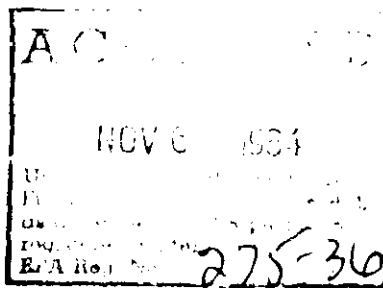


Draft Labeling  
10/17/84  
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**dipel 4L** 01 3151/88-00-0884  
WORM KILLER

EMULSIFIABLE SUSPENSION  
BIOLOGICAL INSECTICIDE

**Active Ingredient:**  
Bacillus thuringiensis, var. kurstaki, 8,800  
International Units of Potency per mg  
(52 billion International  
Units per gallon) ..... 1.76%  
Inert ingredients ..... 98.24%

KEEP OUT OF REACH OF CHILDREN  
CAUTION

E.P.A. Registration No. 275-36  
E.P.A. Est. No. 33762-1A-1

**STORAGE AND DISPOSAL**  
See container label.

**CAUTION**  
Avoid contact with skin, eyes or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.

**BENEFICIAL INSECTS**

Honeybees foraging treated areas are not harmed by DIPEL 4L use.  
DIPEL 4L does not interrupt the activities of beneficial and predacious arthropods in pest management programs.

**Days to harvest:** There are no restrictions on applying DIPEL 4L up to the time of harvest.  
**Sites:** DIPEL 4L may be used for any labeled pest in both field and greenhouse uses.

Rate in	Use This Amount Per Acre
1/2 qt./acre or 100 gals.	1/2 cup
1 qt./acre or 100 gals.	1 cup
1 1/2 qt./acre or 100 gals.	2 cups
2 qts./acre or 100 gals.	4 cups

**DIRECTIONS FOR USE**

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

DIPEL 4L 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 4L 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 4L 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.

After eating a lethal dose of DIPEL 4L, larvae stop feeding within the hour and will die within several days. Dying larvae move slowly, discolor, then shrivel, blacken and die.

DIPEL 4L may be applied in conventional ground or aerial equipment with quantities of water sufficient to provide thorough 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 by air; except in the far west, 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, add the DIPEL 4L. Continue agitation. Then add other spray materials (if any). Add the balance of the water. Maintain the suspension while loading and spraying. Do not mix more DIPEL 4L than can be used in a 72-hour period. **CAUTION:** Rinse and flush spray equipment thoroughly following each use.

**CAUTION**

DIPEL 4L should not be used in combination with Comite® Bravo® (except celery), Difolatan, Captan or Dyrene®.

(ALL STATES EXCEPT CALIFORNIA)  
The effects of combining DIPEL 4L with fungicides (other than benomyl, maneb or mancozeb) and miticides (other than chlordaneform) are unknown.

**FOR CALIFORNIA ONLY**  
The effects of combining DIPEL 4L with insecticides, fungicides and other spray materials are unknown. Tank mixes should be avoided except where specific recommendations are made in the label for use in California.

**APPLICATION RATE**

Crop	Pest	Rate/P/Acre
Cole Crops*	Loopers	1 to 2
Celery*	Imported Cabbageworm	1/2 to 1
Lettuce	Diamondback Moth	1/2 to 1 1/2
Spinach*		
Soybeans	Loopers	1 to 2
Peanuts*	Green Cloverworm	1/2 to 1
Peas*	Velvetbean Caterpillar	1/2 to 1 1/2
	Podworm (Heliothis zea)	1 to 2
	Armyworms**	2 to 4
Tobacco*	Tobacco Budworm	1
	Harlequin	1/2 to 1
	Loopers	1

\*DIPEL 4L suppresses early winter larvae of Podworm and Army worms when populations are light to moderate.

\*\*For all states except California.

\*For all states except California.

Crop	Pest	Pints/Acre
Tomatoes	Loopers	1 to 2
	Tomato Fruitworm*	2
	Variiegated Cutworm	2
	Saltmarsh Caterpillar	1 to 2
	Harworms	1/2 to 1
	Armyworms**	2 to 4

\*Apply weekly in a preventative program

\*\*DIPEL 4L may be used to suppress small Armyworms (1st and 2nd instar) whose populations are light and full coverage ground sprays are applied

DIPEL 4L<sup>1</sup> may be tank mixed with benomyl, maneb or mancozeb for application on tomatoes. Observe all label precautions for all products used.

<sup>1</sup>For all states except California

Crop	Pest	Pints/Acre
Alfalfa, Pastures, Hay, Small Grains and Forage Crops	Loopers	1 to 2
	Alfalfa Caterpillar	1/2 to 1
Rangeland	European Skipper (Tessa Skipper)	1/2 to 1
	Rango Caterpillar	1/2

Use in 1 to 2 qts water per acre against 1st through 4th instar larvae

Crop	Pest	Pints/Acre
Cotton	Tobacco Budworm*	1/2 to 2
	Cotton Bollworm*	1/2 to 2
	Loopers**	1 to 2

<sup>1</sup>Use to suppress light to moderate populations of newly hatched worms in post-management conditions. Use under close scouting when beneficial insects are active or building. Repeat treatments at 4 to 5 day intervals as long as necessary and results are acceptable. If 15% or more terminals have eggs add 1/2 lb AI chlordaneform<sup>1</sup> (Galacron<sup>®</sup> or Fundar<sup>®</sup>) or 1/4 lb AI methomyl<sup>2</sup> (Lannate<sup>®</sup> or Nudrin<sup>®</sup>) per acre to 1/2 pt DIPEL 4L. Increase chlordaneform to 1/2 lb AI if needed.

Once beneficial insects are no longer a factor, DIPEL 4L (at 1/2 to 1 1/2 pts/acre) may be tank mixed with methomyl (Lannate<sup>®</sup> or Nudrin<sup>®</sup>) at 225 to 875 lbs AI per acre to control light to moderate infestations of early instar larvae. Observe any rate, frequency or ball load label restrictions for methomyl in your area. Methomyl will likely cause reddening of cotton foliage. Discontinue the tank mix if reddening becomes excessive.

Before using any tank mix, read the product labels for all environmental and usage cautions. Chlordaneform is restricted to aerial application and to states where registered.

DIPEL 4L<sup>2</sup> may be tank mixed with vegetable or cottonseed oil at the rate of 1 pint 4L to 1 pint oil. DIPEL 4L may also be mixed at a rate of 40 parts 4L to 80 parts water, and applied in total spray volume not to exceed 80 fl oz per acre.

\*\*Full plant coverage needed

<sup>1</sup>The mixture of B.I. with chlordaneform for inhibiting the growth of lepidopterous larvae on plants is covered by Abbott U.S. patent 3,937,813.

<sup>2</sup>All states except California

Avocado <sup>1</sup>	Pest	Rate
	American Nymph	Not more than 8
	Omnivorous Leafroller	
	Omnivorous Looper	
	Orange Tortrix	

Use a maximum of 200 gallons water per acre by ground rig or 10 gallons by aircraft. Maximum of two applications per season.

<sup>1</sup>For all states except California

**CROP SEED<sup>1</sup>**

Pest	Rate
Indian M. of Moth	1 1/2 pts/100 lb
Almond Moth	

Mix thoroughly prior to bagging

DIPEL 4L is compatible with common seed treatments including captan, methoxychlor, carbaryl (Vitavax) and malathion. Fungicides have not been found to decrease the effectiveness of DIPEL 4L.

<sup>1</sup>For all states except California

**DIPEL 4L for Trees and Shrubs<sup>2</sup>**

Crop	Pest	Pints/100 Gallons <sup>1</sup> (Ground Equipment)	Pints/Acre <sup>2</sup> (Aerial <sup>3</sup> Application)
Forest Shade, Sugar Maple <sup>4</sup>	Gypsy Moth	1 1/2 to 4	2 1/2 to 4
	Bogworm	1 to 2	1 to 2
Trees and Shrubs <sup>2</sup>	Redhumped Caterpillar	1/2 to 1	1/2 to 1
	Spring & Fall Cantharid	1/2 to 1	1/2 to 1
	Fall Webworm	1	1
	Elm Spanworm	1 to 2	1 to 2
	Tent Caterpillars	1/2 to 1	1 1/2 to 2
	California Oakworm	1/2 to 1	1/2 to 1
	Pine Butterfly	2	2
	Spruce Budworm <sup>5</sup>	2 1/2 to 4	2 1/2 to 4
	Saddled Pinyon Caterpillar	1 to 2	1 to 2 <sup>6</sup>
	Douglas Fir Tussock Moth	2	2
	Western Tussock Moth	1 to 2	-
	Frutree Leafroller	1 to 2	-
	Blackheaded Budworm	2	-
	Munias Webworm	1 to 2	-
	Jack Pine Budworm	1 to 2	1 1/2 to 2
Saddleback Caterpillar	1 to 2	-	

<sup>1</sup>Rate for hydraulic sprayer in California. In other states, less water may be used if adequate coverage is provided. For mist blowers mix the applicable amount (pints) in zero to 10 gallons of water, except in California, mix the applicable amount (pints) in 10 gallons of water.

<sup>2</sup>For aerial application, use in zero to 10 gallons (in California against all pests except Spruce Budworms, use in 1 to 10 gallons) of water depending on type and density of trees. For best results, use systems which deliver droplet size of 200 microns or less should be used.

<sup>3</sup>Use only the low rate in California

<sup>4</sup>All states except California

<sup>5</sup>Use rates greater than 2 pints in Northern states for heavy populations. In California tank mix rate of water to DIPEL 4L must be no less than 50:50

**NOTICE TO USER**

Seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning 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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