plantDitech
functional phenotyping

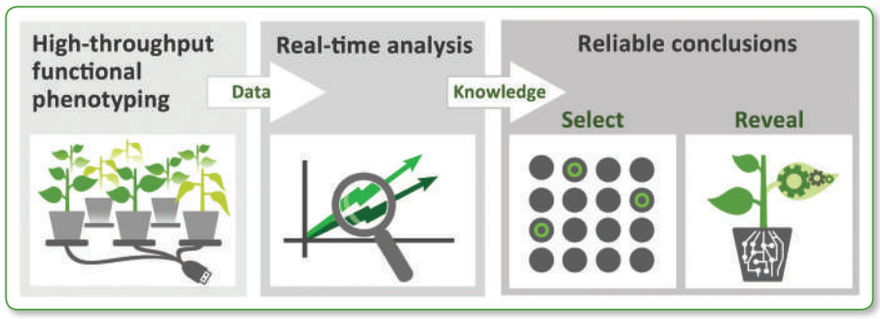
Enhancing plant genetic traits with

High-Throughput Whole-Plant Functional Phenotyping

A fully automated, feedback irrigation system and multiple precise sensor platform that enables Agro Scientists and Breeders to quickly and easily perform simultaneous performance analysis of whole-plant response to various environmental conditions with functional-physiological trait measurements

Applicable for:

- Analyzing Abiotic Stress
- Functional Breeding
- Study Roots and Soils
- Develop Chemicals and Nutrient
- Study Eco-Physiology



Real-time advanced statistical analysis

Functional traits:

- Plant biomass gain
- Daily transpiration
- Water-use-efficiency
- Stomatal conductance
- Drought resistance index
- Relative water content
- Root performance
- Soil-water-content
- Salinity level (EC)
- VPD

ES France - Département Bio-Tests & Industries - 127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 90 - Fax. 01 47 01 16 22 - e-mail: bio@es-france.com - Site Web: www.es-france.com

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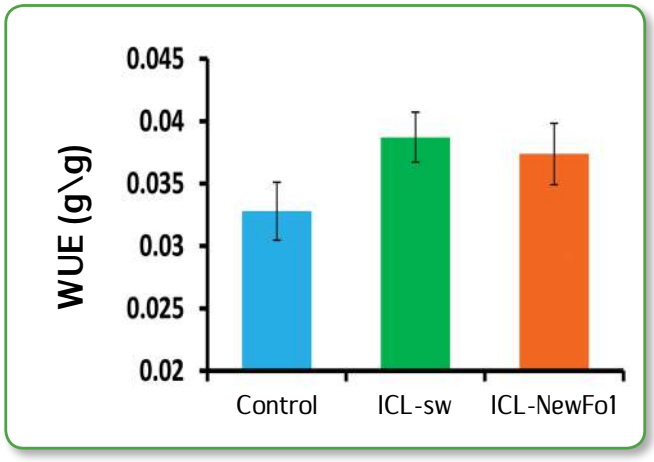
Intelligent diagnostics

Effective Screening for Biostimulants and Nutrients

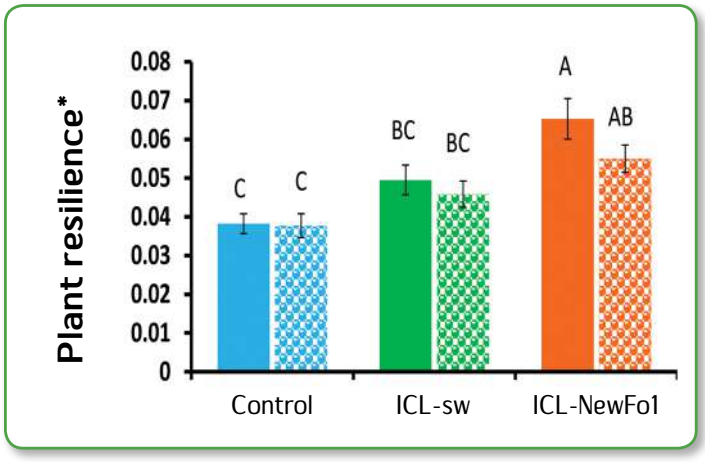
Fast and accurate screening of plant nutrient and biostimulant effects on plant performance

- Cut up to 80% of your testing time and costs
- Obtain definitive, precise, reliable results
- Attain deep insight into plant physiological response from biostimulants & nutrients

Biostimulant Effect on Plant Water-Use-Efficiency



Biostimulant Effect Well Irrigation vs. Drought



*Ratio of water reabsorption to calculated plant weight (g/g)

Dalal et. al., 2019, pre-printed
Scan for full article

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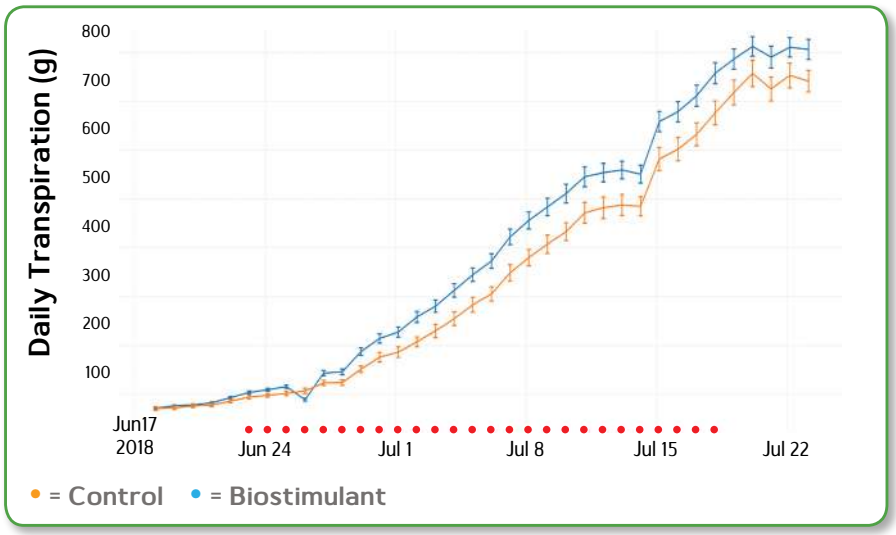
Case Study: Biostimulant Effects on Pepper Plant Performance

Plantarray system quantified within days the performance of two biostimulants (of ICL) under well-irrigated and drought conditions

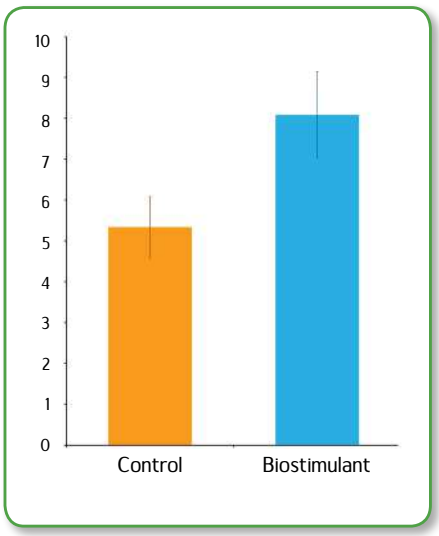
- Two biostimulants were tested, along with a normal nutrition control treatment, in order to determine the effect on sweet pepper
- One of the biostimulants significantly increased daily transpiration a few days following start of treatment

Daily Transpiration - Measured by PlantDitech



• = statistical significance

Total Fruit - Quantity



Compliance with actual yields

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High-Throughput Whole Plant Functional Phenotyping

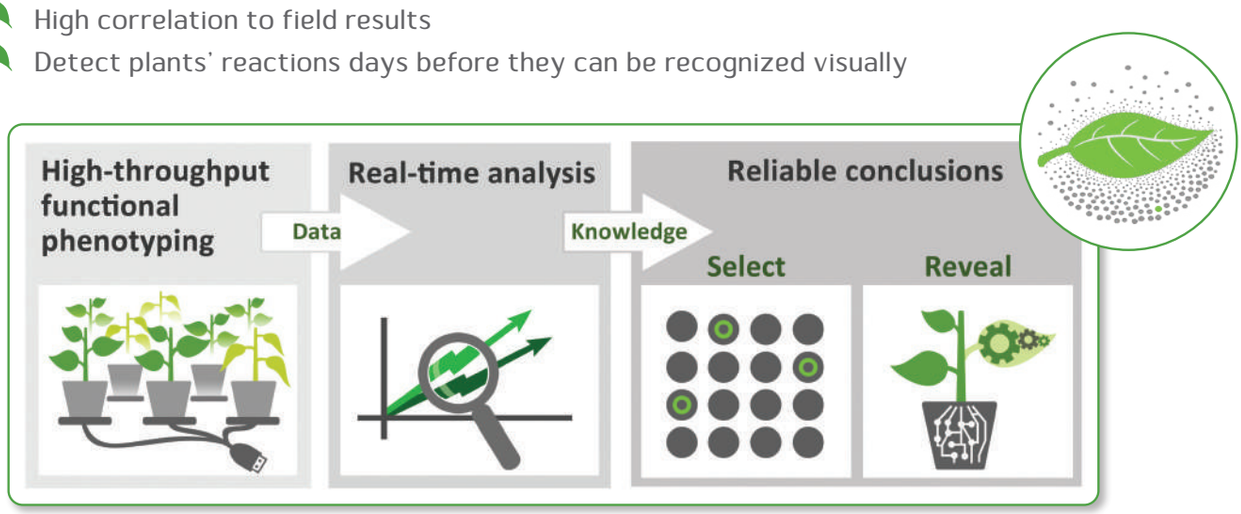
Plant-DiTech's Plantarray System

A fully automated, feedback irrigation system and multiple precise sensor platform that enables Scientists, Breeders and AG-Researchers to:

- **Quickly assess yield potential, within days**
- Perform **fully automated** experiments:
  - **Automated irrigation control**
  - **Plants' physiology & Environmental measurements**
  - **Statistical analysis in real-time**
- Simultaneously characterize the whole-plant response to various stresses (e.g. draught, salinity) with functional-physiological trait measurements such as:

  • Transpiration • Growth rates (bio-mass) • Water-use-efficiency
  • Stomatal conductance • Root-water-activity • Stress resilience

- High correlation to field results
- Detect plants' reactions days before they can be recognized visually



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Select the Best Plant

Plant-DiTech's SPAC (Soil-Plant-Atmosphere-Continuum) Analytics

Cloud-based software that performs real-time analysis, statistics and yield prediction. The SPAC-analytics process input from multiple sensors and sources to provide :

- **Advanced statistical analysis** - multi-factorial ANOVA or paired T test for reliable and quick results
- **Fast quantitative selection** - rate and score plant physiological response to different environmental needs
- **Simple graphical presentation** of complex experiments - spatial and temporal relationships between measured physiological variables and the ambient conditions
- **Real-time experimental optimization** to ensure effectiveness of the treatment when it matters

Applicable for :

Analyzing Abiotic Stress

Develop Chemicals and Nutrient

Functional Breeding

Study Eco-Physiology

Study Roots and Soils

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