

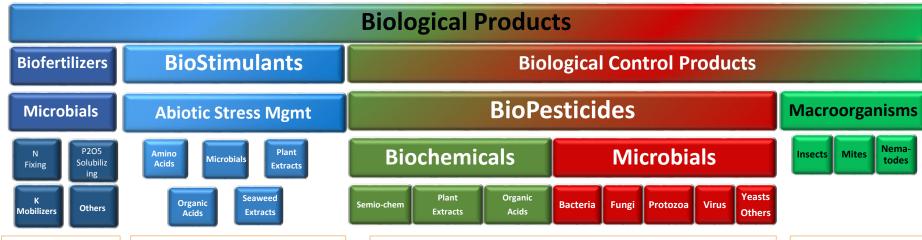
Low-risk bioprotection products: contribution, progress and hurdles

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BIOLOGICAL MARKET OVERVIEW --INTRODUCTION—PRODUCT TYPES



Biofertilizers

- Microbials used to enhance plant nutrient uptake from soil
- Nitrogen fixing bacteria make up largest group
- Others include mobilizers of specific nutrients (zinc. sulfur) and mycorrhizal fungi
- Biofertilizers regulated under country/state fertilizer regulations

Biostimulants

- Seaweed Extracts make up the largest segment in this group
- Microbials, primarily bacteria, often used as seed or soil treatment to aid in
- Organic acids are humic and fulvic acids used as soil amendments, formed by the microbial degradation of plant matter.
- is still under development in most parts

- nutrient assimilation
- **Definition and regulation of biostimulants** of the world

BioPesticides

Biopesticides are derived from natural materials, such as plants, bacteria and certain minerals. Biopesticides target specific pests and are inherently less toxic than synthetic pesticides.

Biochemicals

- Plant Extracts: Semiochemicals: **Organic Acids**
- Plant Extracts make up the largest segment in this group
- Semiochemicals (pheromones) has the largest actual number of products
- Largest challenge for Plant Extracts is manufacturing and consistent quality in the active ingredient(s)

Microbials

- · Bacteria: Fungi: Virus: Protozoan: Yeasts
- Bacteria, followed by Fungi make up the largest groups commercially (>90%)
- Microbials are the largest market of biopesticides at US\$1.3 Bn.
- Biggest challenges for microbials are formulation related: 1) Shelflife; 2) Stability; 3) Performance enhancement

Macroorganisms

- Insects; Mites; Nematodes
- Insects followed by mites makeup the largest groups
- Unique in that the live organism in the form of eggs, larvae, pupae or adult is used.
- Most important challenge for Macros is logistics shipping live organisms that have to have special care to survive
- Normally not classified as a Biopesticide—only as **Biological Control** Products



Courtesy of Bill Dunham, Dunham & **Trimmer as presented ABIM 2015**

What "Non-chemical alternatives" are currently available from the Biocontrol industry?



Predators, parasites & nematodes

Living organisms found to naturally protect crops



Viruses, Bacteria & Fungal Pathogens

Found naturally in soil, used in food, feed & and unregulated uses



Pheromones, Plant volatiles

Communication tools found in nature with no killing effect



Botanicals & Other Natural substances

Products derived from nature



Regulated as PPPs
Not usually regulated as PPPs

What products are currently available to the farmer?









Predators, parasites & nematodes

Viruses, Bacteria & Fungal Pathogens

Pheromones, Plant volatiles

Botanicals & Other Natural substances

Living organisms found to naturally protect crops

Used as biostimulants, biofertilisers, plant strengtheners, soil amendments etc.

Monitoring traps

Used as biostimulants, biofertilisers, plant strengtheners, soil amendments, etc..



Not usually regulated as PPPs

Biopesticides – market, manufacturers and products

- Biopesticide market
 - Worldwide in 2014: \$1.9 billion at user level; annual growth 15-20%
- Biopesticide manufacturers
 - Worldwide: approx. 230 (ex China, India)
 - Europe: 91America's 98
 - IBCAs 52
 - Microbials
 - Semio-chemicals > 171
 - Natural products
- Total of biopesticide products:
 - Macros: > 230 organisms
 - Micros, semiochems, naturals: > 450 actives, > 2300 products



Sources:

DunhamTrimmer, Biopesticide Industry Overview 2015 CPL, Biopesticides Worldwide Market 2013

Low-risk Plant Protection Products

EU Expert Group established

Criteria proposed & discussed

IBMA & other stakeholder input

Incentives & procedures removed

New criteria added

SCoPAFF

Enter as an Annex

separately handle incentives & procedures

IBMA need to

Stakeholders identified & approached

Consultant PA Europe engaged

Activities of PA
Europe, IBMA & Copa
and Cogeca





Low-risk procedures and incentives activities

Rio Praaning PA Europe



