

PW 11 275 31 118

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**DIPEL 2X
BIOLOGICAL INSECTICIDE**

**WETTABLE POWDER
BIOLOGICAL INSECTICIDE**

Active Ingredient:

<u>Bacillus thuringiensis, var. kurstaki,</u> 32,000 International Units of Potency per mg. (14.52 billion International Units per pound).	6.4%
Inert Ingredients	93.6%

KEEP OUT OF REACH OF CHILDREN

C A U T I O N

EPA Registrations No. 275-37
EPA Est. No. 33762-IA-1

STORAGE AND DISPOSAL

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

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product through any type of irrigation system.

Days to harvest: There are no restrictions on applying DIPEL 2X up to the time of harvest.

Sites: DIPEL 2X may be used for any labeled pest in both field and greenhouse uses.

ACCEPTED
with COMMENTS
in EPA Letter Dated:

MAR 12 1990

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

275-37

07-Mar-1990, Proposed Labeling

DIRECTIONS FOR USE (Continued)

DIPEL 2X is a highly selective 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 2X to be affected. Always follow these directions:

- Treat when larvae are young (early instars) before the crop is extensively damaged.
- Larvae must be actively feeding on treated, exposed plant parts.
- Thorough spray coverage is needed to provide a uniform deposit of DIPEL 2X at the site of larval feeding. For some crops directed drop nozzles by ground machine are required.
- Under heavy pest population pressure, use the higher label rates, shorten the spray interval, and/or raise gallonage 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 extensive 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 cole crops, or to improve weather-fastness of the spray deposits.
- Dipel 2X is a non-restricted use pesticide and does not require a restricted use permit for purchase and use.

DIRECTIONS FOR USE (Continued)

After eating a lethal dose of DIPEL 2X, larvae stop feeding within the hour, and will die within several days. Dying larvae move slowly, discolor, then shrivel, blacken and die.

DIPEL 2X may be applied in conventional ground or aerial equipment with quantities of water sufficient to provide through coverage of infested plant parts. The amount of water needed per acre will depend on crop size, weather, spray equipment, and local experience. Unless otherwise indicated, use at least 2 gallons of water per acre by air; except in the Western U.S., where 5 to 10 gallons is the usual minimum. Add water to the spray or mixing tank at the level that provides maximum agitation. With the agitator running, slowly sprinkle in the DIPEL 2X. Continue agitation. Then add other spray materials (if any). Add the balance of the water and agitate until mixed. Maintain the suspension while loading and spraying. Do not mix more DIPEL 2X than can be used in a 12-hour period.

For Smaller Spray Volumes:

<u>If Rate is</u>	<u>Use This Amount Per Gallon</u>
1/4 lb./acre or 100 gals.	1/2 tsp.
1/2 lb./acre or 100 gals.	1 tsp.
1 lb./acre or 100 gals.	2 tsps.
2 lb./acre or 100 gals.	4 tsps.

APPLICATION RATE

Crop Group (Typical Crops)	Pests	Pounds/Acre
Root and Tuber such as Carrots, Potatoes, Beets and Sugarbeets Bulb such as Onions (green and bulb) and Garlic Leafy and Cole Crops such as Lettuce (head and leaf), Kale, Celery, Spinach, Broccoli, Cabbage, Mustard Greens, Brussel Sprouts, Cauliflower, Collards, Chinese Cabbage, Endive Kohlrabi and Parsley	Loopers	1/2 - 1
	Omnivorous Leafroller	1/2 - 1
	Hornworms	1/2 - 1
	Imported Cabbageworm	1/2 - 1
	Diamondback Moth	1/2 - 1
	Green Cloverworm	1/2 - 1
	Webworm	1/2 - 1
	Saltmarsh Caterpillar	1/2 - 1
	Armyworms*	1/2 - 2
	Cutworms	1/2 - 1
Fruiting Vegetables such as Tomatoes, Peppers and Eggplant	Loopers	1/2 - 1
	Hornworm	1/2 - 1
	Tomato Fruitworm	1/2 - 1
	Varigated Cutworm	1/2 - 1
	Saltmarsh Caterpillar	1/2 - 1
Armyworms*	1/2 - 2	
Cucurbit Vegetables such as Melons, Cucumbers and Squash	Loopers	1/2 - 1
	Melonworms	1/2 - 1
	Rindworm complex	1/2 - 1
	Armyworms*	1/2 - 2

*DIPEL 2X may be used to control small armyworms (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.

APPLICATION RATE (Continued)

Crop Group (Typical Crops)	Pests	Pounds/Acre
Legume Vegetables such as Beans, Peas, Lentils and Soybeans.	Loopers	1/2 - 1
	Soybean Looper	1/2 - 1
	Green Cloverworm	1/2 - 1
	Velvetbean Caterpillar	1/2 - 1
	Armyworms*	1/2 - 2
	Podworms*	1/2 - 1
OTHER CROPS:		
Tobacco	Tobacco Budworm	1/2 - 1
	Hornworms	1/4 - 1/2
	Loopers	1/2 - 1
Safflower	Loopers	1/2 - 1
	Saltmarsh Caterpillar.	1/2 - 1
	Armyworms*	1/2 - 2
Sunflowers	Loopers	1/2 - 1
	Head Moth	1/2 - 1
Peanuts	Loopers	1/2 - 1
	Velvetbean Caterpillar	1/2 - 1
	Green Cloverworm	1/2 - 1
	Podworms*	1/2 - 1

*DIPFL 2X 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.

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APPLICATION RATE (Continued)

OTHER CROPS: (Continued)

<u>Crop</u>	<u>Pest</u>	<u>Pound/Acre</u>
Alfalfa (Hay and Seed)	Loopers	1/2 - 1
	Hay and Other Forage Crops	Alfalfa Caterpillar
	European Skipper (Essex Skipper)	1/2 - 1
	Armyworms*	1/2 - 2
Cotton	Tobacco Budworm**	1/2 - 2
	Cotton Bollworm**	1/2 - 2
	Loopers	1/2 - 1
	Saltmarsh Caterpillar	1/2 - 1
	Armyworms*	1/2 - 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.

Avocado	Amorbia Moth	1/2 - 2
	Omnivorous Leafroller	1/2 - 2
	Omnivorous Looper	1/2 - 2
	Orange Tortrix	1/2 - 2
	Spanworm	1/2 - 2
Malanga	Saltmarsh Caterpillar	1/2 - 1
	Armyworms*	1/2 - 2
Water Cress	Loopers	1/2 - 1
	Armyworms*	1/2 - 2
	Diamondback Moth	1/2 - 1

*DIPEL 2X may be used to control small armyworms (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.

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APPLICATION RATE (Continued)

OTHER CROPS: (Continued)

<u>Crop</u>	<u>Pest</u>	<u>Pound/Acre</u>
Kiwi Fruit	Omnivorous Leafroller	1/2 - 2
Hops	Loopers	1/2 - 1
	Armyworms*	1/2 - 2
Bananas	Banana Skipper	1/2 - 1
Asparagus	Armyworms*	1/2 - 2
Corn (Sweet and Field and Sorghum)	Armyworms*	1/2 - 2
	Headworms	1/2 - 1
Rape	Looper	1/2 - 1
	Armyworms*	1/2 - 2
	Heliothis	1/2 - 2
Herbs, Spices and Mints such as Basil, Chives, Dill, Leeks and Peppermint	Looper	1/2 - 1
	Saltmarsh Caterpillar	1/2 - 1
	Armyworms*	1/2 - 2
*DIEL 2X may be used to control small armyworms (1st and 2nd instar) when populations are light and full coverage sprays are applied. Repeat treatments as necessary. If mature worms or heavy populations are present a contact insecticide should be used to enhance control.		
Pineapple	Gummosos-Batrachedra	1/4 - 1/2
	comosae (Hodges)	
	Thecla-Thecla	
	asilides (Geyr)	
Turf	Sod Webworm	1 - 2

APPLICATION RATE (Continued)

OTHER CROPS: (Continued)

<u>Crop</u>	<u>Pest</u>	<u>lbs./100 Gals.</u>
Flowers, Bedding Plants and Ornamentals (Ground Only)	Loopers	1/4 - 1/2
	Tobacco Budworm	1/4 - 1/2
	Omnivorous Looper	1/4 - 1/2
	Omnivorous Leafroller	1/4 - 1/2
	Diamondback Moth	1/4 - 1/2
	Armyworms*	1/2 - 2
	Ello Moth (Hornworm)	1/4 - 1/2
	Io Moth	1/4 - 1/2
	Oleander Moth	1/4 - 1/2
Azalea Caterpillar	1/4 - 1/2	
Greenhouse/Shadehouse and Outdoor Nursery Crops such as Leafy, Herbs, Brassica and Fruiting groups	Loopers	1/2 - 1
	Heliothis	1/2 - 2

*DIPEL 2X may be used to control small armyworms (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, contact insecticide should be used to enhance control.

APPLICATION RATE (Continued)

DIPEL 2X for Small Fruits

<u>Crop</u>	<u>Pest</u>	<u>Pour</u>
Small Fruit and Berries such as Grapes, Strawberries, Blackberries and Cranberries	Grapeleaf Skeletonizer (ground only)	1/2
	Grape Leaf folder	1/2
	Achema Sp. inx Moth (Hornworm)	1/2
	Saltmarsh Caterpillar (ground only)	1/2
	Omnivorous Leafroller (ground only)	1/2
	Loopers	1/2
	Orange Tortrix	1/2
	Oblique Banded Leafroller	1/2
	Armyworms*	1/2
	Tobacco Budworm	1/2
	Grape Berry Moth	1/2
Small Grains	Loopers	1/2
	Armyworms*	1/2

*DIPEL 2X may be used to control small armyworms (1st and 2nd instar) when population coverage sprays are applied. Repeat treatment as necessary. If mature worms or h contact insecticide should be used to enhance control.

APPLICATION RATE Continued

DIPEL 2X for Tree Fruits, Nuts, Citrus and Tropical Fruit

<u>Crop</u>	<u>Pest</u>	<u>Pounds/Acre</u>
Stone Fruit such as Cherries, Plum, Peach, Prune and Nectarine Pome Fruit such as Apples and Pears Tree Nuts such as Almonds, Pecan, Walnut and Filbert Pomegranates	Redhumped Caterpillar	1/2 - 2
	Tent Caterpillars	1/2 - 2
	Omnivorous Leafroller	1/2 - 2
	Fall Webworm	1/2 - 2
	Walnut Caterpillar	1/2 - 2
	Cankerworms	1/2 - 2
	Gypsy Moth	1/2 - 2
	Varigated Leafroller	1/2 - 2
	Redbanded Leafroller	1/2 - 2
	Tufted Apple Budmoth	1/2 - 2
	Fruittree Leafroller	1/2 - 2
	Fall Webworm	1/2 - 2
	Walnut Caterpillar	1/2 - 2
	Filbert Leafroller	1/2 - 2
	Obliquebanded Leafroller	1/2 - 2
	Codling Moth	1/2 - 2
Armyworms	1/2 - 2	
Citrus	Fruittree Leafroller	1/2 - 2
	Orangedog	1/4 - 1
	Citrus Cutworm*	1/2 - 2
*Apply to light to moderate populations of newly-hatched worms		
Tropical Fruits	Hornworm	1/2 - 2
	Leafrollers	1/2 - 2
	Omnivorous Looper	1/2 - 2
	Loopers	1/2 - 2

APPLICATION RATE (Continued)

DIPEL 2X for Trees and Forests

<u>Crop</u>	<u>Pest</u>	<u>lbs/100 gallons*</u> <u>(Ground Equipment)</u>	<u>lbs/Acre</u> <u>(Aerial**</u> <u>Application)</u>
Forest, Shade, Sugar Maple Trees and Ornamentals	Gypsy Moth	1/4 - 3/4	1/2 - 1 1/2
	Bagworm	1/4 - 3/4	1/2 - 1 1/2
	Redhumped Caterpillar	1/4 - 3/4	1/2 - 1 1/2
	Spring & Fall Cankerworm	1/4 - 3/4	1/2 - 1 1/2
	Fall Webworm	1/4 - 3/4	1/2 - 1 1/2
	Elm Spanworm	1/4 - 3/4	1/2 - 1 1/2
	Tent Caterpillars	1/4 - 3/4	1/2 - 1 1/2
	California Oakworm	1/4 - 3/4	1/2 - 1 1/2
	Pine Butterfly	1/4 - 3/4	1/2 - 1 1/2
	Spruce Budworms	1/4 - 3/4	1/2 - 1 1/2
	Saddle Prominent Caterpillar	1/4 - 3/4	1/2 - 1 1/2
	Douglas Fir Tussock Moth	1/4 - 3/4	1/2 - 1 1/2
	Western Tussock Moth	1/4 - 3/4	1/2 - 1 1/2
	Fruittree Leafroller	1/4 - 3/4	1/2 - 1 1/2
	Blackheaded Budworm	1/4 - 3/4	1/2 - 1 1/2
	Mimosa Webworm	1/4 - 3/4	1/2 - 1 1/2
Jack Pine Budworm	1/4 - 3/4	1/2 - 1 1/2	
Saddleback Caterpillar	1/4 - 3/4	1/2 - 1 1/2	
Greenstriped Mapleworm	1/4 - 3/4	1/2 - 1 1/2	

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

**For aerial application, use in one to five gallons of water depending on type and density of trees. For best results, spray systems which deliver droplet size of LESS THAN 150 microns should be used.

<u>Pest</u>	<u>Rate</u>
Indian Meal Moth Almond Moth	3/8 lb. 100 bu (undiluted and diluted)*

*As a surface treatment, apply 1/2 lb. DIPEL 2X in 5-10 gal. of water per 500 sq. ft of grain surface area, mix into top 4 inches.**

¹For all States except California

For the control and prevention of these pests, apply DIPEL 2X in a constantly agitated water suspension to the top four inch surface layer of grain in the bin. Use a sprinkler can or sprayer to apply the dosage into the grain stream as the last (top) four inch layer is augered into the bin. Mix 1/20 lb. DIPEL 2X per gallon of water. Apply 0.6 pint of this mixture per bushel as grain is augered into storage. Or, sprinkle the dosage into the surface of the grain in the bin and mix thoroughly with a scoop or rake to the depth of four inches. More thorough coverage may be achieved by dividing the recommended dosage into three applications and mixing the grain between applications.

For the protection of bagged grain including popcorn, apply the dosage 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.

APPLICATION RATE (Continued)

DIPEL 2X FOR STORED AGRICULTURAL COMMODITIES (Continued)

GRAINS, SOYBEANS, SUNFLOWER SEED, CROP SEED, CONDIMENTAL SEEDS, SPICES, HERBS, BIRDSEED¹ and POPCORN¹. (Continued)

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 2X will not control weevils or other beetles.

DIPEL 2X is exempt from tolerance restrictions and the treated grain can be used at any time after treatment for any use.

**For commodities coarser than shelled corn, increased depth of treatment according to the habit of the pest.

APPLICATION RATE (Continued)

DIPEL 2X FOR STORED AGRICULTURAL COMMODITIES (Continued)

PEANUTS

<u>Pest</u>	<u>Rate</u>
Indian Meal Moth, Almond Moth	1/4 lb./ton*

*Apply this rate to the top four to eight feet of nuts when filling the warehouse.

To prevent and control these pests, spray an even coating of DIPEL 2X on the farmer stock peanuts while filling the warehouse. To make the spray solution, mix 3-3/4 lbs. DIPEL 2X 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 2X suspension at the rate of 1/2 lb. DIPEL 2X per 100 gallons water. Spray enough suspension to wet all cracks and crevices.

For bagged peanuts, treat the whole mass of commodity at the rate indicate above.

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APPLICATION RATE (Continued)

DIPEL 2X FOR STORED AGRICULTURAL COMMODITIES (Continued)

FLUE-CURED TOBACCO

<u>Pest</u>	<u>Rate</u>
Tobacco Moth	0.2 oz./100 lbs*

*Apply 0.2 ounce (approximately 2 1/2 teaspoonsful) of DIPEL 2X in one quart of water per 100 pounds of tobacco as a fine mist spray. Avoid overwetting. Tobacco should have just enough moisture to be handled with out 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 signs of infestation promptly open bundles, spray loose leaves, then bundle.

Treatment of Storage Barns.
If tobacco has been treated, or is going to be treated, treatment of the floors and walls may be made to aid in control. 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 1/2 oz. DIPEL 2X per 2 1/2 gallons of water. Apply this at a rate of 1/2 gallon per 1000 sq. ft. of surface area. Be sure to spray into cracks and between floorboards.

NOTICE TO USER

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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