

# BioPesticides

## an emerging business opportunity

**Dr Venkatesh Devanur**

Founder and CEO

**Agri Life – India**

SOM Phytopharma (India) Limited

Hyderabad – India

Founder - Secretary

BIPA

(Bio-Agri Inputs Producers Association)

[Dr.Venkatesh@AgriLife.in](mailto:Dr.Venkatesh@AgriLife.in)

# BIPA

## Agri Life

- **Bio-Agri Inputs Producers Association**
- Registered Association based in Hyderabad, India
- Representing manufacturers of BioPesticides, BioFertilizers and other Bio Inputs for Agriculture and Public Health
  
- **Agri Life**
- SOM Phytopharma (India) Limited
- Founded in 1993
- R&D Centre recognised by Govt of India
- Manufacturing of Botanical origin BioPesticides, Microbial Origin BioPesticides & BioFertilizers

# BioPesticides

## an emerging opportunity

- Crop Protection is a component of primary industry i.e Agriculture
- Chemistry has provided with many tools for fighting pests and diseases
- Overuse and Abuse of toxic substances may result in ecological imbalance
- Pest Eradication > Pest Control > Pest Management > IPM is an on going journey.

# BioPesticides

## an emerging opportunity

- IPM helps sustainable agriculture
- Judicious use of chemicals and biologicals is necessary to optimize benefits from all kinds of inputs and to provide safe feed, fodder and food.
- Growing consumer awareness on toxic substances in food chain makes it imperative on crop protection industry to advocate responsible care

# BioPesticides

## an emerging opportunity

- Organic Food business is USD 40 Billion and growing ! Therefore demand for non toxic solutions for crop production and crop protection will increase.
- Soil nematodes problem is increasing
- Minor pests are becoming major in many crops e.g Mites, Mealbugs etc
- Yields are not increasing
- Therefore we must think how BioSolutions can be put to work with safe synthetics

# BioPesticides

## an emerging opportunity

- **Constraints :**
- BioPesticides is basically Non GM business
- Therefore not much scope for IP
- Public Domain / Non GM organisms
- Humidity and Temperature play important role in field performance, thus erratic results

# BioPesticides

- Botanical origin BioPesticides

for sucking insects

for mites

for caterpillar insects

for fungal diseases

# BioPesticides

## Botanical origin

Azadirachtin – Neem is familiar already

Karanjin – Extract of *Pongamia glabra*  
(already in schedule of Insecticides Act, India)  
Acaricide and Insecticide (for Mites and sucking  
Insects)  
Fungistatic effect

Annonin - Extract of *Annona squamosa*  
(not yet in schedule of Insecticides Act)  
Insecticide (for Helicoverpa, Spodoptera, Larvae)

Matrine and few more standardized extracts are feasible

# BioPesticides

- Microbial origin BioPesticides

- for fungal diseases

- for sucking insects

- for mites

- for caterpillar insects

- for soil insects

- for nematodes

# BioPesticides

## Microbial origin

- **BioFungicides**
- for seed treatment
- for nursery treatment
- for soil treatment
- for foliar spray

# BioPesticides

## Microbial origin

- **BioFungicides**
- *Trichoderma viride*
- *Trichoderma harzianum*
- *Pseudomonas fluorescens*
- *Bacillus subtilis*
- *Ampelomyces quisqualis*
- *Fusarium proliferatum*

# BioPesticides

## Microbial origin

- **BiInsecticides for sucking insects & mites**
- *Verticillium lecanii*  
for Thrips, Jassids, Aphids, White flies,  
Mealbugs and Mites
- *Beauveria bassiana*  
for Mealbugs

# BioPesticides

## Microbial origin

- **BiInsecticides for caterpillars**
- *Beauveria bassiana*  
for surface feeding larvae
- *Metarhizium anispliae*  
for surface feeding larvae
- *Bacillus thuringiensis var. Kurstaki*  
for diamond back moth and neonatal larvae

# BioPesticides

## Microbial origin

- **BiInsecticides for soil insects**
- *Metarhizium anispliae*  
for root grubs, root weevils, termites

# BioPesticides

## Microbial origin

- **BioNemticides for soil nematodes**

- *Paecilomyces lilacinus*
- *Bacillus firmus*

for pathogenic soil nematodes, root nematodes