

DiPel[®] ES

BIOLOGICAL INSECTICIDE

EMULSIFIABLE SUSPENSION

Active Ingredient:

Bacillus thuringiensis, subsp. *kurstaki*, strain ABTS-351, fermentation solids, spores, and insecticidal toxins 23.7%
Other Ingredients 76.3%
Total 100.0%

Potency: 17,600 Cabbage Looper Units per mg of product or 64 billion Cabbage Looper Units per gal of product.

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

KEEP OUT OF REACH OF CHILDREN CAUTION

E.P.A. Registration No. 73049-17

E.P.A. Est. No. 33762-IA-001

FIRST AID	
If on skin or clothing	<ul style="list-style-type: none"> Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
If in eyes	<ul style="list-style-type: none"> Hold eyes 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 (682-5368).	
NOTE TO PHYSICIAN	
Contains petroleum distillate – vomiting may cause aspiration pneumonia.	

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS (AND DOMESTIC ANIMALS) CAUTION

Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling.

Personal Protective Equipment

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 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.

Mixers/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.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements in the Worker Protections 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.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- 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 apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

This product must not be applied aerially within 1/4 mile of any habitats of endangered or threatened lepidoptera species. 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 intervals. 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



STATE OF HAWAII
Department of Agriculture

ACCEPTED

LICENSE NO.

8187.22

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.

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.

DiPel ES may be used in either the field or greenhouse for the control of any labeled pest.

GENERAL 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.

GROUND AND AERIAL APPLICATIONS

DiPel ES may be applied in ground and 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 development, weather, application equipment, and local experience.

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

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

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.

CAUTION:

DiPel ES should not be used in combination with Comite[®], Bravo, Captafol, Captan (except seed) or Dyrene.

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

Use of DiPel ES on Field Corn, Seed Corn, Sweet Corn, Silage Corn or Popcorn

**DiPel ES FOR CORN
(All states except California)**

Crop	Pest	Pts/Acre (Ground Equipment ¹)	Pts/Acre (Aerial Application)
Corn: Field Corn, Seed Corn, Sweet Corn, Popcorn, Silage Corn	European Corn Borer ² and Southwestern Corn Borer (First generation population)	1.5 - 2.5	—
	European Corn Borer and Southwestern Corn Borer (Second generation population)	1.5 - 2.5	1.5 - 2.5
Corn	Earworm ⁴	2.0 - 4.0	2.0 - 4.0
	Variegated Cutworm	1.5 - 2.5	1.5 - 2.5
	Webworms	1.5 - 2.5	1.5 - 2.5
	Armyworms ⁵	2.0 - 4.0	2.0 - 4.0
	Western Bean Cutworm ³	1.5 - 2.5	1.5 - 2.5

¹ Apply in 6- to 8-inch band directly over whorls. Refer to table below for over the row rates.

FLUID OUNCES APPLIED PER 1000 ROW FEET

Row Width	Label Rate/A	
	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:

A. ² Corn Borer

Application should be made when young larvae are present for 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 the 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.

B. ³ Armyworm and Western Bean Cutworm

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

C. ⁴ Corn Earworm

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

TANK MIX DIRECTIONS FOR CONTROL OF CORN PESTS

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/gal) 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.

Crop	Pest	Pts/Acre (Ground and Aerial Applications)
Sweet Corn and Field Corn	Corn Earworm	0.75* - 4.0*
	Armyworms ³	0.75* - 4.0*

(*Tank Mix Only)

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 to 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 pts/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. Applications should be directed at brown eggs and newly hatched larvae. Larvae should not exceed 2,500 per acre (approximately 4% 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 pts/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 6 pts/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 gals of total volume per acre in water-based sprays except in the Western U.S. where 5 to 10 gals is the usual minimum. For ground applications, use at least 5 gals 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 pt/acre on a broadcast basis. For ULV applications, mix 1 to 2 pts DiPel ES with 1 to 2.5 pts vegetable or cottonseed oil and apply in a total volume of 1 to 2.25 qts per acre. Adjust the spray system to deliver a fine droplet spectrum. Generally, rotary atomizers produce a finer droplet spectrum for ULV applications.

FOR ALL STATES EXCEPT CALIFORNIA

(For use in California, see California Crops Section of this label)

Crop	Pest	Pts/Acre (Ground and Aerial Applications)
Cotton	Tobacco Budworm ⁶	1.0 - 6.0
	Cotton Bollworm ⁶	1.0 - 6.0
	Armyworms ⁵	2.0 - 6.0
	Looper	1.0 - 6.0
	Saltmarsh Caterpillar	1.0 - 4.0

Timing of Application:

A. ⁵ Armyworm

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.

B. ⁶ Tobacco Budworm

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 pre-blooming cotton where few or no eggs are present. If significant eggs are present, use only in combination with ovicidal rates of Larvin.

DiPel ES FOR PEANUTS

(All states except California)

Crop	Pest	Pts/Acre (Ground and Aerial Applications)
Peanut	Green Cloverworm	1.0 - 2.0
	Looper	1.0 - 2.0
	Podworm ⁷	1.0 - 4.0
	Armyworms ⁷	2.0 - 4.0
	Velvetbean Caterpillar	1.0 - 2.0

Timing of Application:

⁷ Podworm and Armyworm

This product may be used to control podworm and armyworms when populations are light to moderate and good spray coverage can be achieved. Use DiPel ES at 1 to 4 pts/acre (2 to 4 pts per acre for armyworm) 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.

DiPel ES FOR ALFALFA,

HAY AND OTHER FORAGE CROPS

(All states except California)

Crop	Pest	Pts/Acre (Ground and Aerial Applications)
Alfalfa (Hay and Seed)	Armyworms ⁹	2.0 - 4.0
	Looper	1.0 - 2.0
Hay and Other Forage Crops ⁸	Alfalfa Caterpillar	1.0 - 2.0
	European Skipper	1.0 - 2.0
	Webworm	1.0 - 2.0

⁸ For Use in California – See the California Crops Section on this label.

Application Timing:

⁹ Armyworm

This product 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.

DiPel ES FOR SUNFLOWERS

(All states except California)

Crop	Pest	Pts/Acre (Ground and Aerial Applications)
Sunflower: Oil seed and Confectionery	Sunflower Moth ¹⁰	1.5 - 2.5
	Banded Sunflower Moth ¹⁰	1.5 - 2.5

Application Timing:

¹⁰ 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 to 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.

DiPel ES FOR OTHER CROPS

(All states except California)

Crop	Pest	Pts/Acre (Ground and Aerial Applications)
Hops	Armyworms ¹⁸	2.0 - 4.0
	Looper	1.0 - 2.0
Legume 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 ¹⁸	1.0 - 4.0
	Armyworms ¹⁸	2.0 - 4.0
Soybean	Soybean Looper	1.0 - 2.0
	Saltmarsh Caterpillar	1.0 - 2.0
Rangeland	Range Caterpillar ¹⁷	0.5 - 1.0
Small Grains such as Barley, Sorghum, Wheat or Oats	Armyworms ¹⁸	2.0 - 4.0
	Variiegated Cutworm	1.0 - 2.0
	Looper	1.0 - 2.0
	Corn Earworm	1.0 - 4.0
	Webworm	1.0 - 2.0
Sugarcane	Grass Looper	1.0 - 4.0
	Fall Armyworm ¹⁸	2.0 - 6.0
	Sugarcane Borer ¹⁸	2.0 - 6.0
Tobacco	Tobacco Budworm	1.0 - 2.0
	Hornworm	0.5 - 1.0
	Looper	1.0 - 2.0

¹⁷ Use in 1 to 2 qts water per acre against 1st through 4th instar larvae.

¹⁸ DiPel ES may be used to control small armyworms, podworms and/or sugarcane borer (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.

CALIFORNIA CROPS

Crop	Pest	Pts/Acre (Ground and Aerial Applications)
Cotton ¹⁹	Armyworms ²⁰	2.0 - 4.0
	Looper	1.0
Alfalfa (Hay and Seed) Hay and Other Forage Crops	Armyworms ²⁰	2.0 - 4.0
	Alfalfa Caterpillar	1.0 - 2.0

¹⁹ See the Cotton Section of this label for Further Use Directions.

²⁰ This product 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.

For Small Spray Volumes:

If Rate is:	Use This Amount Per Gal
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 tps
4 pts/acre or 100 gals	4 tps

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: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer, or contact Ag Container Recycling Council at 202-861-3144 or www.acrecycle.org. If recycling is not available puncture and dispose of the container in a sanitary landfill, or by other procedures approved by state and local authorities.

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.

DiPel is a registered trademark of Valent BioSciences Corp. Comite is a registered trademark of Chemtura Corp. Larvin is a registered trademark of Bayer CropScience Inc.

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