

DiPel® DF

BIOLOGICAL INSECTICIDE

ACTIVE CONSTITUENT: *Bacillus thuringiensis* subsp. *kurstaki*, Strain HD-1,
(manufactured by Abbott Laboratories in North Chicago) active solids and solubles

GROUP 11C 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.**

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.

General Instructions

INSECTICIDE RESISTANCE WARNING

GROUP 11C INSECTICIDE

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

Some naturally occurring insect biotypes resistant to DiPel DF and other Group 11C 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 11C 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, Sumitomo 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 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 Pty Ltd 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 well ventilated area, as soon as possible. DO NOT store for prolonged periods in direct sunlight. Rinse containers before disposal. Add rinsings to spray tank. DO NOT dispose of undiluted chemicals on-site. Break, crush, puncture and bury empty containers in a local authority landfill. If not available bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, vegetation and roots. Empty containers and product should not be burnt.

Safety Directions

Avoid contact with eyes, skin and open wounds. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water.

First Aid

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

MATERIAL SAFETY DATA SHEET

Additional information is listed in the Material Safety Data Sheet (MSDS).

EXCLUSION OF LIABILITY

Unless otherwise expressly stated in writing neither Valent BioSciences, Sumitomo Chemical Australia Pty Ltd ("the Companies") nor the distributor has any knowledge of the particular use to which the buyer proposes to put this product. In purchasing this product the buyer must rely solely upon his own skill and judgement as to its suitability for the particular purpose for which it is required. Except to the extent that exclusion or denial of liability is prohibited under the Trade Practices Act or any relevant state legislation, the Companies and the distributor expressly exclude any warranty as to the quality or fitness of any goods sold for any purpose whatsoever and deny all responsibility in contract tort negligence or otherwise for any harm or damage resulting from the use of such goods or from acting on the advice or recommendations as to such use given in good faith by any representative of the Companies or the distributor. If these conditions are unacceptable to the buyer, the goods should be returned to Sumitomo Chemical Australia Pty Ltd unopened within seven (7) days for refund of purchase price.

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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 ALL HOURS - AUSTRALIA WIDE 1800 024 973

Directions for use

Restrictions:

Do NOT use the product if rain is forecast within 8 hours.

Situation	Pest	Rate	Critical Comments
Agricultural and Non-Agricultural Uses:	Lepidopteran larvae susceptible to DiPel, Including:	Hectare 0.5 to 2.0 kg/ha	<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. Re-application 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 runoff 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.
Vegetables	Armyworm	Dilute Spraying (to the point of run-off)	
Fruits	(<i>Spodoptera</i> spp.)	25 - 100 g/100 L	
Vines	Cotton bollworm	Concentrate	
Oilseeds	(<i>Helicoverpa armigera</i>)	Spraying	
Cereal Grains	Native budworm	100 - 1000 g/100L	
Herbs	(<i>Helicoverpa punctigera</i>)		
Tobacco	Cabbage moth		
Ornamentals	(<i>Plutella xylostella</i>)		
Forestry	Cabbage white butterfly		
Amenity Trees	(<i>Pieris rapae</i>)		
Turf	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 glycinae</i> ,		
	<i>Agarista agricola</i>)		
	Tobacco looper		
	(<i>Chrysodeixis argentifera</i>)		

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