



DiPel[®] PRO DF

BIOLOGICAL INSECTICIDE DRY FLOWABLE

 **FOR ORGANIC PRODUCTION**

DiPel Pro DF BIOLOGICAL INSECTICIDE DRY FLOWABLE is an effective product for control against Lepidoptera pests in agricultural production systems.



ACTIVE INGREDIENT:

Bacillus thuringiensis, subsp. *kurstaki*, strain ABTS-351, fermentation solids, spores, and insecticidal toxins* 54%

OTHER INGREDIENTS 46%

TOTAL 100%

*Potency: 32,000 Cabbage Looper Units (CLU) per mg (14.5 billion CLU per pound of product)

The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

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List No. 12046

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KEEP OUT OF REACH OF CHILDREN
CAUTION

1.0

FIRST AID	
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for treatment advice.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-892-0099 (24 hours) for emergency medical treatment and/or transport emergency information. For all other information, call 1-800-6-VALENT (682-5368).	

2.0

PRECAUTIONARY STATEMENTS

2.1

HAZARD TO HUMANS AND DOMESTIC ANIMALS CAUTION

Harmful if absorbed through the skin or inhaled. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Avoid breathing dust or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

2.2

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Mixers/loaders and applicators must wear a minimum of a NIOSH-approved particulate filtering facepiece respirator with any R or P filter; OR a NIOSH-approved elastomeric particulate respirator with any R or P filter; OR a NIOSH-approved powered air-purifying respirator with an HE filter. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

2.3

ENGINEERING CONTROLS

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.607 (d-f)), the handler PPE requirements may be reduced or modified as specified in the WPS. IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment break-down.

2.4 USER SAFETY RECOMMENDATIONS

- Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- User should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

2.5 ENVIRONMENTAL HAZARDS

For terrestrial uses, except when applying aerially over the forest canopy: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinse.

This product must not be applied aerially within ¼ mile of any habitats of endangered or threatened lepidoptera. No manual application can be made within 300 feet of any threatened or endangered lepidoptera.

3.0 DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

4.0 AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restrictive entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas (that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water) is:

- Coveralls
- Waterproof gloves
- Shoes plus socks

5.0 NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Keep unprotected persons out of the treated areas until sprays have dried.

6.0 DIRECTIONS FOR USE

See Chemigation section for chemigation use directions.

Days to Harvest: There are no restrictions on applying DiPel® PRO DF BIOLOGICAL INSECTICIDE DRY FLOWABLE (hereafter referred to as DiPel PRO DF) up to the time of harvest. Individual State regulations may vary and should be consulted for allowable pre-harvest application intervals.

Sites: DiPel Pro DF may be used for any labeled pest on crops grown in fields, greenhouses, shadehouses, nurseries, and forests; on plants in self-contained, closed-system ponds; and on agricultural commodities in storage.

DiPel PRO DF is an insecticide for use against listed caterpillars (larvae) of lepidopterous insects. Close scouting and early attention to infestations is highly recommended. Larva must eat deposits of *DiPel* PRO DF to be affected. Always follow these directions:

- Treat when larvae are young (early instars) before the crop is damaged.
- Larvae must be actively feeding on treated, exposed plant surfaces.
- Thorough spray coverage is needed to provide a uniform deposit of *DiPel* PRO DF at the site of larval feeding. Use overhead and drop nozzles to obtain good spray coverage on both sides of foliage. Use sufficient spray volume to insure uniform deposition on all plant surfaces.
- Under heavy pest population pressure, use the higher label rates, shorten the spray interval, and/or raise spray volume to improve spray coverage.
- Repeat applications at an interval sufficient to maintain control, usually 3 to 14 days depending on plant growth rate, moth activity, rainfall after treating, and other factors. If attempting to control a pest with a single spray, make the treatment when egg hatch is essentially complete, but before crop damage occurs.
- A spreader-sticker which has been approved for use on growing and harvested crops should be added for hard-to-wet crops such as cabbage, or to improve weather-fastness of the spray deposits.
- *DiPel* PRO DF is a non-restricted use pesticide and does not require a restricted use permit for purchase and use.
- *DiPel* PRO DF may be tank mixed with other labeled insecticides to enhance control. Use of the resulting tank mix must be in accordance with the more restrictive label limitations and precautions. Do not exceed label dosage rates. This product cannot be mixed with any product containing a label prohibition against such mixing. Before tank mixing *DiPel* PRO DF with other labeled products, including spreader stickers, check for tank mix compatibility.

After ingesting a lethal dose of *DiPel* PRO DF, larvae stop feeding within the hour, and will die within several hours to 3 days. Mortality varies with larval size (instar), lepidopteran species, and dose consumed. Following ingestion, larvae become sluggish, discolor, then shrivel, blacken and die. Smaller larvae die more quickly.

DiPel PRO DF may be applied in conventional ground or aerial equipment with quantities of water sufficient to provide uniform coverage of infested plant parts. The volume of water needed per acre will depend on crop development, relative humidity, spray equipment, and local

experience. Usually, selection of moderate to high spray volume will provide the best results in most equipment. For optimal results, use at least 20 gallons of water per acre for ground application. For aerial application use at least 3 gallons of water per acre; except for arid areas where 5 to 10 gallons of water per acre must be used. Add water to the mix tank and provide moderate agitation. While agitating, add the required amount of *DiPel* PRO DF. Continue agitation, and add other spray materials, if any. Add remaining water, if any, and agitate until fully mixed. Maintain the suspension with moderate agitation while loading and spraying. Do not mix more *DiPel* PRO DF than can be used within 12 hours.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all of these factors when making decisions.

For Smaller Spray Volumes:

If Rate is	Use This Amount Per Gallon (wt)	
1/4 lb/acre or 100 gals	1/2 tsp	(0.04 oz)
1/2 lb/acre or 100 gals	1 tsp	(0.08 oz)
1 lb/acre or 100 gals	2 tsps	(0.16 oz)
2 lb/acre or 100 gals	4 tsps	(0.32 oz)

6.1 CHEMIGATION USE DIRECTIONS

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation system. Do not apply this product through any other type of irrigation systems. Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system. Crop injury, lack of effectiveness, or illegal residues in the crop can result from nonuniform distribution of treated water. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise. Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water.

Spray Preparation

First prepare a suspension of *DiPel* PRO DF in a mix tank. Fill tank with 1/2 to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of *DiPel* PRO DF, and then the remaining volume of water. Then set the sprinkler to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the suspension of *DiPel* PRO DF into the irrigation water line so as to deliver the desired rate per acre. The suspension of *DiPel* PRO DF must be injected with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. Any questions on calibration should be directed to your State Extension Service Specialists, to equipment manufacturers or other experts.

NOTE: When treatment with *DiPel* PRO DF has been completed, further field irrigation over the treated area must be avoided for 24 to 48 hours to prevent washing the material off the crop.

6.2 PRECAUTIONS FOR APPLICATIONS THROUGH SPRINKLER IRRIGATION SYSTEMS

Maintain continuous agitation in the mix tank during mixing and application to insure a uniform suspension.

Greater accuracy in calibration and distribution will be achieved by injecting a larger volume for a more dilute solution per unit time.

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. Do not apply when wind speed favors drift beyond the area intended for treatment, system connections or fittings leak, nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained.

6.3 Pests Controlled by DiPel PRO DF

Common name	Scientific name
Achema Sphinx Moth (Hornworm)	<i>Eumorpha achemon</i>
Alfalfa Caterpillar	<i>Colias eurytheme</i>
Almond Moth	<i>Caudra cautella</i>
Amorbia Moth	<i>Amorbia humerosana</i>
Armyworm	<i>Spodoptera</i> spp., e.g. <i>exigua</i> , <i>frugiperda</i> , <i>littoralis</i> , <i>Pseudaletia unipuncta</i>
Artichoke Plume Moth	<i>Platyptilia carduidactyla</i>
Azalea Caterpillar	<i>Datana major</i>
Bagworm	<i>Thyridopteryx ephemeraeformis</i>
Banana Moth	<i>Hypercompe scribonia</i>
Banana Skipper	<i>Erionota thrax</i>
Blackheaded Budworm	<i>Acleris gloverana</i>
Box Tree Moth	<i>Cydalima perspectalis</i>
California Oakworm	<i>Phryganidia californica</i>
Cankerworm	<i>Paleacrita merriccata</i>
Cherry Fruitworm	<i>Grapholita packardii</i>
China Mark Moth	<i>Nymphula stagnata</i>
Citrus Cutworm	<i>Xylomyges curialis</i>
Codling Moth	<i>Cydia pomonella</i>
Corn Earworm, Cotton Bollworm, Tomato Fruitworm	<i>Helicoverpa zea</i>
Cranberry Fruitworm	<i>Acrobasis vaccinii</i>
Cross-striped Cabbageworm	<i>Evergestis rimosalis</i>
Cutworm	Various <i>Noctuid</i> species, e.g. <i>Agrotis ipsilon</i>
Diamondback Moth	<i>Plutella xylostella</i>
Douglas Fir Tussock Moth	<i>Orgyia pseudotsugata</i>

6.3 Pests controlled by DiPel DF (Cont'd)

Common name	Scientific name
Ello Moth (Hornworm)	<i>Erinnyis ello</i>
Elm Spanworm	<i>Ennomos subsignaria</i>
European Corn Borer	<i>Ostrinia nubilalis</i>
European Grapevine Moth	<i>Lobesia botrana</i>
European Skipper (Essex Skipper)	<i>Thymelicus lineola</i>
Fall Webworm	<i>Melissopus latiferreanus</i>
Filbert Leafroller	<i>Archips rosanus</i>
Fruittree Leafroller	<i>Archips argyrospilla</i>
Fruit-tree Tortrix	<i>Pandemis spp.</i>
Grape Berry Moth	<i>Paralobesia viteana</i>
Grape Leafroller	<i>Platynota stultana</i>
Grapeleaf Skeletonizer (ground only)	<i>Harrisina americana</i>
Green Cloverworm	<i>Plathypena scabra</i>
Greenstriped Mapleworm	<i>Dryocampa rubicunda</i>
Gum Moth	<i>Batrachedra comosae</i>
Gypsy Moth	<i>Lymantria dispar</i>
Headworm	<i>Helicoverpa</i>
Head Moth	<i>Homoeosoma ellectellum</i>
Hemlock Looper	<i>Lambdina fiscellaria</i>
Hornworm	<i>Manduca spp.</i>
Imported Cabbageworm	<i>Pieris rapae</i>
Indian Meal Moth	<i>Plodia interpunctella</i>
Io Moth	<i>Automeris io</i>
Jack Pine Budworm	<i>Choristoneura pinus</i>
Light Brown Apple Moth	<i>Epiphyas postvittana</i>
Looper	Various Noctuidae, e.g. <i>Trichoplusia ni</i>
Melonworm	<i>Diaphania hyalinata</i>
Mimosa Webworm	<i>Homadaula anisocentra</i>
Obliquebanded Leafroller	<i>Choristoneura rosaceana</i>
Oleander Moth	<i>Syntomeida epilais</i>
Omnivorous Leafroller	<i>Platynota stultana</i>
Omnivorous Looper	<i>Sabulodes aegrotata</i>
Orangedog	<i>Papilio cresphontes</i>
Orange Tortrix	<i>Argyrotaenia citrana</i>
Oriental Fruit Moth	<i>Grapholita molesta</i>
Peach Twig Borer	<i>Anarsia lineatella</i>
Pine Butterfly	<i>Neophasia menapia</i>
Podworm	<i>Helicoverpa zea</i>
Redbanded Leafroller	<i>Argyrotaenia velutinana</i>
Raisin Moth	<i>Cadra figulilella</i>
Redhumped Caterpillar	<i>Schizura concinna</i>
Rindworm Complex	Various Lepodoptera.
Saddleback Caterpillar	<i>Sibine stimulea</i>
Saddle Prominent Caterpillar	<i>Heterocampa guttivitta</i>
Saltmarsh Caterpillar	<i>Estigmene acrea</i>
Sod Webworm	<i>Crambus spp.</i>
Southern Cornstalk Borer	<i>Diatraea crambidoides</i>
Soybean Looper	<i>Pseudoplusia includens</i>
Spanworm	<i>Ennomos subsignaria</i>
Spring and Fall Cankerworm	<i>Paleacrita vernata</i> and <i>Alsophila pometaria</i>
Spruce Budworm	<i>Choristoneura fumiferana</i>
Sugarcane Borer	<i>Diatraea saccharalis</i>
Tent Caterpillar	Various <i>Lasiocampidae</i>
Thecla-Thecla Basilides (Geyr)	<i>Thecla basilides</i>
Tobacco Budworm	<i>Heliothis virescens</i>
Tobacco Hornworm	<i>Manduca sexta</i>
Tobacco Moth	<i>Ephestia elutella</i>
Tufted Apple Budmoth	<i>Platynota idaeusalis</i>
Twig Borer	<i>Anarsia lineatella</i>
Variiegated Cutworm	<i>Peridroma saucia</i>
Variiegated Leafroller	<i>Platynota flavedana</i>
Velvetbean Caterpillar	<i>Anticarsia gemmatalis</i>
Walnut Caterpillar	<i>Datana integerrima</i>
Webworm	<i>Hyphantria cunea</i>
Western Tussock Moth	<i>Orygia vetusta</i>

6.4 Field Crops

Crops	Application rate (pounds/acre)
Herbs and spices (Crop group 19) Including: Allspice; angelica; anise; anise, star; annatto (seed); balm (lemon balm); basil; borage; burnet; chamomile; caper buds; caraway; caraway, black; cardamom; cassia bark; cassia buds; catnip; celery seed; chervil (dried); chive; chive, Chinese; cilantro (leaf); cilantro (seed); cinnamon; clary; clove buds; coriander leaf (cilantro or Chinese parsley); coriander seed (cilantro); costmary; cumin; curry (leaf); dill (dillweed); dill (seed); fennel (common); fennel, Florence (seed); fenugreek; grains of paradise; horehound; hyssop; juniper berry; lavender; lemongrass; lovage (leaf); lovage (seed); mace; marigold, marjoram; marjoram (includes sweet or annual marjoram, wild marjoram or oregano, and pot marjoram); mustard (seed); nasturtium; nutmeg; parsley (dried); pennyroyal; pepper, black; pepper, white; poppy (seed); rosemary; rue; saffron; sage; savory, summer and winter; sweet bay; tansy; tarragon; thyme; vanilla; wintergreen; woodruff; wormwood.	0.5-2.0 Use 1-2 lb/Acre for control of <i>Spodoptera</i> spp.
Flowers, bedding plants and ornamentals	0.5-2.0 For best results, use a ground applicator, a minimum of 50 gals total mix per acre, 50-100 psi and 3-7 nozzles per bed.
Hemp (field and greenhouse)	0.5-2.0 Use 1-2 lbs./Acre for control of <i>Spodoptera</i> spp. and <i>Helicoverpa</i> spp.
Mint and peppermint	0.5-2.0 Use 1-2 lb/Acre for control of <i>Spodoptera</i> spp.
Turf	0.5-2.0
Crops	Application rate (pounds/acre)
GREENHOUSE/SHADEHOUSE AND OUTDOOR NURSERY	
Crops in the following groups:	0.5-2.0
Vegetable, leafy, except brassica (Crop group 4), Vegetable, brassica leafy, (Crop group 5), Vegetable, fruiting, (Crop group 8-10), Herbs and spices (Crop group 19)	Use higher rates for <i>Heliothis</i> spp.
AQUATIC ORNAMENTALS	
Water lilies, water hyacinths and bog plants	1/4 - 1/2 tsp/ 100 sq ft (0.6 - 1.2 g/ 100 sq ft)

6.4 Field Crops (Cont'd)

Crops	Application rate (pounds/acre)
FOREST TREES AND OTHER TREES	
Forest, shade, sugar maple and other trees (e.g., ornamental trees)	For hydraulic sprayers, mix 0.5-1 lb in 100 gallons of water. For mist blowers, mix 0.5-1 lb in 10 gallons of water. Inclusion of a suitable spreader-sticker approved for forest insect control is recommended to improve coverage, improve rain fastness and/or resist wash-off.

FOR USE ON AQUATIC PLANTS IN SELF-CONTAINED, CLOSED-SYSTEM PONDS ONLY.

For a 10' x 10' pond (100 sq. ft.) based on the number of floating plants contained within it, mix ¼ - ½ teaspoon of DiPel DF in 1 quart of water and apply to the plants on the surface. Adjust quantities accordingly based on specific number of plants. Do not apply directly to water. 60-70% of the water surface must be covered with the leaves of water lilies, water hyacinths, or bog plants with floating leaves to make an application.

7.0 STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Reclose containers of unused DiPel PRO DF. Store in a dry place inaccessible to children and out of sunlight.

Pesticide Disposal: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling if available or dispose of empty bag in a sanitary landfill or by incineration. Do not burn, unless allowed by state and local ordinances. If burned, stay out of smoke.

8.0 NOTICE TO USER

To the extent consistent with applicable law, seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on the label. To the extent consistent with applicable law, user assumes all risks of use, storage or handling not in accordance with accompanying directions.

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