Bb-Protec*

Beauveria bassiana for the control of agricultural insect and mite pests

* Further Brand Eco-Bb
**Bb-Protec contains the insect-attacking fungus Beauveria bassiana strain R444**

The active agent *Beauveria bassiana* R444 (≥ 2 × 10⁹ spores/g), is a naturally occurring, soil inhabiting, insect-pathogenic fungus. The entomopathogenic fungus infects and controls whitefly, spider mite and various other agricultural insect and mite pests. Bb-Protec’s unique formulation prevents the fungal spores from drying out and enhances penetration and infection of the pest.

In numerous greenhouse and field trials, Bb-Protec proved to be very effective against whitefly and red spider mite on a variety of crops. Trial results also show efficacy against weevils, wire worm, thrips and other agricultural insect and mite pests.

Control of spider mite in a strawberry field trial in South Africa. Photo shows leaves from Bb-Protec treated plants (right) compared to plants sprayed with a commercial acaricide (left), after six weeks of treatment (Madumbi, 2007).
**Mode of Action**

The active agent in Bb-Protec, *Beauveria bassiana*, is a common, cosmopolitan, insect-pathogenic fungus and also a common soil inhabiting fungus. Several strains of the fungus have been developed and registered for use as insecticides in various parts of the world. *Beauveria bassiana* has the ability to infect a reasonably wide range of insects. When Beauveria spores come into contact with the insect, they attach to and penetrate through the “skin” or cuticle. This is achieved by the physical growth of the fungal mycelium aided by enzymes such as chitinase. Once inside the insect, the fungus grows and multiplies. Death is caused by internal tissue destruction and may be aided by toxins produced by the fungus. It is important to note that a biological control product such as Bb-Protec does not have an overnight knock-down effect on insects as with a toxic chemical insecticide, but is effective over time in weakening and eroding insect populations.

![Graph showing whitefly incidence over weeks with data points for Untreated, Chemical standard, and Bb-Protec 1 g/liter.]

Bb-Protec against whitefly compared to a standard chemical. While it took Bb-Protec longer the end results matched the performance of the chemical. As biological products typically do not exhibit the “knock-down effect” of chemicals, preventative control to manage pest populations is recommended.

**Method of Application**

- Mix with water at a rate of 1 g/liter water and apply as a full cover spray or drench application every 3–14 days depending on crop and severity of pest.
- Preferably apply product when humidity is high and UV is low – i.e. late afternoon.
- Good spray coverage is essential.
- Wetters and other adjuvants are not needed unless recommended.
- Ensure areas where pests are habitually found are covered – i.e. underside of leaves or in leaf folds.
- Avoid the use of broad spectrum fungicides for at least three days before and after Bb-Protec applications.
Bb-Protec

✔ Unique wettable powder formulation
✔ Control of a broad spectrum of insect pests
✔ No residues and no withholding period after application
✔ Effective against various stages of the pest life cycle