

ISARIGUARD

(FUNGI BASED BIO-INSECTICIDE)

INTRODUCTION:

Isariguard is powerful, highly effective mycoinsecticide containing entomopathogenic fungus *Isaria fumosoroseus*. Isariguard affects the target insect pests in all stages starting from eggs to adults. The product effectively controls Aphids, Bagrada Bugs, Fungus Gnats, Grasshoppers, Leafhoppers, Locust, Lygus Bugs, Mealybugs, Mites, Mormon Crickets, Plant Bugs, Psyllids, Thrips, Weevils, and Whiteflies on all agricultural and ornamental crops.

COMPOSITION:

Component	Content (% w/w)
<i>Isaria fumosoroseus</i>	: 20.00
Adjuvants and carrier	: 96.00

BIOLOGICAL PROPERTIES:

Mode of action:

1. Spore Attachment and Penetration

- Isariguard contains fungal spores of *Isaria fumosorosea*.
- When applied to plants or soil, these spores come into contact with the target pest.
- Under favorable environmental conditions, such as high humidity, the spores attach to the surface of the pest's cuticle (outer covering).

2. Germination and Invasion

- Once attached, the spores germinate, producing structures called hyphae.
- These hyphae secrete enzymes that break down the pest's cuticle, allowing the fungus to penetrate and enter the pest's body.

3. Internal Growth and Colonization

- Inside the pest's body, the fungus grows rapidly, colonizing the insect's tissues.
- It feeds on the nutrients present in the pest's body while also producing toxins that contribute to the pest's demise.
- The fungus continues to grow and proliferate, ultimately leading to the death of the pest.

4. Host Mortality and Sporulation

- As the fungus consumes the pest's tissues, the pest eventually dies.
- Following the death of the host, the fungus emerges from the cadaver, forming visible structures such as mycelia and conidiophores.

- These structures serve as reproductive organs, producing new spores through a process called sporulation.

5. Spore Dispersal and Secondary Infections

- The newly formed spores are released into the environment.
- They can be dispersed by various means, including wind, rain, or movement of the host.
- These spores serve to infect other susceptible pests, continuing the cycle of infection and control.

RECOMMENDATIONS:

Crop	Pests	Dosages (g/ha)	Dilution in water (liters)	PHI (days)
All agricultural and ornamental plants	Aphids, Bagrada Bugs, Fungus Gnats, Grasshoppers, Leafhoppers, Locust, Lygus Bugs, Mealybugs, Mites, Mormon Crickets, Plant Bugs, Psyllids, Thrips, Weevils, and Whiteflies	1800-2000 g/ha	400-450	0 day

ADVANTAGE OF ISARIGUARD:

1. Natural and Environmentally Friendly

- Isariguard harnesses the power of *Isaria fumosorosea*, an entomopathogenic fungus found in nature.
- It provides a natural and environmentally friendly alternative to chemical pesticides, minimizing harm to beneficial insects, wildlife, and the ecosystem as a whole.
- Unlike synthetic pesticides, Isariguard does not leave harmful residues in the environment, making it suitable for use in organic farming and sustainable agriculture practices.

2. Broad Spectrum Control

- Isariguard effectively controls a wide range of insect and mite pests, including aphids, thrips, whiteflies, mealybugs, grasshoppers, and more.
- Its broad spectrum of activity makes it a versatile solution for managing multiple pest species in various crops and ornamental plants.

3. Comprehensive Pest Management

- Isariguard targets pests at all life stages, from eggs to adults, ensuring comprehensive pest management.

- By disrupting the pest's life cycle, Isariguard helps prevent population growth and reduce pest damage to crops.

4. Residual Activity and Spore Dispersal

- The fungus in Isariguard continues to grow and reproduce even after the initial application, providing residual activity against future pest infestations.
- Spores produced by the fungus can disperse in the environment, infecting new pests and contributing to long-term pest control.

5. Integrated Pest Management (IPM) Compatibility

- Isariguard can be integrated into IPM programs, complementing other pest control methods such as cultural practices, biological control agents, and insect-resistant crop varieties.
- Its natural mode of action and compatibility with beneficial insects make it a valuable component of sustainable pest management strategies.

6. Reduced Resistance Development

- Unlike chemical pesticides, which can lead to the development of resistance in pest populations over time, Isariguard offers a novel mode of action that reduces the likelihood of resistance development.
- By targeting pests through natural biological processes, Isariguard helps maintain its effectiveness against pest populations over the long term.

7. Safe and Easy to Use

- Isariguard is safe for humans, animals, and the environment when used as directed.
- It is easy to apply and does not require special equipment or extensive training, making it accessible to a wide range of users, including small-scale farmers and home gardeners.

METHOD OF APPLICATION:

Apply in recommended amount of product to thoroughly cover foliage infested with insects, 400-450 liters of water/ha. Water volume depends on spray equipment, crop canopy and target pest. Spray to wet, but avoid runoff. Apply up to a maximum of 3500 ml of product per hectare for extreme insect pressure or dense foliage.

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