73049-39

4/15/2009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

1/38

Ms. Doina Bujor
Regulatory Manager
Valent BioSciences Corporation
870 Technology Way
Libertyville, IL 60048

Re: DiPel® DF Biological Insecticide
EPA Registration No. 73049-39
Minor Label ("Fast Track") Amendment
Application Dated 1/20/09

APR 15 2009

Dear Ms. Bujor:

The Agency has reviewed your request to amend the subject product registration, which included the following change to the product label:

1) Modify application rate for forest, shade, sugar maple trees and ornamental trees on the DiPel® Pro DF sub-label.

The change referred to above, submitted in connection with registration under FIFRA section 3(c)(5), are acceptable provided that you:

1) Submit and/or cite all data required for registration of your product under FIFRA section 3(c)(5) when the Agency requires all registrants of similar products to submit such data.

2) Submit two (2) copies of your final printed labeling before you release the product for shipment. Refer to the A-79 enclosure for a further description of a final printed label.

Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions. If you have any questions please contact Anna Gross at: 703-305-5614 or by email at: gross.anna@epa.gov.

A stamped copy of the label is enclosed for your records.

Sincerely,

for

Sheryl Reilly, Ph.D., Chief
Microbial Pesticides Branch
Biopesticides and Pollution
Prevention Division (7511P)

CONCURRENCES

SYMBOL ▶	7511P	7511P						
SURNAME ▶	GROSS	Reynolds						
DATE ▶	04/15/09	4/15/09						

EPA Form 1320-1A (1/90) *Printed on Recycled Paper* **OFFICIAL FILE COPY**

☆ U.S. Government Printing Office: 2005 206-899 (mac)

MASTER LABEL

DIPEL® DF
BIOLOGICAL INSECTICIDE
DRY FLOWABLE

For Organic Production

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)

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

KEEP OUT OF REACH OF CHILDREN
CAUTION

Valent BioSciences Corporation
870 Technology Way, Suite 100
Libertyville, IL 60048

EPA Registration No. 73049-39
EPA Est. No. 33762-IA-1

Batch Code:_____

Net Content:_____

ACCEPTED

APR 15 2009

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 73049-39

FIRST AID	
If on skin or clothing	• 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	• 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	• 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
HOTLINE 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.	

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION

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

Personal Protective Equipment (PPE):

Applicators and other handlers must wear:

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

Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. 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.

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 170.240(d) (4-6), 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.

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.

ENVIRONMENTAL HAZARDS
Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

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.

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 agency responsible for pesticide regulation.

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 restricted 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.

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.

STORAGE AND DISPOSAL

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

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

Pesticide Disposal: Do not contaminate food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment by shaking and tapping sides and bottom to loosen clinging particles. 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.

DIRECTIONS FOR USE

See Chemigation section for chemigation use directions.

Days to Harvest: There are no restrictions on applying DiPel® DF up to the time of harvest. Individual state regulations may vary and should be consulted for allowable pre-harvest application intervals.

Sites: DiPel® DF may be used for any labeled pest in both field and greenhouse use as well as in self-contained, closed-system, ornamental ponds.

DiPel® DF is an insecticide for use against listed caterpillars (larvae) of lepidopterous insects. Close scouting and early attention to infestations is highly recommended. Larvae must eat deposits of DiPel® 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® 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® DF is a non-restricted use pesticide and does not require a restricted use permit for purchase and use.

- DiPel® 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. No dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing. Before tank mixing DiPel® DF with other labeled products, including spreader stickers, check for tank mix compatibility.

After ingesting a lethal dose of DiPel® 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® 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; exception being arid areas, where 5 to 10 gallons are required. Add water to the mix tank and provide moderate agitation. While agitating, add the required amount of DiPel® 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® DF than can be used in a 3 day period.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determines 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.	½ tsp.	(0.04 oz)
½ 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)

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 systems. Do not apply this product through any other type of irrigation system. 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® DF in a mix tank. Fill tank with ½ to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of DiPel® 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® DF into the irrigation water line so as to deliver the desired rate per acre. The suspension of DiPel® DF should 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® DF has been completed, further field irrigation over the treated area should be avoided for 24 to 48 hours to prevent washing the material off the crop.

GENERAL 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 lines containing the product must be dismantled and drained.

APPLICATION RATE

FIELD CROPS

CROP	PESTS	POUNDS/ACRE
Vegetable, root and tuber (group 1)	Looper	½ - 1
including, but not limited to:	Omnivorous Leafroller	½ - 1
Carrot, Potato, Beet and Sugarbeet	Hornworm	¼ - 1
	Imported Cabbageworm	¼ - 1
	Diamondback Moth[1]	¼ - 1
	Green Cloverworm	½ - 1
	Webworm	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
	Cutworm	½ - 1
	Cross-striped Cabbageworm	½ - 1
	Heliothis virescens	½ - 2
	Helicoverpa zea	½ - 2

CROP	PESTS	POUNDS/ACRE
Vegetable, bulb (group 3) including, but not limited to: Garlic, Leek and Onion (green and bulb)	Looper	½ - 1
	Omnivorous Leafroller	½ - 1
	Hornworm	½- 1
	Imported Cabbageworm	¼ - 1
	Diamondback Moth[1]	¼ - 1
	Green Cloverworm	¼ - 1
	Webworm	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
	Cutworm	½ - 1
	Cross-striped Cabbageworm	½ - 1
	Heliothis virescens	½ - 2
	Helicoverpa zea	½ - 2
Vegetable, leafy, except brassica (group 4) including, but not limited to: Lettuce Spinach, Celery, Endive, Parsley	Looper	½ - 1
	Omnivorous Leafroller	½ - 1
	Hornworms	¼ - 1
	Imported Cabbageworm	¼ - 1
	Diamondback Moth[1]	¼ - 1
	Green Cloverworm	½ - 1
	Webworm	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
	Cutworm	½ - 1
	Cross-striped Cabbageworm	½ - 1
	Heliothis virescens	½ - 2
	Helicoverpa zea	½ - 2
Vegetable, brassica leafy (group 5) including, but not limited to: Broccoli, Cabbage, Mustard greens, Brussel sprout, Kale, Cauliflower, Chinese cabbage, Collard, Kohlrabi	Looper	½ - 1
	Omnivorous Leafroller	½ - 1
	Hornworms	¼ - 1
	Imported Cabbageworm	¼ - 1
	Diamondback Moth[1]	¼ - 1
	Green Cloverworm	½ - 1
	Webworm	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
	Cutworm	½ - 1
	Cross-striped Cabbageworm	½ - 1
	Heliothis virescens	½ - 2
	Helicoverpa zea	½ - 2

CROP	PESTS	POUNDS/ACRE
Vegetable, legume (group 6) including, but not limited to: Bean, Pea, Lentil and Soybean	Looper	½ - 1
	Soybean Looper	½ - 1
	Green Cloverworm	¼ - 1
	Velvetbean Caterpillar	¼ - 1
	Armyworm[1]	1 - 2
	Podworm	½ - 1
Vegetable, fruiting (group 8) including, but not limited to: Tomato, Pepper and Eggplant	Looper	½ - 1
	Hornworm	¼ - 1
	Tomato Fruitworm	½ - 1
	Variegated Cutworm	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
Vegetable, cucurbit (group 9) including, but not limited to: Melon, Cucumber and Squash	Looper	½ - 1
	Melonworm	½ - 1
	Rindworm complex	½ - 1
	Armyworm[1]	1 - 2
Fruit, citrus (group 10) including, but not limited to: Sweet orange, Grapefruit, Lemon	Fruittree Leafroller	½ - 2
	Orangedog	¼ - 1
	Citrus Cutworm[3]	½ - 2
Fruit, pome (group 11) including, but not limited to: Apple and Pear	Walnut Caterpillar	½ - 2
	Cankerworm	½ - 2
	Gypsy Moth	½ - 2
	Variegated Leafroller	½ - 2
	Redbanded Leafroller	½ - 2
	Tufted Apple Budmoth	½ - 2
	Fruittree Leafroller	½ - 2
	Oriental Fruit Moth	½ - 2
	Cutworm	½ - 2
	Filbert Leafroller	½ - 2
	Obliquebanded Leafroller	½ - 2
	Codling Moth	½ - 2
	Armyworm[1]	1 - 2
	Twig Borer	½ - 2

CROP	PESTS	POUNDS/ACRE
Fruit, stone (group 12) including, but not limited to: Cherry, Plum, Peach, Prune, and Nectarine	Redhumped Caterpillar	½ - 2
	Tent Caterpillar	½ - 2
	Omnivorous Leafroller	½ - 2
	Fall Webworm	½ - 2
Berry group (group 13) and Fruit, small including, but not limited to: Grape Strawberry, and Blackberry	Grapeleaf Skeletonizer (ground only)	½ - 1
	Grape Leafroller	½ - 1
	Achema Sphinx Moth (Hornworm)	½ - 1
	Saltmarsh Caterpillar (ground only)	½ - 1
	Omnivorous Leafroller (ground only)	½ - 1
	Looper	½ - 1
	Orange Tortrix	½ - 1
	Oblique Banded Leafroller	½ - 1
	Armyworm[1]	1 - 2
	Tobacco Budworm	½ - 2
	Grape Berry Moth	½ - 1
	Melonworm	½ - 1
	Cutworm	½ - 1
	Cranberry Fruitworm	1- 2
	Cherry Fruitworm	1- 2
	Gypsy Moth	½ - 2
Nut, tree (group 14) including, but not limited to: Almond, Pecan, Walnut and Filbert	Walnut Caterpillar	½ - 2
	Cankerworm	½ - 2
	Gypsy Moth	½ - 2
	Variegated Leafroller	½ - 2
	Redbanded Leafroller	½ - 2
	Tufted Apple Budmoth	½ - 2
	Fruittree Leafroller	½ - 2
	Oriental Fruit Moth	½ - 2
	Cutworm	½ - 2
	Filbert Leafroller	½ - 2
	Obliquebanded Leafroller	½ - 2
	Codling Moth	½ - 2
	Armyworm[1]	1 - 2
	Twig Borer	½ - 2

CROP	PESTS	POUNDS/ACRE
Grain, cereal (group 15) including, but not limited to: Barley, Corn (sweet and field), Popcorn, Rice, Sorghum, Wheat	Looper	½ - 1
	Armyworm[1]	1 – 2
	Headworm	½ - 1
	European Corn Borer	½ - 2
Herbs and spices (group 19), and Mint including, but not limited to: Basil, Chive, Dill and Peppermint	Looper	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
Alfalfa (hay and seed), Hay and other Forage crops	Looper	½ - 1
	Alfalfa Caterpillar	½ - 1
	European Skipper (Essex Skipper)	½ - 1
	Armyworm[1]	1 - 2
Asparagus	Armyworm[1]	½ - 2
Avocado	Amorbia Moth	½ - 2
	Omnivorous Leafroller	½ - 2
	Omnivorous Looper	½ - 2
	Orange Tortrix	½ - 2
	Spanworm	½ - 2
Banana	Banana Skipper	½ - 1
Coffee*	Banana Moth	1 - 2
Cotton	Tobacco Budworm[2]	½ - 2
	Cotton Bollworm[2]	½ - 2
	Looper	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2

CROP	PESTS	POUNDS/ACRE
Flowers, Bedding plants and Ornamentals**	Looper	¼ - 1
	Tobacco Budworm	¼ - 1
	Omnivorous Looper	¼ - 1
	Omnivorous Leafroller	¼ - 1
	Diamondback Moth	¼ - 1
	Armyworm[1]	1 - 2
	Ello Moth (Hornworm)	¼ - 1
	Io Moth	¼ - 1
	Oleander Moth	¼ - 1
	Azalea Caterpillar	¼ - 1
Fruit, tropical	Hornworm	½ - 2
	Leafroller	½ - 2
	Omnivorous Looper	½ - 2
	Looper	½ - 2
Hop	Looper	½ - 1
	Armyworm[1]	1 - 2
Kiwi fruit	Omnivorous Leafroller	½ - 2
Malanga	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
Peanut	Looper	½ - 1
	Velvetbean Caterpillar	½ - 1
	Green Cloverworm	¼ - 1
	Podworm[1]	½ - 1
Pineapple	Gummosos-Batrachedra Comosae (Hodges)	¼ - ½
	Thecla-Thecla Basilides (Geyr)	¼ - ½

CROP	PESTS	POUNDS/ACRE
Pomegranate	Walnut Caterpillar	½ - 2
	Cankerworm	½ - 2
	Gypsy Moth	½ - 2
	Variegated Leafroller	½ - 2
	Redbanded Leafroller	½ - 2
	Tufted Apple Budmoth	½ - 2
	Fruittree Leafroller	½ - 2
	Oriental Fruit Moth	½ - 2
	Cutworm	½ - 2
	Filbert Leafroller	½ - 2
	Obliquebanded Leafroller	½ - 2
	Codling Moth	½ - 2
	Armyworm[1]	1 - 2
	Twig Borer	½ - 2
Rape (Canola)	Looper	½ - 1
	Armyworm[1]	1 - 2
	Heliothis virescens	½ - 2
	Helicoverpa zea	½ - 2
Safflower	Looper	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
Sunflower	Looper	½ - 1
	Head Moth	½ - 1
Tobacco	Tobacco Budworm	½ - 1
	Hornworm	¼ - 1
	Looper	½ - 1
Turf	Sod Webworm	1 - 2

CROP	PESTS	POUNDS/ACRE
Watercress	Looper	½ - 1
(spray only when there is no standing	Armyworms[1]	½ - 2
water in the bed)	Diamondback Moth	½ - 1

* For best results, drench bark and new shoots with 1-2 lbs of DiPel® DF per acre, mixing with a sufficient volume of water to ensure uniform coverage.

**For best results, use a ground applicator, a minimum of 50 gallons total mix per acre, 50-100 psi and 3-7 nozzles per bed.

[1] DiPel® DF may be used to control small armyworms and/or podworms (1st and 2nd instar) when populations are light and full coverage sprays are applied. Repeat treatment as necessary. If mature worms or heavy populations are present a contact insecticide should be used to enhance control.

[2]Use to control light to moderate populations of newly hatched worms in integrated pest management conditions. Repeat treatments at 4 to 5-day intervals as long as necessary and results are acceptable. Use in combination with ovicidal rates of labeled *Heliothis* ovicides.

[3]Apply to light to moderate populations of newly-hatched worms.

GREENHOUSE/SHADEHOUSE AND OUTDOOR NURSERY

CROP	PESTS	POUNDS/ACRE
Crops including but not limited to:	*Heliothis virescens*	½ - 2
Vegetable, leafy, except brassica (group 4),	*Helicoverpa zea*	½ - 2
Vegetable, brassica leafy, (group 5),		
Vegetable, fruiting, (group 8), Herbs and		
spices (group 19)		

AQUATIC ORNAMENTALS

CROP	PESTS	Use Rate*
Water lilies and other	China Mark Moth	¼ - ½ teaspoon/100 sq.ft
aquatic ornamentals		(0.6 – 1.2 g/100 sq.ft)

FOR USE IN SELF-CONTAINED, CLOSED-SYSTEM, ORNAMENTAL PONDS ONLY.

*For a 10' x 10' pond (100 sq. ft.) mix ¼ - ½ teaspoon of DiPel® DF in 1 quart of water and apply to pond surface. Adjust quantities accordingly based on specific pond size.

FORESTS AND ORNAMENTAL TREES

CROP	PEST	LBS/100 GALLONS*
Forest, Shade, Sugar maple trees and Ornamental Trees	Gypsy Moth	¼ - 1
	Bagworm	¼ - 1
	Redhumped Caterpillar	¼ - 1
	Spring and Fall Cankerworm	¼ - 1
	Fall Webworm	¼ - 1
	Elm Spanworm	¼ - 1
	Tent Caterpillar	¼ - 1
	California Oakworm	¼ - 1
	Pine Butterfly	¼ - 1
	Spruce budworm	¼ - 1
	Saddle Prominent Caterpillar	¼ - 1
	Douglas Fir Tussock Moth	¼ - 1
	Western Tussock Moth	¼ - 1
	Fruittree Leafroller	¼ - 1
	Blackheaded Budworm	¼ - 1
	Mimosa Webworm	¼ - 1
	Jack Pine Budworm	¼ - 1
	Saddleback Caterpillar	¼ - 1
	Greenstriped Mapleworm	¼ - 1
	Hemlock Looper	¼ - 1

*Rate for hydraulic sprayer. For mist blowers, mix the applicable amount (lbs.) in 10 gallons of water.

Note: Inclusion of a suitable spreader-sticker approved for forest insect control is recommended to improve coverage, rain fastness and/or resist wash-off.

DiPel® DF FOR STORED AGRICULTURAL COMMODITIES (For all states except California)

GRAINS, SOYBEANS, SUNFLOWER SEED, CROP SEED, CONDIMENTAL SEEDS, SPICES, HERBS, BIRDSEED AND POPCORN.

Pest	Rate
Indian Meal Moth[1] Almond Moth[1]	3/8 lb./100 bu (undiluted and diluted)*

*As a surface treatment, apply ½ lb. DiPel DF in 5-10 gal. of water per 500 sq. ft. of grain surface area, mix into top 4 inches. For commodities coarser than shelled corn, increase depth of treatment according to the habit of the pest.

[1]For the control and prevention of these pests, apply DiPel® DF in a constantly agitated water suspension to the top 4 inch surface layer of grain in the bin. Use a sprinkler can or sprayer to apply the suspension into the grain stream as the last (top) 4 inch layer is augured into the bin. Mix 1/20 lb. DiPel® DF per gallon of water. Apply 0.6 pint of this mixture per bushel as grain is augured into storage. Or, sprinkle the suspension onto the surface of the grain in the bin and mix thoroughly with a scoop or rake to the depth of 4 inches. More thorough coverage may be achieved by dividing the recommended concentration into three applications and mixing the grain between applications.

For the protection of bagged grain, including popcorn, apply the suspension to the entire grain mass and mix thoroughly prior to bagging.

Treatments can be applied to stored grain at any time, but, for best results, make application immediately after harvest before moth activity occurs. In areas where late-fall-harvested grain is not subject to infestation because of low temperatures, application can be delayed until late winter or early spring before moth activity begins. Control for a full storage season should normally be expected; however, repeat application if infestation recurs.

This treatment controls the moth larvae. If an infestation is present when the grain is treated, moth emergence may continue for several days. If immediate control of severe infestations is desired, grain should be fumigated prior to application of this treatment. DiPel® DF **will not control weevils or other beetles.**

PEANUT

Pest	Rate
Indian Meal Moth Almond Moth	1/4 lb./ton*

*Apply this rate to the top 4 - 8 feet of nuts when filling the warehouse.

To prevent and control these pests, spray an even coating of DiPel® DF on the farmer stock peanuts while filing the warehouse. To make the spray solution, mix 3-3/4 lbs. DiPel® DF per 5 gallons of water. Apply to 15 tons of commodity. Do not pre- mix more spray solution than will be used within 12 hours. Keep the spray suspension agitated during application, and use pressures and nozzles sufficient to handle this suspension.

Before filling the warehouse, clean thoroughly, then spray interior of the facility with a DiPel® DF suspension at the rate of ½ lb. DiPel® DF per 100 gallons water. Spray enough suspension to wet all cracks and crevices.

For bagged peanuts, treat the entire quantity at the rate indicated above.

FLUE-CURED TOBACCO

Pest	Rate
Tobacco Moth	0.2 oz./100 lbs*

*Apply 0.2 ounce (approximately 2 ½ tsps.) of DiPel® DF in one quart of water per 100 pounds of tobacco as a fine mist spray. Avoid over wetting. Tobacco should have just enough moisture to be handled without shattering at the time of application.

Tobacco to be Stored up to Twelve Months.
Spray loose leaves as the tobacco is being bundled from the curing barn. For tobacco on sticks, treat both sides of leaves.

Stored tobacco.
For tobacco which is to be carried over, rebundle or restack sticks, fluff up tobacco and spray loose leaves.

For tobacco that has been stored over three weeks, apply at first sign of infestation; promptly open bundles, spray loose leaves, then bundle.

Treatment of Storage Barns.
Treatment of storage barn floors and walls with DiPel® DF may aid in control of the Tobacco Moth.. Sweep out the area, especially cracks and corners, and all of the loose tobacco pieces in which the moth might breed. Make a spray mixture containing ½ oz. (6 tsps.) DiPel® DF per 2 ½ gallons of water. Apply this at a rate of ½ gallon per 1000 sq. ft. of surface area. Be sure to spray into cracks and between floorboards.

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. User assumes all risks of use, storage or handling not in strict accordance with accompanying directions.

DiPel® is a registered trademark of Valent BioSciences Corporation

2009

SUB LABEL I

For use on all crops listed on the master label with some changes in the application rates for commercial purposes.

DIPEL® PRO DF
BIOLOGICAL INSECTICIDE
DRY FLOWABLE

For Organic Production

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)

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

KEEP OUT OF REACH OF CHILDREN
CAUTION

Valent BioSciences Corporation
870 Technology Way, Suite 100
Libertyville, IL 60048

EPA Registration No. 73049-39
EPA Est. No. 33762-IA-1

Batch Code:_____

Net Content:_____

FIRST AID	
If on skin or clothing	• 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	• 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	• 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
HOTLINE 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.	

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION

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

Personal Protective Equipment (PPE)
Applicators and other handlers must wear:

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

Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. 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.

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 170.240(d) (4-6), 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.

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.

ENVIRONMENTAL HAZARDS

Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

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.

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 agency responsible for pesticide regulation.

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 restricted 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.

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.

STORAGE AND DISPOSAL

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

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

Pesticide Disposal: Do not contaminate food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment by shaking and tapping sides and bottom to loosen clinging particles. 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.

DIRECTIONS FOR USE

See Chemigation section for chemigation use directions.

Days to Harvest: There are no restrictions on applying DiPel DF up to the time of harvest. Individual state regulations may vary and should be consulted for allowable pre-harvest application intervals.

Sites: DiPel® DF may be used for any labeled pest in both field and greenhouse use as well as in self-contained, closed-system, ornamental ponds.

DiPel® DF is an insecticide for use against listed caterpillars (larvae) of lepidopterous insects. Close scouting and early attention to infestations is highly recommended. Larvae must eat deposits of DiPel® 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® 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® DF is a non-restricted use pesticide and does not require a restricted use permit for purchase and use.

- DiPel® 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. No dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing. Before tank mixing DiPel® DF with other labeled products, including spreader stickers, check for tank mix compatibility.

After ingesting a lethal dose of DiPel® 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® 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; exception being arid areas, where 5 to 10 gallons are required. Add water to the mix tank and provide moderate agitation. While agitating, add the required amount of DiPel® 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® DF than can be used in a 3 day period.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determines 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.	½ tsp.	(0.04 oz)
½ 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)

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 systems. Do not apply this product through any other type of irrigation system. 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® DF in a mix tank. Fill tank with ½ to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of DiPel® 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® DF into the irrigation water line so as to deliver the desired rate per acre. The suspension of DiPel® DF should 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® DF has been completed, further field irrigation over the treated area should be avoided for 24 to 48 hours to prevent washing the material off the crop.

GENERAL 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 lines containing the product must be dismantled and drained.

APPLICATION RATE

FIELD CROPS

CROP	PESTS	POUNDS/ACRE
Vegetable, root and tuber (group 1)	Looper	½ - 1
including, but not limited to:	Omnivorous Leafroller	½ - 1
Carrot, Potato, Beet and Sugarbeet	Hornworm	¼ - 1
	Imported Cabbageworm	¼ - 1
	Diamondback Moth[1]	¼ - 1
	Green Cloverworm	½ - 1
	Webworm	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
	Cutworm	½ - 1
	Cross-striped Cabbageworm	½ - 1
	Heliothis virescens	½ - 2
	Helicoverpa zea	½ - 2

CROP	PESTS	POUNDS/ACRE
Vegetable, bulb (group 3) including, but not limited to: Garlic, Leek and Onion (green and bulb)	Looper	½ - 1
	Omnivorous Leafroller	½ - 1
	Hornworm	½ - 1
	Imported Cabbageworm	¼ - 1
	Diamondback Moth[1]	¼ - 1
	Green Cloverworm	¼ - 1
	Webworm	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
	Cutworm	½ - 1
	Cross-striped Cabbageworm	½ - 1
	Heliothis virescens	½ - 2
	Helicoverpa zea	½ - 2
Vegetable, leafy, except brassica (group 4) including, but not limited to: Lettuce Spinach, Celery, Endive, Parsley	Looper	½ - 1
	Omnivorous Leafroller	½ - 1
	Hornworms	¼ - 1
	Imported Cabbageworm	¼ - 1
	Diamondback Moth[1]	¼ - 1
	Green Cloverworm	½ - 1
	Webworm	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
	Cutworm	½ - 1
	Cross-striped Cabbageworm	½ - 1
	Heliothis virescens	½ - 2
	Helicoverpa zea	½ - 2
Vegetable, brassica leafy (group 5) including, but not limited to: Broccoli, Cabbage, Mustard greens, Brussel sprout, Kale, Cauliflower, Chinese cabbage, Collard, Kohlrabi	Looper	½ - 1
	Omnivorous Leafroller	½ - 1
	Hornworms	¼ - 1
	Imported Cabbageworm	¼ - 1
	Diamondback Moth[1]	¼ - 1
	Green Cloverworm	½ - 1
	Webworm	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
	Cutworm	½ - 1
	Cross-striped Cabbageworm	½ - 1
	Heliothis virescens	½ - 2
	Helicoverpa zea	½ - 2

CROP	PESTS	POUNDS/ACRE
Vegetable, legume (group 6) including, but not limited to: Bean, Pea, Lentil and Soybean	Looper	½ - 1
	Soybean Looper	½ - 1
	Green Cloverworm	¼ - 1
	Velvetbean Caterpillar	¼ - 1
	Armyworm[1]	1 - 2
	Podworm	½ - 1
Vegetable, fruiting (group 8) including, but not limited to: Tomato, Pepper and Eggplant	Looper	½ - 1
	Hornworm	¼ - 1
	Tomato Fruitworm	½ - 1
	Variegated Cutworm	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
Vegetable, cucurbit (group 9) including, but not limited to: Melon, Cucumber and Squash	Looper	½ - 1
	Melonworm	½ - 1
	Rindworm complex	½ - 1
	Armyworm[1]	1 - 2
Fruit, citrus (group 10) including, but not limited to: Sweet orange, Grapefruit, Lemon	Fruittree Leafroller	½ - 2
	Orangedog	¼ - 1
	Citrus Cutworm[3]	½ - 2
Fruit, pome (group 11) including, but not limited to: Apple and Pear	Walnut Caterpillar	½ - 2
	Cankerworm	½ - 2
	Gypsy Moth	½ - 2
	Variegated Leafroller	½ - 2
	Redbanded Leafroller	½ - 2
	Tufted Apple Budmoth	½ - 2
	Fruittree Leafroller	½ - 2
	Oriental Fruit Moth	½ - 2
	Cutworm	½ - 2
	Filbert Leafroller	½ - 2
	Obliquebanded Leafroller	½ - 2
	Codling Moth	½ - 2
	Armyworm[1]	1 - 2
	Twig Borer	½ - 2

CROP	PESTS	POUNDS/ACRE
Fruit, stone (group 12) including, but not limited to: Cherry, Plum, Peach, Prune, and Nectarine	Redhumped Caterpillar	½ - 2
	Tent Caterpillar	½ - 2
	Omnivorous Leafroller	½ - 2
	Fall Webworm	½ - 2
Berry group (group 13) and Fruit, small including, but not limited to: Grape Strawberry, and Blackberry	Grapeleaf Skeletonizer (ground only)	½ - 1
	Grape Leafroller	½ - 1
	Achema Sphinx Moth (Hornworm)	½ - 1
	Saltmarsh Caterpillar (ground only)	½ - 1
	Omnivorous Leafroller (ground only)	½ - 1
	Looper	½ - 1
	Orange Tortrix	½ - 1
	Oblique Banded Leafroller	½ - 1
	Armyworm[1]	1 - 2
	Tobacco Budworm	½ - 2
	Grape Berry Moth	½ - 1
	Melonworm	½ - 1
	Cutworm	½ - 1
	Cranberry Fruitworm	1- 2
	Cherry Fruitworm	1- 2
	Gypsy Moth	½ - 2
Nut, tree (group 14) including, but not limited to: Almond, Pecan, Walnut and Filbert	Walnut Caterpillar	½ - 2
	Cankerworm	½ - 2
	Gypsy Moth	½ - 2
	Variegated Leafroller	½ - 2
	Redbanded Leafroller	½ - 2
	Tufted Apple Budmoth	½ - 2
	Fruittree Leafroller	½ - 2
	Oriental Fruit Moth	½ - 2
	Cutworm	½ - 2
	Filbert Leafroller	½ - 2
	Obliquebanded Leafroller	½ - 2
	Codling Moth	½ - 2
	Armyworm[1]	1 - 2
	Twig Borer	½ - 2

CROP	PESTS	POUNDS/ACRE
Grain, cereal (group 15) including, but not limited to: Barley, Corn (sweet and field), Popcorn, Rice, Sorghum, Wheat	Looper	½ - 1
	Armyworm[1]	1 – 2
	Headworm	½ - 1
	European Corn Borer	½ - 2
Herbs and spices (group 19), and Mint including, but not limited to: Basil, Chive, Dill and Peppermint	Looper	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
Alfalfa (hay and seed), Hay and other Forage crops	Looper	½ - 1
	Alfalfa Caterpillar	½ - 1
	European Skipper (Essex Skipper)	½ - 1
	Armyworm[1]	1 - 2
Asparagus	Armyworm[1]	½ - 2
Avocado	Amorbia Moth	½ - 2
	Omnivorous Leafroller	½ - 2
	Omnivorous Looper	½ - 2
	Orange Tortrix	½ - 2
	Spanworm	½ - 2
Banana	Banana Skipper	½ - 1
Coffee*	Banana Moth	1 - 2
Cotton	Tobacco Budworm[2]	½ - 2
	Cotton Bollworm[2]	½ - 2
	Looper	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2

CROP	PESTS	POUNDS/ACRE
Flowers, Bedding plants and Ornamentals**	Looper	¼ - 1
	Tobacco Budworm	¼ - 1
	Omnivorous Looper	¼ - 1
	Omnivorous Leafroller	¼ - 1
	Diamondback Moth	¼ - 1
	Armyworm[1]	1 - 2
	Ello Moth (Hornworm)	¼ - 1
	Io Moth	¼ - 1
	Oleander Moth	¼ - 1
	Azalea Caterpillar	¼ - 1
Fruit, tropical	Hornworm	½ - 2
	Leafroller	½ - 2
	Omnivorous Looper	½ - 2
	Looper	½ - 2
Hop	Looper	½ - 1
	Armyworm[1]	1 - 2
Kiwi fruit	Omnivorous Leafroller	½ - 2
Malanga	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
Peanut	Looper	½ - 1
	Velvetbean Caterpillar	½ - 1
	Green Cloverworm	¼ - 1
	Podworm[1]	½ - 1
Pineapple	Gummosos-Batrachedra Comosae (Hodges)	¼ - ½
	Thecla-Thecla Basilides (Geyr)	¼ - ½

CROP	PESTS	POUNDS/ACRE
Pomegranate	Walnut Caterpillar	½ - 2
	Cankerworm	½ - 2
	Gypsy Moth	½ - 2
	Variegated Leafroller	½ - 2
	Redbanded Leafroller	½ - 2
	Tufted Apple Budmoth	½ - 2
	Fruittree Leafroller	½ - 2
	Oriental Fruit Moth	½ - 2
	Cutworm	½ - 2
	Filbert Leafroller	½ - 2
	Obliquebanded Leafroller	½ - 2
	Codling Moth	½ - 2
	Armyworm[1]	1 - 2
	Twig Borer	½ - 2
Rape (Canola)	Looper	½ - 1
	Armyworm[1]	1 - 2
	Heliothis virescens	½ - 2
	Helicoverpa zea	½ - 2
Safflower	Looper	½ - 1
	Saltmarsh Caterpillar	½ - 1
	Armyworm[1]	1 - 2
Sunflower	Looper	½ - 1
	Head Moth	½ - 1
Tobacco	Tobacco Budworm	½ - 1
	Hornworm	¼ - 1
	Looper	½ - 1
Turf	Sod Webworm	1 - 2

CROP	PESTS	POUNDS/ACRE
Watercress	Looper	½ - 1
(spray only when there is no standing	Armyworms[1]	½ - 2
water in the bed)	Diamondback Moth	½ - 1

* For best results, drench bark and new shoots with 1-2 lbs of DiPel® DF per acre, mixing with a sufficient volume of water to ensure uniform coverage.

**For best results, use a ground applicator, a minimum of 50 gallons total mix per acre, 50-100 psi and 3-7 nozzles per bed.

[1] DiPel® DF may be used to control small armyworms and/or podworms (1st and 2nd instar) when populations are light and full coverage sprays are applied. Repeat treatment as necessary. If mature worms or heavy populations are present a contact insecticide should be used to enhance control.

[2]Use to control light to moderate populations of newly hatched worms in integrated pest management conditions. Repeat treatments at 4 to 5-day intervals as long as necessary and results are acceptable. Use in combination with ovicidal rates of labeled *Heliothis* ovicides.

[3]Apply to light to moderate populations of newly-hatched worms.

GREENHOUSE/SHADEHOUSE AND OUTDOOR NURSERY

CROP	PESTS	POUNDS/ACRE
Crops including but not limited to:	*Heliothis virescens*	½ - 2
Vegetable, leafy, except brassica 9group 4),	*Helicoverpa zea*	½ - 2
Vegetable, brassica leafy (group 5),		
Vegetable, fruiting, (group 8), Herbs and		
spices (group 19)		

AQUATIC ORNAMENTALS

CROP	PESTS	Use Rate*
Water lilies and other	China Mark Moth	¼ - ½ teaspoon/100 sq.ft
aquatic ornamentals		(0.6 – 1.2 g/100 sq.ft)

FOR USE IN SELF-CONTAINED, CLOSED-SYSTEM, ORNAMENTAL PONDS ONLY.

*For a 10' x 10' pond (100 sq. ft.) mix ¼ - ½ teaspoon of DiPel® DF in 1 quart of water and apply to pond surface. Adjust quantities accordingly based on specific pond size.

FORESTS AND ORNAMENTAL TREES

CROP	PEST	LBS/100 GALLONS*
Forest, Shade, Sugar maple trees and Ornamental Trees	Gypsy Moth	½ - 1
	Bagworm	½ - 1
	Redhumped Caterpillar	½ - 1
	Spring and Fall Cankerworm	½ - 1
	Fall Webworm	½ - 1
	Elm Spanworm	½ - 1
	Tent Caterpillar	½ - 1
	California Oakworm	½ - 1
	Pine Butterfly	½ - 1
	Spruce budworm	½ - 1
	Saddle Prominent Caterpillar	½ - 1
	Douglas Fir Tussock Moth	½ - 1
	Western Tussock Moth	½ - 1
	Fruittree Leafroller	½ - 1
	Blackheaded Budworm	½ - 1
	Mimosa Webworm	½ - 1
	Jack Pine Budworm	½ - 1
	Saddleback Caterpillar	½ - 1
	Greenstriped Mapleworm	½ - 1
	Hemlock Looper	½ - 1

*Rate for hydraulic sprayer. For mist blowers, mix the applicable amount (lbs.) in 10 gallons of water.

Note: Inclusion of a suitable spreader-sticker approved for forest insect control is recommended to improve coverage, rain fastness and/or resist wash-off.

DiPel® DF FOR STORED AGRICULTURAL COMMODITIES (For all states except California)

GRAINS, SOYBEANS, SUNFLOWER SEED, CROP SEED, CONDIMENTAL SEEDS, SPICES, HERBS, BIRDSEED AND POPCORN.

Pest	Rate
Indian Meal Moth[1]	3/8 lb./100 bu (undiluted
Almond Moth[1]	and diluted)*

*As a surface treatment, apply ½ lb. DiPel® DF in 5-10 gal. of water per 500 sq. ft. of grain surface area,

mix into top 4 inches. For commodities coarser than shelled corn, increase depth of treatment according to the habit of the pest.

[1]For the control and prevention of these pests, apply DiPel® DF in a constantly agitated water suspension to the top 4 inch surface layer of grain in the bin. Use a sprinkler can or sprayer to apply the suspension into the grain stream as the last (top) 4 inch layer is augured into the bin. Mix 1/20 lb. DiPel® DF per gallon of water. Apply 0.6 pint of this mixture per bushel as grain is augured into storage. Or, sprinkle the suspension onto the surface of the grain in the bin and mix thoroughly with a scoop or rake to the depth of 4 inches. More thorough coverage may be achieved by dividing the recommended concentration into three applications and mixing the grain between applications.

For the protection of bagged grain including popcorn, apply the suspension to the entire grain mass and mix thoroughly prior to bagging.

Treatments can be applied to stored grain at any time, but for best results, make application immediately after harvest before moth activity occurs. In areas where late fall harvested grain is not subject to infestation because of low temperatures, application can be delayed until late winter or early spring before moth activity begins. Control for a full storage season should normally be expected; however, repeat application if infestation recurs.

This treatment controls the moth larvae. If an infestation is present when the grain is treated, moth emergence may continue for several days. If immediate control of severe infestations is desired, grain should be fumigated prior to application of this treatment. DiPel® DF **will not control weevils or other beetles.**

PEANUT

Pest	**Rate**
Indian Meal Moth Almond Moth	1/4 lb./ton*

*Apply this rate to the top 4 – 8 feet of nuts when filling the warehouse.

To prevent and control these pests, spray an even coating of DiPel® DF on the farmer stock peanuts while filing the warehouse. To make the spray solution, mix 3-3/4 lbs. DiPel® DF per 5 gallons of water. Apply to 15 tons of commodity. Do not pre- mix more spray solution than will be used within 12 hours. Keep the spray suspension agitated during application, and use pressures and nozzles sufficient to handle this suspension.

Before filling the warehouse, clean thoroughly, then spray interior of the facility with a DiPel® DF suspension at the rate of ½ lb. DiPel® DF per 100 gallons water. Spray enough suspension to wet all cracks and crevices.

For bagged peanuts, treat the entire quantity at the rate indicated above.

FLUE-CURED TOBACCO

Pest	Rate
Tobacco Moth	0.2 oz./100 lbs*

*Apply 0.2 ounce (approximately 2 ½ tsps.) of DiPel® DF in one quart of water per 100 pounds of tobacco as a fine mist spray. Avoid over wetting. Tobacco should have just enough moisture to be handled without shattering at the time of application.

Tobacco to be Stored up to Twelve Months.
Spray loose leaves as the tobacco is being bundled from the curing barn. For tobacco on sticks, treat both sides of leaves.

Stored Tobacco.
For tobacco which is to be carried over, rebundle or restack sticks, fluff up tobacco and spray loose leaves.

For tobacco that has been stored over three weeks, apply at first sign of infestation; promptly open bundles, spray loose leaves, then bundle.

Treatment of Storage Barns.
Treatment of storage barn floors and walls with DiPel® DF may aid in control of the Tobacco Moth.. Sweep out the area, especially cracks and corners, and all of the loose tobacco pieces in which the moth might breed. Make a spray mixture containing ½ oz. (6 tsps.) DiPel® DF per 2 ½ gallons of water. Apply this at a rate of ½ gallon per 1000 sq. ft. of surface area. Be sure to spray into cracks and between floorboards.

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. User assumes all risks of use, storage or handling not in strict accordance with accompanying directions.

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