

DiPel® DF

BIOLOGICAL INSECTICIDE DRY FLOWABLE

ACTIVE CONSTITUENT: *Bacillus thuringiensis subsp. kurstaki*, Strain ABTS-351, fermentation solids and solubles.

GROUP **11** INSECTICIDE

Controls Lepidopteran caterpillars in Agricultural and Non-Agricultural Uses: Vegetables, Fruit, Vines, Oilseeds, Cereal Grains, Herbs, Tobacco, Ornamentals, Forestry, Amenity Trees and Turf as specified in the directions for use table

GENERAL INSTRUCTIONS

DiPel DF is a specially prepared dry flowable formulation containing live spores and endotoxin of a naturally occurring bacterium. This dry flowable formulation is mixed with water before application and can be applied through any standard spray equipment.

DiPel DF controls Lepidopteran larvae (moth and butterfly caterpillars) only. It does not harm beneficial insect and mite predators, and leaves no harmful crop residues.

DiPel DF does not kill immediately. Once a caterpillar eats treated foliage, it stops feeding. This protects the crop from further damage. However, the caterpillars may hang from the leaves before rotting and dropping to the ground, which normally occurs within 3-4 days. Under low temperatures, when larvae are less actively feeding control may be slower.

INSECTICIDE RESISTANCE WARNING

GROUP **11** INSECTICIDE

For insecticide resistance management, DiPel DF is a Group 11 insecticide.

Some naturally occurring insect biotypes resistant to DiPel DF and other Group 11 insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if DiPel DF or other Group 11 insecticides are used repeatedly. The effectiveness of DiPel DF on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, Valent BioSciences accepts no liability for any losses that may result from the failure of DiPel DF to control resistant insects. DiPel DF may be subject to specific resistant management strategies. For further information contact your local supplier, Sumitomo Chemical Australia representative or local agricultural department agronomist.

Mixing

With the agitator running, add the required quantity of DiPel DF onto the surface of the water in the partially filled tank. Continue agitation and add remainder of water. Use spray within 12 hours of mixing. If spraying is interrupted, ensure the spray is thoroughly agitated

before starting to spray. Addition of a spreader-sticker may improve coverage on hard-to-wet crops. If mixing with cupric hydroxide use immediately. Do not allow the mixture to stand.

Application

DiPel DF must be ingested by the target insect. Therefore, thorough coverage is essential. Coverage can be improved by use of dropper nozzles and a fine spray. **DO NOT** spray past the point of run-off. Treat when larvae are young. Under heavy pressure, use the higher recommended rates and shorter interval between applications. If rain falls shortly after treatment, re-treatment may be necessary. To obtain maximum assistance from beneficial insects, avoid use of broad spectrum insecticides during a program of DiPel DF sprays.

Note: The effectiveness of this product may be reduced or nullified as a result of pests developing a tolerance or resistance to this product.

If unacceptable control occurs immediately contact your local Sumitomo Chemical Australia representative. This product should not be used where the user suspects that a tolerant or resistant strain is present.

Compatibility

DiPel DF is compatible with most insecticides and fungicides. **DO NOT** apply as a tank mix with, or within 2 days of application of alkaline products such as foliar nutrients, liquid fertilisers or Bordeaux mixtures.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

DO NOT contaminate ponds, waterways and drains with this product or used containers.

STORAGE AND DISPOSAL

Keep out of reach of children.

Store in the closed, original container in a cool (below 15°C) well-ventilated area.

DO NOT store for prolonged periods in direct sunlight. The product is stable for 2 years if stored as indicated above.

Triple rinse containers before disposal. Add rinsings to spray tank. **DO NOT** dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point.

If not recycling, break, crush or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations.

DO NOT burn empty containers or product.

SAFETY DIRECTIONS

Will irritate the eyes and skin. Avoid contact with eyes, skin and open wounds. **DO NOT** inhale spray mist. When opening the container and preparing spray, wear cotton overalls buttoned to the neck and wrist, washable hat and elbow-length PVC gloves and face shield or goggles. When using the prepared spray, wear cotton overalls buttoned to the neck and wrist [or equivalent clothing]. If product on skin, immediately wash area with soap and water. If product in eyes, wash it out immediately with water.

After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves and face shield or goggles and contaminated clothing.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre (phone 13 11 26).

SAFETY DATA SHEET

Additional information is listed in the Safety Data Sheet (SDS) which can be obtained from Sumitomo Chemical.

IMPORTANT NOTICE

These goods are to be used only for the purpose and as specified on the label, and are not suitable for any other purpose. To the fullest extent permitted by law, we do not accept or bear any liability on any basis for any loss, damage, cost or expense, arising in any way, directly or indirectly, in connection with the goods.

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**THIS PRODUCT IS NOT CONSIDERED TO BE
A DANGEROUS GOOD UNDER THE
AUSTRALIAN CODE FOR THE TRANSPORT OF
DANGEROUS GOODS BY ROAD OR RAIL**

**In a Transport Emergency
Dial 000
Police or Fire Brigade**

**SPECIALIST ADVICE
IN EMERGENCY ONLY
1800 033 111
ALL HOURS - AUSTRALIA
WIDE**

DIRECTIONS FOR USE

RESTRAINTS:

DO NOT use the product if rain is forecast within 8 hours

SITUATION	PEST	RATE	CRITICAL COMMENT S
Agricultural and Non-Agricultural Uses: Vegetables Fruits Vines Oilseeds Cereal Grains Herbs Tobacco Ornamentals Forestry Amenity Trees Turf	Lepidopteran larvae susceptible to DiPel® DF, Including: Armyworm (<i>Spodoptera</i> spp.) Cotton bollworm (<i>Helicoverpa armigera</i>) Native budworm (<i>Helicoverpa punctigera</i>) Cabbage moth (<i>Plutella xylostella</i>) Cabbage white butterfly (<i>Pieris rapae</i>) Green looper (<i>Chrysodeixis eriosoma</i>) Lightbrown apple moth (<i>Epiphyas postvittana</i>) Pear looper (<i>Ectropis excursaria</i>) Soybean looper (<i>Thysanoplusia orichalcea</i>) Vine moth (<i>Phalaenoides glyciniae</i> , <i>Agarista agricola</i>) Tobacco looper (<i>Chrysodeixis argentifera</i>)	Hectare 0.5 to 2.0 kg/ha Dilute Spraying (to the point of run-off) 25 – 100 g/100 L Concentrate Spraying 100 – 1000 g/100L	<ol style="list-style-type: none"> 1. Crops must be monitored regularly for lepidopteran eggs or first instar larvae (caterpillar stage). The suitability of DiPel® DF as a control measure should be determined through consultation with local industry advisers, company representatives or small scale tests before treatment of a large area or number of plants begins. 2. If DiPel® DF is suitable, time the commencement of spraying to coincide with egg hatch or first instar larvae and before damage to the plant. 3. The activity of DiPel® DF commences to decline immediately after application. Under continual pest pressure or rapid plant growth (eg sweet corn silks, tomato shoots etc), a minimum of 2 sprays separated by no more than 3 days initially, and then reapply at 3 –5 day intervals. 4. Use the higher rates of DiPel® DF for higher egg laying activity, longer residual or larger first instar larvae. Higher rates should be used against <i>Helicoverpa</i> spp. Control of <i>Helicoverpa</i> is most effective if larvae are less than 8 mm long. Control of <i>Spodoptera</i> is most effective if larvae are less than 15 mm long. 5. Spray late in the afternoon or early evening (before dew begins to settle) when larvae are actively feeding. Reapplication after rainfall or overhead sprinkler irrigation may be necessary. 6. Ensure complete and thorough coverage of all plant surfaces. A non-ionic wetting agent such as Agral may need to be used on difficult to wet plants. 7. Larval control is only achieved when the larvae ingest DiPel® DF and activation begins in the alkaline gut. Feeding ceases once the larvae ingest DiPel® DF and death of treated larvae may take up to 3-5 days. Under low temperatures, when larvae are less actively feeding, control may be slower. 8. Larvae in sheltered positions such as the centre of the sweet corn whorls or in the heart leaves of lettuce and crucifers will not be controlled. In these cases spraying to achieve run-off may be desirable for the DiPel® DF to reach the target area to achieve efficacy. 9. DiPel® DF is safe to beneficial arthropods and is best used in conjunction with these beneficial species (eg <i>Trichogramma</i> spp. parasitoids). To obtain maximum assistance from beneficial arthropods, avoid the use of broad spectrum insecticides before and during the use of DiPel DF. 10. DiPel® DF should be used in an Insecticide Resistance Management Strategy.

DiPel® DF can be applied with 0.01% wetting agent to assist in coverage of certain plants (eg crucifers).

NOT TO BE USED FOR ANY PURPOSE OR IN ANY MANNER CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

WITHHOLDING PERIOD

NOT REQUIRED WHEN USED AS DIRECTED.

