



RHIZO PROTECT™

Innovative Biological
Insecticide for the Control
of Soft Body, Sucking Insect
Pets and Spidermites

Sineria



RHIZO PROTECT™

Rhizo Protect™ is an innovative biological insecticide for the control of soft body, sucking insect pests and spidermites on vegetables, legumes and ornamentals.

Rhizo Protect™'s unique combination of 4 highly infective entomopathogenic fungi:

- *Isaria fumosorosea*
- *Verticillium lecanii*
- *Beauveria ha ssiana*
- *Metarhizium anisopliae*

Below: whiteflies infected with and killed by **Rhizo Protect™**

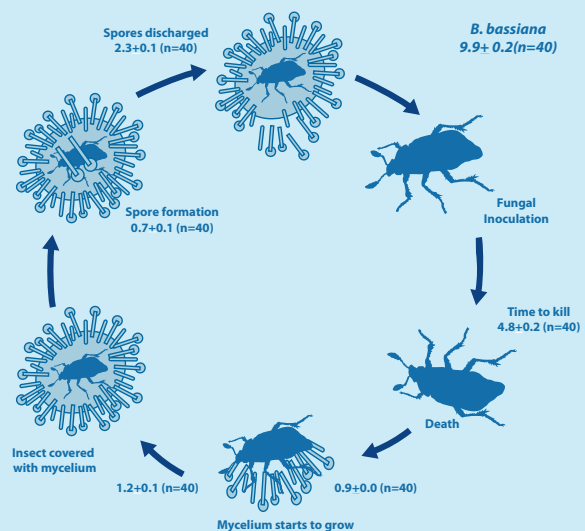


Characteristics of Rhizo Protect™:

- Affects only targeted pest insects.
- Safe to non-target organisms.
- Safe to natural parasites, pollinators and predators.
- Effective component in IPM programs, leading to a reduction in use of chemical pesticides and creating a safer environment.
- Does not lead to residue problems.
- No cross-resistance with other types of insecticides.
- Highly unlikely to develop resistance.

Rhizo Protect™ Mode of Action:

Four different entomopathogenic fungi: hitting the target from different sides! Multiple modes of action with no cross-resistance with other types of insecticides!





Adult whitefly infected with *Isaria fumosorosea*

Isaria fumosorosea

- **Host range:**
Wide host range that includes insects in over 25 different families and many species of Spidermites
- **Insect pests susceptible to infection:**
 - Diamond-back moth (*Plutella xylostella*)
 - Russian wheat aphid (*Diuraphis noxia*)
 - Silverleaf whitefly (*Bemisia argentifolii*)
- **Susceptible Spidermite species:**
 - 2-Spotted spidermites (*Tetranychus urticae*)
 - European red mite (*Panonychus ulmi*)



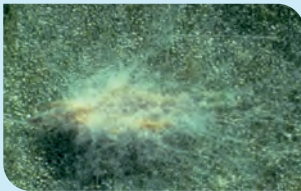
Lepidoptera larva infected with *M. anisopliae*

Verticillium lecanii

- **Host range:**
Especially infective on soft body insects and appears primarily to be a pathogen of soft scale insects (Coccidae)
- **Insect pests susceptible to infection:**
 - Scales
 - Whiteflies
 - Aphids
 - Thrips

Metarhizium anisopliae

- **Host range:**
 - Has been observed to infect > 200 insect pest species.
 - *M. anisopliae* and its related species are used as biological insecticides to control a number of pests such as termites, thrips, etc.



V. lecanii spores and mycelium on Thrips

Beauveria bassiana

- **Host range:**
Wide host range and used to control a number of pests such as termites, thrips, whiteflies, aphids, beetles and spidermites.



Western tarnished plant bug (*Lygus hesperus*) killed by *B. Bassiana*

Directions for Use:

- Begin application at low pest pressure.
- Good monitoring is crucial.
- Good knowledge of the pests habits and life cycle.
- Applications should target to control early juvenile stages of the pest (e.g. Nymphs).
- Full spray coverage.
- Establish an application program to break the pests life cycle.
- Apply 24-48 hours before or after fungicide application.

Evaluation Parameters:

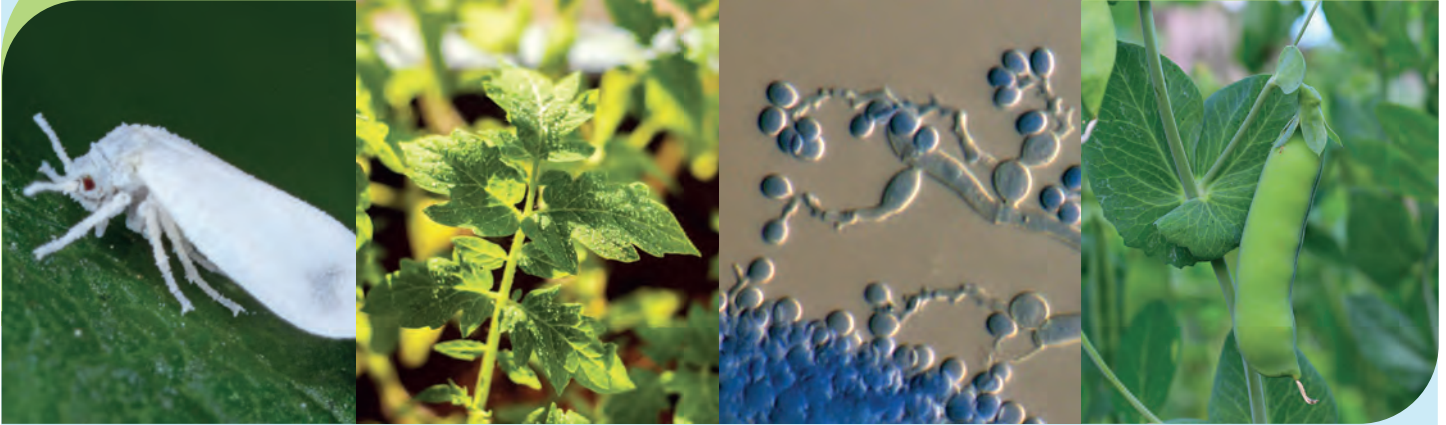
- Initial population compared to pest population 72-120 hours post-treatment.
- Loss of movement and feeding.
- Damage detention.
- Colour change.

Note: Control should not be based on fungal development or sporulation. The goal is to stop the damage and control the pest.

Beauveria bassiana under the microscope.



Crops	Pest	Application Rate	Note
Vegetable, Soybeans, Peas and Ornamentals	Thrips Whiteflies Aphids Mealy bugs Spidermites	250-350 gr/ 100 Lt water	Foliar application



Field Trials:

Efficacy of **Rhizo Protect™** against *Frankliniella occidentalis*
 - Western Flower Thrips (Spain, 2016)

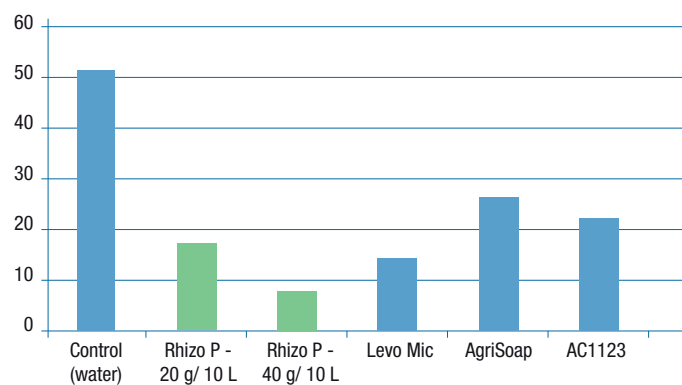
Method of trial applied:

- **Crop:** Ornamentals (Chrysanthemum)
- **Neighbouring Crops:** Tomatoes
- **Infestation level of the trial plants:** Very heavy
- **Plot size:** 10 plants per replicate

Results:

No.	Product	Dose Rate	Total No. of living thrips
1.	Control (water)	0 gr/Lt	51
2.	Rhizo P. - 20 gr/ 10Lt	20 gr/ 10Lt	17
3.	Rhizo P. - 40 gr/ 10Lt	40 gr/ 10Lt	8
4.	Levo Mic	10 ml/ 10Lt	14
5.	AgriSoap	50 ml/ 10Lt	26
6.	AC 1123	50 ml/ 10Lt	22

The results are depicted in the following graph:



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