Case Study

PHENOTYPIC IMAGING SYSTEM OF CULTIVATED SPECIES

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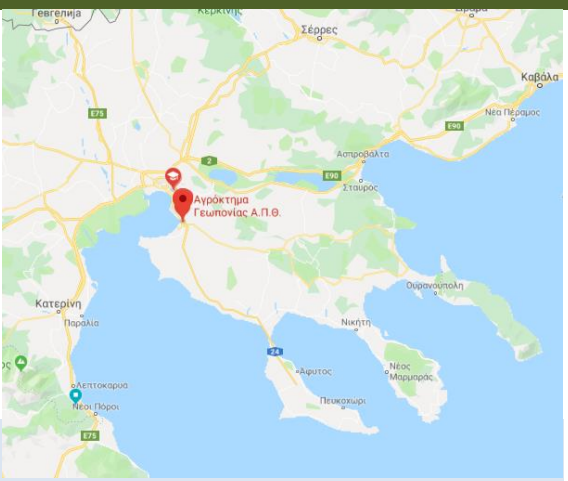


IN BRIEF

Description: Robotic system of Phenotypic imaging and automatic calculation of multiple parameters

Area : Thessaloniki – Farm of Aristotle University

Installation: June 2019

ADMINISTRATOR

School of Agriculture – Aristotle University of Thessaloniki

Important !

The only one in Hellas

Important !

Fully expandable in scanning capacity and scanning surface

Important !

Completely automatic and remote controlled

Project ID:

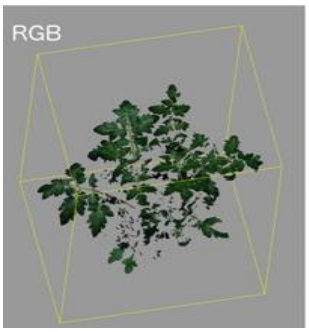
*State-of-the-art Outdoor **Phenotypic Imaging System** for Cultivated Species. The system was installed in the farm of Aristotle University of Thessaloniki.*

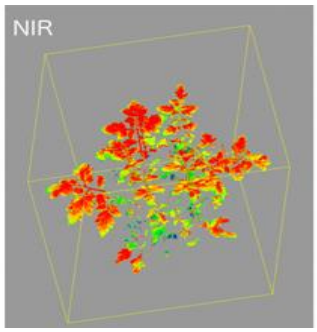
*It's **the only one of this kind of systems** in Hellas, one of the few in Europe and one of the most modern in the world.*

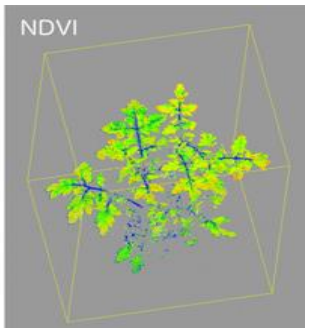
*It measures and calculates multiple parameters through dual multispectral cameras, 3D motion system and **dual laser system.***

*It scans a surface of **20m X 50m** (expandable to 20m X 150m), providing 3D imaging not only per plant, but per each leaf.*

The "brain" of the system is the **PlantEye** head, which is a unique, complex unit, that combines the 3D imaging, with the power of multispectral imaging. With the above combination, the system provides, in real time, accurate and reliable measurements of many different parameters, without any interference to the plants.







The programming, data processing and control of the system, are made through **HortControl software.**

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The installation and setting of the system was lasted 45 days

Key Advantages

Measures automatically the following parameters :

- *Plant height.*
- *Total 3D leaf area*
- *Projected leaf area*
- *Leaf inclination*
- *Depth of light penetration*
- *Digital biomass*
- *Leaf area index*
- *Hue value*
- *NDVI*
- *Greenness*

- **Performs multispectral measurements (VIS and NIR) in combination with 3D scanning.**
- **It takes images of each flower pot, plot and plant.**
- **Simultaneous downloading of 3D and multispectral information.**
- **Provides RAW 3D data output, RGB RAW images, merged 3D and RGB images, spectral indexes, colors classification.**
- **Minimum distance from plants : 400 mm.**
- **Maximum distance from plants : 1600 mm.**

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