706	FICa240706	FIMg240706	FIB240706	FIFe240706	FICu240706	FIZn240706	FIMn240706	PIPd160107
SI20AT	-0.188	-0.089	-0.152	-0.211	0.073	-0.118	-0.311	-0.080	0.455**	0.288	0.116	0.510**	0.719**	-0.301
SI40AT	-0.087	-0.019	-0.107	-0.204	0.150	-0.083	-0.157	-0.054	0.385*	0.365*	0.249	0.505**	0.693**	-0.273
SI20SBT	0.228	0.243	-0.160	-0.018	0.185	0.107	0.352*	0.076	-0.507**	-0.093	-0.151	-0.386*	-0.449	-0.112
SI40SBT	0.262	0.265	-0.213	-0.034	0.250	0.088	0.332*	0.109	-0.515**	-0.119	-0.114	-0.345*	-0.363*	-0.063
SI20CTCe	0.221	0.244	-0.176	-0.034	0.196	0.102	0.341*	0.072	-0.490**	-0.075	-0.147	-0.361*	-0.411*	-0.138
SI40CTCe	0.262	0.269	-0.227	-0.051	0.269	0.082	0.324	0.107	-0.494**	-0.091	-0.095	-0.309	-0.310	-0.087
SI20GSBe	0.241	0.136	0.033	0.182	0.026	0.150	0.389*	0.121	-0.566**	-0.180	-0.094	-0.506**	-0.683**	0.264
SI40GSBe	0.149	0.113	-0.032	0.164	-0.011	0.107	0.242	0.123	-0.483**	-0.242	-0.198	-0.474**	-0.592**	0.255
CITp06	0.421*	0.044	-0.010	0.244	0.203	-0.158	0.075	0.186	-0.409*	-0.367*	0.108	-0.416*	-0.464**	0.138
CIHm06	-0.365*	0.037	-0.048	-0.064	-0.171	0.244	-0.082	-0.217	0.388*	0.481**	0.026	0.393*	0.491**	-0.088
SITp06	0.454**	0.345*	-0.437**	0.141	0.148	0.082	0.096	-0.387*	-0.600**	-0.051	0.185	-0.221	-0.483**	-0.164
PITp06	0.329	0.236	-0.141	0.322	0.030	0.109	0.014	-0.075	-0.255	-0.032	0.017	-0.138	-0.160	-0.297
FIAr210606	0.240	0.089	-0.606**	-0.228	0.347	-0.040	0.012	-0.201	-0.160	0.456**	0.350*	0.232	-0.038	-0.083
FIPS210606	0.207	-0.060	-0.001	0.187	0.156	-0.238	-0.290	-0.095	-0.008	-0.021	0.056	0.122	-0.127	0.197
SPAD210606	0.290	-0.034	0.467**	0.379*	-0.215	0.102	0.211	-0.020	-0.346*	-0.113	0.006	-0.383*	-0.491**	0.509**
FIN210606	0.216	-0.126	0.402*	0.421*	-0.314	0.179	0.358*	0.176	-0.290	-0.163	0.108	-0.443**	-0.408*	0.441**
FIP210606	0.249	-0.064	-0.034	-0.048	0.400*	-0.182	0.251	0.177	-0.241	-0.180	0.094	-0.231	-0.322	0.181
FIK210606	0.143	0.207	-0.110	0.057	-0.123	0.248	-0.186	-0.528**	-0.296	-0.205	0.001	-0.330*	-0.330*	-0.317
FICa210606	0.221	0.195	0.183	0.584**	-0.331*	0.540**	0.421*	-0.147	-0.674**	0.002	0.113	-0.704**	-0.713**	0.263
FIMg210606	-0.288	-0.390*	0.527**	0.094	-0.217	-0.059	0.150	0.450**	0.172	-0.550**	-0.323	-0.222	-0.122	0.225
FIB210606	-0.532**	-0.433**	0.105	-0.322	0.077	-0.446**	-0.498**	0.194	0.923**	0.093	-0.217	0.776**	0.792**	-0.152
FIFe210606	0.135	0.306	-0.055	0.379*	-0.331*	0.634**	0.319	-0.329	-0.457**	0.457**	0.399*	-0.423*	-0.326	0.125
FICu210606	-0.186	-0.173	-0.244	-0.326	0.316	-0.442**	-0.571**	-0.174	0.598**	0.157	-0.185	0.674**	0.637**	-0.159
FIZn210606	0.192	0.218	0.212	0.149	-0.625**	0.452**	0.286	-0.319	-0.497**	-0.182	0.177	-0.605**	-0.591**	0.145
FIMn210606	-0.458**	-0.326	0.005	-0.281	-0.053	-0.403*	-0.585**	-0.032	0.785**	0.077	-0.270	0.724**	0.791**	-0.315
FIAr240706	0.922**	0.114	0.111	0.012	0.164	-0.142	0.219	-0.074	-0.470**	-0.003	0.265	-0.313	-0.343*	0.368*
FIPS240706	1.000	0.490**	0.025	0.075	0.179	-0.043	0.263	-0.199	-0.561**	-0.014	0.293	-0.414*	-0.381*	0.304
FIPA240706	0.490**	1.000	-0.196	0.169	0.096	0.207	0.173	-0.338*	-0.386*	-0.031	0.159	-0.365*	-0.205	-0.045
SPAD240706	0.025	-0.196	1.000	0.085	-0.227	0.044	0.247	0.299	0.090	-0.141	-0.053	-0.203	-0.017	0.340*

Table 2 (cont)

	ClTp05	ClHm05	SlTp05	PlTp05	SPAD05	FlAr170605	FlPS170605	FlN170605	FlP170605	FlK170605	PlPd080306	Sl20pHH2O	Sl40pHH2O	Sl20pHKCl	Sl40pHKCl
FlN240706	0.458**	-0.509**	0.431**	0.538**	0.151	-0.221	-0.430**	0.478**	-0.140	0.346*	-0.301	0.143	0.091	0.247	0.207
FlP240706	-0.248	0.316	-0.302	-0.305	-0.307	-0.063	0.416*	-0.393*	0.534**	-0.445**	0.215	0.048	0.060	-0.169	-0.118
FlK240706	0.450**	-0.560**	0.666**	0.644**	-0.021	-0.264	-0.525**	0.418*	-0.336*	0.384*	-0.540**	0.253	0.210	0.206	0.190
FlCa240706	0.507**	-0.509**	0.480**	0.530**	0.159	-0.347*	-0.283	0.250	-0.041	-0.039	-0.303	0.486**	0.489**	0.336*	0.312
FlMg240706	0.207	-0.200	-0.128	0.053	0.170	0.184	0.021	-0.102	0.075	-0.458**	-0.040	0.095	0.206	0.087	0.158
FlB240706	-0.495**	0.432**	-0.625**	-0.473	0.038	0.412*	-0.030	-0.391*	-0.112	-0.242	0.389*	-0.605**	-0.655**	-0.489**	-0.540**
FlFe240706	-0.216	0.055	-0.055	0.151	-0.178	-0.180	-0.353*	0.169	-0.021	0.055	0.058	-0.167	-0.265	-0.390*	-0.388*
FlCu240706	0.108	-0.142	0.194	0.170	-0.097	-0.068	-0.134	0.228	-0.182	-0.011	-0.054	-0.020	-0.070	-0.051	-0.003
FlZn240706	-0.721**	0.652**	-0.799**	-0.552**	-0.067	0.343*	0.161	-0.370*	0.024	-0.148	0.559**	-0.569**	-0.652**	-0.557**	-0.594**
FlMn240706	-0.625**	0.525**	-0.670**	-0.414*	-0.152	0.466**	0.141	-0.507**	0.004	-0.117	0.440**	-0.702**	-0.680**	-0.701**	-0.717**
PlPd160107	0.290	-0.243	0.179	0.121	0.385*	-0.195	-0.165	0.372*	-0.153	-0.049	0.203	0.174	0.167	0.373*	0.382*

Table 2 (cont)

	Sl20MO	Sl40MO	Sl20P2O5	Sl40P2O5	Sl20K2O5	Sl40K2O5	Sl20Ca	Sl40Ca	Sl20Mg	Sl40Mg	Sl20K	Sl40K	Sl20Na	Sl40Na
FlN240706	0.308	0.282	-0.017	0.003	-0.424**	-0.348*	-0.113	-0.113	0.480**	0.437**	-0.134	-0.299	-0.086	-0.008
FlP240706	-0.414*	-0.413*	-0.015	0.044	0.222	0.190	0.293	0.302	-0.292	-0.303	0.140	0.167	0.145	0.135
FlK240706	0.294	0.188	-0.167	-0.146	-0.438**	-0.380*	-0.025	-0.044	0.752	0.714**	-0.089	-0.298	0.177	0.239
FlCa240706	0.190	0.190	-0.439**	-0.314	-0.368*	-0.357*	0.313	0.269	0.480**	0.480**	-0.012	-0.127	0.431**	0.463**
FlMg240706	0.031	0.006	-0.225	-0.186	-0.236	-0.307	0.105	0.072	0.091	0.142	-0.098	-0.184	0.146	0.082
FlB240706	-0.149	-0.244	0.419*	0.377*	0.268	0.304	-0.493**	-0.481**	-0.276	-0.264	-0.303	-0.008	-0.437**	-0.383*
FlFe240706	-0.232	-0.309	0.205	0.279	-0.176	-0.160	-0.139	-0.175	0.318	0.268	-0.274	-0.199	-0.068	0.006
FlCu240706	-0.018	0.022	0.122	0.246	-0.131	-0.155	-0.129	-0.135	0.173	0.155	-0.073	0.014	0.073	0.099
FlZn240706	-0.386*	-0.358*	0.491**	0.503**	0.355*	0.408*	-0.333*	-0.284	-0.428**	-0.420*	-0.186	0.155	-0.384*	-0.326
FlMn240706	-0.308	-0.333*	0.536**	0.422*	0.320	0.258	-0.398*	-0.354*	-0.259	-0.213	-0.161	-0.014	-0.435**	-0.398
PlPd160107	0.321	0.301	-0.066	-0.001	-0.066	-0.063	-0.104	-0.077	0.191	0.192	-0.021	0.029	0.075	0.027

Table 2 (cont)

	SI20BH2O	SI40BH2O	SI20AT	SI40AT	SI20SBT	SI40SBT	SI20CTCe	SI40CTCe	SI20GSBe	SI40GSBe	CITp06	CIHm06	SITp06	PITp06
FIN240706	0.328	0.365*	-0.211	-0.204	-0.018	-0.034	-0.034	-0.051	0.182	0.164	0.244	-0.064	0.141	0.322
FIP240706	-0.233	-0.055	0.073	0.150	0.185	0.250	0.196	0.269	0.026	-0.011	0.203	-0.171	0.148	0.030
FIK240706	0.131	0.298	-0.118	-0.083	0.107	0.088	0.102	0.082	0.150	0.107	-0.158	0.244	0.082	0.109
FICa240706	-0.100	0.163	-0.311	-0.157	0.352*	0.332*	0.341*	0.324	0.389*	0.242	0.075	-0.082	0.096	0.014
FIMg240706	-0.224	-0.277	-0.080	-0.054	0.076	0.109	0.072	0.107	0.121	0.123	0.186	-0.217	-0.387*	-0.075
FIB240706	-0.185	-0.089	0.455**	0.385*	-0.507**	-0.515**	-0.490**	-0.494**	-0.566**	-0.483**	-0.409*	0.388*	-0.600**	-0.255
FIFe240706	0.128	0.354*	0.288	0.365*	-0.093	-0.119	-0.075	-0.091	-0.180	-0.242	-0.367*	0.481**	-0.051	-0.032
FICu240706	0.108	0.219	0.116	0.249	-0.151	-0.114	-0.147	-0.095	-0.094	-0.198	0.108	0.026	0.185	0.017
FIZn240706	-0.154	0.022	0.510**	0.505**	-0.386*	-0.345*	-0.361*	-0.309	-0.506**	-0.474**	-0.416*	0.393*	-0.221	-0.138
FIMn240706	-0.146	0.111	0.719**	0.693	-0.449**	-0.363*	-0.411*	-0.310	-0.683**	-0.592**	-0.464**	0.491**	-0.483**	-0.160
PIPd160107	0.078	-0.014	-0.301	-0.273	-0.112	-0.063	-0.138	-0.087	0.264	0.255	0.138	-0.088	-0.164	-0.297

Table 2 (cont)

	FIAr210606	FIPS210606	SPAD210606	FIN210606	FIP210606	FIK210606	FICa210606	FIMg210606	FIB210606	FIFe210606	FICu210606	FIZn210606	FIMn210606	FIAr240706
FIN240706	-0.228	0.187	0.379*	0.421*	-0.048	0.057	0.584**	0.094	-0.322	0.379*	-0.326	0.149	-0.281	0.012
FIP240706	0.347*	0.156	-0.215	-0.314	0.400*	-0.123	-0.331*	-0.217	0.077	-0.331*	0.316	-0.625**	-0.053	0.164
FIK240706	-0.040	-0.238	0.102	0.179	-0.182	0.248	0.540**	-0.059	-0.446**	0.634**	-0.442**	0.452**	-0.403*	-0.142
FICa240706	0.012	-0.290	0.211	0.358*	0.251	-0.186	0.421*	0.150	-0.498**	0.319	-0.571**	0.286	-0.585**	0.219
FIMg240706	-0.201	-0.095	-0.020	0.176	0.177	-0.528**	-0.147	0.450**	0.194	-0.329	-0.174	-0.319	-0.032	-0.074
FIB240706	-0.160	-0.008	-0.346*	-0.290	-0.241	-0.296	-0.674**	0.172	0.923**	-0.457**	0.598**	-0.497**	0.785**	-0.470**
FIFe240706	0.456**	-0.021	-0.113	-0.163	-0.180	-0.205	0.002	-0.550**	0.093	0.457**	0.157	-0.182	0.077	-0.003
FICu240706	0.350*	0.056	0.006	0.108	0.094	0.001	0.113	-0.323	-0.217	0.399*	-0.185	0.177	-0.270	0.265
FIZn240706	0.232	0.122	-0.383*	-0.443**	-0.231	-0.330*	-0.704**	-0.222	0.776**	-0.423*	0.674**	-0.605**	0.724**	-0.313
FIMn240706	-0.038	-0.127	-0.491**	-0.408*	-0.322	-0.330*	-0.713**	-0.122	0.792**	-0.326	0.637**	-0.591**	0.791**	-0.343*
PIPd160107	-0.083	0.197	0.509**	0.441**	0.181	-0.317	0.263	0.225	-0.152	0.125	-0.159	0.145	-0.315	0.368*

Table 2 (cont)

	FIPS240706	FIPA240706	SPAD240706	FIN240706	FIP240706	FIK240706	FICa240706	FIMg240706	FIB240706	FIFe240706	FICu240706	FIZn240706	FIMn240706	PIPd160107
FIN240706	0.075	0.169	0.085	1.000	-0.075	0.351*	0.142	-0.016	-0.303	0.180	0.039	-0.375*	-0.356*	0.166
FIP240706	0.179	0.096	-0.227	-0.075	1.000	-0.358*	-0.160	0.211	0.050	0.092	0.139	0.185	0.133	-0.007
FIK240706	-0.043	0.207	0.044	0.351*	-0.358*	1.000	0.512**	-0.143	-0.433**	0.294	0.279	-0.484**	-0.328	-0.018
FICa240706	0.263	0.173	0.247	0.142	-0.160	0.512**	1.000	0.300	-0.442**	0.292	0.303	-0.374*	-0.331*	0.209
FIMg240706	-0.199	-0.338*	0.299	-0.016	0.211	-0.143	0.300	1.000	0.250	0.037	-0.082	0.089	0.264	-0.010
FIB240706	-0.561**	-0.386*	0.090	-0.303	0.050	-0.433**	-0.442**	0.250	1.000	-0.029	-0.275	0.679**	0.770**	-0.161
FIFe240706	-0.014	-0.031	-0.141	0.180	0.092	0.294	0.292	0.037	-0.029	1.000	0.466**	0.289	0.186	0.026
FICu240706	0.293	0.159	-0.053	0.039	0.139	0.279	0.303	-0.082	-0.275	0.466**	1.000	-0.058	-0.159	0.324
FIZn240706	-0.414*	-0.365*	-0.203	-0.375*	0.185	-0.484**	-0.374*	0.089	0.679**	0.289	-0.058	1.000	0.778**	-0.271
FIMn240706	-0.381*	-0.205	-0.017	-0.356*	0.133	-0.328	-0.331*	0.264	0.770**	0.186	-0.159	0.778**	1.000	-0.285
PIPd160107	0.304	-0.045	0.340*	0.166	-0.007	-0.018	0.209	-0.010	-0.161	0.026	0.324	-0.271	-0.285	1.000

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 3- Pearson correlations for stations groups 2005 data.

	ClTp05	ClHm05	SlTp05	PlTp05	SPAD05	FlAr170605	FlPS170605	FlN170605	FlP170605	FlK170605	PLPD06	Sl20pHH2O	Sl40pHH2O	Sl20MO	Sl40MO
ClTp05	1.000	-0.963**	0.875**	0.824**	0.528	-0.556	-0.473	0.705*	-0.124	0.097	-0.638*	0.673*	0.658*	0.650*	0.605*
ClHm05	-0.963**	1.000	-0.863**	-0.880**	-0.585*	0.737**	0.644*	-0.797**	0.314	-0.221	0.605*	-0.541	-0.513	-0.678*	-0.631*
SlTp05	0.875	-0.863**	1.000	0.877**	0.367	-0.501	-0.414	0.645*	-0.155	0.368	-0.676*	0.643*	0.565	0.538	0.534
PlTp05	0.824	-0.880**	0.877**	1.000	0.466	-0.692*	-0.599*	0.740**	-0.221	0.464	-0.494	0.478	0.398	0.461	0.445
SPAD05	0.528	-0.585*	0.367	0.466	1.000	-0.532	-0.349	0.584*	-0.550	-0.022	0.211	0.099	0.130	0.700*	0.724**
FlAr170605	-0.556	0.737**	-0.501	-0.692*	-0.532	1.000	0.905**	-0.740**	0.582*	-0.352	0.263	0.089	0.135	-0.531	-0.406
FlPS170605	-0.473	0.644*	-0.414	-0.599*	-0.349	0.905**	1.000	-0.564	0.424	-0.300	0.306	-0.025	0.046	-0.349	-0.228
FlN170605	0.705*	-0.797**	0.645*	0.740**	0.584*	-0.740**	-0.564	1.000	-0.538	0.323	-0.245	0.245	0.228	0.646*	0.596*
FlP170605	-0.124	0.314	-0.155	-0.221	-0.550	0.582*	0.424	-0.538	1.000	-0.310	-0.097	0.299	0.324	-0.579*	-0.568
FlK170605	0.097	-0.221	0.368	0.464	-0.022	-0.352	-0.300	0.323	-0.310	1.000	-0.223	-0.131	-0.281	0.249	0.322
PLPD06	-0.638*	0.605*	-0.676*	-0.494	0.211	0.263	0.306	-0.245	-0.097	-0.223	1.000	-0.539	-0.503	-0.293	-0.230
Sl20pHH2O	0.673*	-0.541	0.643*	0.478	0.099	0.089	-0.025	0.245	0.299	-0.131	-0.539	1.000	0.976**	0.095	0.181
Sl40pHH2O	0.658*	-0.513	0.565	0.398	0.130	0.135	0.046	0.228	0.324	-0.281	-0.503	0.976**	1.000	0.117	0.192
Sl20MO	0.650*	-0.678*	0.538	0.461	0.700*	-0.531	-0.349	0.646*	-0.579*	0.249	-0.293	0.095	0.117	1.000	0.956**
Sl40MO	0.605*	-0.631*	0.534	0.445	0.724**	-0.406	-0.228	0.596*	-0.568	0.322	-0.230	0.181	0.192	0.956**	1.000
Sl20P2O5	-0.497	0.359	-0.449	-0.207	0.036	-0.189	-0.007	0.026	-0.292	0.355	0.513	-0.894**	-0.869**	0.047	-0.001
Sl40P2O5	-0.424	0.281	-0.414	-0.128	0.153	-0.269	-0.113	0.143	-0.338	0.345	0.580*	-0.840**	-0.823**	0.097	0.042
Sl20K2O5	-0.729**	0.768**	-0.741**	-0.838**	-0.169	0.611*	0.611*	-0.518	0.119	-0.232	0.627*	-0.503	-0.409	-0.179	-0.098
Sl40K2O5	-0.720**	0.739**	-0.676*	-0.773**	-0.108	0.527	0.533	-0.448	-0.037	-0.056	0.652*	-0.570	-0.520	-0.067	0.007
Sl20Ca	0.161	0.051	0.152	-0.016	-0.323	0.575	0.388	-0.255	0.782**	-0.339	-0.244	0.698*	0.734**	-0.290	-0.235
Sl40Ca	0.118	0.081	0.146	-0.044	-0.317	0.617*	0.441	-0.276	0.730**	-0.302	-0.235	0.695*	0.735**	-0.279	-0.190
Sl20Mg	0.744**	-0.840**	0.785**	0.884**	0.485	-0.860**	-0.782**	0.798**	-0.346	0.303	-0.397	0.277	0.217	0.470	0.360
Sl40Mg	0.751**	-0.855**	0.778**	0.894**	0.533	-0.868**	-0.777**	0.789**	-0.361	0.294	-0.397	0.269	0.225	0.501	0.404
Sl20K	-0.084	0.229	-0.159	-0.361	-0.079	0.559	0.479	-0.132	0.225	-0.144	0.058	0.195	0.279	0.222	0.292
Sl40K	-0.488	0.543	-0.502	-0.659*	-0.081	0.558	0.492	-0.265	-0.044	-0.190	0.434	-0.206	-0.121	0.061	0.137
Sl20Na	0.344	-0.164	0.326	0.052	-0.172	0.340	0.235	-0.008	0.508	-0.473	-0.411	0.698*	0.776**	-0.029	-0.046
Sl40Na	0.357	-0.194	0.407	0.152	-0.247	0.275	0.187	-0.016	0.536	-0.341	-0.517	0.657*	0.718**	-0.048	-0.082
Sl20BH2O	0.357	-0.441	0.390	0.595*	0.269	-0.521	-0.252	0.594*	-0.302	0.702*	-0.185	-0.199	-0.241	0.482	0.454
Sl40BH2O	0.110	-0.245	0.296	0.546	-0.113	-0.482	-0.420	0.416	-0.112	0.842**	-0.175	-0.173	-0.294	0.010	0.005

Table 3 (cont)

	SI20P2O5	SI40P2O5	SI20K2O5	SI40K2O5	SI20Ca	SI40Ca	SI20Mg	SI40Mg	SI20K	SI40K	SI20Na	SI40Na	SI20BH2O	SI40BH2O
ClTp05	-0.497	-0.424	-0.729**	-0.720**	0.161	0.118	0.744**	0.751**	-0.084	-0.488	0.344	0.357	0.357	0.110
ClHm05	0.359	0.281	0.768**	0.739**	0.051	0.081	-0.840**	-0.855**	0.229	0.543	-0.164	-0.194	-0.441	-0.245
SlTp05	-0.449	-0.414	-0.741**	-0.676*	0.152	0.146	0.785**	0.778**	-0.159	-0.502	0.326	0.407	0.390	0.296
PlTp05	-0.207	-0.128	-0.838**	-0.773**	-0.016	-0.044	0.884**	0.894**	-0.361	-0.659	0.052	0.152	0.595*	0.546
SPAD05	0.036	0.153	-0.169	-0.108	-0.323	-0.317	0.485	0.533	-0.079	-0.081	-0.172	-0.247	0.269	-0.113
FlAr170605	-0.189	-0.269	0.611*	0.527	0.575	0.617*	-0.860**	-0.868**	0.559	0.558	0.340	0.275	-0.521	-0.482
FlPS170605	-0.007	-0.113	0.611*	0.533	0.388	0.441	-0.782**	-0.777**	0.479	0.492	0.235	0.187	-0.252	-0.420
FlN170605	0.026	0.143	-0.518	-0.448	-0.255	-0.276	0.798**	0.789**	-0.132	-0.265	-0.008	-0.016	0.594*	0.416
FlP170605	-0.292	-0.338	0.119	-0.037	0.782**	0.730**	-0.346	-0.361	0.225	-0.044	0.508	0.536	-0.302	-0.112
FlK170605	0.355	0.345	-0.232	-0.056	-0.339	-0.302	0.303	0.294	-0.144	-0.190	-0.473	-0.341	0.702*	0.842**
PLPD06	0.513	0.580*	0.627*	0.652*	-0.244	-0.235	-0.397	-0.397	0.058	0.434	-0.411	-0.517	-0.185	-0.175
SI20pHH2O	-0.894**	-0.840**	-0.503	-0.570	0.698*	0.695*	0.277	0.269	0.195	-0.206	0.698*	0.657*	-0.199	-0.173
SI40pHH2O	-0.869**	-0.823**	-0.409	-0.520	0.734**	0.735**	0.217	0.225	0.279	-0.121	0.776**	0.718**	-0.241	-0.294
SI20MO	0.047	0.097	-0.179	-0.067	-0.290	-0.279	0.470	0.501	0.222	0.061	-0.029	-0.048	0.482	0.010
SI40MO	-0.001	0.042	-0.098	0.007	-0.235	-0.190	0.360	0.404	0.292	0.137	-0.046	-0.082	0.454	0.005
SI20P2O5	1.000	0.974**	0.435	0.500	-0.614*	-0.600*	-0.097	-0.071	-0.093	0.192	-0.653*	-0.587*	0.512	0.442
SI40P2O5	0.974**	1.000	0.380	0.466	-0.602*	-0.605*	0.003	0.019	-0.078	0.198	-0.652*	-0.613*	0.516	0.458
SI20K2O5	0.435	0.380	1.000	0.958**	0.008	0.074	-0.773**	-0.750	0.586*	0.848**	-0.072	-0.168	-0.324	-0.390
SI40K2O5	0.500	0.466	0.958**	1.000	-0.122	-0.061	-0.702*	-0.697*	0.562	0.853**	-0.213	-0.302	-0.224	-0.293
SI20Ca	-0.614*	-0.602*	0.008	-0.122	1.000	0.986**	-0.170	-0.179	0.533	0.174	0.855**	0.831**	-0.401	-0.291
SI40Ca	-0.600	-0.605*	0.074	-0.061	0.986**	1.000	-0.220	-0.215	0.576	0.246	0.853**	0.830**	-0.416	-0.308
SI20Mg	-0.097	0.003	-0.773**	-0.702*	-0.170	-0.220	1.000	0.990**	-0.444	-0.603*	0.057	0.140	0.455	0.457
SI40Mg	-0.071	0.019	-0.750**	-0.697*	-0.179	-0.215	0.990**	1.000	-0.431	-0.593*	0.054	0.143	0.472	0.440
SI20K	-0.093	-0.078	0.586*	0.562	0.533	0.576	-0.444	-0.431	1.000	0.841**	0.494	0.389	-0.200	-0.378
SI40K	0.192	0.198	0.848**	0.853**	0.174	0.246	-0.603*	-0.593*	0.841**	1.000	0.179	0.049	-0.353	-0.444
SI20Na	-0.653*	-0.652*	-0.072	-0.213	0.855**	0.853**	0.057	0.054	0.494	0.179	1.000	0.970**	-0.421	-0.433
SI40Na	-0.587*	-0.613*	-0.168	-0.302	0.831**	0.830**	0.140	0.143	0.389	0.049	0.970**	1.000	-0.301	-0.280
SI20BH2O	0.512	0.516	-0.324	-0.224	-0.401	-0.416	0.455	0.472	-0.200	-0.353	-0.421	-0.301	1.000	0.769**
SI40BH2O	0.442	0.458	-0.390	-0.293	-0.291	-0.308	0.457	0.440	-0.378	-0.444	-0.433	-0.280	0.769**	1.000

Table 3 (cont)

	SI20AT	SI40AT	SI20SBT	SI40SBT	SI20CTCe	SI40CTCe	SI20GSBe	BP210905	ProPla05	BAP210905	BAT210905	BpH210905	BCACUC05	BcpH05	BcAcTt05
ClTp05	-0.609*	-0.587*	0.272	0.277	0.242	0.242	0.603*	0.340	-0.794**	0.634*	0.593*	-0.364	0.367	-0.377	-0.438
ClHm05	0.505	0.489	-0.086	-0.101	-0.057	-0.068	-0.458	-0.488	0.686*	-0.598*	-0.734**	0.480	-0.262	0.360	0.355
SlTp05	-0.525	-0.462	0.276	0.304	0.251	0.277	0.580*	0.580*	-0.529	0.837**	0.709**	-0.367	0.554	-0.325	-0.259
PlTp05	-0.295	-0.184	0.107	0.138	0.092	0.129	0.364	0.628*	-0.354	0.768**	0.906**	-0.628*	0.415	-0.399	-0.161
SPAD05	-0.221	-0.234	-0.246	-0.214	-0.267	-0.237	0.135	0.097	-0.260	0.039	0.306	-0.082	0.053	-0.002	-0.020
FlAr170605	-0.062	-0.069	0.427	0.427	0.436	0.432	0.163	-0.594*	0.186	-0.325	-0.776**	0.531	0.108	0.105	-0.014
FlPS170605	0.067	-0.028	0.221	0.249	0.232	0.252	0.039	-0.660*	0.133	-0.326	-0.722**	0.455	0.060	0.097	-0.069
FlN170605	-0.231	-0.233	-0.094	-0.103	-0.111	-0.123	0.199	0.390	-0.367	0.542	0.679*	-0.388	0.267	-0.206	-0.150
FlP170605	0.019	0.083	0.684*	0.665*	0.707*	0.690*	0.276	-0.223	-0.051	0.042	-0.295	0.011	0.038	-0.237	0.004
FlK170605	0.125	0.262	-0.298	-0.257	-0.300	-0.243	-0.234	0.397	0.274	0.396	0.516	-0.307	0.072	0.089	-0.203
PLPD06	0.476	0.494	-0.296	-0.319	-0.275	-0.291	-0.426	-0.413	0.683*	-0.519	-0.404	0.282	-0.177	0.240	0.580*
SI20pHH2O	-0.863**	-0.778**	0.776**	0.765**	0.746**	0.728**	0.977**	0.215	-0.626*	0.601*	0.277	-0.186	0.640*	-0.567	-0.242
SI40pHH2O	-0.832**	-0.795**	0.796**	0.797**	0.768**	0.759**	0.963**	0.144	-0.692*	0.475	0.182	-0.126	0.544	-0.520	-0.273
SI20MO	-0.317	-0.360	-0.225	-0.184	-0.252	-0.215	0.093	0.088	-0.535	0.164	0.218	0.152	0.020	0.326	-0.572
SI40MO	-0.406	-0.436	-0.179	-0.120	-0.211	-0.155	0.183	0.075	-0.479	0.136	0.197	0.133	0.052	0.249	-0.562
SI20P2O5	0.878**	0.828**	-0.673*	-0.631*	-0.638*	-0.586*	-0.910**	-0.092	0.605*	-0.416	-0.056	0.030	-0.562	0.519	0.154
SI40P2O5	0.815**	0.810**	-0.631*	-0.609*	-0.599*	-0.564	-0.845**	-0.077	0.603*	-0.345	0.006	0.028	-0.469	0.501	0.199
SI20K2O5	0.356	0.266	-0.103	-0.081	-0.083	-0.064	-0.380	-0.536	0.421	-0.741**	-0.817	0.676*	-0.441	0.579*	0.111
SI40K2O5	0.350	0.309	-0.219	-0.209	-0.203	-0.192	-0.440	-0.523	0.503	-0.645	-0.768	0.740**	-0.336	0.686*	0.095
SI20Ca	-0.435	-0.334	0.974**	0.970**	0.977**	0.971**	0.715**	-0.059	-0.279	0.292	-0.201	0.195	0.449	-0.189	-0.114
SI40Ca	-0.447	-0.362	0.957**	0.974**	0.959**	0.972**	0.717**	-0.023	-0.246	0.246	-0.216	0.217	0.427	-0.160	-0.112
SI20Mg	-0.139	-0.068	0.000	0.000	-0.009	-0.006	0.216	0.717**	-0.273	0.705*	0.875	-0.515	0.328	-0.240	0.074
SI40Mg	-0.123	-0.067	-0.017	0.004	-0.025	-0.001	0.200	0.741**	-0.289	0.641*	0.883	-0.534	0.257	-0.223	0.047
SI20K	-0.293	-0.272	0.485	0.502	0.481	0.495	0.277	-0.398	-0.173	-0.182	-0.594*	0.736**	0.089	0.501	-0.429
SI40K	-0.005	-0.032	0.127	0.138	0.131	0.138	-0.069	-0.420	0.221	-0.485	-0.726**	0.833**	-0.101	0.659*	-0.067
SI20Na	-0.494	-0.507	0.886**	0.891**	0.883**	0.875**	0.744**	0.110	-0.497	0.334	-0.123	0.248	0.439	-0.106	-0.119
SI40Na	-0.388	-0.390	0.856**	0.881**	0.858**	0.873**	0.670*	0.244	-0.449	0.419	0.001	0.146	0.427	-0.097	-0.126
SI20BH2O	0.288	0.299	-0.398	-0.349	-0.392	-0.334	-0.334	0.149	-0.056	0.312	0.531	-0.439	-0.085	0.010	-0.382
SI40BH2O	0.362	0.486	-0.238	-0.223	-0.222	-0.191	-0.316	0.458	0.303	0.452	0.685*	-0.613*	-0.002	-0.151	-0.002

Table 3 (cont)

	BcFenTt05	BcAntTt05	VAlcool05	VMVol05	VExSeP05	VAcRe05	VExSeT05	VpH05	VAcVl05	VAcFx05	VAcTt05	VFenTt05	VCOR05	VTon05
ClTp05	-0.415	-0.370	0.555	-0.666*	0.150	0.565	0.205	-0.405	-0.428	0.651*	0.612*	-0.087	0.186	-0.254
ClHm05	0.558	0.311	-0.497	0.587*	-0.124	-0.548	-0.180	0.379	0.411	-0.578*	-0.536	0.056	-0.049	0.150
SlTp05	-0.289	-0.299	0.768**	-0.621*	0.558	0.782**	0.599*	-0.075	-0.628*	0.655*	0.564	0.345	0.479	-0.352
PlTp05	-0.519	-0.303	0.659*	-0.633*	0.352	0.688*	0.402	-0.254	-0.688*	0.594*	0.480	0.180	0.267	-0.352
SPAD05	-0.671*	0.063	-0.030	-0.003	-0.103	0.209	-0.067	-0.191	0.078	-0.149	-0.145	-0.153	-0.165	-0.029
FlAr170605	0.868	0.047	-0.203	0.229	0.016	-0.374	-0.032	0.148	0.097	-0.168	-0.161	0.010	0.381	-0.271
FlPS170605	0.705*	0.050	-0.224	0.269	0.051	-0.416	-0.006	0.036	0.046	-0.226	-0.242	0.005	0.383	-0.362
FlN170605	-0.742**	-0.380	0.459	-0.434	0.218	0.512	0.260	-0.170	-0.234	0.266	0.232	-0.031	0.047	-0.268
FlP170605	0.573	-0.105	0.060	-0.229	-0.103	-0.100	-0.105	-0.148	-0.235	0.323	0.296	0.097	0.288	-0.330
FlK170605	-0.299	-0.405	0.336	-0.137	0.409	0.292	0.404	0.249	-0.498	0.151	0.034	0.519	0.334	-0.343
PLPD06	-0.094	0.419	-0.471	0.498	-0.234	-0.357	-0.255	0.225	0.448	-0.845**	-0.825**	-0.059	-0.189	0.049
Sl20pHH2O	0.294	-0.236	0.613*	-0.690*	0.263	0.490	0.297	-0.280	-0.540	0.626*	0.556	0.033	0.544	-0.471
Sl40pHH2O	0.307	-0.248	0.480	-0.591*	0.156	0.385	0.188	-0.347	-0.430	0.628*	0.588*	-0.082	0.439	-0.448
Sl20MO	-0.622*	-0.453	0.091	-0.022	0.086	0.283	0.112	-0.024	0.117	0.218	0.275	-0.120	-0.057	-0.037
Sl40MO	-0.497	-0.434	0.072	0.003	0.105	0.230	0.123	-0.032	0.007	0.163	0.184	-0.024	0.070	-0.196
Sl20P2O5	-0.454	-0.059	-0.477	0.582	-0.156	-0.348	-0.184	0.223	0.304	-0.445	-0.419	0.071	-0.379	0.095
Sl40P2O5	-0.573	-0.092	-0.407	0.498	-0.155	-0.246	-0.170	0.233	0.325	-0.465	-0.435	0.022	-0.374	0.065
Sl20K2O5	0.295	0.065	-0.687*	0.780**	-0.244	-0.590*	-0.293	0.379	0.635*	-0.590*	-0.489	0.038	-0.142	0.027
Sl40K2O5	0.181	0.033	-0.581*	0.755**	-0.106	-0.464	-0.153	0.529	0.635*	-0.659*	-0.566	0.112	-0.059	0.044
Sl20Ca	0.597*	-0.310	0.323	-0.325	0.201	0.250	0.212	-0.010	-0.271	0.537	0.528	0.084	0.537	-0.512
Sl40Ca	0.654*	-0.297	0.277	-0.233	0.233	0.216	0.237	0.030	-0.280	0.515	0.503	0.145	0.559	-0.539
Sl20Mg	-0.701*	-0.143	0.596*	-0.489	0.349	0.748**	0.407	-0.055	-0.368	0.441	0.395	0.188	0.037	-0.040
Sl40Mg	-0.704*	-0.147	0.516	-0.419	0.298	0.695*	0.354	-0.100	-0.368	0.463	0.420	0.166	-0.017	-0.042
Sl20K	0.307	-0.592*	-0.142	0.250	0.057	-0.071	0.042	0.291	0.325	0.118	0.220	-0.073	0.282	-0.391
Sl40K	0.268	-0.218	-0.417	0.619*	-0.007	-0.274	-0.040	0.508	0.626*	-0.357	-0.230	-0.033	0.040	-0.081
Sl20Na	0.428	-0.263	0.349	-0.247	0.295	0.373	0.311	0.042	-0.091	0.599*	0.647	0.051	0.384	-0.298
Sl40Na	0.415	-0.293	0.411	-0.259	0.387	0.437	0.402	0.065	-0.220	0.715**	0.742**	0.161	0.416	-0.309
Sl20BH2O	-0.612*	-0.515	0.206	-0.217	0.121	0.146	0.127	-0.220	-0.423	0.243	0.154	0.073	0.076	-0.391
Sl40BH2O	-0.423	-0.361	0.361	-0.304	0.250	0.271	0.259	0.015	-0.567	0.229	0.100	0.381	0.162	-0.344

Table 3 (cont)

	VCinza05	VAlc05	VPO405	VAnt05	VSO2L05	VSO2T05	PrInCor05	PrAroma05	PrCorpo05	PrAdst05	PrFrVer05	PrFloral05	PrFinal05
ClTp05	-0.018	-0.100	-0.117	-0.679	-0.321	0.064	0.499	0.268	0.316	0.170	-0.175	-0.659	0.224
ClHm05	0.078	0.063	0.123	0.582	0.312	0.045	-0.415	-0.213	-0.192	-0.132	0.167	0.725	-0.113
SlTp05	0.303	0.278	-0.065	-0.442	-0.365	-0.224	0.611	0.480	0.508	0.422	0.054	-0.802**	0.362
PlTp05	0.153	0.119	0.118	-0.407	-0.461	-0.317	0.500	0.249	0.286	0.237	-0.147	-0.716**	0.289
SPAD05	-0.274	-0.226	-0.379	-0.329	-0.126	-0.092	-0.236	-0.414	-0.117	-0.149	-0.665	-0.558	-0.284
FlAr170605	0.109	-0.082	0.110	0.182	0.093	0.216	-0.151	0.072	0.282	0.006	0.272	0.492	0.236
FlPS170605	-0.004	-0.136	-0.067	0.181	-0.044	0.148	-0.266	0.057	0.111	0.039	0.223	0.335	0.074
FlN170605	0.060	0.167	-0.337	-0.647	-0.590	-0.459	0.298	0.175	0.111	0.435	-0.140	-0.662	0.139
FlP170605	0.159	-0.165	0.569	-0.073	0.198	0.258	0.331	0.127	0.252	-0.086	0.002	0.613	0.392
FlK170605	0.317	0.414	0.355	0.203	-0.521	-0.632	0.244	0.485	0.118	0.437	0.406	-0.536	0.240
PLPD06	-0.076	-0.090	-0.169	0.269	0.156	-0.214	-0.644	-0.712**	-0.333	-0.202	-0.528	0.427	-0.318
Sl20pHH2O	0.149	-0.069	0.006	-0.616	-0.210	0.107	0.486	0.314	0.752**	0.210	0.049	-0.359	0.536
Sl40pHH2O	0.040	-0.162	-0.029	-0.672	-0.187	0.182	0.436	0.270	0.686	0.134	0.011	-0.290	0.494
Sl20MO	-0.074	0.041	-0.309	-0.424	-0.388	-0.071	0.167	0.241	0.027	0.219	-0.083	-0.746**	-0.024
Sl40MO	-0.113	-0.006	-0.268	-0.377	-0.430	-0.148	0.063	0.236	0.115	0.212	-0.039	-0.811**	0.001
Sl20P2O5	-0.072	0.125	0.145	0.397	-0.151	-0.418	-0.315	-0.157	-0.622*	-0.015	-0.056	0.172	-0.301
Sl40P2O5	-0.019	0.143	0.108	0.262	-0.214	-0.480	-0.278	-0.230	-0.563	0.030	-0.189	0.142	-0.240
Sl20K2O5	-0.079	-0.009	-0.026	0.279	0.188	-0.053	-0.461	-0.162	-0.200	-0.058	0.059	0.470	-0.154
Sl40K2O5	0.064	0.138	-0.082	0.326	0.100	-0.154	-0.433	-0.123	-0.161	0.070	0.071	0.332	-0.133
Sl20Ca	0.348	0.040	0.339	-0.445	-0.099	0.109	0.546	0.339	0.725**	0.209	0.094	0.213	0.728**
Sl40Ca	0.323	0.060	0.331	-0.389	-0.111	0.058	0.491	0.372	0.747**	0.215	0.170	0.154	0.719**
Sl20Mg	0.233	0.297	-0.086	-0.410	-0.252	-0.339	0.499	0.133	0.154	0.272	-0.261	-0.592*	0.154
Sl40Mg	0.150	0.236	-0.045	-0.390	-0.246	-0.324	0.458	0.114	0.116	0.197	-0.272	-0.615*	0.123
Sl20K	0.222	0.125	0.054	-0.410	-0.344	-0.070	0.220	0.392	0.470	0.365	0.253	0.036	0.529
Sl40K	0.145	0.204	-0.156	-0.064	-0.112	-0.161	-0.175	0.091	0.189	0.245	0.199	0.184	0.192
Sl20Na	0.315	0.170	-0.011	-0.578*	-0.052	0.129	0.598*	0.416	0.679*	0.302	0.138	0.020	0.606*
Sl40Na	0.377	0.250	0.121	-0.478	-0.078	0.076	0.699*	0.523	0.668*	0.322	0.220	-0.024	0.644*
Sl20BH2O	-0.013	0.044	0.186	-0.114	-0.670*	-0.429	0.191	0.299	-0.218	0.265	0.071	-0.480	0.053
Sl40BH2O	0.253	0.305	0.457	0.076	-0.497	-0.638*	0.320	0.329	-0.051	0.342	0.214	-0.253	0.232

Table 3 (cont)

	ClTp05	ClHm05	SlTp05	PlTp05	SPAD05	FlAr170605	FlPS170605	FlN170605	FlP170605	FlK170605	PLPD06	Sl20pHH2O	Sl40pHH2O	Sl20MO	Sl40MO
Sl20AT	-0.609*	0.505	-0.525	-0.295	-0.221	-0.062	0.067	-0.231	0.019	0.125	0.476	-0.863**	-0.832**	-0.317	-0.406
Sl40AT	-0.587*	0.489	-0.462	-0.184	-0.234	-0.069	-0.028	-0.233	0.083	0.262	0.494	-0.778**	-0.795**	-0.360	-0.436
Sl20SBT	0.272	-0.086	0.276	0.107	-0.246	0.427	0.221	-0.094	0.684*	-0.298	-0.296	0.776**	0.796**	-0.225	-0.179
Sl40SBT	0.277	-0.101	0.304	0.138	-0.214	0.427	0.249	-0.103	0.665*	-0.257	-0.319	0.765**	0.797**	-0.184	-0.120
Sl20CTCe	0.242	-0.057	0.251	0.092	-0.267	0.436	0.232	-0.111	0.707*	-0.300	-0.275	0.746**	0.768**	-0.252	-0.211
Sl40CTCe	0.242	-0.068	0.277	0.129	-0.237	0.432	0.252	-0.123	0.690*	-0.243	-0.291	0.728**	0.759**	-0.215	-0.155
Sl20GSBe	0.603*	-0.458	0.580*	0.364	0.135	0.163	0.039	0.199	0.276	-0.234	-0.426	0.977**	0.963**	0.093	0.183
BP210905	0.340	-0.488	0.580*	0.628*	0.097	-0.594*	-0.660*	0.390	-0.223	0.397	-0.413	0.215	0.144	0.088	0.075
ProPla05	-0.794**	0.686*	-0.529	-0.354	-0.260	0.186	0.133	-0.367	-0.051	0.274	0.683*	-0.626*	-0.692	-0.535	-0.479
BAP210905	0.634*	-0.598*	0.837**	0.768**	0.039	-0.325	-0.326	0.542	0.042	0.396	-0.519	0.601*	0.475	0.164	0.136
BAT210905	0.593*	-0.734**	0.709**	0.906**	0.306	-0.776**	-0.722**	0.679*	-0.295	0.516	-0.404	0.277	0.182	0.218	0.197
BpH210905	-0.364	0.480	-0.367	-0.628*	-0.082	0.531	0.455	-0.388	0.011	-0.307	0.282	-0.186	-0.126	0.152	0.133
BCACUC05	0.367	-0.262	0.554	0.415	0.053	0.108	0.060	0.267	0.038	0.072	-0.177	0.640*	0.544	0.020	0.052
BcpH05	-0.377	0.360	-0.325	-0.399	-0.002	0.105	0.097	-0.206	-0.237	0.089	0.240	-0.567	-0.520	0.326	0.249
BcAcTt05	-0.438	0.355	-0.259	-0.161	-0.020	-0.014	-0.069	-0.150	0.004	-0.203	0.580*	-0.242	-0.273	-0.572	-0.562
BcFenTt05	-0.415	0.558	-0.289	-0.519	-0.671	0.868**	0.705*	-0.742**	0.573	-0.299	-0.094	0.294	0.307	-0.622*	-0.497
BcAntTt05	-0.370	0.311	-0.299	-0.303	0.063	0.047	0.050	-0.380	-0.105	-0.405	0.419	-0.236	-0.248	-0.453	-0.434
VAlcool05	0.555	-0.497	0.768	0.659*	-0.030	-0.203	-0.224	0.459	0.060	0.336	-0.471	0.613	0.480	0.091	0.072
VMVol05	-0.666	0.587*	-0.621*	-0.633*	-0.003	0.229	0.269	-0.434	-0.229	-0.137	0.498	-0.690*	-0.591*	-0.022	0.003
VExSeP05	0.150	-0.124	0.558	0.352	-0.103	0.016	0.051	0.218	-0.103	0.409	-0.234	0.263	0.156	0.086	0.105
VAcRe05	0.565	-0.548	0.782	0.688	0.209	-0.374	-0.416	0.512	-0.100	0.292	-0.357	0.490	0.385	0.283	0.230
VExSeT05	0.205	-0.180	0.599*	0.402	-0.067	-0.032	-0.006	0.260	-0.105	0.404	-0.255	0.297	0.188	0.112	0.123
VpH05	-0.405	0.379	-0.075	-0.254	-0.191	0.148	0.036	-0.170	-0.148	0.249	0.225	-0.280	-0.347	-0.024	-0.032
VAcVl05	-0.428	0.411	-0.628*	-0.688*	0.078	0.097	0.046	-0.234	-0.235	-0.498	0.448	-0.540	-0.430	0.117	0.007
VAcFx05	0.651*	-0.578*	0.655*	0.594*	-0.149	-0.168	-0.226	0.266	0.323	0.151	-0.845**	0.626*	0.628*	0.218	0.163
VAcTt05	0.612*	-0.536	0.564	0.480	-0.145	-0.161	-0.242	0.232	0.296	0.034	-0.825**	0.556	0.588*	0.275	0.184
VFenTt05	-0.087	0.056	0.345	0.180	-0.153	0.010	0.005	-0.031	0.097	0.519	-0.059	0.033	-0.082	-0.120	-0.024
VCOR05	0.186	-0.049	0.479	0.267	-0.165	0.381	0.383	0.047	0.288	0.334	-0.189	0.544	0.439	-0.057	0.070
VTon05	-0.254	0.150	-0.352	-0.352	-0.029	-0.271	-0.362	-0.268	-0.330	-0.343	0.049	-0.471	-0.448	-0.037	-0.196

Table 3 (cont)

	SI20P2O5	SI40P2O5	SI20K2O5	SI40K2O5	SI20Ca	SI40Ca	SI20Mg	SI40Mg	SI20K	SI40K	SI20Na	SI40Na	SI20BH2O	SI40BH2O
SI20AT	0.878**	0.815**	0.356	0.350	-0.435	-0.447	-0.139	-0.123	-0.293	-0.005	-0.494	-0.388	0.288	0.362
SI40AT	0.828**	0.810**	0.266	0.309	-0.334	-0.362	-0.068	-0.067	-0.272	-0.032	-0.507	-0.390	0.299	0.486
SI20SBT	-0.673*	-0.631*	-0.103	-0.219	0.974**	0.957**	0.000	-0.017	0.485	0.127	0.886**	0.856**	-0.398	-0.238
SI40SBT	-0.631*	-0.609*	-0.081	-0.209	0.970**	0.974**	0.000	0.004	0.502	0.138	0.891**	0.881**	-0.349	-0.223
SI20CTCe	-0.638*	-0.599*	-0.083	-0.203	0.977**	0.959**	-0.009	-0.025	0.481	0.131	0.883**	0.858**	-0.392	-0.222
SI40CTCe	-0.586*	-0.564	-0.064	-0.192	0.971**	0.972**	-0.006	-0.001	0.495	0.138	0.875**	0.873**	-0.334	-0.191
SI20GSBe	-0.910	-0.845	-0.380	-0.440	0.715**	0.717**	0.216	0.200	0.277	-0.069	0.744**	0.670*	-0.334	-0.316
BP210905	-0.092	-0.077	-0.536	-0.523	-0.059	-0.023	0.717**	0.741**	-0.398	-0.420	0.110	0.244	0.149	0.458
ProPla05	0.605*	0.603*	0.421	0.503	-0.279	-0.246	-0.273	-0.289	-0.173	0.221	-0.497	-0.449	-0.056	0.303
BAP210905	-0.416	-0.345	-0.741**	-0.645*	0.292	0.246	0.705	0.641*	-0.182	-0.485	0.334	0.419	0.312	0.452
BAT210905	-0.056	0.006	-0.817**	-0.768**	-0.201	-0.216	0.875**	0.883**	-0.594	-0.726**	-0.123	0.001	0.531	0.685*
BpH210905	0.030	0.028	0.676*	0.740	0.195	0.217	-0.515	-0.534	0.736**	0.833**	0.248	0.146	-0.439	-0.613*
BCACUC05	-0.562	-0.469	-0.441	-0.336	0.449	0.427	0.328	0.257	0.089	-0.101	0.439	0.427	-0.085	-0.002
BcpH05	0.519	0.501	0.579*	0.686*	-0.189	-0.160	-0.240	-0.223	0.501	0.659*	-0.106	-0.097	0.010	-0.151
BcAcTt05	0.154	0.199	0.111	0.095	-0.114	-0.112	0.074	0.047	-0.429	-0.067	-0.119	-0.126	-0.382	-0.002
BcFenTt05	-0.454	-0.573	0.295	0.181	0.597	0.654	-0.701*	-0.704*	0.307	0.268	0.428	0.415	-0.612*	-0.423
BcAntTt05	-0.059	-0.092	0.065	0.033	-0.310	-0.297	-0.143	-0.147	-0.592	-0.218	-0.263	-0.293	-0.515	-0.361
VAlcool05	-0.477	-0.407	-0.687*	-0.581	0.323	0.277	0.596	0.516	-0.142	-0.417	0.349	0.411	0.206	0.361
VMVol05	0.582*	0.498	0.780**	0.755**	-0.325	-0.233	-0.489	-0.419	0.250	0.619*	-0.247	-0.259	-0.217	-0.304
VExSeP05	-0.156	-0.155	-0.244	-0.106	0.201	0.233	0.349	0.298	0.057	-0.007	0.295	0.387	0.121	0.250
VAcRe05	-0.348	-0.246	-0.590*	-0.464	0.250	0.216	0.748**	0.695*	-0.071	-0.274	0.373	0.437	0.146	0.271
VExSeT05	-0.184	-0.170	-0.293	-0.153	0.212	0.237	0.407	0.354	0.042	-0.040	0.311	0.402	0.127	0.259
VpH05	0.223	0.233	0.379	0.529	-0.010	0.030	-0.055	-0.100	0.291	0.508	0.042	0.065	-0.220	0.015
VAcVl05	0.304	0.325	0.635*	0.635*	-0.271	-0.280	-0.368	-0.368	0.325	0.626*	-0.091	-0.220	-0.423	-0.567
VAcFx05	-0.445	-0.465	-0.590*	-0.659*	0.537	0.515	0.441	0.463	0.118	-0.357	0.599*	0.715**	0.243	0.229
VAcTt05	-0.419	-0.435	-0.489	-0.566	0.528	0.503	0.395	0.420	0.220	-0.230	0.647*	0.742**	0.154	0.100
VFenTt05	0.071	0.022	0.038	0.112	0.084	0.145	0.188	0.166	-0.073	-0.033	0.051	0.161	0.073	0.381
VCOR05	-0.379	-0.374	-0.142	-0.059	0.537	0.559	0.037	-0.017	0.282	0.040	0.384	0.416	0.076	0.162
VTon05	0.095	0.065	0.027	0.044	-0.512	-0.539	-0.040	-0.042	-0.391	-0.081	-0.298	-0.309	-0.391	-0.344

Table 3 (cont)

	SI20AT	SI40AT	SI20SBT	SI40SBT	SI20CTCe	SI40CTCe	SI20GSBe	BP210905	ProPla05	BAP210905	BAT210905	BpH210905	BCACUC05	BcpH05	BcAcTt05
SI20AT	1.000	0.940**	-0.517	-0.486	-0.470	-0.429	-0.884**	-0.030	0.673*	-0.392	-0.074	-0.073	-0.544	0.353	0.390
SI40AT	0.940	1.000	-0.399	-0.382	-0.352	-0.318	-0.805**	0.047	0.779**	-0.231	0.020	-0.075	-0.370	0.361	0.428
SI20SBT	-0.517	-0.399	1.000	0.985**	0.999**	0.981**	0.797**	0.094	-0.311	0.418	-0.056	0.130	0.533	-0.242	-0.052
SI40SBT	-0.486	-0.382	0.985**	1.000	0.985**	0.998**	0.777**	0.151	-0.307	0.387	-0.030	0.115	0.485	-0.202	-0.084
SI20CTCe	-0.470	-0.352	0.999**	0.985**	1.000	0.984**	0.766**	0.095	-0.279	0.407	-0.062	0.129	0.515	-0.227	-0.029
SI40CTCe	-0.429	-0.318	0.981**	0.998**	0.984**	1.000	0.737**	0.157	-0.258	0.379	-0.028	0.111	0.469	-0.183	-0.057
SI20GSBe	-0.884	-0.805**	0.797**	0.777**	0.766**	0.737**	1.000	0.158	-0.579*	0.547	0.155	-0.028	0.679	-0.482	-0.152
BP210905	-0.030	0.047	0.094	0.151	0.095	0.157	0.158	1.000	0.069	0.513	0.801**	-0.484	0.171	-0.154	0.292
ProPla05	0.673*	0.779**	-0.311	-0.307	-0.279	-0.258	-0.579*	0.069	1.000	-0.230	-0.095	0.085	-0.103	0.290	0.678*
BAP210905	-0.392	-0.231	0.418	0.387	0.407	0.379	0.547	0.513	-0.230	1.000	0.671*	-0.351	0.792**	-0.383	-0.018
BAT210905	-0.074	0.020	-0.056	-0.030	-0.062	-0.028	0.155	0.801**	-0.095	0.671*	1.000	-0.793**	0.256	-0.456	0.112
BpH210905	-0.073	-0.075	0.130	0.115	0.129	0.111	-0.028	-0.484	0.085	-0.351	-0.793**	1.000	0.062	0.767**	-0.135
BCACUC05	-0.544	-0.370	0.533	0.485	0.515	0.469	0.679*	0.171	-0.103	0.792**	0.256	0.062	1.000	-0.256	0.103
BcpH05	0.353	0.361	-0.242	-0.202	-0.227	-0.183	-0.482	-0.154	0.290	-0.383	-0.456	0.767**	-0.256	1.000	-0.154
BcAcTt05	0.390	0.428	-0.052	-0.084	-0.029	-0.057	-0.152	0.292	0.678*	-0.018	0.112	-0.135	0.103	-0.154	1.000
BcFenTt05	-0.227	-0.243	0.488	0.501	0.489	0.495	0.323	-0.262	0.056	-0.159	-0.519	0.268	0.158	-0.140	-0.003
BcAntTt05	0.189	0.106	-0.315	-0.337	-0.313	-0.339	-0.154	0.019	0.358	-0.294	-0.096	-0.111	-0.099	-0.255	0.722**
VAlcool05	-0.443	-0.279	0.440	0.391	0.426	0.379	0.580*	0.405	-0.202	0.982**	0.557	-0.257	0.865**	-0.386	0.005
VMVol05	0.529	0.404	-0.409	-0.327	-0.388	-0.307	-0.601*	-0.131	0.473	-0.783**	-0.511	0.508	-0.602*	0.711**	0.192
VExSeP05	-0.151	-0.037	0.275	0.291	0.274	0.293	0.298	0.441	0.175	0.729**	0.302	0.125	0.756**	0.102	0.166
VAcRe05	-0.352	-0.170	0.400	0.380	0.390	0.375	0.502	0.602*	-0.114	0.897**	0.588*	-0.083	0.788**	-0.075	0.131
VExSeT05	-0.180	-0.054	0.297	0.309	0.295	0.310	0.330	0.471	0.143	0.767**	0.345	0.102	0.777**	0.082	0.166
VpH05	0.181	0.295	0.033	0.028	0.045	0.048	-0.156	0.222	0.562	0.102	-0.189	0.597*	0.249	0.656*	0.351
VAcVl05	0.231	0.120	-0.293	-0.333	-0.288	-0.334	-0.403	-0.407	0.114	-0.691*	-0.652*	0.686*	-0.451	0.651*	0.090
VAcFx05	-0.375	-0.317	0.573	0.620*	0.567	0.613*	0.504	0.438	-0.593*	0.577*	0.446	-0.279	0.283	-0.198	-0.510
VAcTt05	-0.359	-0.324	0.563	0.606*	0.558	0.598*	0.457	0.383	-0.632*	0.460	0.323	-0.126	0.197	-0.044	-0.543
VFenTt05	0.120	0.209	0.137	0.178	0.148	0.197	0.061	0.527	0.420	0.414	0.266	-0.057	0.252	0.043	0.375
VCOR05	-0.393	-0.243	0.546	0.543	0.538	0.539	0.558	0.052	0.013	0.677*	0.088	0.093	0.793**	-0.184	-0.057
VTon05	0.213	0.116	-0.501	-0.536	-0.503	-0.543	-0.423	0.031	0.067	-0.451	-0.170	0.157	-0.431	0.271	0.206

Table 3 (cont)

	BcFenTt05	BcAntTt05	VAlcool05	VMVol05	VExSeP05	VAcRe05	VExSeT05	VpH05	VAcVl05	VAcFx05	VAcTt05	VFenTt05	VCOR05	VTon05
SI20AT	-0.227	0.189	-0.443	0.529	-0.151	-0.352	-0.180	0.181	0.231	-0.375	-0.359	0.120	-0.393	0.213
SI40AT	-0.243	0.106	-0.279	0.404	-0.037	-0.170	-0.054	0.295	0.120	-0.317	-0.324	0.209	-0.243	0.116
SI20SBT	0.488	-0.315	0.440	-0.409	0.275	0.400	0.297	0.033	-0.293	0.573	0.563	0.137	0.546	-0.501
SI40SBT	0.501	-0.337	0.391	-0.327	0.291	0.380	0.309	0.028	-0.333	0.620*	0.606*	0.178	0.543	-0.536
SI20CTCe	0.489	-0.313	0.426	-0.388	0.274	0.390	0.295	0.045	-0.288	0.567	0.558	0.148	0.538	-0.503
SI40CTCe	0.495	-0.339	0.379	-0.307	0.293	0.375	0.310	0.048	-0.334	0.613*	0.598*	0.197	0.539	-0.543
SI20GSBe	0.323	-0.154	0.580*	-0.601*	0.298	0.502	0.330	-0.156	-0.403	0.504	0.457	0.061	0.558	-0.423
BP210905	-0.262	0.019	0.405	-0.131	0.441	0.602	0.471	0.222	-0.407	0.438	0.383	0.527	0.052	0.031
ProPla05	0.056	0.358	-0.202	0.473	0.175	-0.114	0.143	0.562	0.114	-0.593*	-0.632*	0.420	0.013	0.067
BAP210905	-0.159	-0.294	0.982**	-0.783**	0.729**	0.897**	0.767**	0.102	-0.691*	0.577*	0.460	0.414	0.677*	-0.451
BAT210905	-0.519	-0.096	0.557	-0.511	0.302	0.588*	0.345	-0.189	-0.652*	0.446	0.323	0.266	0.088	-0.170
BpH210905	0.268	-0.111	-0.257	0.508	0.125	-0.083	0.102	0.597*	0.686*	-0.279	-0.126	-0.057	0.093	0.157
BCACUC05	0.158	-0.099	0.865**	-0.602	0.756**	0.788**	0.777**	0.249	-0.451	0.283	0.197	0.252	0.793**	-0.431
BcpH05	-0.140	-0.255	-0.386	0.711**	0.102	-0.075	0.082	0.656*	0.651*	-0.198	-0.044	0.043	-0.184	0.271
BcAcTt05	-0.003	0.722**	0.005	0.192	0.166	0.131	0.166	0.351	0.090	-0.510	-0.543	0.375	-0.057	0.206
BcFenTt05	1.000	0.161	-0.050	0.074	0.094	-0.264	0.052	0.058	-0.130	0.077	0.053	0.098	0.373	-0.136
BcAntTt05	0.161	1.000	-0.237	0.239	-0.130	-0.207	-0.143	0.018	0.176	-0.604*	-0.626*	0.083	-0.266	0.543
VAlcool05	-0.050	-0.237	1.000	-0.793**	0.758**	0.874**	0.790**	0.147	-0.648*	0.496	0.380	0.392	0.738**	-0.433
VMVol05	0.074	0.239	-0.793**	1.000	-0.214	-0.518	-0.257	0.408	0.656*	-0.503	-0.384	0.045	-0.454	0.387
VExSeP05	0.094	-0.130	0.758**	-0.214	1.000	0.792**	0.997**	0.628	-0.406	0.261	0.184	0.686*	0.771**	-0.355
VAcRe05	-0.264	-0.207	0.874**	-0.518	0.792**	1.000	0.836**	0.390	-0.408	0.459	0.405	0.466	0.570	-0.263
VExSeT05	0.052	-0.143	0.790**	-0.257	0.997**	0.836**	1.000	0.613*	-0.416	0.291	0.216	0.675*	0.763**	-0.351
VpH05	0.058	0.018	0.147	0.408	0.628	0.390	0.613*	1.000	0.303	-0.239	-0.182	0.616*	0.302	0.097
VAcVl05	-0.130	0.176	-0.648*	0.656*	-0.406	-0.408	-0.416	0.303	1.000	-0.538	-0.332	-0.385	-0.610*	0.632*
VAcFx05	0.077	-0.604	0.496	-0.503	0.261	0.459	0.291	-0.239	-0.538	1.000	0.974**	0.028	0.283	-0.335
VAcTt05	0.053	-0.626	0.380	-0.384	0.184	0.405	0.216	-0.182	-0.332	0.974**	1.000	-0.070	0.152	-0.202
VFenTt05	0.098	0.083	0.392	0.045	0.686*	0.466	0.675*	0.616*	-0.385	0.028	-0.070	1.000	0.563	-0.305
VCOR05	0.373	-0.266	0.738**	-0.454	0.771**	0.570	0.763**	0.302	-0.610*	0.283	0.152	0.563	1.000	-0.737**
VTon05	-0.136	0.543	-0.433	0.387	-0.355	-0.263	-0.351	0.097	0.632	-0.335	-0.202	-0.305	-0.737**	1.000

Table 3 (cont)

	VCinza05	VAlc05	VPO405	VAnt05	VSO2L05	VSO2T05	PrInCor05	PrAroma05	PrCorpo05	PrAdst05	PrFrVer05	PrFloral05	PrFinal05
SI20AT	-0.032	0.108	0.254	0.541	0.132	-0.245	-0.257	-0.239	-0.642*	-0.165	-0.098	0.462	-0.318
SI40AT	0.174	0.226	0.419	0.512	0.047	-0.358	-0.107	-0.208	-0.458	-0.073	-0.143	0.434	-0.111
SI20SBT	0.414	0.136	0.270	-0.548	-0.127	0.010	0.624*	0.359	0.800**	0.300	0.071	0.109	0.771**
SI40SBT	0.375	0.129	0.326	-0.501	-0.151	-0.019	0.613*	0.397	0.792**	0.268	0.106	0.045	0.769**
SI20CTCe	0.425	0.147	0.294	-0.532	-0.122	-0.005	0.627*	0.355	0.784**	0.299	0.066	0.142	0.774**
SI40CTCe	0.396	0.146	0.368	-0.477	-0.153	-0.045	0.621*	0.392	0.778**	0.269	0.098	0.079	0.781**
SI20GSBe	0.205	-0.008	-0.114	-0.617*	-0.137	0.103	0.432	0.249	0.789**	0.242	-0.008	-0.324	0.516
BP210905	0.282	0.476	0.222	0.011	-0.020	-0.460	0.433	0.272	0.266	0.189	0.120	-0.456	0.226
ProPla05	0.308	0.386	0.213	0.644*	0.116	-0.506	-0.311	-0.277	-0.167	0.040	-0.030	0.342	-0.069
BAP210905	0.640*	0.505	0.007	-0.431	-0.458	-0.393	0.750**	0.498	0.656*	0.649*	0.106	-0.532	0.605*
BAT210905	0.108	0.188	0.155	-0.181	-0.304	-0.425	0.369	0.145	0.117	0.156	-0.077	-0.569	0.144
BpH210905	0.307	0.280	-0.250	0.007	0.079	0.133	-0.023	0.101	0.220	0.220	0.103	0.165	0.153
BCACUC05	0.675*	0.466	-0.245	-0.388	-0.397	-0.260	0.499	0.281	0.813**	0.604*	0.025	-0.400	0.617*
BcpH05	0.269	0.405	0.028	0.209	-0.044	-0.125	0.032	0.173	-0.080	0.176	0.141	0.027	0.063
BcAcTt05	0.219	0.284	-0.142	0.329	0.435	-0.327	-0.266	-0.538	-0.082	-0.073	-0.396	0.339	-0.194
BcFenTt05	0.066	-0.062	0.175	0.274	0.236	0.318	-0.037	0.205	0.364	-0.073	0.476	0.371	0.229
BcAntTt05	-0.250	-0.164	-0.356	0.573	0.769	0.271	-0.630*	-0.710**	-0.371	-0.518	-0.383	0.284	-0.675*
VAlcool05	0.679	0.520	-0.077	-0.405	-0.430	-0.345	0.705*	0.480	0.700*	0.677*	0.141	-0.478	0.606*
VMVol05	-0.210	0.054	-0.012	0.537	0.320	-0.035	-0.510	-0.223	-0.414	-0.282	0.051	0.244	-0.380
VExSeP05	0.840**	0.850**	-0.127	-0.034	-0.380	-0.569	0.552	0.567	0.687*	0.785**	0.344	-0.505	0.567
VAcRe05	0.753**	0.676*	-0.076	-0.400	-0.331	-0.445	0.734**	0.390	0.693*	0.643*	-0.047	-0.559	0.593*
VExSeT05	0.848**	0.848**	-0.124	-0.081	-0.383	-0.567	0.587*	0.558	0.704*	0.786**	0.303	-0.523	0.583*
VpH05	0.761**	0.869**	-0.053	0.259	0.025	-0.504	0.226	0.269	0.367	0.554	0.231	-0.056	0.314
VAcVI05	-0.175	-0.033	-0.376	0.067	0.398	0.273	-0.376	-0.360	-0.394	-0.205	-0.194	0.406	-0.383
VAcFx05	0.197	0.095	0.423	-0.462	-0.363	0.053	0.815**	0.682*	0.491	0.232	0.335	-0.329	0.623*
VAcTt05	0.174	0.099	0.372	-0.496	-0.297	0.133	0.810**	0.665*	0.446	0.203	0.322	-0.260	0.594*
VFenTt05	0.608*	0.679*	0.212	0.297	0.017	-0.629*	0.286	0.370	0.387	0.484	0.235	-0.257	0.278
VCOR05	0.680*	0.463	0.056	-0.187	-0.462	-0.395	0.473	0.527	0.804**	0.682*	0.288	-0.347	0.677*
VTon05	-0.293	-0.089	-0.272	0.430	0.713**	0.510	-0.346	-0.408	-0.546	-0.505	-0.126	0.264	-0.638*

Table 3 (cont)

	ClTp05	ClHm05	SlTp05	PlTp05	SPAD05	FlAr170605	FlPS170605	FlN170605	FlP170605	FlK170605	PLPD06	Sl20pHH2O	Sl40pHH2O	Sl20MO	Sl40MO
VCinza05	-0.018	0.078	0.303	0.153	-0.274	0.109	-0.004	0.060	0.159	0.317	-0.076	0.149	0.040	-0.074	-0.113
VAlc05	-0.100	0.063	0.278	0.119	-0.226	-0.082	-0.136	0.167	-0.165	0.414	-0.090	-0.069	-0.162	0.041	-0.006
VPO405	-0.117	0.123	-0.065	0.118	-0.379	0.110	-0.067	-0.337	0.569	0.355	-0.169	0.006	-0.029	-0.309	-0.268
VAnt05	-0.679*	0.582	-0.442	-0.407	-0.329	0.182	0.181	-0.647*	-0.073	0.203	0.269	-0.616*	-0.672	-0.424	-0.377
VSO2L05	-0.321	0.312	-0.365	-0.461	-0.126	0.093	-0.044	-0.590*	0.198	-0.521	0.156	-0.210	-0.187	-0.388	-0.430
VSO2T05	0.064	0.045	-0.224	-0.317	-0.092	0.216	0.148	-0.459	0.258	-0.632	-0.214	0.107	0.182	-0.071	-0.148
PrInCor05	0.499	-0.415	0.611*	0.500	-0.236	-0.151	-0.266	0.298	0.331	0.244	-0.644*	0.486	0.436	0.167	0.063
PrAroma05	0.268	-0.213	0.480	0.249	-0.414	0.072	0.057	0.175	0.127	0.485	-0.712**	0.314	0.270	0.241	0.236
PrCorpo05	0.316	-0.192	0.508	0.286	-0.117	0.282	0.111	0.111	0.252	0.118	-0.333	0.752**	0.686	0.027	0.115
PrAdst05	0.170	-0.132	0.422	0.237	-0.149	0.006	0.039	0.435	-0.086	0.437	-0.202	0.210	0.134	0.219	0.212
PrFrVer05	-0.175	0.167	0.054	-0.147	-0.665*	0.272	0.223	-0.140	0.002	0.406	-0.528	0.049	0.011	-0.083	-0.039
PrFloral05	-0.659*	0.725**	-0.802**	-0.716**	-0.558	0.492	0.335	-0.662*	0.613*	-0.536	0.427	-0.359	-0.290	-0.746**	-0.811**
PrFinal05	0.224	-0.113	0.362	0.289	-0.284	0.236	0.074	0.139	0.392	0.240	-0.318	0.536	0.494	-0.024	0.001

Table 3 (cont)

	Sl20P2O5	**Sl40P2O5**	**Sl20K2O5**	**Sl40K2O5**	**Sl20Ca**	**Sl40Ca**	**Sl20Mg**	**Sl40Mg**	**Sl20K**	**Sl40K**	**Sl20Na**	**Sl40Na**	**Sl20BH2O**	**Sl40BH2O**
VCinza05	-0.072	-0.019	-0.079	0.064	0.348	0.323	0.233	0.150	0.222	0.145	0.315	0.377	-0.013	0.253
VAlc05	0.125	0.143	-0.009	0.138	0.040	0.060	0.297	0.236	0.125	0.204	0.170	0.250	0.044	0.305
VPO405	0.145	0.108	-0.026	-0.082	0.339	0.331	-0.086	-0.045	0.054	-0.156	-0.011	0.121	0.186	0.457
VAnt05	0.397	0.262	0.279	0.326	-0.445	-0.389	-0.410	-0.390	-0.410	-0.064	-0.578*	-0.478	-0.114	0.076
VSO2L05	-0.151	-0.214	0.188	0.100	-0.099	-0.111	-0.252	-0.246	-0.344	-0.112	-0.052	-0.078	-0.670*	-0.497
VSO2T05	-0.418	-0.480	-0.053	-0.154	0.109	0.058	-0.339	-0.324	-0.070	-0.161	0.129	0.076	-0.429	-0.638*
PrInCor05	-0.315	-0.278	-0.461	-0.433	0.546	0.491	0.499	0.458	0.220	-0.175	0.598*	0.699*	0.191	0.320
PrAroma05	-0.157	-0.230	-0.162	-0.123	0.339	0.372	0.133	0.114	0.392	0.091	0.416	0.523	0.299	0.329
PrCorpo05	-0.622*	-0.563	-0.200	-0.161	0.725**	0.747**	0.154	0.116	0.470	0.189	0.679*	0.668	-0.218	-0.051
PrAdst05	-0.015	0.030	-0.058	0.070	0.209	0.215	0.272	0.197	0.365	0.245	0.302	0.322	0.265	0.342
PrFrVer05	-0.056	-0.189	0.059	0.071	0.094	0.170	-0.261	-0.272	0.253	0.199	0.138	0.220	0.071	0.214
PrFloral05	0.172	0.142	0.470	0.332	0.213	0.154	-0.592*	-0.615*	0.036	0.184	0.020	-0.024	-0.480	-0.253
PrFinal05	-0.301	-0.240	-0.154	-0.133	0.728**	0.719**	0.154	0.123	0.529	0.192	0.606*	0.644*	0.053	0.232

Table 3 (cont)

	SI20AT	SI40AT	SI20SBT	SI40SBT	SI20CTCe	SI40CTCe	SI20GSBe	BP210905	ProPla05	BAP210905	BAT210905	BpH210905	BcAcucar05	BcpH05	BcAcTt05
VCinza05	-0.032	0.174	0.414	0.375	0.425	0.396	0.205	0.282	0.308	0.640*	0.108	0.307	0.675*	0.269	0.219
VAlc05	0.108	0.226	0.136	0.129	0.147	0.146	-0.008	0.476	0.386	0.505	0.188	0.280	0.466	0.405	0.284
VPO405	0.254	0.419	0.270	0.326	0.294	0.368	-0.114	0.222	0.213	0.007	0.155	-0.250	-0.245	0.028	-0.142
VAnt05	0.541	0.512	-0.548	-0.501	-0.532	-0.477	-0.617*	0.011	0.644*	-0.431	-0.181	0.007	-0.388	0.209	0.329
VSO2L05	0.132	0.047	-0.127	-0.151	-0.122	-0.153	-0.137	-0.020	0.116	-0.458	-0.304	0.079	-0.397	-0.044	0.435
VSO2T05	-0.245	-0.358	0.010	-0.019	-0.005	-0.045	0.103	-0.460	-0.506	-0.393	-0.425	0.133	-0.260	-0.125	-0.327
PrInCor05	-0.257	-0.107	0.624*	0.613*	0.627*	0.621*	0.432	0.433	-0.311	0.750**	0.369	-0.023	0.499	0.032	-0.266
PrAroma05	-0.239	-0.208	0.359	0.397	0.355	0.392	0.249	0.272	-0.277	0.498	0.145	0.101	0.281	0.173	-0.538
PrCorpo05	-0.642*	-0.458	0.800**	0.792**	0.784**	0.778**	0.789**	0.266	-0.167	0.656*	0.117	0.220	0.813**	-0.080	-0.082
PrAdst05	-0.165	-0.073	0.300	0.268	0.299	0.269	0.242	0.189	0.040	0.649*	0.156	0.220	0.604*	0.176	-0.073
PrFrVer05	-0.098	-0.143	0.071	0.106	0.066	0.098	-0.008	0.120	-0.030	0.106	-0.077	0.103	0.025	0.141	-0.396
PrFloral05	0.462	0.434	0.109	0.045	0.142	0.079	-0.324	-0.456	0.342	-0.532	-0.569	0.165	-0.400	0.027	0.339
PrFinal05	-0.318	-0.111	0.771**	0.769**	0.774**	0.781**	0.516	0.226	-0.069	0.605*	0.144	0.153	0.617*	0.063	-0.194

Table 3 (cont)

	BcFenTt05	BcAntTt05	VAlcool05	VMVol05	VExSeP05	VAcRe05	VExSeT05	VpH05	VAcVl05	VAcFx05	VAcTt05	VFenTt05	VCor05	VTon05
VCinza05	0.066	-0.250	0.679*	-0.210	0.840**	0.753**	0.848**	0.761**	-0.175	0.197	0.174	0.608*	0.680*	-0.293
VAlc05	-0.062	-0.164	0.520	0.054	0.850**	0.676	0.848**	0.869**	-0.033	0.095	0.099	0.679*	0.463	-0.089
VPO405	0.175	-0.356	-0.077	-0.012	-0.127	-0.076	-0.124	-0.053	-0.376	0.423	0.372	0.212	0.056	-0.272
VAnt05	0.274	0.573	-0.405	0.537	-0.034	-0.400	-0.081	0.259	0.067	-0.462	-0.496	0.297	-0.187	0.430
VSO2L05	0.236	0.769**	-0.430	0.320	-0.380	-0.331	-0.383	0.025	0.398	-0.363	-0.297	0.017	-0.462	0.713**
VSO2T05	0.318	0.271	-0.345	-0.035	-0.569	-0.445	-0.567	-0.504	0.273	0.053	0.133	-0.629*	-0.395	0.510
PrInCor05	-0.037	-0.630*	0.705	-0.510	0.552	0.734**	0.587*	0.226	-0.376	0.815**	0.810**	0.286	0.473	-0.346
PrAroma05	0.205	-0.710	0.480	-0.223	0.567	0.390	0.558	0.269	-0.360	0.682*	0.665*	0.370	0.527	-0.408
PrCorpo05	0.364	-0.371	0.700*	-0.414	0.687*	0.693*	0.704*	0.367	-0.394	0.491	0.446	0.387	0.804**	-0.546
PrAdst05	-0.073	-0.518	0.677*	-0.282	0.785**	0.643*	0.786	0.554	-0.205	0.232	0.203	0.484	0.682*	-0.505
PrFrVer05	0.476	-0.383	0.141	0.051	0.344	-0.047	0.303	0.231	-0.194	0.335	0.322	0.235	0.288	-0.126
PrFloral05	0.371	0.284	-0.478	0.244	-0.505	-0.559	-0.523	-0.056	0.406	-0.329	-0.260	-0.257	-0.347	0.264
PrFinal05	0.229	-0.675*	0.606*	-0.380	0.567	0.593*	0.583*	0.314	-0.383	0.623*	0.594*	0.278	0.677*	-0.638*

Table 3 (cont)

	VCinza05	VAlc05	VPO405	VAnt05	VSO_2L05	VSO_2T05	PrInCor05	PrAroma05	PrCorpo05	PrAdst05	PrFrVer05	PrFloral05	PrFinal05
VCinza05	1.000	0.889**	0.087	-0.117	-0.294	-0.541	0.680*	0.498	0.690*	0.800**	0.213	-0.135	0.717**
VAlc05	0.889**	1.000	-0.057	0.034	-0.245	-0.664*	0.540	0.527	0.507	0.797**	0.364	-0.266	0.512
VPO405	0.087	-0.057	1.000	0.196	-0.055	-0.093	0.334	0.243	0.082	-0.165	0.147	0.248	0.387
VAnt05	-0.117	0.034	0.196	1.000	0.497	0.087	-0.503	-0.229	-0.444	-0.396	0.177	0.238	-0.495
VSO2L05	-0.294	-0.245	-0.055	0.497	1.000	0.557	-0.403	-0.526	-0.382	-0.637*	-0.288	0.498	-0.592*
VSO2T05	-0.541	-0.664*	-0.093	0.087	0.557	1.000	-0.242	-0.287	-0.304	-0.672*	-0.136	0.343	-0.415
PrInCor05	0.680*	0.540	0.334	-0.503	-0.403	-0.242	1.000	0.737	0.661*	0.620*	0.284	-0.238	0.820**
PrAroma05	0.498	0.527	0.243	-0.229	-0.526	-0.287	0.737**	1.000	0.557	0.692*	0.798**	-0.390	0.670*
PrCorpo05	0.690*	0.507	0.082	-0.444	-0.382	-0.304	0.661*	0.557	1.000	0.636*	0.276	-0.347	0.856**
PrAdst05	0.800**	0.797**	-0.165	-0.396	-0.637*	-0.672*	0.620*	0.692*	0.636**	1.000	0.421	-0.383	0.678*
PrFrVer05	0.213	0.364	0.147	0.177	-0.288	-0.136	0.284	0.798	0.276	0.421	1.000	-0.156	0.332
PrFloral05	-0.135	-0.266	0.248	0.238	0.498	0.343	-0.238	-0.390	-0.347	-0.383	-0.156	1.000	-0.155
PrFinal05	0.717**	0.512	0.387	-0.495	-0.592*	-0.415	0.820**	0.670*	0.856**	0.678*	0.332	-0.155	1.000

Table 3 (cont)- Pearson correlations for stations groups 2006 data.

	ClTp06	ClHm06	SlTp06	PlTp06	FlAr210606	FlPS210606	FlN210606	FlP210606	FlK210606	FlCa210606	FlMg210606	FlB210606	FlFe210606
ClTp06	1.000	-0.931**	0.529	0.564	-0.123	0.547	0.441	0.670*	0.308	0.321	0.206	-0.529	-0.247
ClHm06	-0.931**	1.000	-0.411	-0.313	0.161	-0.426	-0.374	-0.668*	-0.277	-0.186	-0.267	0.512	0.438
SlTp06	0.529	-0.411	1.000	0.620*	0.507	0.328	0.058	0.368	0.585*	0.405	-0.518	-0.674*	0.206
PlTp06	0.564	-0.313	0.620*	1.000	0.101	0.477	0.274	0.323	0.402	0.372	-0.170	-0.302	0.095
FlAr210606	-0.123	0.161	0.507	0.101	1.000	0.045	-0.505	-0.111	0.084	-0.248	-0.871	-0.120	0.145
FlPS210606	0.547	-0.426	0.328	0.477	0.045	1.000	0.173	-0.027	0.403	-0.169	-0.111	0.107	-0.357
FlN210606	0.441	-0.374	0.058	0.274	-0.505	0.173	1.000	0.423	0.234	0.622*	0.584*	-0.463	0.206
FlP210606	0.670*	-0.668	0.368	0.323	-0.111	-0.027	0.423	1.000	0.066	0.239	0.310	-0.504	-0.206
FlK210606	0.308	-0.277	0.585*	0.402	0.084	0.403	0.234	0.066	1.000	0.308	-0.319	-0.472	0.057
FlCa210606	0.321	-0.186	0.405	0.372	-0.248	-0.169	0.622*	0.239	0.308	1.000	0.182	-0.768**	0.711**
FlMg210606	0.206	-0.267	-0.518	-0.170	-0.871**	-0.111	0.584*	0.310	-0.319	0.182	1.000	0.087	-0.232
FlB210606	-0.529	0.512	-0.674*	-0.302	-0.120	0.107	-0.463	-0.504	-0.472	-0.768**	0.087	1.000	-0.436
FlFe210606	-0.247	0.438	0.206	0.095	0.145	-0.357	0.206	-0.206	0.057	0.711**	-0.232	-0.436	1.000
FlCu210606	-0.507	0.502	-0.195	-0.138	0.387	0.029	-0.768	-0.297	-0.209	-0.827**	-0.445	0.741**	-0.376
FlZn210606	0.221	-0.173	0.220	-0.019	-0.181	-0.071	0.589*	-0.017	0.331	0.825**	0.147	-0.699*	0.664*
FlMn210606	-0.424	0.467	-0.422	-0.097	-0.094	0.208	-0.606*	-0.547	-0.271	-0.637*	-0.097	0.897	-0.345
FlAr240706	0.647*	-0.671*	0.658*	0.465	0.317	0.273	0.296	0.441	0.324	0.297	-0.194	-0.705	-0.055
FlPS240706	0.571	-0.568	0.731**	0.490	0.369	0.214	0.252	0.349	0.441	0.404	-0.313	-0.783**	0.113
SPAD06	0.225	-0.331	-0.334	-0.190	-0.651	0.040	0.826**	0.187	0.023	0.338	0.766**	-0.190	-0.072
FlN240706	0.290	-0.063	0.218	0.488	-0.262	0.234	0.723**	0.079	0.493	0.713**	0.155	-0.462	0.571
FlP240706	0.267	-0.270	0.272	0.152	0.480	0.116	-0.354	0.535	-0.116	-0.520	-0.218	0.101	-0.504
FlK240706	-0.114	0.260	0.134	0.106	-0.022	-0.340	0.459	-0.075	0.227	0.798**	-0.014	-0.518	0.878**
FlCa240706	0.131	-0.155	0.084	0.048	-0.031	-0.555	0.452	0.301	-0.130	0.671*	0.228	-0.658*	0.484
FlMg240706	0.234	-0.269	-0.487	-0.053	-0.303	-0.091	0.158	0.246	-0.694*	-0.171	0.614*	0.234	-0.352
FlB240706	-0.469	0.440	-0.707*	-0.309	-0.227	0.054	-0.453	-0.408	-0.441	-0.750**	0.189	0.976**	-0.495
FlFe240706	-0.498	0.646*	0.014	0.037	0.636*	-0.233	-0.300	-0.411	-0.264	-0.019	-0.628*	0.102	0.596*
FlCu240706	0.082	0.047	0.310	0.093	0.467	0.082	0.103	-0.145	0.122	0.383	-0.472	-0.368	0.616*
FlZn240706	-0.506	0.465	-0.359	-0.210	0.235	0.177	-0.679*	-0.470	-0.306	-0.871**	-0.316	0.878**	-0.473
FlMn240706	-0.548	0.551	-0.539	-0.187	0.017	0.008	-0.637*	-0.445	-0.469	-0.777**	-0.092	0.941**	-0.394
PLPD07	0.003	-0.134	-0.284	-0.403	-0.321	-0.286	0.601*	0.195	-0.118	0.344	0.414	-0.282	0.196
ProPla06	-0.261	0.383	0.087	0.410	0.210	0.077	-0.465	-0.149	0.176	-0.306	-0.488	0.391	-0.080

Table 3 (cont)

	FlCu210606	FlZn210606	FlMn210606	FlAr240706	FlPS240706	SPAD06	FlN240706	FlP240706	FlK240706	FlCa240706	FlMg240706	FlB240706	FlFe240706
ClTp06	-0.507	0.221	-0.424	0.647*	0.571	0.225	0.290	0.267	-0.114	0.131	0.234	-0.469	-0.498
ClHm06	0.502	-0.173	0.467	-0.671*	-0.568	-0.331	-0.063	-0.270	0.260	-0.155	-0.269	0.440	0.646*
SlTp06	-0.195	0.220	-0.422	0.658	0.731**	-0.334	0.218	0.272	0.134	0.084	-0.487	-0.707*	0.014
PlTp06	-0.138	-0.019	-0.097	0.465	0.490	-0.190	0.488	0.152	0.106	0.048	-0.053	-0.309	0.037
FlAr210606	0.387	-0.181	-0.094	0.317	0.369	-0.651*	-0.262	0.480	-0.022	-0.031	-0.303	-0.227	0.636*
FlPS210606	0.029	-0.071	0.208	0.273	0.214	0.040	0.234	0.116	-0.340	-0.555	-0.091	0.054	-0.233
FlN210606	-0.768**	0.589*	-0.606*	0.296	0.252	0.826**	0.723**	-0.354	0.459	0.452	0.158	-0.453	-0.300
FlP210606	-0.297	-0.017	-0.547	0.441	0.349	0.187	0.079	0.535	-0.075	0.301	0.246	-0.408	-0.411
FlK210606	-0.209	0.331	-0.271	0.324	0.441	0.023	0.493	-0.116	0.227	-0.130	-0.694*	-0.441	-0.264
FlCa210606	-0.827**	0.825**	-0.637*	0.297	0.404	0.338	0.713**	-0.520	0.798**	0.671*	-0.171	-0.750**	-0.019
FlMg210606	-0.445	0.147	-0.097	-0.194	-0.313	0.766**	0.155	-0.218	-0.014	0.228	0.614*	0.189	-0.628*
FlB210606	0.741**	-0.699*	0.897**	-0.705*	-0.783**	-0.190	-0.462	0.101	-0.518	-0.658*	0.234	0.976**	0.102
FlFe210606	-0.376	0.664*	-0.345	-0.055	0.113	-0.072	0.571	-0.504	0.878**	0.484	-0.352	-0.495	0.596*
FlCu210606	1.000	-0.867**	0.761**	-0.453	-0.467	-0.700*	-0.595*	0.504	-0.581*	-0.715**	-0.151	0.714**	0.285
FlZn210606	-0.867**	1.000	-0.668*	0.234	0.336	0.502	0.675*	-0.634*	0.793**	0.582*	-0.202	-0.704*	-0.016
FlMn210606	0.761**	-0.668*	1.000	-0.670*	-0.687*	-0.438	-0.413	0.048	-0.514	-0.785*	-0.010	0.885**	0.068
FlAr240706	-0.453	0.234	-0.670*	1.000	0.972**	0.085	0.154	0.182	-0.044	0.412	0.054	-0.748**	-0.090
FlPS240706	-0.467	0.336	-0.687*	0.972**	1.000	-0.005	0.252	0.088	0.101	0.438	-0.112	-0.825**	-0.005
SPAD06	-0.700*	0.502	-0.438	0.085	-0.005	1.000	0.374	-0.455	0.249	0.387	0.338	-0.165	-0.473
FlN240706	-0.595*	0.675*	-0.413	0.154	0.252	0.374	1.000	-0.446	0.720	0.310	-0.179	-0.451	0.047
FlP240706	0.504	-0.634*	0.048	0.182	0.088	-0.455	-0.446	1.000	-0.537	-0.246	0.203	0.146	-0.058
FlK240706	-0.581*	0.793**	-0.514	-0.044	0.101	0.249	0.720**	-0.537	1.000	0.630*	-0.250	-0.526	0.373
FlCa240706	-0.715**	0.582*	-0.785**	0.412	0.438	0.387	0.310	-0.246	0.630*	1.000	0.315	-0.642*	0.154
FlMg240706	-0.151	-0.202	-0.010	0.054	-0.112	0.338	-0.179	0.203	-0.250	0.315	1.000	0.280	-0.151
FlB240706	0.714**	-0.704*	0.885**	-0.748**	-0.825**	-0.165	-0.451	0.146	-0.526	-0.642*	0.280	1.000	-0.036
FlFe240706	0.285	-0.016	0.068	-0.090	-0.005	-0.473	0.047	-0.058	0.373	0.154	-0.151	-0.036	1.000
FlCu240706	-0.301	0.548	-0.335	0.142	0.222	-0.067	0.340	-0.224	0.609*	0.291	-0.256	-0.464	0.605*
FlZn240706	0.914**	-0.831**	0.859**	-0.464	-0.520	-0.490	-0.631*	0.281	-0.663*	-0.763**	-0.037	0.812**	0.235
FlMn240706	0.869**	-0.830**	0.918**	-0.620*	-0.670*	-0.456	-0.543	0.223	-0.575	-0.653*	0.160	0.921**	0.205
PLPD07	-0.582*	0.525	-0.527	-0.003	-0.058	0.754	0.174	-0.416	0.422	0.502	0.127	-0.297	-0.062
ProPla06	0.695**	-0.616	0.592	-0.275	-0.211	-0.670*	-0.114	0.216	-0.209	-0.492	-0.357	0.389	0.306

Table 3 (cont)

	FlCu240706	FlZn240706	FlMn240706	PLPD07	ProPla06	MAP06	MpH06	MAT06	VAlcO06	VAcRe06	VExSeT06	VpH06
ClTp06	0.082	-0.506	-0.548	0.003	-0.261	0.143	0.102	-0.127	0.139	0.065	-0.304	-0.469
ClHm06	0.047	0.465	0.551	-0.134	0.383	-0.033	-0.284	0.280	-0.026	0.043	0.362	0.417
SlTp06	0.310	-0.359	-0.539	-0.284	0.087	0.342	0.261	-0.091	0.433	0.366	0.244	0.113
PlTp06	0.093	-0.210	-0.187	-0.403	0.410	0.048	-0.303	0.313	0.135	0.384	-0.029	-0.368
FlAr210606	0.467	0.235	0.017	-0.321	0.210	0.168	0.269	-0.299	0.252	0.035	0.263	0.403
FlPS210606	0.082	0.177	0.008	-0.286	0.077	-0.079	-0.177	-0.280	-0.159	-0.207	-0.433	-0.558
FlN210606	0.103	-0.679*	-0.637*	0.601	-0.465	0.441	-0.100	0.478	0.323	0.571	0.165	-0.289
FlP210606	-0.145	-0.470	-0.445	0.195	-0.149	-0.004	0.193	0.021	-0.037	0.063	-0.235	-0.312
FlK210606	0.122	-0.306	-0.469	-0.118	0.176	0.286	0.375	-0.282	0.291	0.316	0.208	0.202
FlCa210606	0.383	-0.871**	-0.777	0.344	-0.306	0.701*	0.061	0.578*	0.755**	0.827**	0.630*	0.259
FlMg210606	-0.472	-0.316	-0.092	0.414	-0.488	-0.049	-0.245	0.327	-0.215	-0.080	-0.369	-0.533
FlB210606	-0.368	0.878**	0.941	-0.282	0.391	-0.632*	-0.375	-0.076	-0.752**	-0.692*	-0.565	-0.331
FlFe210606	0.616*	-0.473	-0.394	0.196	-0.080	0.701*	-0.072	0.517	0.798**	0.732**	0.880**	0.617*
FlCu210606	-0.301	0.914**	0.869**	-0.582*	0.695*	-0.663*	-0.151	-0.361	-0.658*	-0.652*	-0.398	-0.048
FlZn210606	0.548	-0.831**	-0.830**	0.525	-0.616*	0.867**	0.247	0.259	0.856**	0.683*	0.664*	0.415
FlMn210606	-0.335	0.859**	0.918	-0.527	0.592*	-0.653*	-0.368	-0.128	-0.690*	-0.667*	-0.513	-0.256
FlAr240706	0.142	-0.464	-0.620*	-0.003	-0.275	0.200	0.086	-0.106	0.378	0.441	0.182	-0.138
FlPS240706	0.222	-0.520	-0.670*	-0.058	-0.211	0.307	0.118	-0.099	0.519	0.551	0.352	0.037
SPAD06	-0.067	-0.490	-0.456	0.754**	-0.670*	0.287	0.054	0.305	0.102	0.270	-0.021	-0.269
FlN240706	0.340	-0.631*	-0.543	0.174	-0.114	0.625*	-0.207	0.381	0.609*	0.679*	0.440	0.031
FlP240706	-0.224	0.281	0.223	-0.416	0.216	-0.318	0.124	-0.449	-0.367	-0.514	-0.534	-0.282
FlK240706	0.609*	-0.663*	-0.575	0.422	-0.209	0.833	0.153	0.545	0.811**	0.785**	0.791**	0.578*
FlCa240706	0.291	-0.763**	-0.653*	0.502	-0.492	0.570	0.148	0.503	0.648*	0.721**	0.574	0.300
FlMg240706	-0.256	-0.037	0.160	0.127	-0.357	-0.189	-0.347	0.198	-0.238	-0.226	-0.457	-0.563
FlB240706	-0.464	0.812	0.921**	-0.297	0.389	-0.651*	-0.325	-0.126	-0.785**	-0.751**	-0.641*	-0.348
FlFe240706	0.605*	0.235	0.205	-0.062	0.306	0.202	-0.168	0.279	0.328	0.322	0.568	0.484
FlCu240706	1.000	-0.283	-0.419	0.351	-0.124	0.644*	0.355	0.163	0.644*	0.430	0.571	0.543
FlZn240706	-0.283	1.000	0.924**	-0.433	0.580*	-0.736**	-0.233	-0.277	-0.754**	-0.677*	-0.474	-0.193
FlMn240706	-0.419	0.924**	1.000	-0.479	0.591*	-0.748**	-0.428	-0.106	-0.758**	-0.662*	-0.498	-0.262
PLPD07	0.351	-0.433	-0.479	1.000	-0.549	0.345	0.393	0.332	0.211	0.339	0.293	0.217
ProPla06	-0.124	0.580*	0.591*	-0.549	1.000	-0.549	-0.176	0.009	-0.439	-0.157	-0.125	0.023

Table 3 (cont)

	VAcVI06	VAcFx06	VAcTt06	VFenTt06	VCor06	VTon06	VCinza06	VAlc06	VPO406	VAnt06	VSO2L06	VSO2T06
ClTp06	0.012	0.422	0.334	-0.511	0.057	-0.456	-0.165	-0.431	-0.054	-0.673*	-0.717**	0.115
ClHm06	0.190	-0.512	-0.310	0.568	0.086	0.328	-0.007	0.426	0.052	0.658	0.524	-0.110
SlTp06	0.355	-0.075	0.126	0.193	0.560	-0.297	-0.194	0.182	0.529	0.099	-0.535	-0.415
PlTp06	0.371	0.144	0.310	-0.096	0.306	-0.597	-0.458	-0.192	0.100	-0.203	-0.620	-0.284
FlAr210606	0.327	-0.533	-0.263	0.183	0.323	0.102	-0.133	0.334	0.642**	0.487	-0.181	-0.459
FlPS210606	-0.176	-0.001	-0.093	-0.530	-0.265	-0.269	-0.394	-0.643*	-0.285	-0.499	-0.207	0.058
FlN210606	0.300	0.743**	0.755**	-0.119	0.138	-0.132	-0.153	0.099	-0.659**	-0.582*	-0.289	0.629**
FlP210606	0.062	0.355	0.313	-0.187	0.078	-0.298	-0.140	-0.024	0.166	-0.422	-0.509	0.226
FlK210606	-0.020	0.133	0.117	0.257	0.338	-0.126	0.092	0.111	0.084	0.087	-0.052	-0.391
FlCa210606	0.567	0.487	0.682*	0.354	0.667*	-0.117	0.103	0.459	-0.114	-0.082	-0.494	0.089
FlMg210606	-0.249	0.502	0.264	-0.346	-0.344	-0.179	-0.123	-0.340	-0.587*	-0.658*	-0.020	0.732**
FlB210606	-0.515	-0.445	-0.625*	-0.301	-0.726**	0.171	-0.258	-0.480	-0.178	-0.012	0.513	0.110
FlFe210606	0.769**	-0.017	0.375	0.678	0.755**	0.163	0.172	0.744**	0.025	0.421	-0.209	-0.027
FlCu210606	-0.347	-0.739**	-0.767**	0.042	-0.386	0.089	-0.176	-0.206	0.400	0.425	0.455	-0.369
FlZn210606	0.436	0.441	0.572	0.272	0.562	0.136	0.287	0.451	-0.300	-0.104	-0.304	0.253
FlMn210606	-0.514	-0.541	-0.699*	-0.178	-0.576*	0.071	-0.176	-0.524	0.013	0.113	0.435	-0.199
FlAr240706	0.412	0.418	0.556	-0.139	0.404	-0.431	0.010	0.037	0.108	-0.134	-0.454	-0.200
FlPS240706	0.503	0.356	0.553	0.053	0.574	-0.419	0.091	0.172	0.185	0.032	-0.441	-0.332
SPAD06	-0.094	0.757**	0.564	-0.316	-0.219	0.109	0.009	-0.046	-0.773**	-0.641*	0.015	0.738**
FlN240706	0.539	0.362	0.563	0.253	0.523	-0.255	-0.082	0.214	-0.434	-0.174	-0.360	0.209
FlP240706	-0.161	-0.447	-0.458	-0.242	-0.146	-0.289	-0.399	-0.258	0.588*	-0.057	-0.277	-0.102
FlK240706	0.607*	0.227	0.489	0.514	0.647*	0.206	0.116	0.708**	-0.122	0.161	-0.307	0.132
FlCa240706	0.576	0.534	0.721**	0.183	0.530	-0.050	0.164	0.551	-0.031	-0.021	-0.438	0.161
FlMg240706	-0.054	0.262	0.158	-0.628	-0.359	-0.294	-0.244	-0.456	-0.298	-0.560	-0.307	0.488
FlB240706	-0.604*	-0.425	-0.657*	-0.306	-0.736**	0.111	-0.223	-0.532	-0.143	-0.056	0.479	0.109
FlFe240706	0.617*	-0.338	0.045	0.355	0.341	0.288	0.010	0.539	0.172	0.555	-0.023	-0.232
FlCu240706	0.444	0.054	0.267	0.056	0.335	0.486	0.143	0.466	0.002	0.047	-0.418	-0.009
FlZn240706	-0.459	-0.556	-0.673*	-0.198	-0.620	0.204	-0.163	-0.366	0.105	0.232	0.556	-0.229
FlMn240706	-0.406	-0.546	-0.646*	-0.147	-0.576**	0.053	-0.189	-0.407	0.056	0.208	0.496	-0.152
PLPD07	0.019	0.681*	0.569	-0.127	-0.145	0.622*	0.318	0.405	-0.528	-0.343	0.052	0.592*
ProPla06	-0.106	-0.354	-0.318	0.183	-0.104	-0.035	-0.073	-0.059	0.329	0.405	0.189	-0.638*

Table 3 (cont)

	PrCor06	PrAroma06	PrCorpo06	PrAdst06	PrFrVe06	PrFloral06	PrAcTt06	PrFinal06
ClTp06	0.236	-0.300	0.220	0.237	-0.432	-0.070	-0.225	-0.056
ClHm06	-0.131	0.042	-0.085	-0.014	0.378	-0.024	0.162	0.044
SlTp06	0.635*	-0.647	0.396	0.469	-0.314	0.483	-0.190	0.261
PlTp06	0.337	-0.766	0.242	0.419	-0.516	0.060	-0.168	-0.171
FlAr210606	0.262	-0.386	0.122	0.098	0.068	0.561	-0.092	0.391
FlPS210606	-0.274	-0.261	-0.397	-0.062	-0.489	0.047	-0.116	-0.450
FlN210606	0.303	0.112	0.066	0.188	-0.316	-0.301	0.029	0.240
FlP210606	0.337	-0.129	0.265	0.347	-0.178	-0.204	0.132	0.096
FlK210606	0.340	-0.289	0.100	0.255	-0.703*	0.453	-0.490	-0.035
FlCa210606	0.744	-0.271	0.669	0.485	-0.075	-0.022	-0.225	0.524
FlMg210606	-0.234	0.529	-0.121	-0.133	-0.023	-0.520	0.195	-0.220
FlB210606	-0.878	0.324	-0.687*	-0.518	0.247	-0.190	0.366	-0.676
FlFe210606	0.676*	-0.349	0.656*	0.536	0.248	-0.063	-0.203	0.677*
FlCu210606	-0.527	-0.082	-0.437	-0.187	0.148	0.076	0.244	-0.516
FlZn210606	0.595*	0.035	0.513	0.287	-0.058	0.043	-0.388	0.649*
FlMn210606	-0.763**	0.037	-0.515	-0.355	0.195	-0.114	0.228	-0.782**
FlAr240706	0.559	-0.413	0.269	0.234	-0.417	0.234	-0.233	0.397
FlPS240706	0.688*	-0.514	0.405	0.350	-0.443	0.300	-0.361	0.471
SPAD06	-0.072	0.610*	-0.224	-0.274	-0.136	-0.220	0.121	0.131
FlN240706	0.504	-0.345	0.406	0.553	-0.492	-0.214	-0.463	0.242
FlP240706	-0.081	-0.185	-0.048	0.128	-0.133	0.121	0.088	-0.189
FlK240706	0.618*	-0.103	0.582*	0.382	0.045	0.055	-0.281	0.652*
FlCa240706	0.646*	0.030	0.595*	0.196	0.084	0.033	-0.138	0.762**
FlMg240706	-0.291	0.273	-0.062	-0.236	0.098	-0.415	0.124	-0.095
FlB240706	-0.879**	0.358	-0.620*	-0.477	0.181	-0.225	0.286	-0.743**
FlFe240706	0.212	-0.361	0.192	0.136	0.384	0.046	0.037	0.464
FlCu240706	0.331	-0.196	0.300	0.073	0.282	0.193	-0.136	0.612*
FlZn240706	-0.752**	0.094	-0.688*	-0.474	0.236	0.027	0.388	-0.601*
FlMn240706	-0.737**	0.081	-0.530	-0.354	0.249	-0.185	0.326	-0.662*
PLPD07	0.041	0.608*	-0.102	-0.315	0.355	-0.161	0.328	0.478
ProPla06	-0.204	-0.483	-0.145	0.063	-0.078	0.048	0.087	-0.508

Table 3 (cont)

	ClTp06	ClHm06	SlTp06	PlTp06	FlAr210606	FlPS210606	FlN210606	FlP210606	FlK210606	FlCa210606	FlMg210606	FlB210606	FlFe210606
MAP06	0.143	-0.033	0.342	0.048	0.168	-0.079	0.441	-0.004	0.286	0.701*	-0.049	-0.632*	0.701*
MpH06	0.102	-0.284	0.261	-0.303	0.269	-0.177	-0.100	0.193	0.375	0.061	-0.245	-0.375	-0.072
MAT06	-0.127	0.280	-0.091	0.313	-0.299	-0.280	0.478	0.021	-0.282	0.578*	0.327	-0.076	0.517
VAlcO06	0.139	-0.026	0.433	0.135	0.252	-0.159	0.323	-0.037	0.291	0.755**	-0.215	-0.752**	0.798**
VAcRe06	0.065	0.043	0.366	0.384	0.035	-0.207	0.571	0.063	0.316	0.827**	-0.080	-0.692*	0.732**
VExSeT06	-0.304	0.362	0.244	-0.029	0.263	-0.433	0.165	-0.235	0.208	0.630*	-0.369	-0.565	0.880**
VpH06	-0.469	0.417	0.113	-0.368	0.403	-0.558	-0.289	-0.312	0.202	0.259	-0.533	-0.331	0.617*
VAcVl06	0.012	0.190	0.355	0.371	0.327	-0.176	0.300	0.062	-0.020	0.567	-0.249	-0.515	0.769**
VAcFx06	0.422	-0.512	-0.075	0.144	-0.533	-0.001	0.743**	0.355	0.133	0.487	0.502	-0.445	-0.017
VAcTt06	0.334	-0.310	0.126	0.310	-0.263	-0.093	0.755**	0.313	0.117	0.682*	0.264	-0.625*	0.375
VFenTt06	-0.511	0.568	0.193	-0.096	0.183	-0.530	-0.119	-0.187	0.257	0.354	-0.346	-0.301	0.678*
VCor06	0.057	0.086	0.560	0.306	0.323	-0.265	0.138	0.078	0.338	0.667*	-0.344	-0.726**	0.755**
VTon06	-0.456	0.328	-0.297	-0.597	0.102	-0.269	-0.132	-0.298	-0.126	-0.117	-0.179	0.171	0.163
VCinza06	-0.165	-0.007	-0.194	-0.458	-0.133	-0.394	-0.153	-0.140	0.092	0.103	-0.123	-0.258	0.172
VAlc06	-0.431	0.426	0.182	-0.192	0.334	-0.643*	0.099	-0.024	0.111	0.459	-0.340	-0.480	0.744**
VPO406	-0.054	0.052	0.529	0.100	0.642*	-0.285	-0.659*	0.166	0.084	-0.114	-0.587*	-0.178	0.025
VAnt06	-0.673*	0.658*	0.099	-0.203	0.487	-0.499	-0.582*	-0.422	0.087	-0.082	-0.658*	-0.012	0.421
VSO2L06	-0.717	0.524	-0.535	-0.620*	-0.181	-0.207	-0.289	-0.509	-0.052	-0.494	-0.020	0.513	-0.209
VSO2T06	0.115	-0.110	-0.415	-0.284	-0.459	0.058	0.629*	0.226	-0.391	0.089	0.732**	0.110	-0.027
PrCor06	0.236	-0.131	0.635*	0.337	0.262	-0.274	0.303	0.337	0.340	0.744**	-0.234	-0.878**	0.676*
PrAroma06	-0.300	0.042	-0.647*	-0.766**	-0.386	-0.261	0.112	-0.129	-0.289	-0.271	0.529	0.324	-0.349
PrCorpo06	0.220	-0.085	0.396	0.242	0.122	-0.397	0.066	0.265	0.100	0.669*	-0.121	-0.687*	0.656*
PrAdst06	0.237	-0.014	0.469	0.419	0.098	-0.062	0.188	0.347	0.255	0.485	-0.133	-0.518	0.536
PrFrVe06	-0.432	0.378	-0.314	-0.516	0.068	-0.489	-0.316	-0.178	-0.703*	-0.075	-0.023	0.247	0.248
PrFloral06	-0.070	-0.024	0.483	0.060	0.561	0.047	-0.301	-0.204	0.453	-0.022	-0.520	-0.190	-0.063
PrAcTt06	-0.225	0.162	-0.190	-0.168	-0.092	-0.116	0.029	0.132	-0.490	-0.225	0.195	0.366	-0.203
PrFinal06	-0.056	0.044	0.261	-0.171	0.391	-0.450	0.240	0.096	-0.035	0.524	-0.220	-0.676*	0.677*

Table 3 (cont)

	FlCu210606	FlZn210606	FlMn210606	FlAr240706	FlPS240706	SPAD06	FlN240706	FlP240706	FlK240706	FlCa240706	FlMg240706	FlB240706	FlFe240706
MAP06	-0.663*	0.867**	-0.653*	0.200	0.307	0.287	0.625*	-0.318	0.833**	0.570	-0.189	-0.651*	0.202
MpH06	-0.151	0.247	-0.368	0.086	0.118	0.054	-0.207	0.124	0.153	0.148	-0.347	-0.325	-0.168
MAT06	-0.361	0.259	-0.128	-0.106	-0.099	0.305	0.381	-0.449	0.545	0.503	0.198	-0.126	0.279
VAlcO06	-0.658*	0.856**	-0.690*	0.378	0.519	0.102	0.609*	-0.367	0.811**	0.648*	-0.238	-0.785**	0.328
VAcRe06	-0.652*	0.683*	-0.667*	0.441	0.551	0.270	0.679*	-0.514	0.785**	0.721**	-0.226	-0.751**	0.322
VExSeT06	-0.398	0.664*	-0.513	0.182	0.352	-0.021	0.440	-0.534	0.791**	0.574	-0.457	-0.641*	0.568
VpH06	-0.048	0.415	-0.256	-0.138	0.037	-0.269	0.031	-0.282	0.578*	0.300	-0.563	-0.348	0.484
VAcVl06	-0.347	0.436	-0.514	0.412	0.503	-0.094	0.539	-0.161	0.607*	0.576	-0.054	-0.604*	0.617*
VAcFx06	-0.739**	0.441	-0.541	0.418	0.356	0.757**	0.362	-0.447	0.227	0.534	0.262	-0.425	-0.338
VAcTt06	-0.767**	0.572	-0.699*	0.556	0.553	0.564	0.563	-0.458	0.489	0.721**	0.158	-0.657*	0.045
VFenTt06	0.042	0.272	-0.178	-0.139	0.053	-0.316	0.253	-0.242	0.514	0.183	-0.628*	-0.306	0.355
VCor06	-0.386	0.562	-0.576*	0.404	0.574	-0.219	0.523	-0.146	0.647*	0.530	-0.359	-0.736**	0.341
VTon06	0.089	0.136	0.071	-0.431	-0.419	0.109	-0.255	-0.289	0.206	-0.050	-0.294	0.111	0.288
VCinza06	-0.176	0.287	-0.176	0.010	0.091	0.009	-0.082	-0.399	0.116	0.164	-0.244	-0.223	0.010
VAlc06	-0.206	0.451	-0.524	0.037	0.172	-0.046	0.214	-0.258	0.708**	0.551	-0.456	-0.532	0.539
VPO406	0.400	-0.300	0.013	0.108	0.185	-0.773**	-0.434	0.588*	-0.122	-0.031	-0.298	-0.143	0.172
VAnt06	0.425	-0.104	0.113	-0.134	0.032	-0.641*	-0.174	-0.057	0.161	-0.021	-0.560	-0.056	0.555
VSO2L06	0.455	-0.304	0.435	-0.454	-0.441	0.015	-0.360	-0.277	-0.307	-0.438	-0.307	0.479	-0.023
VSO2T06	-0.369	0.253	-0.199	-0.200	-0.332	0.738**	0.209	-0.102	0.132	0.161	0.488	0.109	-0.232
PrCor06	-0.527	0.595*	-0.763**	0.559	0.688*	-0.072	0.504	-0.081	0.618*	0.646*	-0.291	-0.879**	0.212
PrAroma06	-0.082	0.035	0.037	-0.413	-0.514	0.610*	-0.345	-0.185	-0.103	0.030	0.273	0.358	-0.361
PrCorpo06	-0.437	0.513	-0.515	0.269	0.405	-0.224	0.406	-0.048	0.582*	0.595*	-0.062	-0.620*	0.192
PrAdst06	-0.187	0.287	-0.355	0.234	0.350	-0.274	0.553	0.128	0.382	0.196	-0.236	-0.477	0.136
PrFrVe06	0.148	-0.058	0.195	-0.417	-0.443	-0.136	-0.492	-0.133	0.045	0.084	0.098	0.181	0.384
PrFloral06	0.076	0.043	-0.114	0.234	0.300	-0.220	-0.214	0.121	0.055	0.033	-0.415	-0.225	0.046
PrAcTt06	0.244	-0.388	0.228	-0.233	-0.361	0.121	-0.463	0.088	-0.281	-0.138	0.124	0.286	0.037
PrFinal06	-0.516	0.649*	-0.782**	0.397	0.471	0.131	0.242	-0.189	0.652*	0.762**	-0.095	-0.743**	0.464

Table 3 (cont)

	FlCu240706	FlZn240706	FlMn240706	PLPD07	ProPla06	MAP06	MpH06	MAT06	VAlcool06	VAcRe06	VExSeT06	VpH06
MAP06	0.644*	-0.736**	-0.748**	0.345	-0.549	1.000	0.287	0.231	0.914**	0.622*	0.634*	0.460
MpH06	0.355	-0.233	-0.428	0.393	-0.176	0.287	1.000	-0.359	0.173	-0.039	0.121	0.557
MAT06	0.163	-0.277	-0.106	0.332	0.009	0.231	-0.359	1.000	0.204	0.607*	0.338	-0.074
VAlcO06	0.644*	-0.754**	-0.758**	0.211	-0.439	0.914**	0.173	0.204	1.000	0.750**	0.807**	0.554
VAcRe06	0.430	-0.677*	-0.662*	0.339	-0.157	0.622*	-0.039	0.607*	0.750**	1.000	0.818**	0.345
VExSeT06	0.571	-0.474	-0.498	0.293	-0.125	0.634*	0.121	0.338	0.807**	0.818**	1.000	0.764
VpH06	0.543	-0.193	-0.262	0.217	0.023	0.460	0.557	-0.074	0.554	0.345	0.764**	1.000
VAcVl06	0.444	-0.459	-0.406	0.019	-0.106	0.542	-0.353	0.457	0.728**	0.775**	0.733**	0.249
VAcFx06	0.054	-0.556	-0.546	0.681*	-0.354	0.099	0.085	0.366	0.133	0.494	0.141	-0.173
VAcTt06	0.267	-0.673*	-0.646*	0.569	-0.318	0.339	-0.103	0.534	0.468	0.810**	0.501	-0.004
VFenTt06	0.056	-0.198	-0.147	-0.127	0.183	0.317	-0.004	0.107	0.466	0.458	0.730**	0.669*
VCor06	0.335	-0.620*	-0.576*	-0.145	-0.104	0.652*	-0.022	0.157	0.849**	0.719**	0.778**	0.503
VTon06	0.486	0.204	0.053	0.622*	-0.035	0.080	0.563	0.028	-0.042	-0.071	0.243	0.558
VCinza06	0.143	-0.163	-0.189	0.318	-0.073	-0.046	0.331	-0.294	0.176	0.104	0.419	0.582*
VAlc06	0.466	-0.366	-0.407	0.405	-0.059	0.522	0.329	0.308	0.603*	0.659*	0.877**	0.809
VPO406	0.002	0.105	0.056	-0.528	0.329	-0.026	0.362	-0.301	0.067	-0.159	0.051	0.375
VAnt06	0.047	0.232	0.208	-0.343	0.405	-0.016	0.024	-0.142	0.212	0.173	0.580*	0.699*
VSO2L06	-0.418	0.556	0.496	0.052	0.189	-0.478	-0.073	-0.241	-0.452	-0.284	-0.002	0.159
VSO2T06	-0.009	-0.229	-0.152	0.592*	-0.638*	0.250	-0.158	0.303	-0.024	-0.051	-0.214	-0.396
PrCor06	0.331	-0.752**	-0.737**	0.041	-0.204	0.637*	0.089	0.201	0.821**	0.769*	0.736**	0.426
PrAroma06	-0.196	0.094	0.081	0.608*	-0.483	-0.044	0.367	-0.058	-0.302	-0.336	-0.259	0.005
PrCorpo06	0.300	-0.688*	-0.530	-0.102	-0.145	0.553	0.040	0.142	0.742**	0.504	0.569	0.438
PrAdst06	0.073	-0.474	-0.354	-0.315	0.063	0.365	-0.284	0.050	0.519	0.395	0.389	0.124
PrFrVe06	0.282	0.236	0.249	0.355	-0.078	-0.085	0.108	0.290	-0.094	-0.147	0.152	0.315
PrFloral06	0.193	0.027	-0.185	-0.161	0.048	0.257	0.601*	-0.203	0.193	0.092	0.137	0.369
PrAcTt06	-0.136	0.388	0.326	0.328	0.087	-0.404	-0.056	0.410	-0.531	-0.180	-0.252	-0.270
PrFinal06	0.612*	-0.601*	-0.662*	0.478	-0.508	0.724**	0.291	0.207	0.817**	0.667**	0.809**	0.621*

Table 3 (cont)

	VAcVl06	VAcFx06	VAcTt06	VFenTt06	VCor06	VTon06	VCinza06	VAlc06	VPO406	VAnt06	VSO_2L06	VSO_2T06
MAP06	0.542	0.099	0.339	0.317	0.652*	0.080	-0.046	0.522	-0.026	-0.016	-0.478	0.250
MpH06	-0.353	0.085	-0.103	-0.004	-0.022	0.563	0.331	0.329	0.362	0.024	-0.073	-0.158
MAT06	0.457	0.366	0.534	0.107	0.157	0.028	-0.294	0.308	-0.301	-0.142	-0.241	0.303
VAlcO06	0.728**	0.133	0.468	0.466	0.849**	-0.042	0.176	0.603*	0.067	0.212	-0.452	-0.024
VAcRe06	0.775**	0.494	0.810**	0.458	0.719**	-0.071	0.104	0.659*	-0.159	0.173	-0.284	-0.051
VExSeT06	0.733**	0.141	0.501	0.730**	0.778**	0.243	0.419	0.877**	0.051	0.580*	-0.002	-0.214
VpH06	0.249	-0.173	-0.004	0.669*	0.503	0.558	0.582*	0.809**	0.375	0.699*	0.159	-0.396
VAcVl06	1.000	0.072	0.564	0.488	0.808**	-0.268	-0.051	0.574	0.025	0.316	-0.375	-0.024
VAcFx06	0.072	1.000	0.863**	-0.292	-0.063	0.045	0.299	0.044	-0.610*	-0.497	-0.131	0.286
VAcTt06	0.564	0.863**	1.000	0.024	0.357	-0.084	0.232	0.344	-0.484	-0.224	-0.271	0.197
VFenTt06	0.488	-0.292	0.024	1.000	0.731**	0.021	0.298	0.754**	0.348	0.825**	0.279	-0.356
VCor06	0.808**	-0.063	0.357	0.731**	1.000	-0.327	0.141	0.628*	0.346	0.504	-0.349	-0.313
VTon06	-0.268	0.045	-0.084	0.021	-0.327	1.000	0.394	0.419	-0.114	0.124	0.375	0.127
VCinza06	-0.051	0.299	0.232	0.298	0.141	0.394	1.000	0.340	-0.059	0.383	0.389	-0.321
VAlc06	0.574	0.044	0.344	0.754**	0.628*	0.419	0.340	1.000	0.226	0.607*	0.085	-0.124
VPO406	0.025	-0.610	-0.484	0.348	0.346	-0.114	-0.059	0.226	1.000	0.527	-0.215	-0.628
VAnt06	0.316	-0.497	-0.224	0.825	0.504	0.124	0.383	0.607*	0.527	1.000	0.436	-0.658
VSO2L06	-0.375	-0.131	-0.271	0.279	-0.349	0.375	0.389	0.085	-0.215	0.436	1.000	-0.087
VSO2T06	-0.024	0.286	0.197	-0.356	-0.313	0.127	-0.321	-0.124	-0.628*	-0.658*	-0.087	1.000
PrCor06	0.787	0.151	0.523	0.619*	0.949**	-0.296	0.161	0.645*	0.311	0.342	-0.436	-0.211
PrAroma06	-0.596*	0.207	-0.138	-0.305	-0.602*	0.544	0.110	-0.056	-0.366	-0.314	0.425	0.555
PrCorpo06	0.630*	-0.008	0.297	0.524	0.851**	-0.321	0.253	0.448	0.391	0.305	-0.541	-0.242
PrAdst06	0.664*	-0.168	0.189	0.593	0.795**	-0.536	-0.011	0.297	0.260	0.289	-0.363	-0.132
PrFrVe06	-0.032	-0.136	-0.128	0.020	-0.222	0.661*	0.217	0.293	0.094	0.152	0.160	0.171
PrFloral06	-0.147	-0.235	-0.254	0.086	0.143	0.146	-0.169	0.198	0.531	0.244	-0.082	-0.453
PrAcTt06	-0.220	0.075	-0.036	-0.250	-0.542	0.414	-0.276	0.009	-0.103	-0.199	0.237	0.349
PrFinal06	0.705*	0.193	0.512	0.423	0.673*	0.232	0.288	0.799**	0.110	0.293	-0.256	0.089

Table 3 (cont)

	PrCor06	PrAroma06	PrCorpo06	PrAdst06	PrFrVe06	PrFloral06	PrAcTt06	PrFinal06
MAP06	0.637*	-0.044	0.553	0.365	-0.085	0.257	-0.404	0.724**
MpH06	0.089	0.367	0.040	-0.284	0.108	0.601*	-0.056	0.291
MAT06	0.201	-0.058	0.142	0.050	0.290	-0.203	0.410	0.207
VAlcO06	0.821**	-0.302	0.742	0.519	-0.094	0.193	-0.531	0.817**
VAcRe06	0.769**	-0.336	0.504	0.395	-0.147	0.092	-0.180	0.667*
VExSeT06	0.736**	-0.259	0.569	0.389	0.152	0.137	-0.252	0.809**
VpH06	0.426	0.005	0.438	0.124	0.315	0.369	-0.270	0.621*
VAcVl06	0.787**	-0.596*	0.630*	0.664*	-0.032	-0.147	-0.220	0.705*
VAcFx06	0.151	0.207	-0.008	-0.168	-0.136	-0.235	0.075	0.193
VAcTt06	0.523	-0.138	0.297	0.189	-0.128	-0.254	-0.036	0.512
VFenTt06	0.619*	-0.305	0.524	0.593*	0.020	0.086	-0.250	0.423
VCor06	0.949**	-0.602*	0.851	0.795**	-0.222	0.143	-0.542	0.673*
VTon06	-0.296	0.544	-0.321	-0.536	0.661*	0.146	0.414	0.232
VCinza06	0.161	0.110	0.253	-0.011	0.217	-0.169	-0.276	0.288
VAlc06	0.645*	-0.056	0.448	0.297	0.293	0.198	0.009	0.799**
$VPO_4$06	0.311	-0.366	0.391	0.260	0.094	0.531	-0.103	0.110
VAnt06	0.342	-0.314	0.305	0.289	0.152	0.244	-0.199	0.293
VSO_2L06	-0.436	0.425	-0.541	-0.363	0.160	-0.082	0.237	-0.256
VSO_2T06	-0.211	0.555	-0.242	-0.132	0.171	-0.453	0.349	0.089
PrCor06	1.000	-0.542	0.836**	0.763**	-0.197	0.108	-0.405	0.735**
PrAroma06	-0.542	1.000	-0.522	-0.711**	0.308	0.052	0.353	-0.057
PrCorpo06	0.836**	-0.522	1.000	0.769**	-0.048	-0.075	-0.559	0.568
PrAdst06	0.763**	-0.711**	0.769**	1.000	-0.316	-0.292	-0.468	0.302
PrFrVe06	-0.197	0.308	-0.048	-0.316	1.000	-0.160	0.619*	0.241
PrFloral06	0.108	0.052	-0.075	-0.292	-0.160	1.000	-0.106	0.144
PrAcTt06	-0.405	0.353	-0.559	-0.468	0.619*	-0.106	1.000	-0.153
PrFinal06	0.735**	-0.057	0.568	0.302	0.241	0.144	-0.153	1.000

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 4- Regressões dos valores de humidade, temperatura das plantas e do solo relativamente à temperatura do ar em 2005 e 2006

```
Dependent variable.. ClHm05           Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .92242
R Square             .85085
Adjusted R Square    .84801
Standard Error      2.31605
            Analysis of Variance:
                DF   Sum of Squares      Mean Square
Regression       2        3213.1170        1606.5585
Residuals      105         563.2286           5.3641
F =      299.50298       Signif F =  .0000
-------------------- Variables in the Equation --------------------
Variable                  B         SE B       Beta          T  Sig T
ClTp05            -8.406738     3.299713  -2.601165     -2.548  .0123
ClTp05**2           .111628      .067759   1.681986      1.647  .1025
(Constant)       172.148766    39.977313                 4.306  .0000
```

```
Dependent variable.. ClHm06           Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .90783
R Square             .82416
Adjusted R Square    .82081
Standard Error       .99094
            Analysis of Variance:
                DF   Sum of Squares      Mean Square
Regression       2        483.26536        241.63268
Residuals      105        103.10531           .98196
F =      246.07299       Signif F =  .0000
-------------------- Variables in the Equation --------------------
Variable                  B         SE B       Beta          T  Sig T
ClTp06            -4.719241     4.759532  -2.283163      -.992  .3237
ClTp06**2           .042988      .071945   1.375875       .598  .5514
(Constant)       137.743541    78.643540                 1.751  .0828
```

```
Dependent variable.. PlTp05           Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .80422
R Square             .64677
Adjusted R Square    .64004
Standard Error      1.20569
            Analysis of Variance:
                DF   Sum of Squares      Mean Square
Regression       2        279.48439        139.74219
Residuals      105        152.63831          1.45370
F =       96.12875       Signif F =  .0000
-------------------- Variables in the Equation --------------------
Variable                  B         SE B       Beta          T  Sig T
ClTp05             9.585738     1.717772   8.767952      5.580  .0000
ClTp05**2          -.180179      .035274  -8.025761     -5.108  .0000
(Constant)       -99.272739    20.811483                -4.770  .0000
```

```
Dependent variable.. PlTp06           Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .44678
R Square             .19961
Adjusted R Square    .18436
Standard Error       .86351
            Analysis of Variance:
                DF   Sum of Squares      Mean Square
Regression       2        19.525335        9.7626674
Residuals      105        78.292339         .7456413

F =       13.09298       Signif F =  .0000
-------------------- Variables in the Equation --------------------
Variable                  B         SE B       Beta          T  Sig T
ClTp06             4.254323     4.147471   5.039328      1.026  .3074
ClTp06**2          -.058712      .062693  -4.600824      -.937  .3512
(Constant)       -49.017159    68.530228                 -.715  .4760
```

```
Dependent variable.. SlTp05           Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .79478
R Square             .63167
Adjusted R Square    .62466
Standard Error      1.86798
            Analysis of Variance:
                DF   Sum of Squares      Mean Square
Regression       2        628.34315        314.17157
Residuals      105        366.38283          3.48936
F =       90.03701       Signif F =  .0000
-------------------- Variables in the Equation --------------------
Variable                  B         SE B       Beta          T  Sig T
ClTp05             8.358057     2.661346   5.038831      3.141  .0022
ClTp05**2          -.145194      .054650  -4.262689     -2.657  .0091
(Constant)       -84.760145    32.243250                -2.629  .0099
```

```
Dependent variable.. SlTp06           Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R           .42422
R Square             .17996
Adjusted R Square    .16434
Standard Error      1.63927
            Analysis of Variance:
                DF   Sum of Squares      Mean Square
Regression       2         61.91955        30.959775
Residuals      105        282.15685         2.687208
F =       11.52117       Signif F =  .0000
-------------------- Variables in the Equation --------------------
Variable                  B         SE B       Beta          T  Sig T
ClTp06            20.581607     7.873522  12.998782      2.614  .0103
ClTp06**2          -.302546      .119016 -12.640931     -2.542  .0125
(Constant)      -317.817379   130.097166                -2.443  .0162
```

Table 5- Adult leave area vs leave weight linear regression for different 2005 and 2006 data

<table>
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<pre>
Dependent variable.. FLAR1706   Method.. QUADRATI
Listwise Deletion of Missing Data
Multiple R   .31102
R Square   .09674
Adjusted R Square   .07953
Standard Error   65.33602
            Analysis of Variance:
                DF   Sum of Squares   Mean Square
Regression   2   48002.51   24001.254
Residuals   105   448223.47   4268.795
F =   5.62249   Signif F = .0048
-------------------- Variables in the Equation --------------------
Variable   B   SE B   Beta   T Sig T
FLPS1706   35.725009 174.628188   .182653   .205 .8383
FLPS1706**2   5.969478   41.386714   .128779   .144 .8856
(Constant)   215.118643 179.927274   1.196 .2346
</pre>
</td>
<td>
<pre>
Dependent variable.. FlAr2106   Method.. LINEAR
Listwise Deletion of Missing Data
Multiple R   .20484
R Square   .04196
Adjusted R Square   .03292
Standard Error   131.69869
            Analysis of Variance:
                DF   Sum of Squares   Mean Square
Regression   1   80524.7   80524.689
Residuals   106   1838521.9   17344.546
F =   4.64265   Signif F = .0335
-------------------- Variables in the Equation --------------------
Variable   B   SE B   Beta   T Sig T
FlPS2106   74.870975   34.748049   .204843   2.155 .0335
(Constant)   134.480254   73.036645   1.841 .0684
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</td>
</tr>
<tr>
<td></td>
<td>
<pre>
Dependent variable.. FlAr2407   Method.. LINEAR
Listwise Deletion of Missing Data
Multiple R   .87039
R Square   .75757
Adjusted R Square   .75528
Standard Error   13.34381
            Analysis of Variance:
                DF   Sum of Squares   Mean Square
Regression   1   58979.648   58979.648
Residuals   106   18874.057   178.057
F =   331.24001   Signif F = .0000
-------------------- Variables in the Equation --------------------
Variable   B   SE B   Beta   T Sig T
FlPS2407   103.377917   5.680105   .870385   18.200 .0000
(Constant)   45.030844   10.679721   4.216 .0001
</pre>
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</tr>
</table>