THINKING WINES

UNIVERSIDADE DE ÉVORA

Cartuxa

FUNDAÇÃO EUGÉNIO DE ALMEIDA

THINKING WINES

JOSÉ RAFAEL M. DA SILVA

PEDRO BAPTISTA

Active proximal sensing on vineyard vigor vegetation management

TERROIR

There are unique aspects of a specific place that shape grape quality

TERROIR

Topography; Soil; Climate; Genetics; Plant population; age; management…

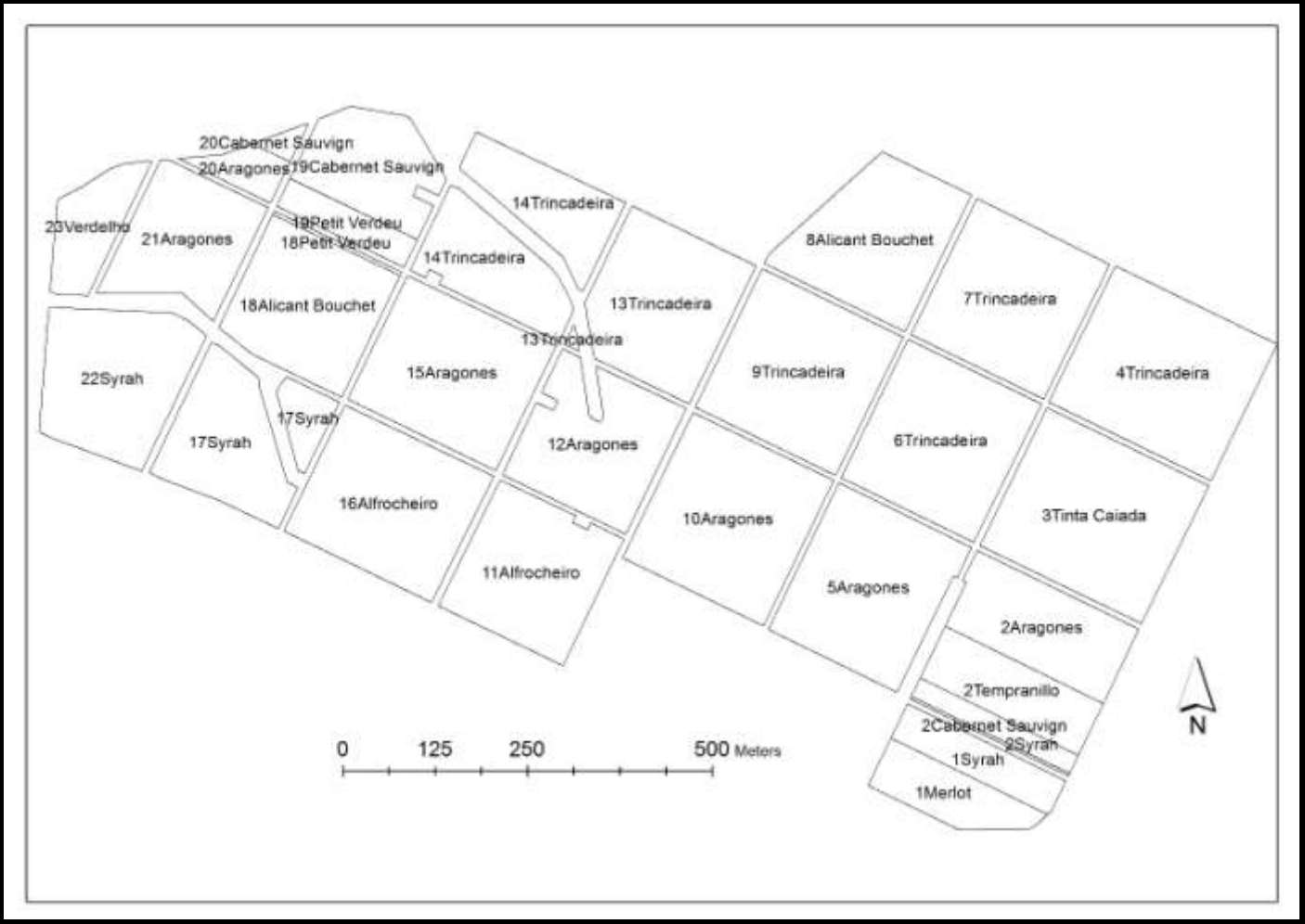
…plant temporal tensions integration during a vegetative cycle

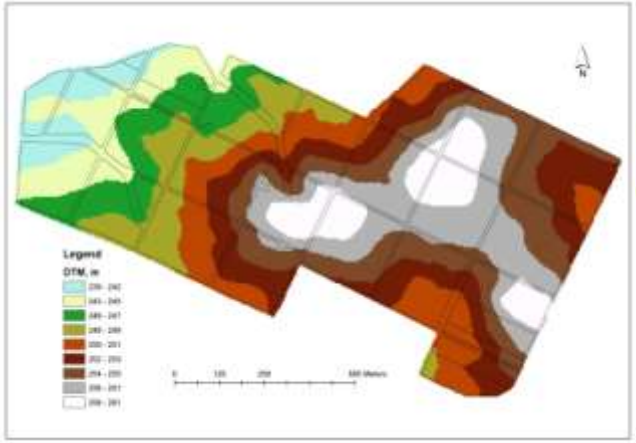
TERROIR

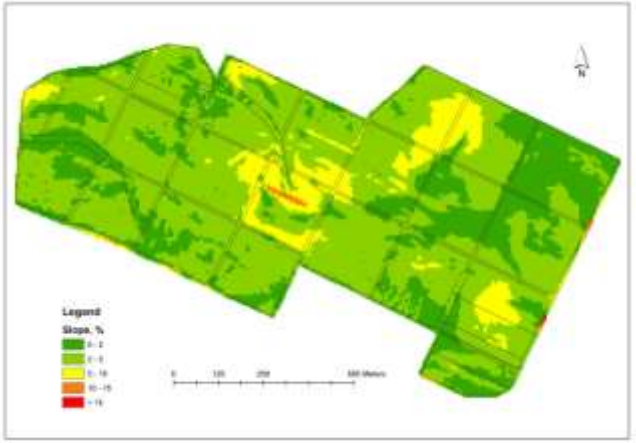
YES

It’ s a very complex multi-factorial phenomenen

“CASITO - Genetics”




Legend
DTM, m
0 125 250 500 Meters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Slope, %
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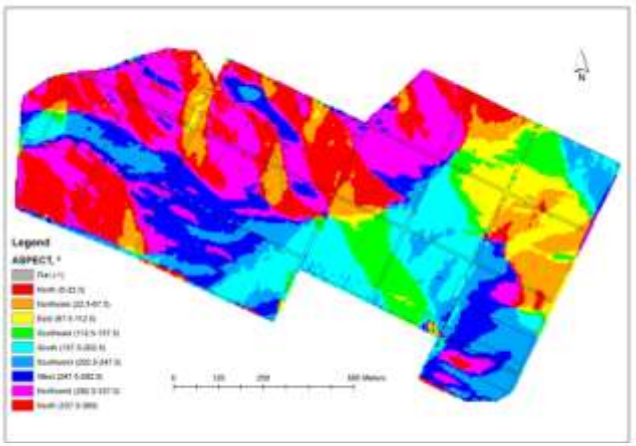
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ASPECT, °
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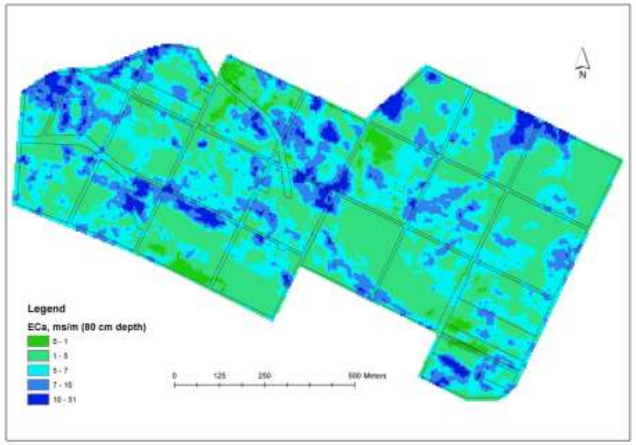
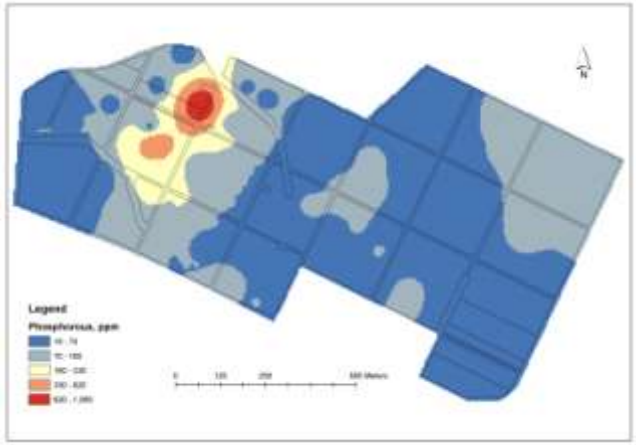

Legend
ECa, ms/m (80 cm depth)
0 - 1
1 - 5
5 - 7
7 - 10
10 - 31
0 125 250 500 Meters


Legend
Phosphorous, ppm
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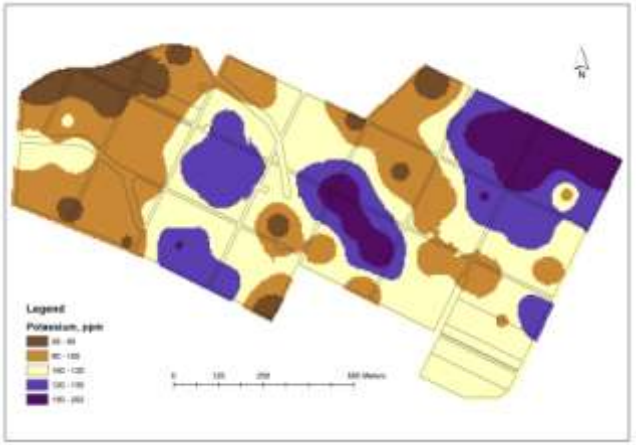
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Potassium, ppm
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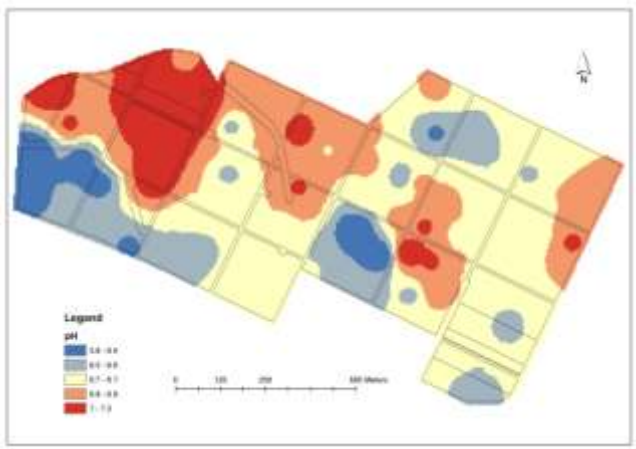
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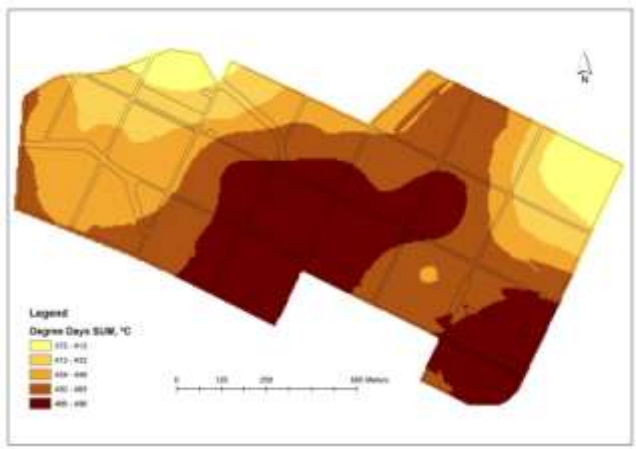
pH
0 125 250 500 Meters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Degree Days SUM, °C
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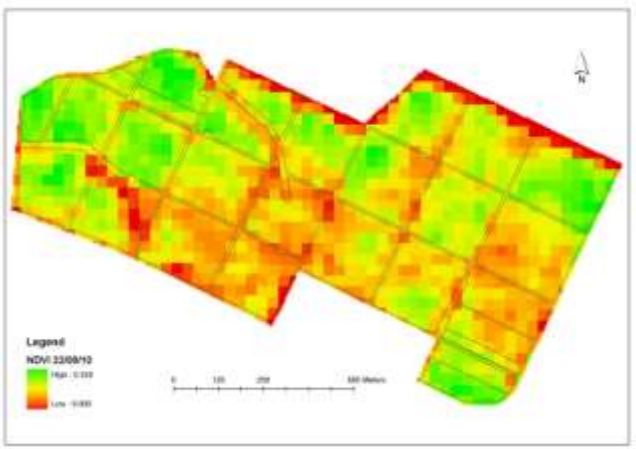
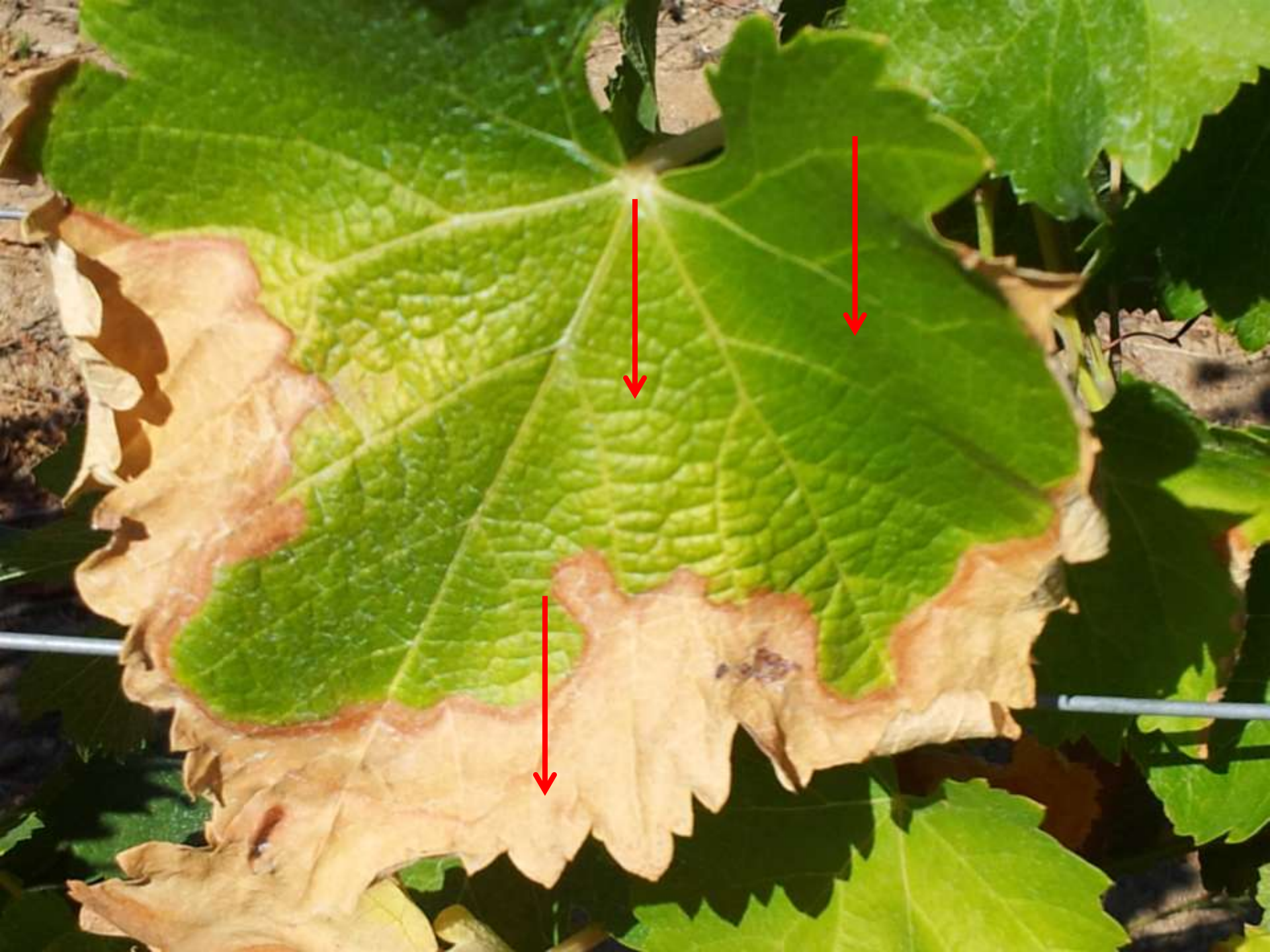
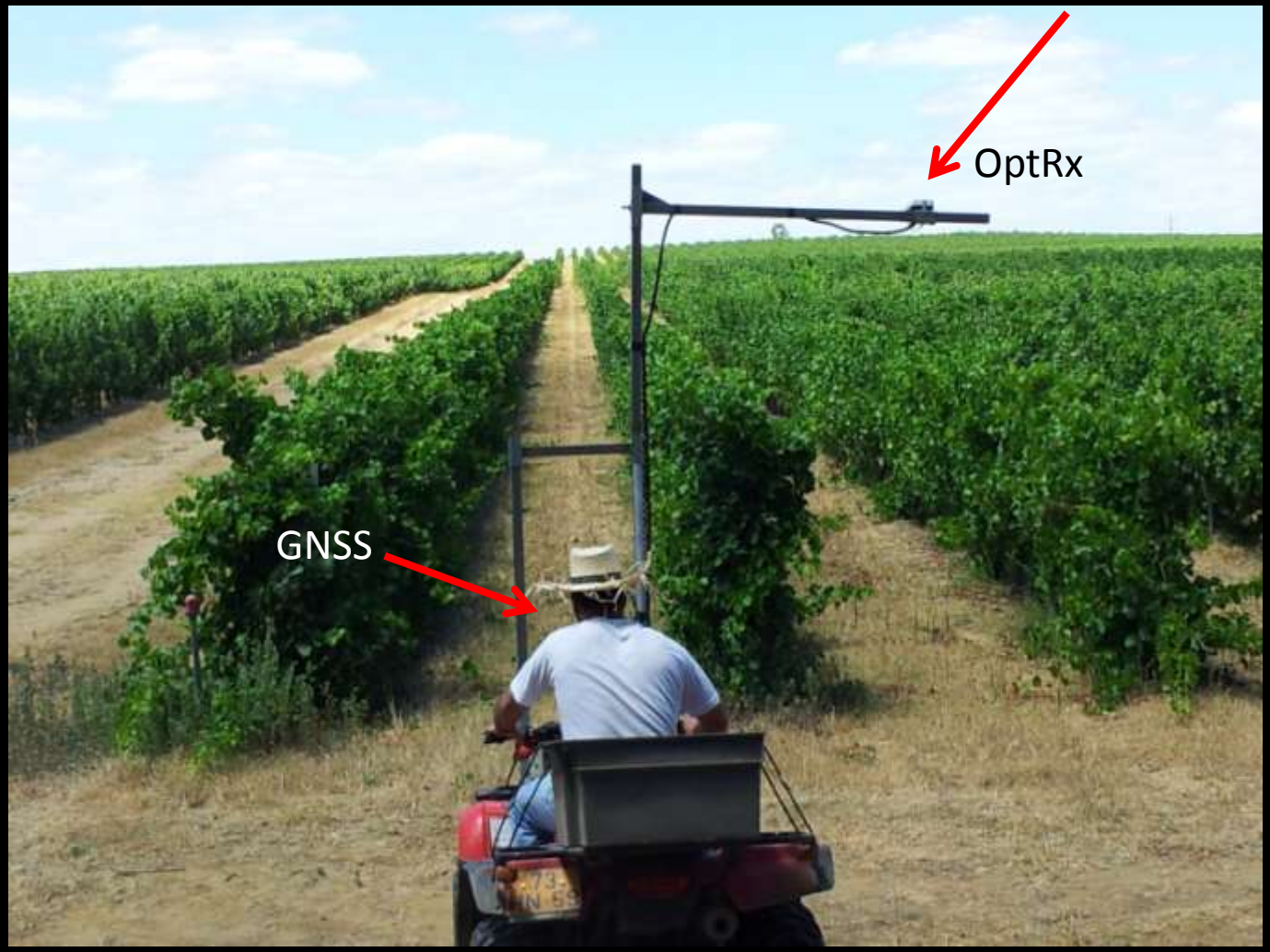

Legend
NDVI 23/09/10
0 125 250 500 Meters

“VEGETATIVE VIGOR”

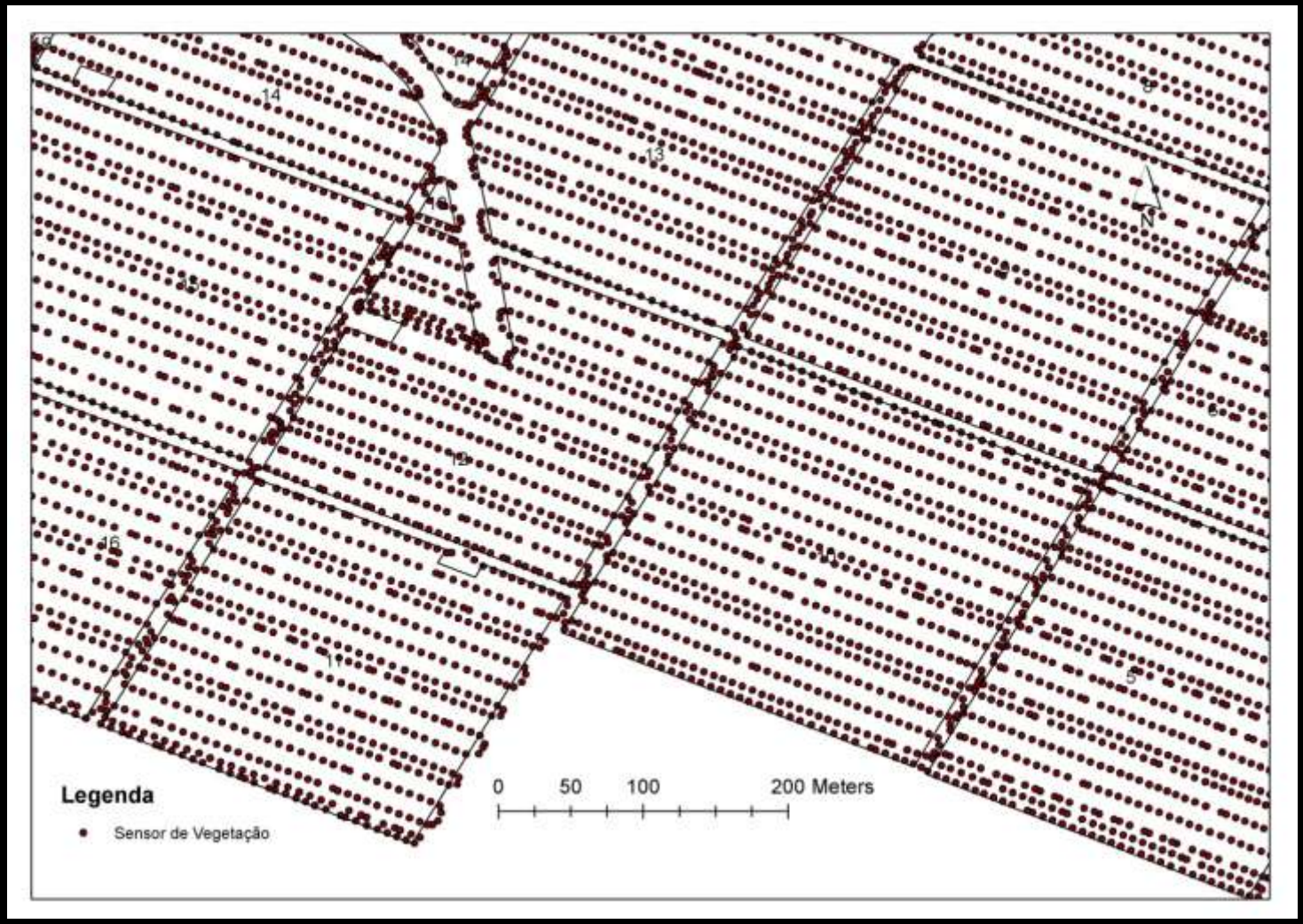
Trimble

Ag Leader Technology
TM
OptRx
Optimum Prescription
U.S. Patent: 7,408,145 and others pending
Model ACS430

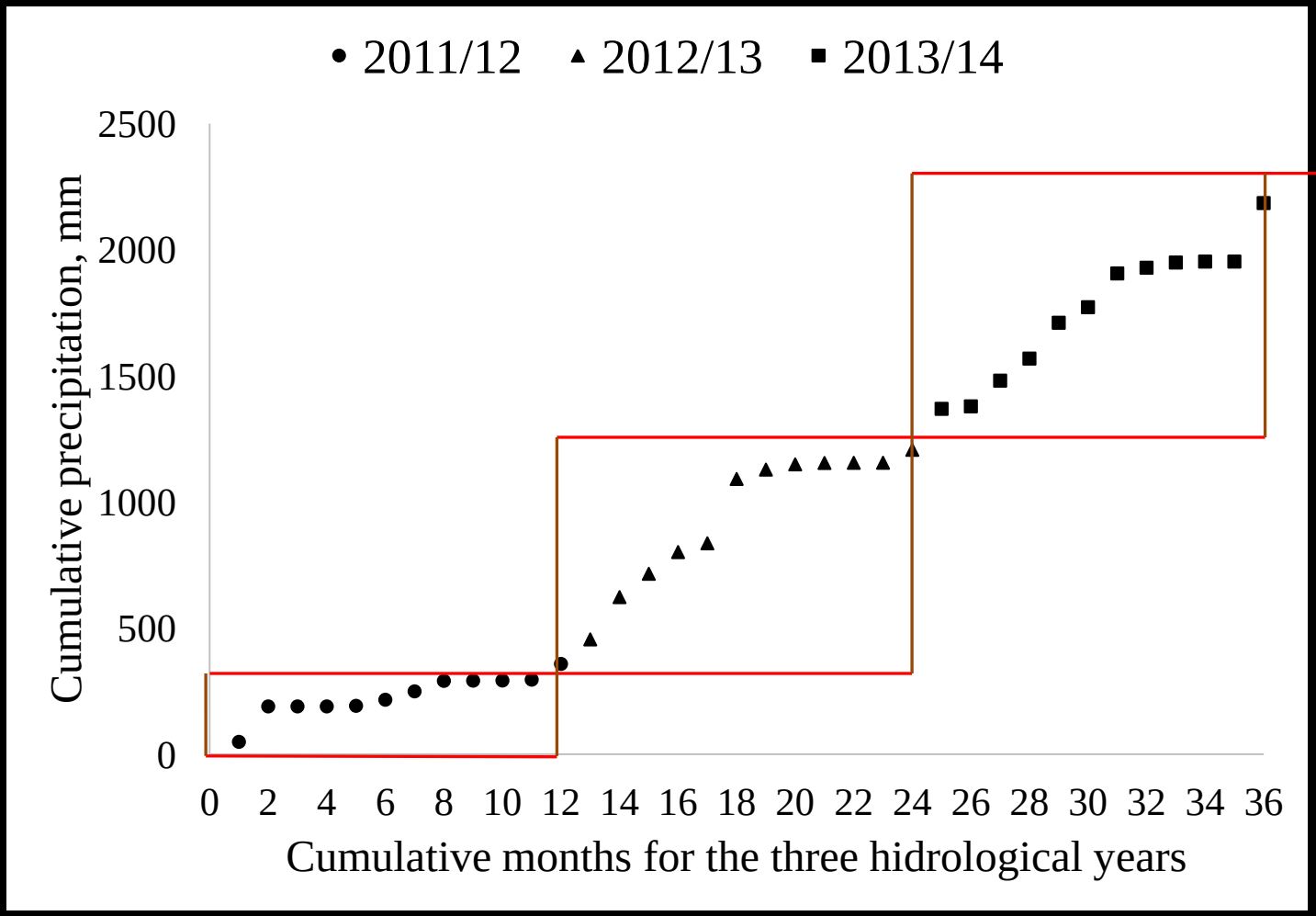



OptRx
GNSS

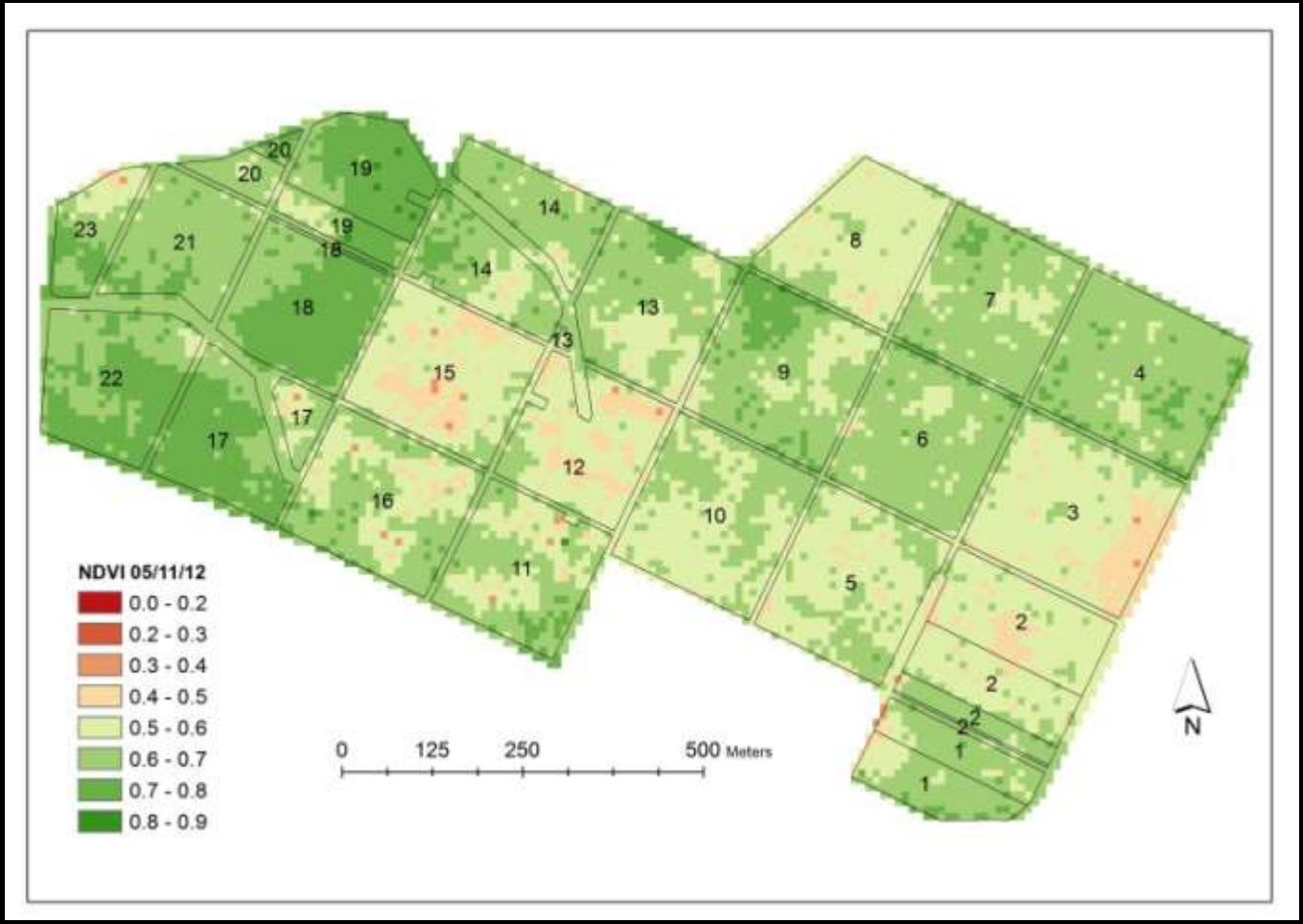
“BASE DE DADOS GEOGRÁFICA”



“YEAR QUALITY”



“NDVI 2012 ANIMATION”



2012

NDVI 23/06/12
0.0 - 0.2
0.2 - 0.3
0.3 - 0.4
0.4 - 0.5
0.5 - 0.6
0.6 - 0.7
0.7 - 0.8
0.8 - 0.9
0 125 250 500 Meters
N

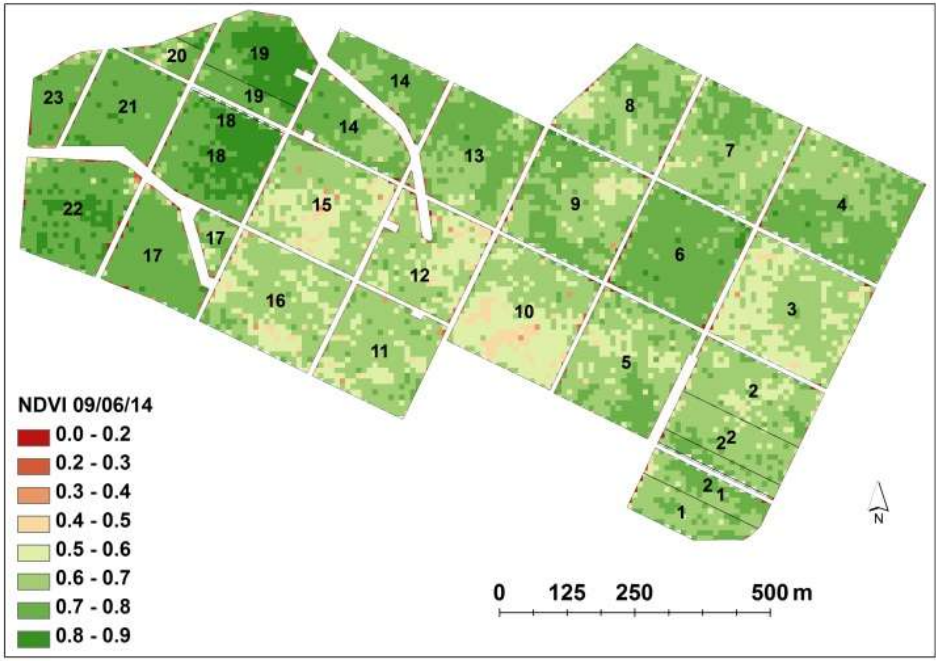
NDVI 16/09/12
0.0 - 0.2
0.2 - 0.3
0.3 - 0.4
0.4 - 0.5
0.5 - 0.6
0.6 - 0.7
0.7 - 0.8
0.8 - 0.9
0 125 250 500 Meters
N

2013

NDVI 25/06/13
0.0 - 0.2
0.2 - 0.3
0.3 - 0.4
0.4 - 0.5
0.5 - 0.6
0.6 - 0.7
0.7 - 0.8
0.8 - 0.9
0 125 250 500 Meters
N

NDVI 16/09/13
0.0 - 0.2
0.2 - 0.3
0.3 - 0.4
0.4 - 0.5
0.5 - 0.6
0.6 - 0.7
0.7 - 0.8
0.8 - 0.9
0 125 250 500 Meters
N

2014


NDVI 09/06/14
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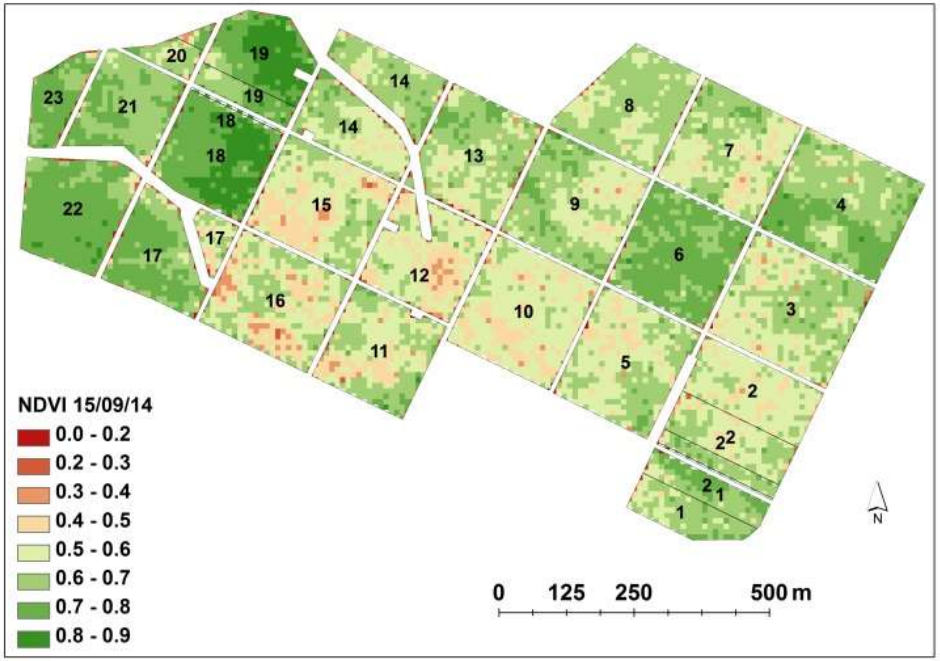
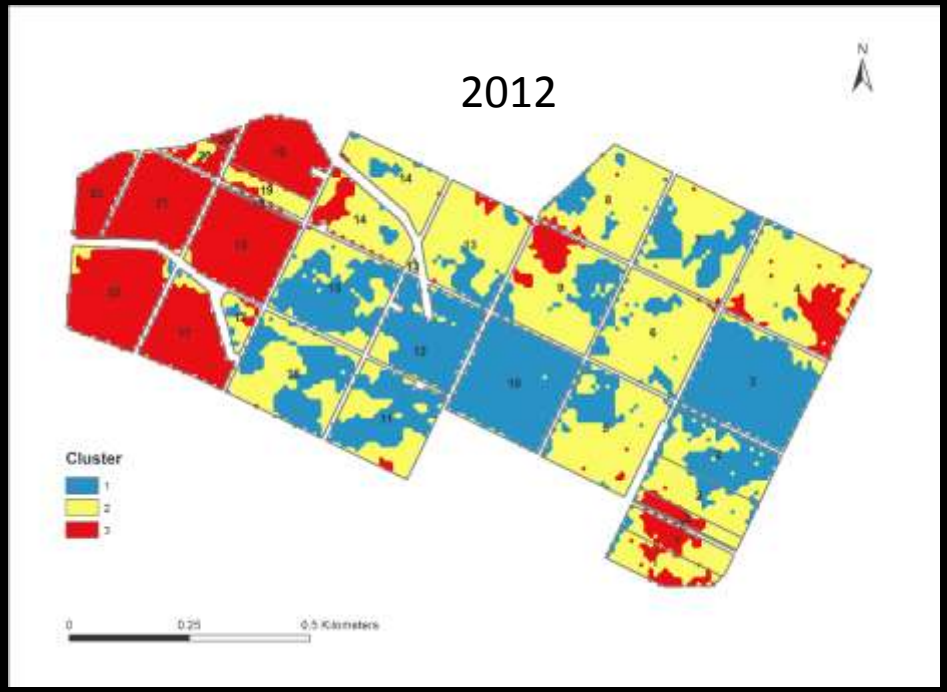
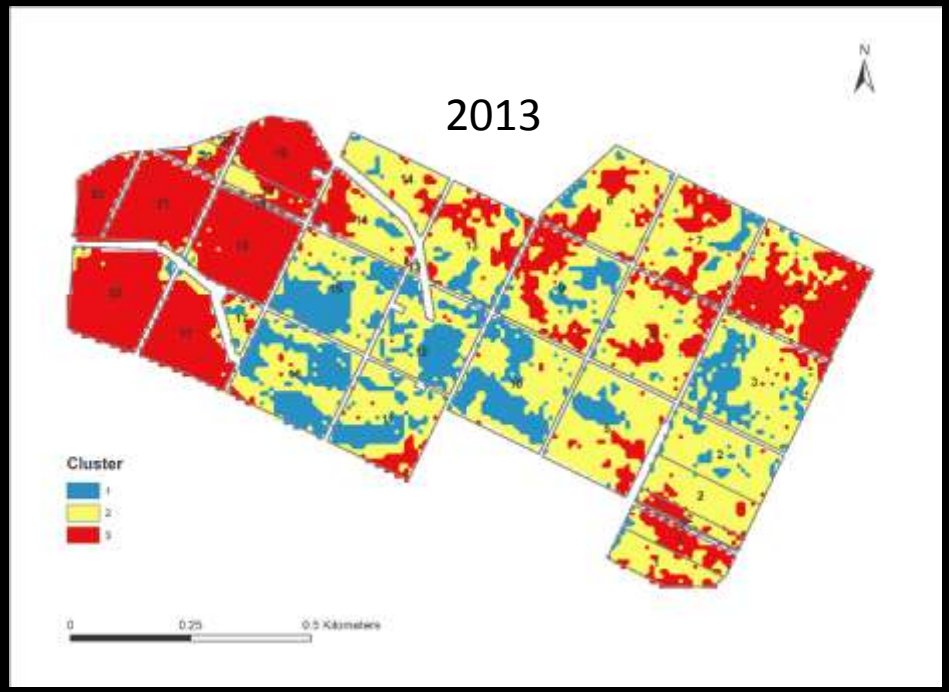
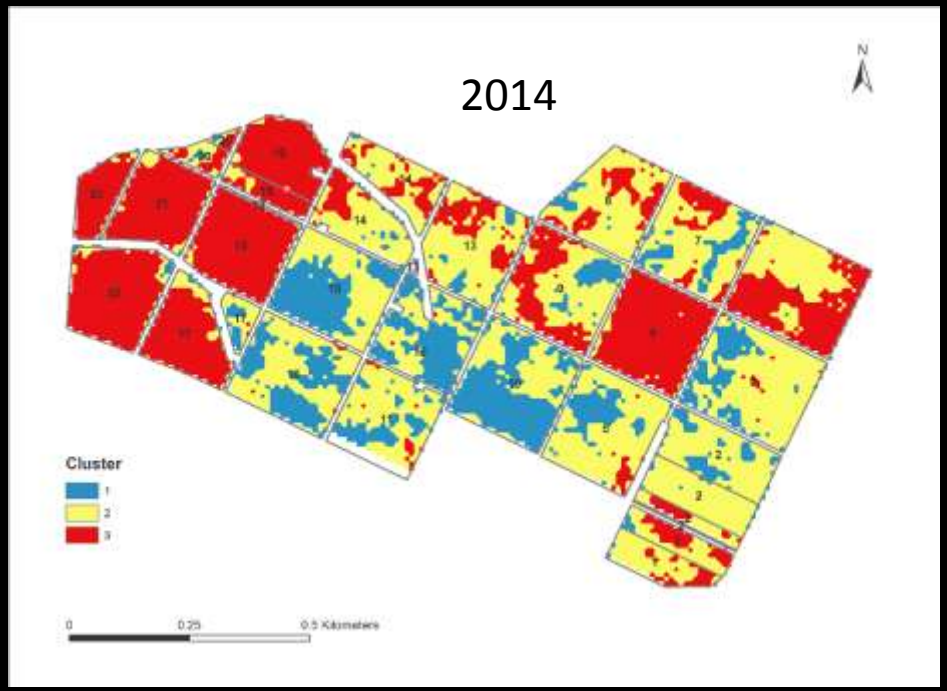
0.2 - 0.3
0.3 - 0.4
0.4 - 0.5
0.5 - 0.6
0.6 - 0.7
0.7 - 0.8
0.8 - 0.9
0 125 250 500 m
N


NDVI 15/09/14
0.0 - 0.2
0.2 - 0.3
0.3 - 0.4
0.4 - 0.5
0.5 - 0.6
0.6 - 0.7
0.7 - 0.8
0.8 - 0.9
0 125 250 500 m
N

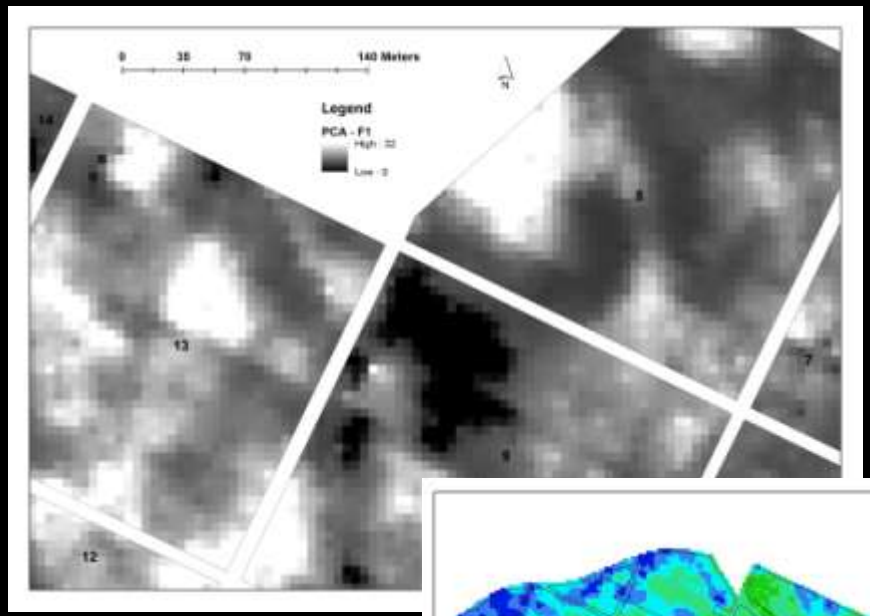

2012
N
Cluster
1
2
3
0
0.25
0.5 Kilometers

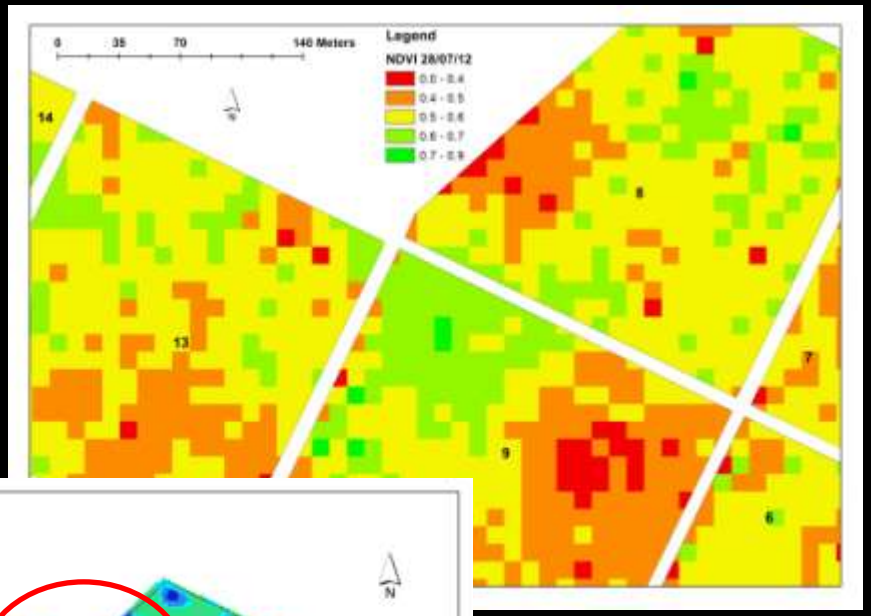

2013
N
Cluster
1
2
3
0
0.25
0.5 Kilometers

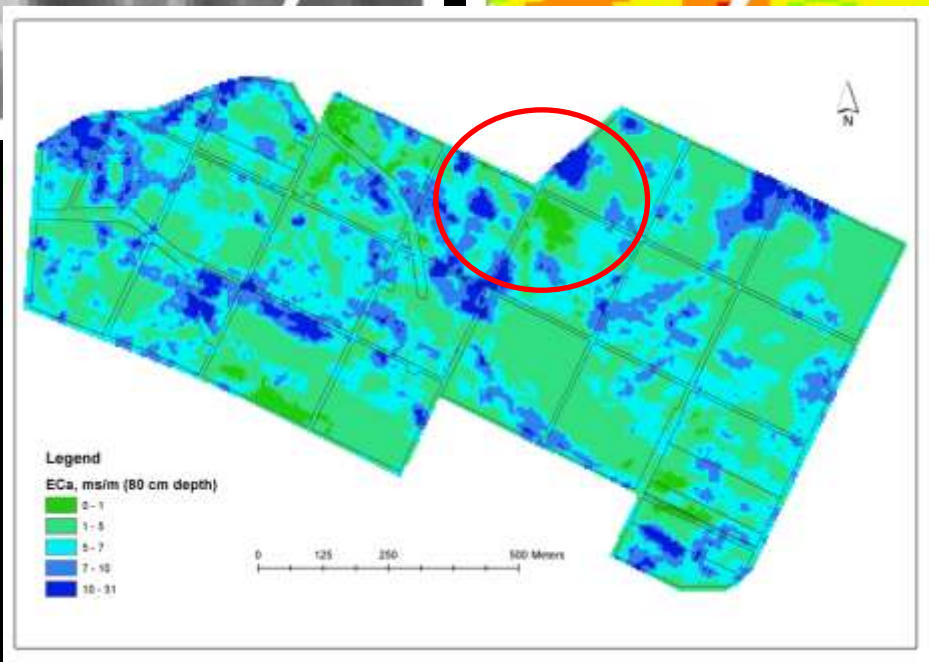

2014
N
Cluster
1
2
3
0
0.25
0.5 Kilometers

"CLUSTERS"

“SOIL ECa - VEGETATION”



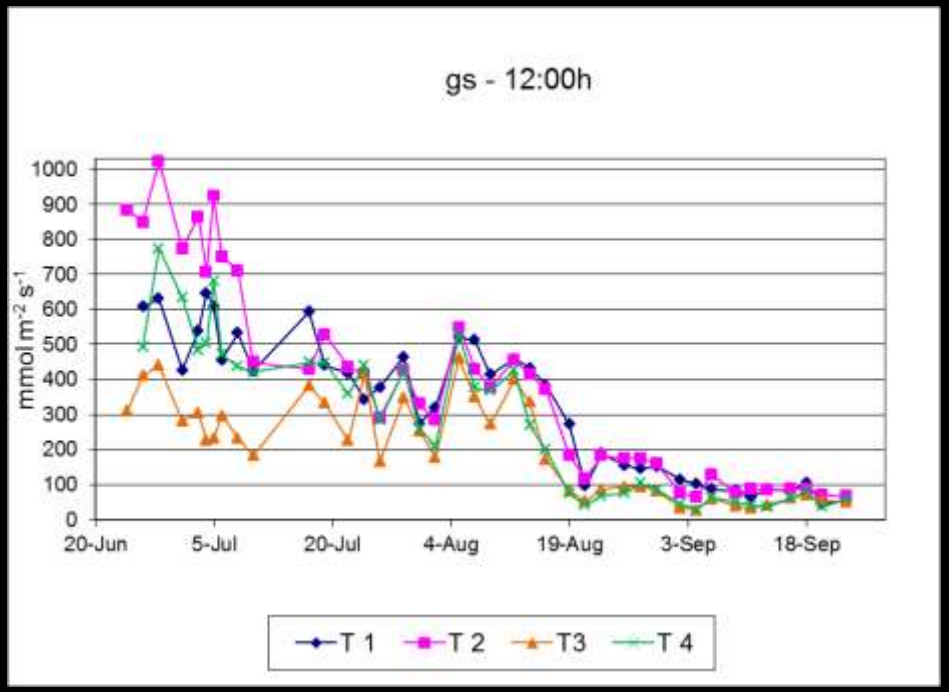


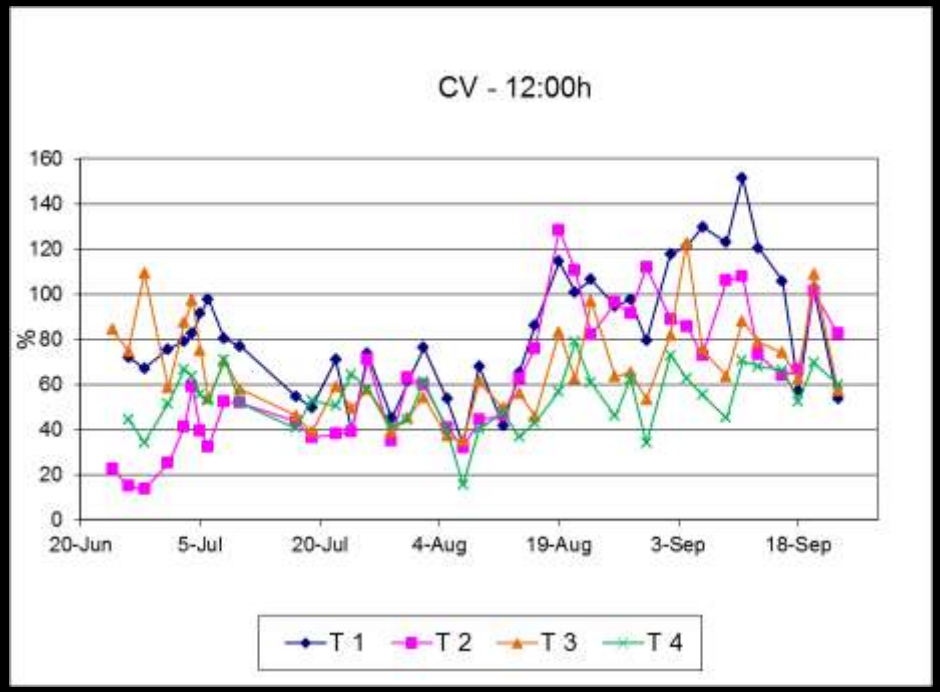


“Estom. Cond. - VEGETATION”

“Cond. Estom. - VEGETAÇÃO”

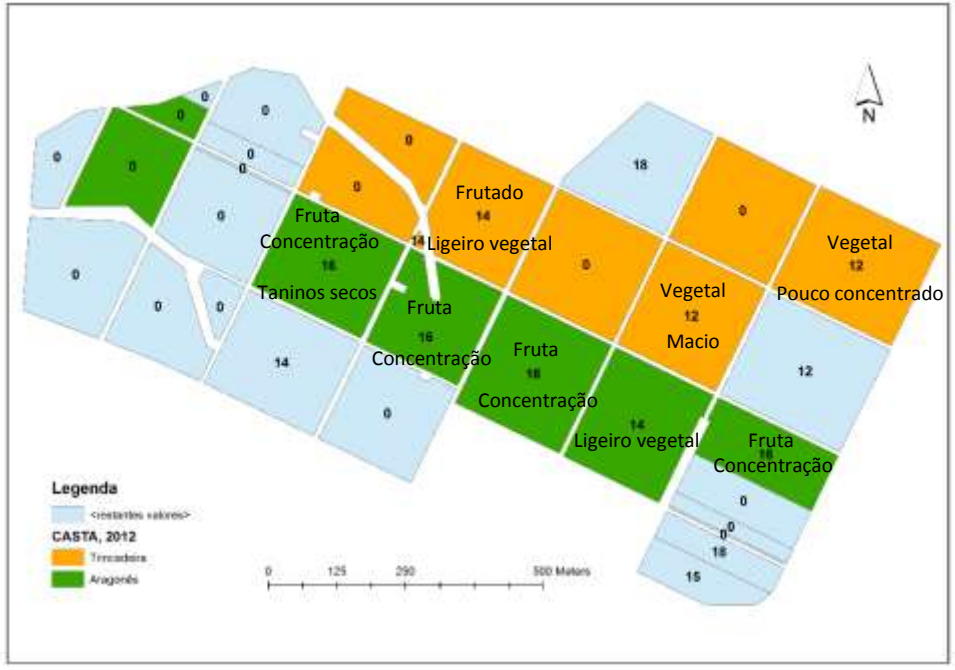
2013





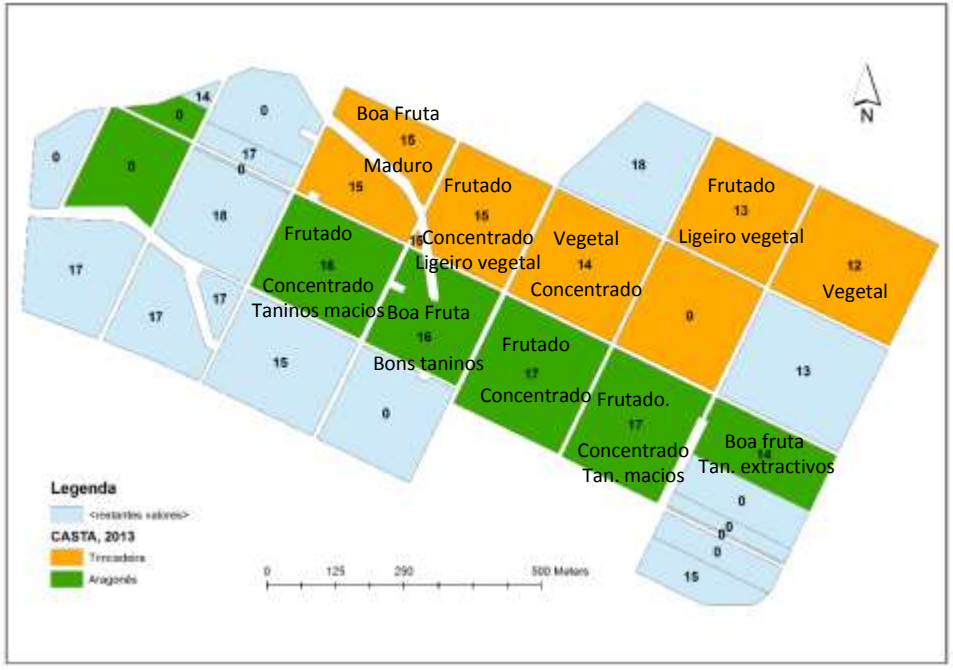
2012

Classificação



2013

Classificação



“WINE - VEGETATION”

- KEY QUESTIONS:
- i) In order to obtain a better productivity/quality relationship how do we manage vegetation on dry and wet years?

“WINE - VEGETATION”

- ii) In wet years, with more soil water availability what should be our strategy:
  a) reduce vegetation in order to save water and save money; or
  b) stimulate vegetation in order to exhaust soil water reserves and better control plant water stress, so important to shape quality in the end of the maturity process?

“WINE - VEGETATION”

- iii) In dry years what should be our strategy:
  a) reduce vegetation in order to save water and Money; or
  b) improve vegetation to better control productivity and plant water stress?
- iv) Can we model water plant stress in order to shape wine characteristics? Is vegetation important in this modelling process?

“PHREATIC – VEGETATION - WINE”

- v) Nationally there exist wine regions with groundwater water table relatively high, inclusively in summer time, when compared with other regions (e.g.: Palmela region), in this way how do we have to manage vegetation and plant water stress in order to obtain quality?

“SOIL – IRRIGATION - VEGETATION - WINE”

- vi) How to manage all this restrictions:
  a) enterprise strategy; b) soil; c) phreatic; d) dry year; e) wet year; f) wine characteristics; g) genetics characteristics;…

  in order to achieve the wine we want?

“CONCLUSIONS”

THERE IS NO UNIQUE SOLUTIONS

“CONCLUSIONS”

- WHAT TYPE OF WINE DO WE WANT?
- WHAT TYPE OF YEAR DO WE HAVE?
- WHAT TYPE OF PRHEATIC EXIST?
- WHAT TYPE OF VEGETATION DO WE HAVE AND WHAT TYPE OF VEGETATION DO WE NEED?
- WHAT TYPE OF WATER STRESS DO WE NEED?
- WHAT TYPE OF WINES FASCINATE US?

THE THINKING WINES

UNIVERSIDADE DE ÉVORA

Cartuxa

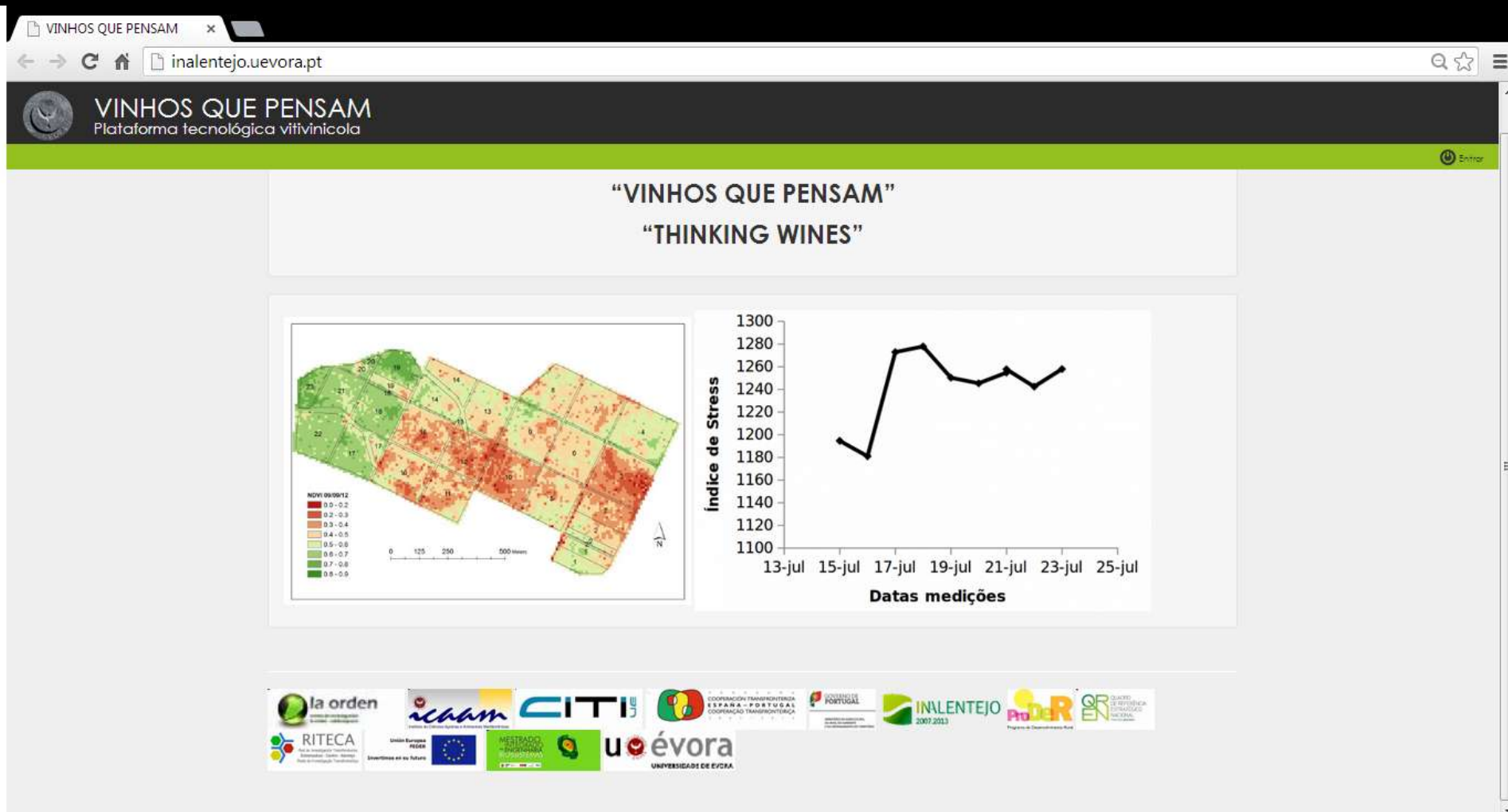
FUNDAÇÃO EUGÉNIO DE ALMEIDA

“THECNOLOGICAL VINEYARD PLATAFORM”

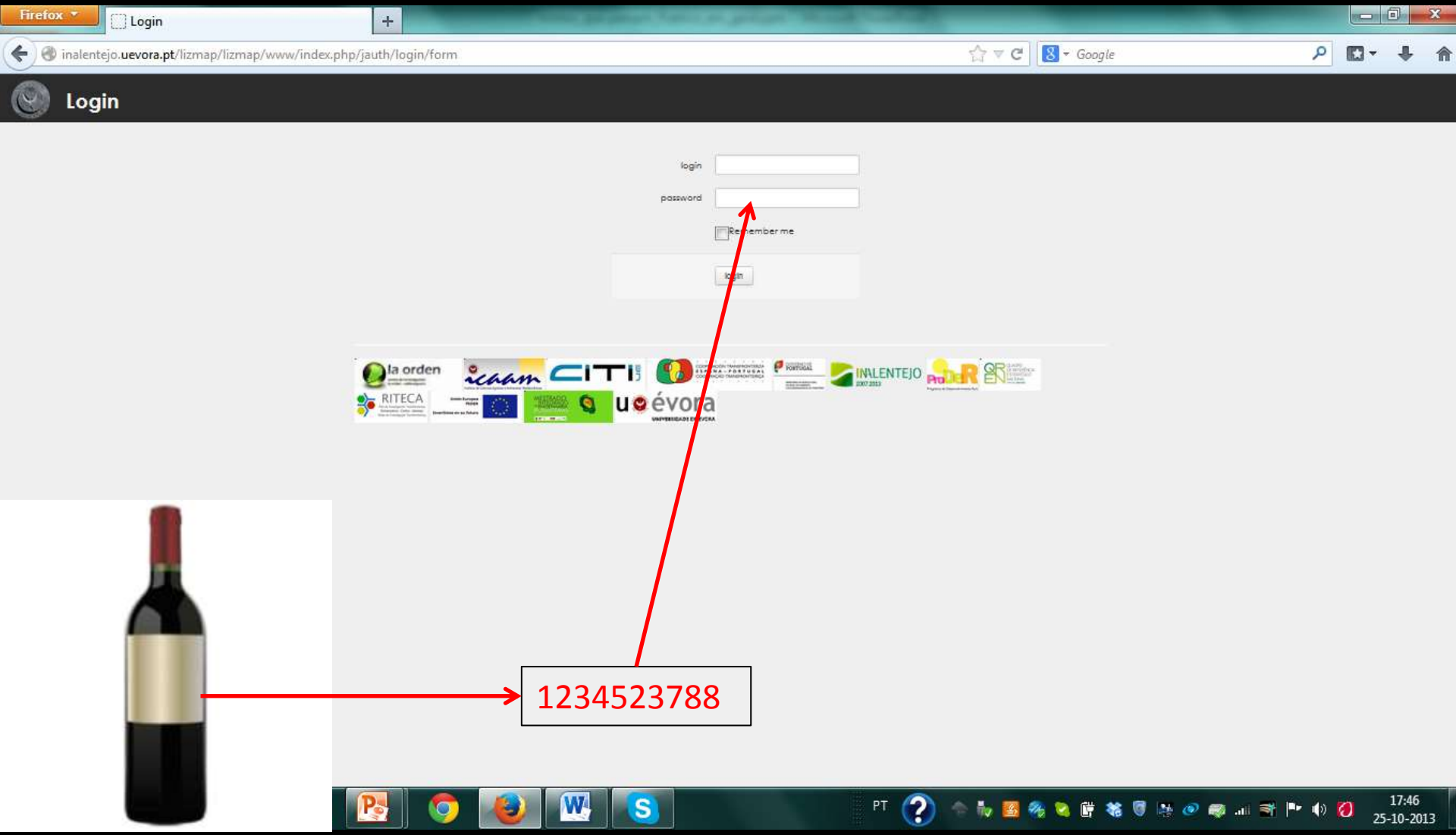
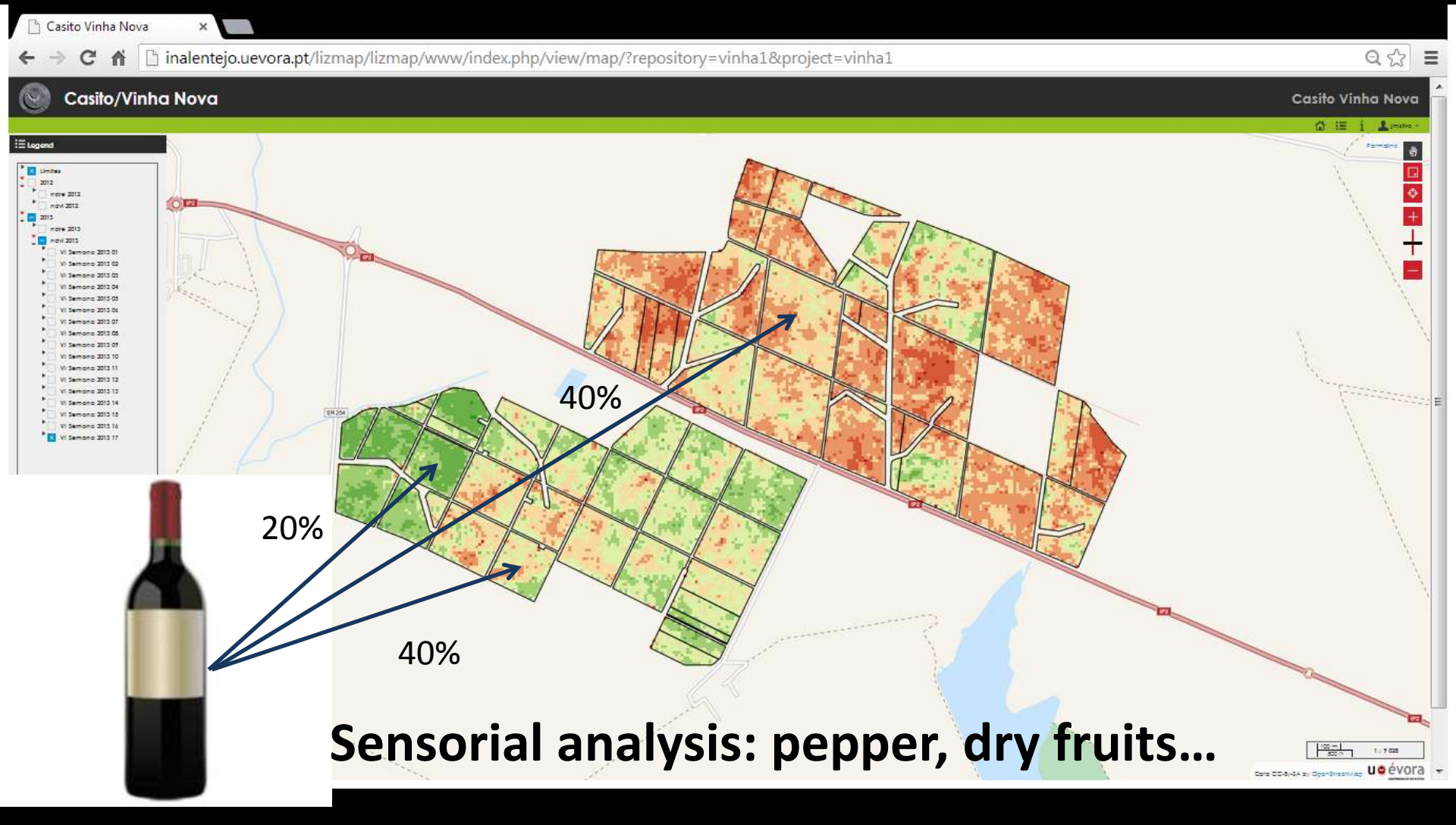
http://inalentejo.uevora.pt

Username: anonimo **Password**: cabernet

“THECNOLOGICAL VINEYARD PLATAFORM”



“THECNOLOGICAL VINEYARD PLATAFORM”



“THECNOLOGICAL VINEYARD PLATAFORM”