Plant Biostimulant and Biopesticides Testing Capability

Plant Biostimulants and Biopesticides are making a rapidly increasing contribution to the improvement of sustainable production of food and pest management.

Biostimulants contain substance(s) and/or micro-organisms which when applied to plants or the rhizosphere, stimulate natural processes to ***enhance/benefit nutrient uptake***, ***nutrient efficiency, tolerance to abiotic stress***, and ***crop quality***. Since Biostimulants have no direct action against pests, they do not fall within the regulatory framework for pesticides.

Biopesticides (biological and non-chemical plant protection products) have become important **pest control** solutions globally. The Biocontrol industry is growing fast and now offers many safe and cost-effective solutions to pest and disease problems.

SynTech Research has long-standing experience with Biopesticide and Biostimulant products; several hundred trials have been conducted globally, using dedicated teams of highly experienced Project Managers and Field Biologists. Key Project Managers located in Spain, France, USA, Philippines, Chile and **Brazil**. We regularly conduct outdoor and protected crop trials and laboratory tests with climatic walk-in and reach-in chambers.

SynTech is a member of the International Biocontrol Manufacturers Association (IBMA), the voice of the Biocontrol industry and we participate every year in the annual global event, ABIM.

Biopesticide tests are focused on ***macrobials*** (insects, mites and entomopathogenic nematodes), ***microbials beneficial pathogens*** (Bacteria, fungi, virus, and beneficial soil microorganisms) and ***natural substances and semio-chemicals*** such as insect pheromones.

Main crops involved **Vegetables** (tomato, pepper, cucumber, melon, **lettuce, beans**…), **Tree Crops** (stone and pome fruits, citrus, almond walnut, pistachio…) strawberry, grapes, OSR, corn, **soybean, sunflower**, wheat, barley **and** ornamental plants.

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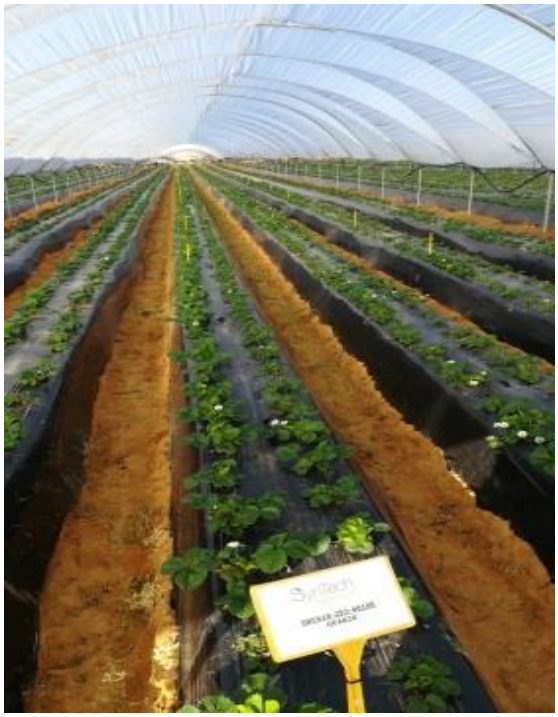
Biostimulant studies



Test types include, yield and quality enhancement, improve abiotic stress tolerance, plant nutrition, early crop emergence, fruit setting, root system development and quality.

Conditions and Locations

Field testing
Growth walk-in chambers
Indoor: glasshouse, protected plots [plastic and net]
Tests with potted plants
Nursery tests with trays
Screening tests in petri-dish

Irrigation

Flood, sprinkler
Drip, Syringe, Chemigation
Tailored irrigation system for screening tests

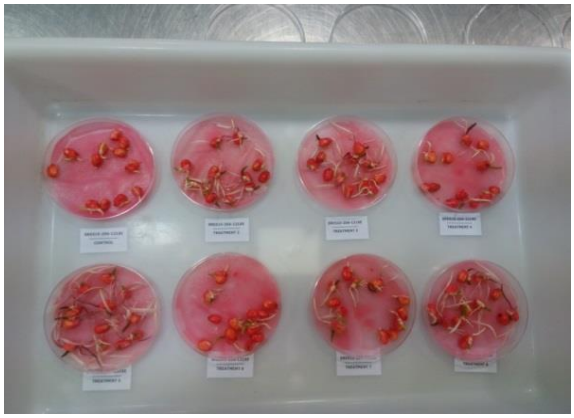
Analysis

Fruit/Vegetable yield and quality:
Total kg/ha, average fruit weight
Fruit grading, number of pieces
Other fruit yield / quality indicators:
- Nutritional value: protein, polyphenol, fat-acids, fiber
- Organoleptic: Brix, acidity, starch
- Conservation (post-harvest): Ca content, hardness, acidity

Agronomy

Crop vigor
Key crop development stages:
- Early blooming, fruiting, harvesting
- Early crop development, precocity @ any stage

Crop height, stem diameter, leaf size
Crop Nutrition Plan - deficiency
Efficiency in elements absorption
Photosynthesis activity (SPAD / chlorophyll)
Foliar analysis: micro / macro element determination
Soil & root analysis
Any other tailored analysis needed for screening tests
Abiotic stress tolerance: drought, heat, light, salty soil, wind



Other services

Nutritional maps (GIS/NDVI)
Water soil quality
Formulations test, screening
Pre and post-harvest / self-life quality

Bio-Seed treatment

Germination tests
Precocity on emergence & any other growth stage
Early screening tests
Seed coating tests

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Biopesticide Studies

Conditions and Locations

Field testing at field stations and commercial fields
Growth walk-in chambers
Indoor: glasshouse, protected plots [plastic and net]
Tests with potted plants
Nursery tests with trays
Screening tests in petri-dish

Irrigation

Flood, sprinkler
Drip, Syringe, Chemigation
Tailored irrigation system for screening tests

Product types

Macrobials - Invertebrate Biocontrol Agents (IBCA)
Macroorganisms including:
Insects, mites and entomopathogenic nematodes
Microbials - Microbial Biocontrol Agents (MBCA)
Beneficial pathogens used in crop protection:
Bacteria, fungi and virus
Beneficial soil microorganisms

Natural Substances & Semiochemicals
Natural substances
Insect pheromones/ semiochemicals
Bioactive molecules

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