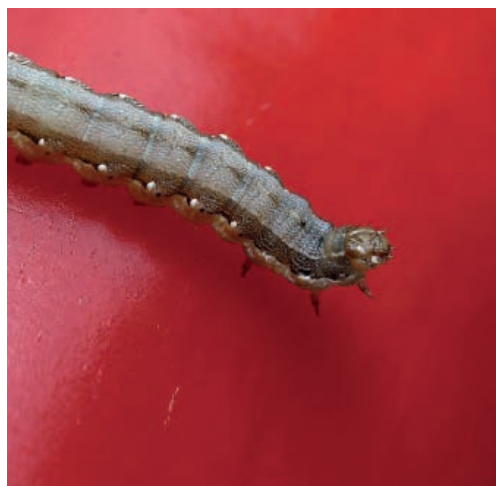




Delfin[®] WG

Reg. No. L9761, Act 36 of 1947.



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A granule formulation of *Bacillus thuringiensis* subspecies *kurstaki* strain SA-11, solids, spores and lepidopteran active toxins, for the suppression of a wide range of lepidopteran pests. Delfin® WG is a biological larvicide for resistance and residue management.

Why use Delfin® WG?

A natural biological larvicide highly effective for management of lepidopteran larvae.

Features	Benefits
<i>Bacillus thuringiensis</i> (Bt) is a beneficial soil bacteria highly adaptive to different environments.	Delfin® WG can be used in a wide range of areas and environments.
Based on one of the first commercialised biocontrol actives.	Well established and recognised biocontrol active.
Manufactured by bioproduct specialists Certis Biologicals.	Excellent formulation and extensively researched and tested. Ensures a high quality isolate with proven successful results.
Internationally recognised product.	Delfin® WG has an extensive international label for the suppression and management of a wide range of lepidopteran larvae.
Versatile application, excellent compatibility and shelf-life.	User friendly and easy to integrate into existing spray programs.
Isolate SA-11 contains an extensive cry toxin profile and potency factors.	Faster acting and more effective than <i>Bt</i> products with a less extensive profile.
Active compounds produced by <i>Bt</i> in Delfin® WG are specifically toxic to lepidopteran larvae.	Target specific and has no effect on non-target beneficial insects.
Unique mode of action different from synthetic chemistry.	Delfin® WG is an ideal tool for resistance management and IPM programs.
Non-toxic, completely natural and OMRI listed.	Safe for applicators, consumers and the environment, has no withholding period and can be used in organic operations.

How does Delfin® WG work?

Biological insecticides, or *Bt* bio-larvicides (*Bacillus thuringiensis*-based bio-larvicides) are the most proven, widely used and successful of the known biological pesticides. Each *Bt* cell produces a unique complement of crystalline proteins known as Cry toxins. These toxins cause mortality when ingested by larvae. Very specific gut enzymes, which only function in the alkaline conditions of the caterpillar gut, dissolve the crystals to form the toxin. This disrupts the pest's digestive tract causing the pest to stop eating and then die due to paralysis of the mid gut, osmotic shock and septicaemia. This process is depicted on the next page.

Trial data:

Delfin® WG suppression of Citrus flower moth on citrus

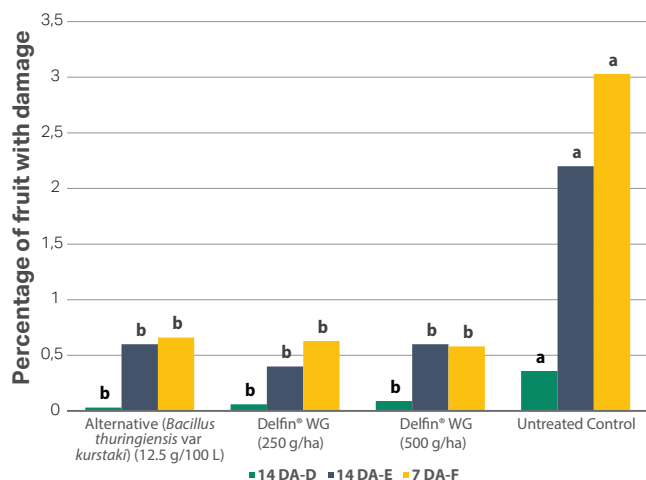


Figure 1 (above): Number of fruit with Citrus flower moth larvae damage on treated and untreated lemon trees. Data is presented per evaluation date, fourteen days after applications D and E, and 7 days after application F.

Variety: Eureka Lemon

Location: Simondium, Western Cape

Alternative: *Bacillus thuringiensis* var *kurstaki* (32 000 IU/mg)

Citrus flower moth larvae were present at moderately high and uniform infestation levels in the trial, resulting in significant damage to the crop (3% of fruit affected at the end of the trial in the untreated control). Applications of all products started preventatively and continued every fourteen days. Both Delfin® WG treatments applied resulted in significantly less damage observed on the fruit. An alternative *Btk* was included in the trial for comparison purposes.

Delfin® WG suppression of African bollworm on lettuce

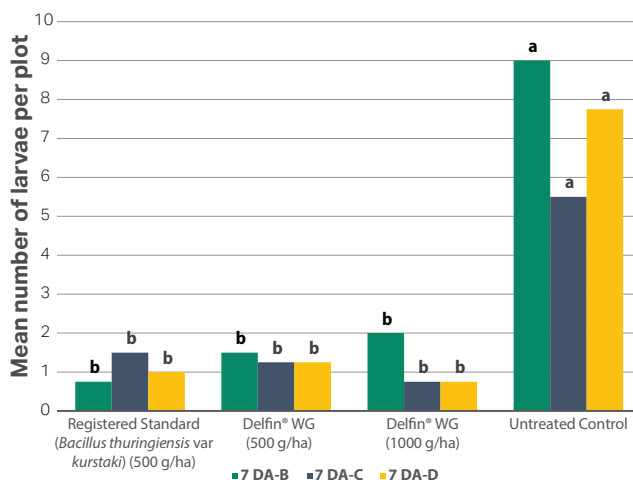


Figure 2 (above): Mean number of African bollworm larvae observed per plot on treated and untreated lettuce. Data is presented per evaluation date, seven days after each application.

Variety: Iceberg

Location: Joostenbergvlakte, Western Cape

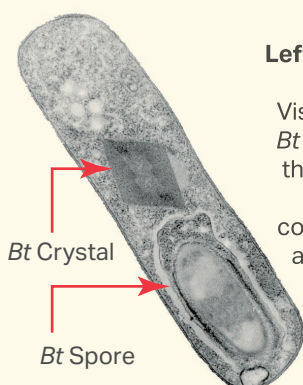
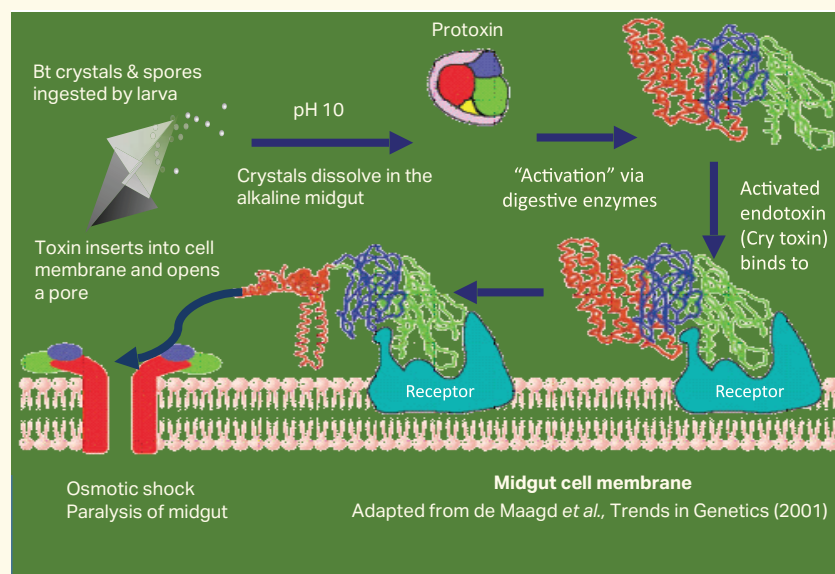
Registered Standard: *Bacillus thuringiensis* var *kurstaki* (32 000 IU/mg)

African bollworm larvae were present at moderate and uniform infestation levels ranging between 13 and 22.5% in the untreated control. Applications of all products started preventatively when the first African bollworm eggs were observed, and continued every 7 days. Both Delfin® WG treatments applied resulted in significantly lower African bollworm larvae numbers and were comparable with the Registered Standard.



Pictured above: African bollworm larvae, one of the target pests for Delfin® WG.

Image below: The mode of action of Cry toxins within Delfin® WG



Left: The vegetative cell of *Bacillus thuringiensis*. Visible inside is the active Bt crystal produced when the Bt spore forms inside the cell. These two components make up the active ingredients in any Bt based product.

Registered Usages:

Crop/Disease	Dosage Rate	Remarks
Lettuce African bollworm <i>(Helicoverpa armigera)</i> Tomato <i>(Tuta absoluta)</i>	1 kg/ha	Application Timing and Intervals - First application with first detection of specified pest eggs. - Second application 7-10 days after first application. - Continue application of Delfin® WG every 7-10 days as long as specified pest is present.
Citrus Citrus flower moth/ Lemon borer <i>(Prays citri)</i>	250 - 500 g/ha	Application Timing and Intervals - First Delfin® WG application with first detection of specified pest eggs. - Second Delfin® WG application 14 days after first application. - Continue application of Delfin® WG every 14 days as long as specified pest is present. - Delfin® WG should be applied preventatively or when the pest pressure is below the economic threshold. - Delfin® WG is ideal for Integrated Pest Management.

Available in: 100 g, 1 and 30 kg

Manufactured by:



Application Guidelines:

Apply through conventional application equipment as described in the mixing instructions. Delfin® WG should be applied as a full cover film spray. Coverage of feeding areas essential.



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