



*Smart and Holistic Agriculture and olive oil quality- The **Krinos Olive Center** in American Farm School -Thessaloniki”*

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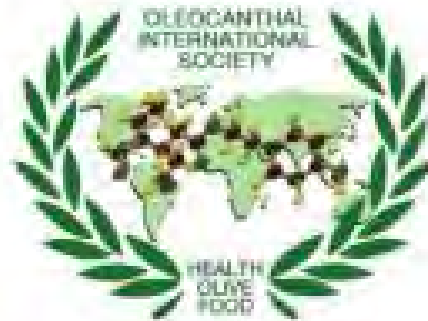


Perrotis College
Κέντρο Ελιάς krinos
ΑΜΕΡΙΚΑΝΙΚΗΣ ΓΕΩΡΓΙΚΗΣ ΣΧΟΛΗΣ ΘΕΣΣΑΛΟΝΙΚΗΣ



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AMERICAN FARM SCHOOL • THESSALONIKI • GREECE

OLEOCANTHAL INTERNATIONAL SOCIETY CONFERENCE & AWARDS 2016



Presented in Olympia 3-6-2016



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Common thoughts for the olive production in Greece....

Olive trees produce olive oil and olives only...

Olives are hand harvested only....

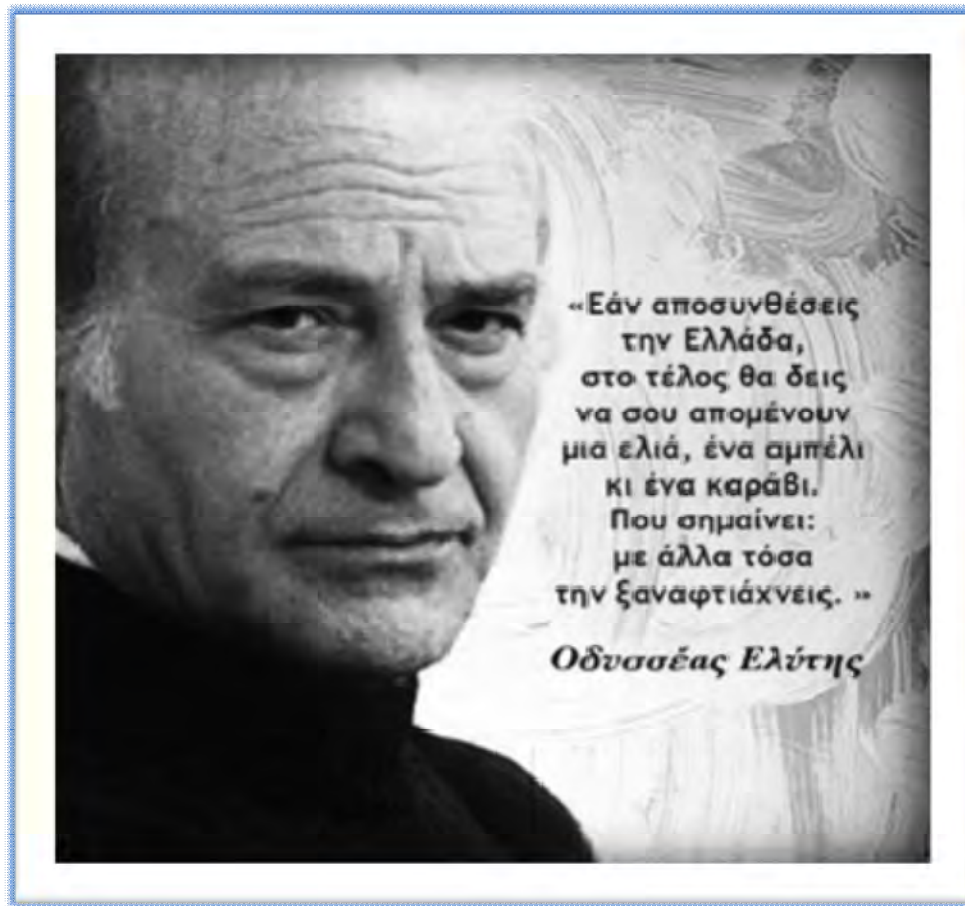
Olive trees produce every other year....

Olive trees can not be planted in very high densities...

Extra virgins olive oils are all very similar....

Finally...do we efficiently manage olives?

Let's think again what olive production represents for the Greek civilization and development, in a long run...



“... if Greece is completely disassembled, at the end what will remain is an olive tree, a grapevine and a ship... with these materials alone one can reconstruct this country....”

Odysseas Elytis, Nobel Prize in poetry, 1979

...let's also see what happens currently in olive production in Mediterranean area and elsewhere

What happens elsewhere...

- The high & super high density linear systems are becoming very...densely popular, in USA, Australia, Argentina, Chile, South Africa and ALL Mediterranean countries (except Greece!) and also in countries where olives were not grown before...
- The competition increases both in “quality” and “quantity” terms ...
- Climate change recently affects substantially olive production... (and all plants!)....
- The by-products of olive processes are used more efficiently...
- Consumption of olive oil and olives increases....
- Consumer “trends” or “needs” differentiate....

“Smart agriculture”

A term vaguely used by most and usually indicates:

- Simple but effective management
- High tech tools used (i.e. **Precision Agriculture**)
- Wise thinking...integrating all above! Maybe more **Clever**!

Holistic agriculture

- Another term also vaguely used by most...
- Includes SMART or CLEVER thinking but encompasses more aspects, processes products, effects in the entire **Soil-Plant-Atmosphere continuum...** (the **SPAC** acronym)

Our HOLISTIC philosophy....

- In **Perrotis College**, and the Agro-Environmental Systems Management Dept., a cornerstone of our educational system is found on the HOLISTIC acronym:
- **SO.CR.AT.E.S.**®..the Great Greek Philosopher... a man who “introduced” holistic approaches..
- But this is also a symbolic acronym ..and developed in around 2000.
- **SOil CROp ATMosphere Evaluation Systems**
- However... recent and significant changes in Technologies and educational re-thinking has produced the new version... during year 2010

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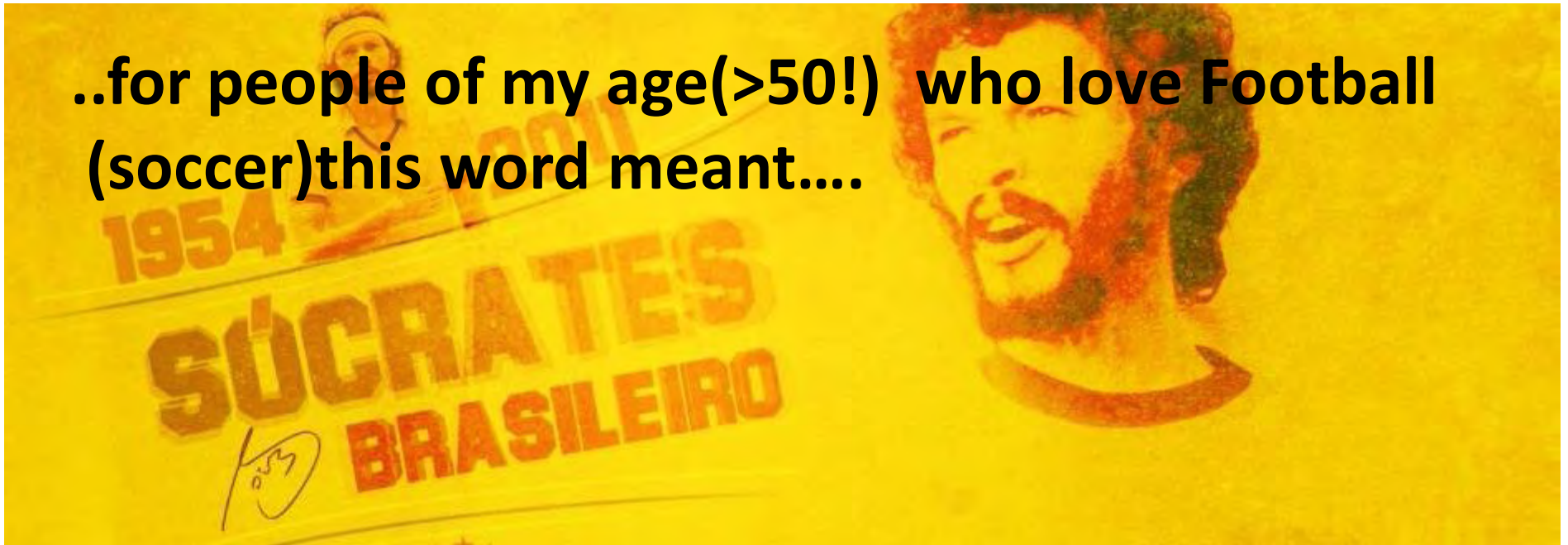
- The latest version however has changed (*also the pronunciation has changed!*)
- It is now **SO.CR.A.T.E.E.S.®** ...
- **SOil CRop Atmosphere & Technology Educational & Evaluation Systems**
- ... introducing and integrating TECHNOLOGY & EDUCATION which makes it **more holistic!**

SOCRATES is a [mnemonic acronym](#) used by [emergency medical services](#), doctors, nurses and other [health professionals](#) to evaluate the nature of [pain](#) that a patient is experiencing.

- Meaning of the acronym[[edit](#)]
- The acronym is used to gain an insight into the [patient](#)'s condition, and to allow the Health Care Provider to develop a plan for dealing with it.[\[1\]\[2\]](#)
- **Site** - Where is the pain? Or the maximal site of the pain.
- **Onset** - When did the pain start, and was it sudden or gradual? Include also whether if it is progressive or regressive.
- **Character** - What is the pain like? An [ache](#)? Stabbing?
- **Radiation** - Does the pain radiate anywhere? (See also [Radiation](#).)
- **Associations** - Any other signs or [symptoms](#) associated with the pain?
- **Time course** - Does the pain follow any pattern?
- **Exacerbating/Relieving factors** - Does anything change the pain?
- **Severity** - How bad is the pain?

Acronym	Definition	Options	Rating
SOCRATES	Stages Of Change, Readiness, And Treatment Eagerness Scale Medical » Hospitals		Rate it: ★★★★★
SOCRATES	Stages Of Change Readiness And Treatment Eagerness Scale Medical » Physiology		Rate it: ★★★★★
SOCRATES	System of Cellular Radio for Traffic Efficiency and Safety Governmental » Transportation		Rate it: ☆☆☆☆☆
SOCRATES	Sarb Ox Compliance Reporting And Tracking Executive System Miscellaneous » Unclassified		Rate it: ☆☆☆☆☆
SOCRATES	System For Online Curriculum Review And Technical Education Support Community » Educational		Rate it: ☆☆☆☆☆
SOCRATES	Site, Onset, Character, Radiation, Associated symptoms, Time, Eleviating factors, Severity Medical » Hospitals		Rate it: ☆☆☆☆☆
SOCRATES	Special Operations Command, Research, Analysis, and Threat Evaluation System Governmental » Military		Rate it: ☆☆☆☆☆

..for people of my age(>50!) who love Football (soccer) this word meant....



- Sócrates played for [Brazil](#) for seven years, scoring 22 goals and representing the nation in two [World Cups](#). He [captained](#) the team in the [1982 FIFA World Cup](#); playing in midfield alongside [Zico](#), [Falcão](#) and [Éder](#), considered one of the greatest Brazilian national teams ever.
- Sócrates was a [doctor of medicine](#), a rare achievement for a professional footballer (he was a graduate of the [Faculdade de Medicina de Ribeirão Preto](#)).^[18] Even rarer is the fact that he earned the degree while concurrently playing professional [football](#).



Perrotis College krinos Olive Center

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- ✓ **A new initiative of the AFS- Started in Fall 2013 –the building was inaugurated on Dec. 2th, 2015.**
- ✓ **Aiming to cover the needs and to support activities in the overall area of olive and olive oil production in Greece.**
- ✓ **It acts in parallel with the evolutions in rural economy, specially in developments of innovative technologies for the agro-food sector**
- ✓ **Evaluates the International & National trends affecting the production of one of the main agricultural products of Greece**

Main target areas of the KRINOS OLIVE CENTER

- ☐ To promote research in sustainable practices both in the conventional but mainly in the new high olive production systems, for mechanical harvesting, with the use of cutting-edge technologies
- ☐ To exploit and utilize the by-products (wastes?) from the total production of olive oil and olives, for beneficial uses
- ☐ To increase the added-value of the olive oil, table olives and secondary by-products
- ☐ To collaborate and support export efforts of businesses in the overall sector of olive production and processing

Main characteristics of the holistic approach followed by the OLIVE CENTER

- ☐ **Significant reduction in the total production cost - using mechanical harvesting, new technologies, etc.**
- ☐ **Improving olive oil quality - by better and faster harvesting and transportation to oil press, minimal exhibition to adverse soil and weather conditions, temporal storage, etc.**
- ☐ **Utilization of olive cake (solid waste from oil press), pruned branches, as soil improving materials, animal feed and fuel.**
- ☐ **Estimation of Carbon Footprint (using Life Cycle Assessment) and sensory characteristics, to add value to the product**

Main characteristics of the holistic approach followed by the KRINOS OLIVE CENTER

- ☐ **Evaluation and use of phenols (in the liquid and solid “wastes” of olive processing) for pharmaceutical and cosmetic uses.**
- ☐ **Extensive market research** for promotion and marketing of olive oil and olive
- ☐ **Education-Research-Exhibition (Demonstration)...** for our students and olive producers
- ☐ **Integrated Production Management System -**
Certified activities, traceability

**The new Research, Educational and Demonstration
Olive grove (established in early 2011)**



24.03.2013

24 March 2013

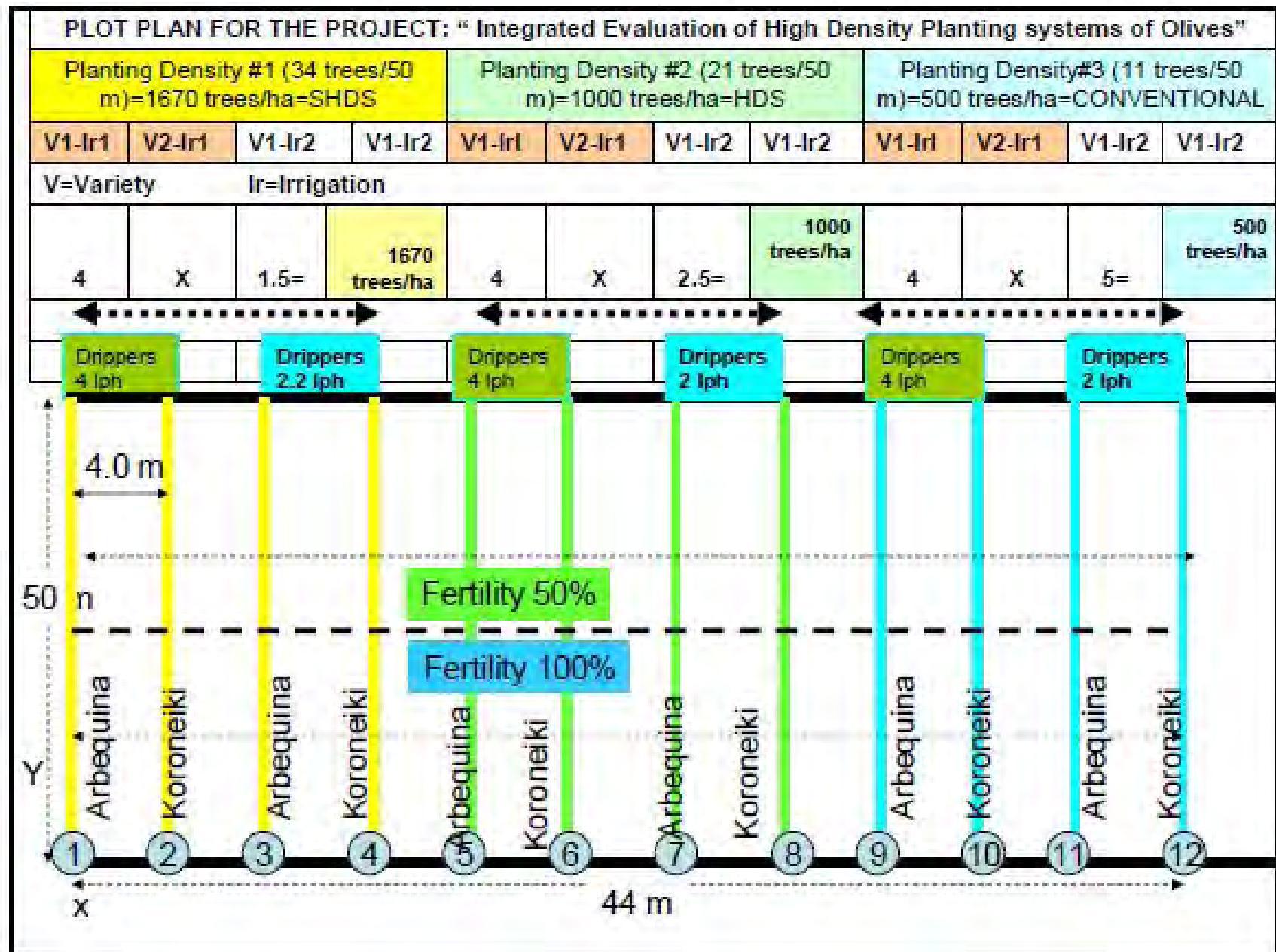
The HOLISTIC approach used on our Olive grove

- Establish a long-term database (from 2011) with detailed information collected on:
- Soil : (soil moisture- Electrical Conductivity- fertility, etc.)
- Climate (all important climate variables- additional sensors)
- Crop (olive tree) – yield –olive quantity and quality
- Products and by-products chemical ,physical and sensory properties

Experimental variables tested

- 2 varieties (Arbequina & Koroneiki)
- 3 Planting densities (500 -1000 -1670 trees/ha)
- 2 irrigation levels (conventional and 50% less)
- 2 fertility levels (conventional and 50% less)
 - 2 sub-levels in fertilization since 2015 include foliar application of an organic certified system, in each half fertilization treatment)

Experimental variables tested







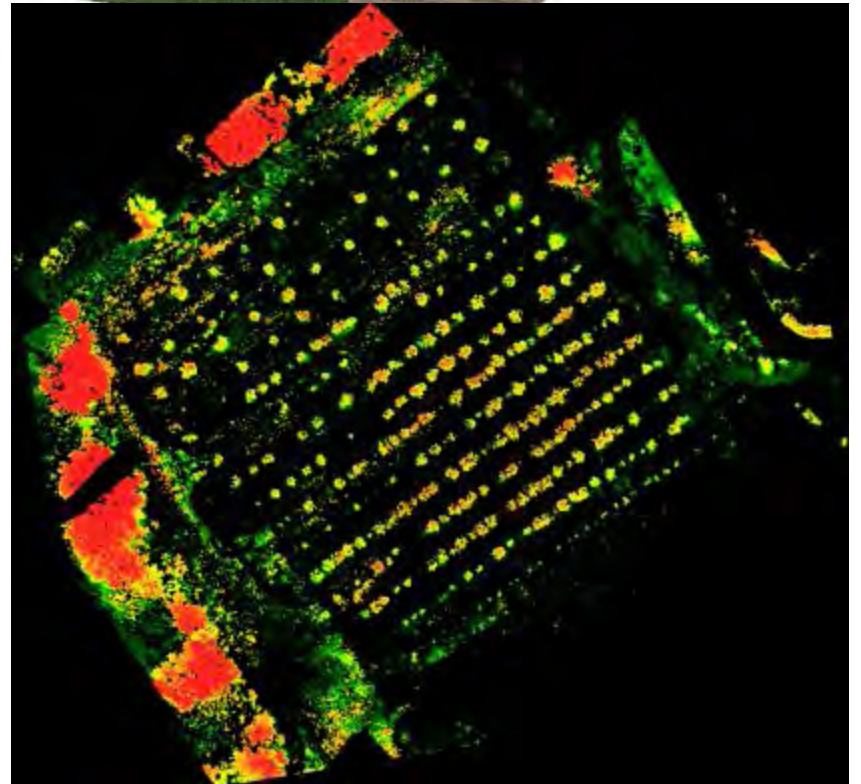
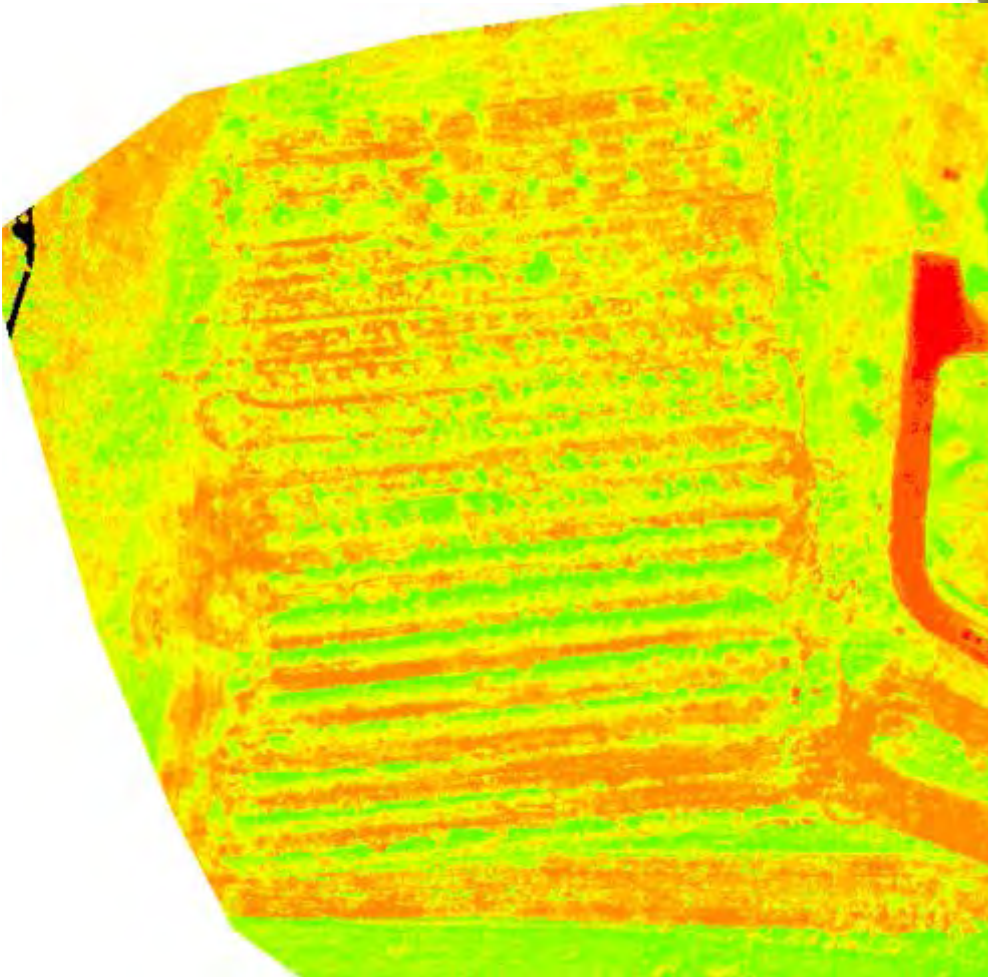
Our **Automated Weather Stations** to collect continuous data of climate and soil conditions



Our **UAV** equipped with GPS and an IR camera for measuring the **NDVI (Normalized Difference Vegetation Index)**



Recent NDVI maps



The Krinos Olive Center building (inaugurated on Dec. 2nd, 2015)





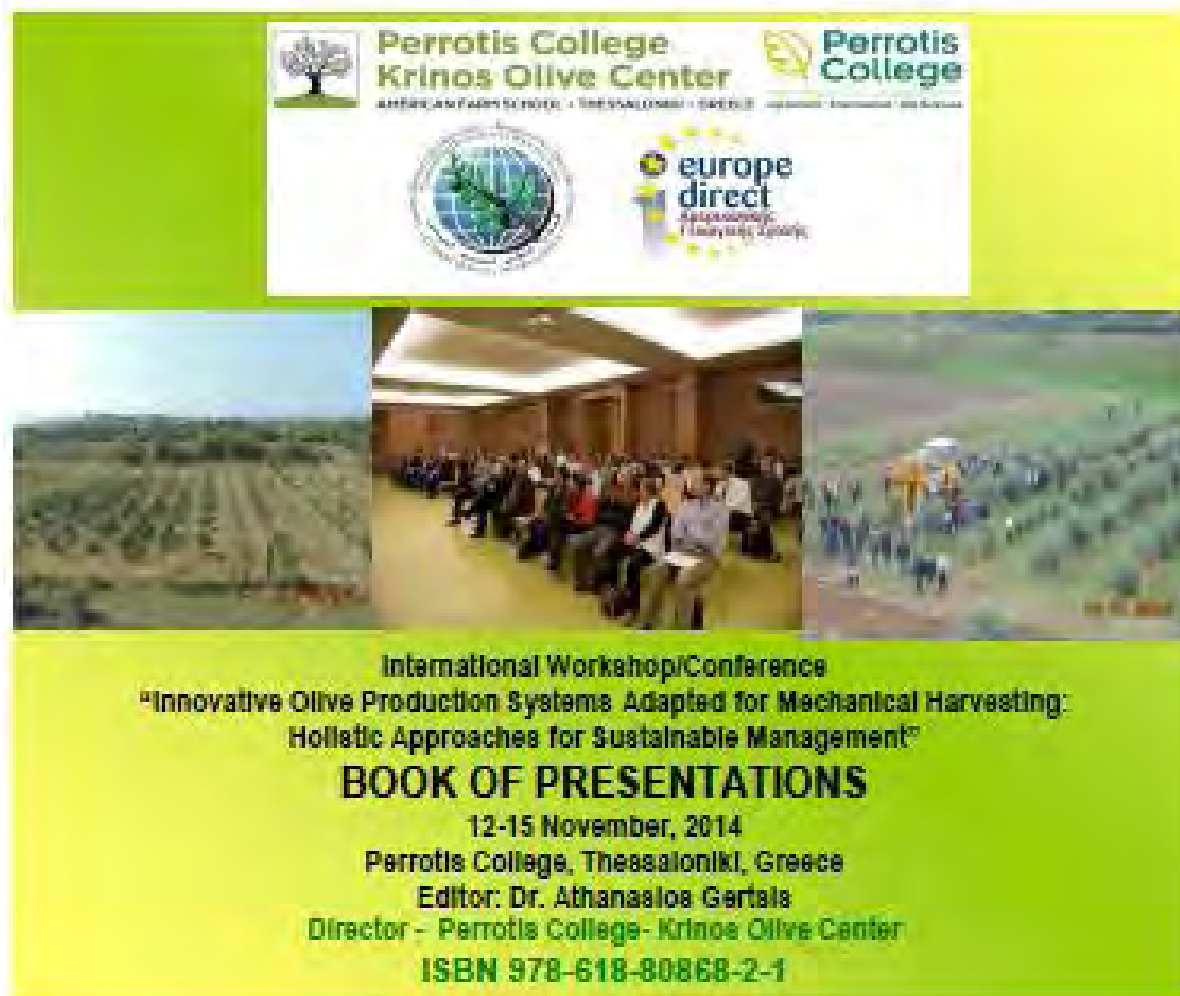
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**A complete set of
olive cleaning
systems and cold
press (two-phase
system with 80-100
kg/hour processing
capacity)**

**A complete
set for olive
oil filter,
bottle weight,
storage ,
bottle
labelling and
pachaging**





Materials from an International Conference
held in 2014 are available:
(Book of Abstracts & Book of Presentations)
[http://www.olivecenterafs.com/
proceedings.html](http://www.olivecenterafs.com/proceedings.html)

**.. This is a sample of our activities but we have
many partners (and sincerely thank ALL of
them)**

**and good support from the Farming, Academic
and**

business community...

**Nothing serious can be
achieved without “synergies” ...**

This is both SMART and HOLISTIC!

Some examples follow.....

Visit in July 31st, 2013
With Dan Flynn, Director of UC Davis Olive Center
Our FIRST official MOU collaboration!



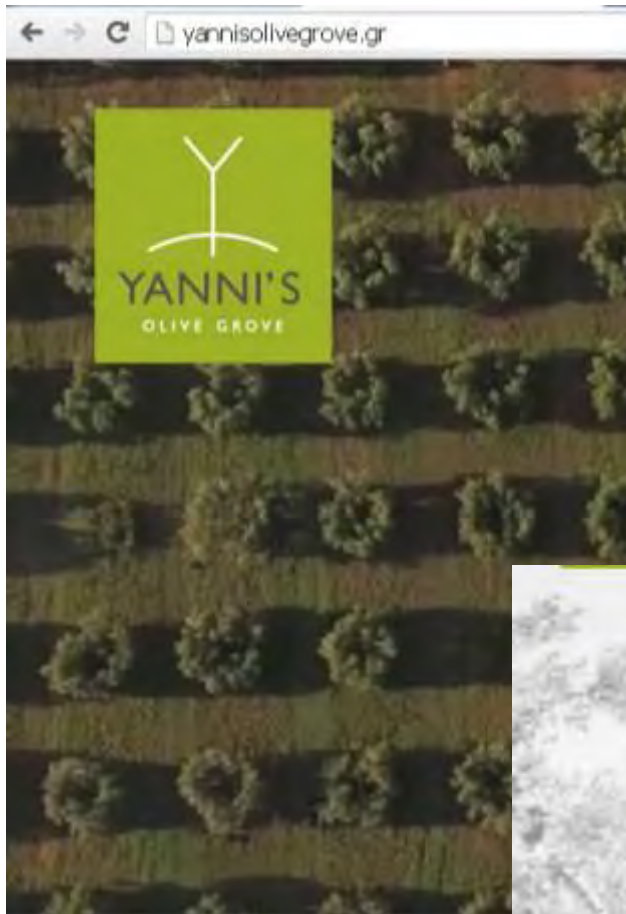


**Anastasopoulos Nurseries – our collaborator AgriBusiness
(The father and his two sons are graduates from American Farm School High School and
Perrotis College)!**

Consulting olive farmers

Case study: YANNIS olive grove

Smart irrigation & fertilization project in progress



**With my students participating in ALL phases
of production-processing and analyses**



**... About Greek olive oil in the
LARGEST oil consuming country...
the USA...**

Pictures in USA supermarket –August 2013...not a single Greek olive oil bottle...



..why not like the GREEK yogurt ?...



**.. To reinforce Dan Flynn's message
from yesterday..**

EDUCATE THE CONSUMERS...

and to add on the above...

Start from EARLY AGES...

**(example: pictures -May 21st, 2016-
from the OLIVE GOURMET EXHIBITION
in Thessaloniki**





Ευχαριστώ για την προσοχή σας
THANK YOU ALL VERY MUCH and..to your
health (using olive oil ,not wine this time!

*Στην υγείά μας
ρε παιδιά*

...με ελαιόλαδο!



Το πρώτο μας «επίσημο» μπουκάλι για το
2016.. The first official “bottle” from 2015
production....

Πετύχαμε να κάνουμε πράξη τη φράση
«από το χωράφι..στο ράφι», με ΟΛΗ τη
διαδικασία μέσα από τις υποδομές μας,
...χωρίς «ενδιάμεσους»!