ABBOTT LABORATORIES

DiPel® ES

Biological Insecticide
Emulsifiable Suspension

ACTIVE INGREDIENT:

Bacillus thuringiensis, subsp.*kurstaki*	3.5%
INERT INGREDIENTS	96.5%
TOTAL	100.0%

Potency: 17,600 International Units per mg of product or 64 billion International Units per gallon of product.
Potency units should not be used to adjust use rates beyond those specified in the Directions for Use Section.

EPA Reg. No. 275-65
EPA Est. No. 33762-IA-1 List No. 5555

INDEX:

KEEP OUT OF REACH OF CHILDREN
CAUTION

1.0 STATEMENT OF PRACTICAL TREATMENT

In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.

2.0 PRECAUTIONARY STATEMENTS

2.1 HAZARD TO HUMANS (AND DOMESTIC ANIMALS) CAUTION

Avoid contact with skin, eyes or clothing.

2.2 Personal Protective Equipment (PPE)

Some materials that are chemical resistant to this product are listed below. If you want more options, follow the instructions for Category E on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical resistant gloves, such as barrier laminate, or nitrile rubber, or neoprene rubber or viton
- Shoes plus socks

Follow the 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 User Safety Recommendations

Users should:
- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

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 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 the 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
- Chemical resistant gloves, such as barrier laminate, or nitrile rubber, or neoprene rubber or viton
- Shoes plus socks

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5.0 NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product 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.

Do not enter treated areas without protective clothing until sprays have dried.

6.0 STORAGE AND DISPOSAL

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

Storage: Keep containers tightly closed when not in use. Do not store at temperatures greater than 100° F. Roll or shake the container before dispensing.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Do not contaminate water when disposing of equipment washwaters.

Container Disposal: Triple rinse (or equivalent). Then puncture and dispose of in a santitary landfill, or by other procedures approved by state and local authorities

7.0 MODE OF ACTION

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

8.0 APPLICATION INSTRUCTIONS

DiPel ES 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 ES to be affected. Always follow these directions:

- Treat when larvae are young (early instars) and before economic thresholds of damage have been exceeded.
- Larvae must be actively feeding on treated, exposed plant parts.
- Thorough spray coverage is needed to provide a uniform deposit of DiPel ES at the site of larvae 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 increase spray volume to improve coverage.
- Tank mixes with a contact insecticide may enhance control.
- 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 application, make the treatment when egg hatch is essentially complete, but before economic crop damage occurs.
- A spreader-sticker or surfactant which has been approved for use on growing and harvested crops should be added for hard-to-wet crops. (Not recommended for chemigation.)
- DiPel ES is a non-restricted use pesticide and does not require a restricted use permit for purchase or use.

9.0 GROUND AND AERIAL APPLICATIONS

DiPel ES may be applied in ground, aerial equipment, or sprinkler irrigation systems, with quantities of water sufficient to provide thorough coverage of infested plant parts. The amount of water needed per acre will depend on crop development, weather, application equipment and local experience.

Do not spray when wind speed favors drift beyond the area intended for use.

9.1 Mixing Recommendations

Important-Do not add DiPel ES to the mix tank before introducing the desired quantity of water. Start the mechanical or hydraulic agitation to provide moderate circulation before adding DiPel ES. Add the desired volume of DiPel ES to the mix tank and continue circulation. Include rinse water from the container. Maintain the suspension while loading and spraying. Do not mix more DiPel ES than can be used in a 2-day period. Rinse and flush spray equipment thoroughly following each use. Selection of fluid to flush the application system will depend on what type of mixture was used during the application period. Use a strainer no finer than 50 mesh in conventional spray systems.

9.2 Spray Volume Recommendations

For conventional aerial applications use at least 2 gallons of total volume per acre in water based sprays, except in the western U.S. where 5 to 10 gallons is the usual minimum. For ground application, use at least 5 gallons of volume per acre. For Ultra Low Volume (ULV) aerial applications, mix DiPel ES with vegetable or cottenseed oil and apply in a total volume of 1.0-2.25 quarts per acre or apply undiluted.

10.0 DIPEL ES FOR CORN (for all states except California)

Crop	Pest	Pints/ Acre (Ground Equipment*)	Pints/ Acre (Aerial Application)
Corn: Field Corn, Seed Corn, Sweet Corn, Popcorn, Silage Corn	European Corn Borer and South-western Corn Borer (First generation population)	1.5-2.5	-
	European Corn Borer and South-western Corn Borer (Second generation population)	1.5-2.5	1.5-2.5

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*Apply in 6 to 8 inch band directly over whorls. Refer to table below for over the row rates.

Fluid Ounces Applied Per 1,000 Row Feet

Row Width	Label Rate/Acre 1.5 pts	2.5 pts
30	1.4 oz/1000 ft	2.3 oz/1000 ft
32	1.5 oz/1000 ft	2.5 oz/1000 ft
36	1.7 oz/1000 ft	2.8 oz/1000 ft

Timing of Application:

Application should be made when young larvae are present for the first or second generation corn borers. One application against the first generation of larvae should provide economic control. Two or more applications may be required against second generation borers if there is an extended period of egg deposition.

First Generation:

DiPel ES should be applied on seed corn when no more than 15% to 25% of the corn plants show "shot hole" feeding in the whorls.

With irrigated or sweet corn, apply DiPel ES when not more than 25% to 35% of the whorls show feeding signs.

With dryland corn, apply DiPel ES when not more than 35% to 40% of the leaves show "shot hole" feeding signs.

Second Generation:

Apply DiPel ES when a field count shows not more than 50 egg masses per 100 plants and the first hatch is taking place. If worm pressures are intense, a second application may be necessary.

Cool weather may cause corn borer larvae to seek protected areas of the corn plant and to reduce the amount of feeding normally done on exposed plant parts. This alteration in feeding behavior will hamper the effectiveness of Dipel ES.

Contact State and Local Extension Service for specific economic threshold and application recommendations.

Control of Other Corn Pests
(for all states except California)

Crop	Pest	Pints/Acre (Ground and Aerial Applications)
Field Corn,	Corn Earworm	2.0-4.0
Sweet Corn,	Variegated Cutworm	1.5-2.5
Seed Corn,	Webworm	1.5-2.5
Silage Corn,	Armyworm[1]	2.0-4.0
and Popcorn	Western Bean Cutworm[1]	1.5-2.5

Tank Mix Directions For Control of Other Corn Pests

Crop	Pest	Pints/Acre (Ground and Aerial Applications)
Sweet Corn	Corn Earworm	0.75*-4.0*
and Field Corn	Armyworm[1]	0.75*-4.0*

[1] DiPel Es may be used to control small Armyworms and the Western Bean Cutworm (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 contol.

Directions for Use (*Tank Mix Only):

DiPel ES can be mixed with esfenvalerate (1.9EC), permethrin (25W, 3.2EC, 25WP), methomyl (90% water soluble powder, 24% liquid, 29% liquid) or methyl parathion (microencapsulated 2 lbs/gallon) for use on sweet corn against armyworms and corn earworm in accordance with the more restrictive label limitations and precautions. No label dosage rates should be exceeded.

Timing of Application:

Armyworms: Treat when plants first exhibit feeding signs in the whorl or leaves. Multiple applications at approximately 3-5 day intervals may be necessary when populations are heavy. High-spray gallonage (50 to 75 gallons per acre) will improve coverage and control.

Corn Earworm: Treat every 1 to 3 days or at wider intervals depending on pest pressure, temperature and geographical location. Begin treatments when 5 percent of the upper ears show silk. When populations are heavy, treat when first silk is seen and every 1-3 days thereafter until harvest.

11.0 DIPEL ES FOR COTTON

EARLY SEASON PROGRAM

Pre-squaring stage:

DiPel ES may be used for early season management of *Helicoverpa zea* and *Heliothis virescens* under conditions of continuous low egg deposition. Use Dipel ES alone at 0.5 pint/acre or in combination with a recommended ovicide, boll weevil sprays, or Pix applications. When egg pressure is moderate to high DiPel ES should be tank mixed with an ovicide. A spray interval of 5-7 days is recommended for a total of 3 applications, if necessary, especially if continued egg pressure occurs during this period.

Pre-bloom stage:

For control of light to moderate populations, use DiPel ES at 0.75 to 2.0 pints/acre in combination with an ovicide such as LARVIN (thiodicarb). Repeat treatments at 4 to 5 day intervals or as long as necessary to maintain control.

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Applications should be directed at brown eggs and newly hatched larvae. Larvae should not exceed 2,500 per acre (approximately 4 percent of plants infested) before treatments are initiated. Close scouting is essential for well timed applications.

MID-SEASON PROGRAM

Pre-bloom to first mature boll stage:

Use DiPel ES at 0.75 to 4.0 pints/acre in combination with 1/2 to 2/3 rate of a recommended synthetic pyrethroid during midseason. Use the lower rates under moderate pressure and increase rates if necessary to maintain control.

LATE SEASON PROGRAM

Mature bloom boll stage:

Use Dipel ES at 0.75 to 4.0 pints/acre in combination with recommended carbamate or organophosphate insecticides. This product will aid in controlling worms escaping from organophosphate insecticides.

DiPel ES can be mixed with other insecticides in accordance with the more restrictive label limitations and precautions. This product cannot be mixed with any other product having a label which prohibits such mixing.

Spray Volumes:

For aerial applications, use a minimum of 2 gallons of total volume per acre in water based sprays except in the western U.S. where 5 to 10 gallons is the usual minimum. For ground application, use at least 5 gallons of total volume per acre with 3 nozzles per row. For banded applications, use a minimum of 2 nozzles per row with ground sprayer or cultivator. Rates should not be less than 0.5 pint /acre on a broadcast basis. For ULV applications, mix 1 to 2 pints DiPel ES with 1 to 2.5 pints vegetable or cottenseed oil and apply in a total volume of 1.0-2.25 quarts per acre. Adjust the spray system to deliver a fine droplet spectrum. Generally, rotary atomizers produce a finer droplet spectrum for ULV applications.

DIPEL ES Rate for Cotton
(for all states except California)

Crop	Pest	Pints/Acre (Ground and Aerial Applications)
Cotton*	Tobacco Budworm[2]	1.0-4.0
	Cotton Bollworm[2]	1.0-4.0
	Armyworm[1]	2.0-4.0
	Looper	1.0-4.0
	Saltmarsh Caterpillar	1.0-4.0

* For use in California, see California Crops section of this label.

Timing of Applications:

[1] DiPel ES 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.

[2] Use DiPel ES to control light to moderate populations of newly hatched worms in pest management programs. Use under close scouting when beneficial insects are active or building. Repeat treatments at 4 to 5 day intervals or as long as necessary and results are acceptable. DiPel ES can be mixed with Larvin for use on cotton against tobacco budworm and cotton bollworm in accordance with the more restrictive of label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing. DiPel ES may be used alone for *Helicoverpa zea* and *Heliothis virescens* control only on preblooming cotton where few or no eggs are present. If significant eggs are present, use only in combination with ovicidal rates of Larvin. Larvin is a registered trademark of Rhone-Poulenc Ag Company.

12.0 DIPEL ES FOR PEANUTS (for all states except California)

Crop	Pest	Pints/Acre (Ground and Aerial Applications)
Peanut	Green Cloverworm	1.0-2.0
	Looper	1.0-2.0
	Podworm[1]	1.0-4.0
	Armyworm[1]	2.0-4.0
	Velvetbean Caterpillar	1.0-2.0

[1] DiPel ES may be used to control podworms and armyworms when populations are light to moderate and good spray coverage can be achieved. Use Dipel ES at 1.0 to 4.0 pints/acre (2.0-4.0 pints/acre for armyworms) when small larvae first appear. Applications should be made to coincide with egg lay and early instar larvae. Under conditions of higher pressure and rapid plant development, the addition of a contact insecticide in combination with Dipel ES is recommended. Treatments should be repeated as necessary to maintain acceptable control.

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13.0 DIPEL ES FOR ALFALFA, HAY AND OTHER FORAGE CROPS (for all states except California)

Crop	Pest	Pints/Acre (Ground and Aerial Applications)
Alfalfa (Hay and Seed)	Armyworm[1]	2.0-4.0
	Looper	1.0-2.0
Hay and Other Forage Crops*	Alfalfa Caterpillar	1.0-2.0
	European Skipper	1.0-2.0
	Webworm	1.0-2.0

* For Use in California - see the California Crops section of this label.

Application Timing:

[1] DiPel ES 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.

14.0 DIPEL ES FOR SUNFLOWERS (for all states except California)

Crop	Pest	Pints/Acre (Ground and Aerial Applications)
Sunflower: Oil, Seed and Confectionary	Sunflower Moth[1]	1.5-2.5
	Banded Sunflower Moth[1]	1.5-2.5

Application Timing:

[1] For moderate pest pressure make a single application prior to 75% bloom. A second application, 5 days later, may be necessary to control severe infestations. Treat when larvae are exposed and small.

In Texas, begin treatment when early instar larvae are present and no more than 20% of the heads are in bloom. Use a spray interval of 4-6 days for a total of 3 applications, if necessary, to reduce the worm population to an acceptable level, especially if continued egg deposition occurs during the period.

15.0 DIPEL ES FOR OTHER CROPS (for all states except California)

Crop	Pest	Pints/Acre (Ground and Aerial Applications)
Legume Vegetables Vegetables such as Bean, Pea, Lentil and Soybean	Looper	1.0-2.0
	Green Cloverworm	1.0-2.0
	Velvetbean Caterpillar	1.0-2.0
	Podworm [1]	1.0-4.0
	Armyworm[1]	2.0-4.0
	Soybean Looper	1.0-2.0
	Saltmarsh Caterpillar	1.0-2.0
Root and Tuber* Crops such as Sugar Beet, Carrot and Potato	Armyworm [1]	2.0-4.0
	Cutworm	1.0-2.0
	Diamondback Moth	1.0-2.0
	Hormworm	1.0-2.0
	Looper	1.0-2.0
	European Corn Borer	1.0-2.0
Stone Fruit such as Cherry, Plum, Peach, Prune and Nectarine	Cankerworm	1.0-4.0
	Codling Moth	1.0-4.0
	Cutworm	1.0-4.0
Pome Fruit such as Apple and Pear	Fall Webworm	1.0-4.0
	Leafroller	1.0-4.0
Tree Nuts such as Almond, Pecan, Walnut and Filbert	Gypsy Moth	1.0-4.0
	Redhumped Caterpillar	1.0-4.0
	Tent Caterpillar	1.0-4.0
Pomegranate	Tufted Apple Budmoth	1.0-4.0
	Walnut Caterpillar	1.0-4.0
	Armyworm [1]	2.0-4.0
	Oriental Fruit Moth	1.0-4.0
	Peach Twig Borer[2]	1.0-4.0
	Pecan Nut Casebearer	1.0-4.0
	Navel Orangeworm[3]	2.0-4.0
Hops	Armyworm [1]	2.0-4.0
	Looper	1.0-2.0

* For use in California, see the California Crops section of this label.

Application Timing:

[1] DiPel ES 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] See note under California Crops (Peach Twig Borer)

[3] See note under California Crops (Navel Orangeworm)

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15.0 DIPEL ES FOR OTHER CROPS (CONT.) (for all states except California)

Crop	Pest[1]	Pints/Acre (Ground and Aerial Applications)
Small Fruits and Berries such as: Blueberry, Grape, Cranberry and Strawberry	Spanworm	1.0-2.5
	Gypsy Moth	1.0-2.5
	Blossom Worm	1.0-2.5
	Sparganothis Fruitworm	1.0-2.5
	Fireworm	1.0-2.5
	Cranberry Fruitworm	1.0-2.5
	Armyworm	2.0-4.0
	Black Cutworm	1.0-2.5
	Looper	1.0-2.5
	Tent Caterpillar	1.0-2.5

Application Timing:

[1] Treat when larvae are young and before economic thresholds of damage have been exceeded. If hatch occurs over an extended period of time, multiple applications should be considered. Use higher rates when pest pressure is heavy and / or older larvae are present. Tank mixes of DiPel ES plus a low rate of contact insecticide (such as phosmet) registered for use on small fruit and berries may enhance control of heavy populations and large larvae. The use of an approved spreader-sticker is recommended.

16.0 DIPEL ES FOR CALIFORNIA CROPS

Crop	Pest	Pints/Acre (Ground and Aerial Applications)
Cotton*	Armyworm[1]	2.0-4.0
	Looper	1.0
Alfalfa (Hay and Seed) **Hay and Other Forage Crops**	Armyworm[1]	2.0-4.0
	Alfalfa Caterpillar	1.0-2.0
Root and Tuber such as Sugar Beet, Carrot and Potato	Armyworm[1]	2.0-4.0

* See the Cotton section of this label for further use directions.

Application Timing:

[1] DiPel ES 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.

Crop	Pest	Pints/Acre (Ground and Aerial Applications)
Tree Nuts such as Almond, Pecan, Walnut and Filbert	Peach Twig Borer [1]	2.0-4.0
	Navel Orangeworm[2]	2.0-4.0
Stone Fruit, such as Cherry, Plum, Peach, Prune and Nectarine	Peach Twig Borer[1]	2.0-4.0

Application Timing:

[1] Make two applications during bloom for control of overwintering larvae; the first between popcorn and the beginning of bloom and the second seven to ten days later, but no later than petal fall. Spring sprays (the May spray) directed against first generation larvae should be determined by the use of pheromone traps and degree-day calculations.

Control of second generation larvae requires critical timing and should begin at 12% hull split in almonds and prior to fruit entry in other crops.

[2] Applications may be directed against the spring-hatched larvae by timing based on monitoring of egg traps. Hull split sprays should include two applications: the first at the initiation of hull split or initiation of egg laying following hull split, and the second seven to ten days later.

17.0 APPLICATION RATES FOR SMALL SPRAY VOLUMES

If Rate Is	Use This Amount Per Gallon
1/2 pt./acre or 100 gals.	1/2 tsp.
1 pt./acre or 100 gals.	1 tsp.
2 pts./acre or 100 gals.	2 tsps.
4 pts./acre or 100 gals.	4 tsps.

18.0 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.