



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

March 14, 2019

Tyler B. Murray  
Authorized Agent to AEF Global, Inc.  
SciReg, Inc.  
12733 Director's Loop  
Woodbridge, VA 22192

Subject: Non-PRIA (Pesticide Registration Improvement Act) Labeling Amendment – Add Crops and Target Pests and Make Other Changes to the Labeling, Including Those Requested by the EPA (e.g., Update the Front Panel Referral Statement)  
Product Name: Bioprotec PLUS  
EPA Registration Number: 89046-12  
Application Date: 10/01/2018  
OPP Decision Number: 544879

Dear Mr. Murray:

The amended labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable.

This approval does not affect any terms or conditions that were previously imposed on this registration. You continue to be subject to existing terms or conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one (1) copy of the final printed labeling before you release this product for shipment with the new labeling. In accordance with 40 CFR § 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR § 152.3.

Should you wish to add/retain a reference to your company's website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the U.S. Environmental Protection Agency (EPA). If the website is false or misleading, the product will be considered to be misbranded and sale or distribution of the product is unlawful under FIFRA section 12(a)(1)(E). 40 CFR § 156.10(a)(5) lists examples of statements the EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims

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made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the EPA find or if it is brought to our attention that a website contains statements or claims substantially differing from statements or claims made in connection with obtaining a FIFRA section 3 registration, the website will be referred to the EPA's Office of Enforcement and Compliance Assurance.

Your release for shipment of this product constitutes acceptance of these terms. If these terms are not complied with, this registration will be subject to cancellation in accordance with FIFRA section 6.

If you have any questions, please contact Donna Kamarei at (703) 347-0443 or via email at [kamarei.donna@epa.gov](mailto:kamarei.donna@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'JKausch', written over a faint circular stamp.

Jeannine Kausch, Product Manager 92  
Microbial Pesticides Branch  
Biopesticides and Pollution  
Prevention Division (7511P)  
Office of Pesticide Programs

Enclosure

MASTER LABEL

**Bioprotec PLUS**  
**AQUEOUS BIOLOGICAL INSECTICIDE**

*Alternate brand names:* VermeGard, BREVA HP, BREVA HC, Bioprotec AG,  
Bioprotec HC



**FOR OUTDOOR FOOD, NON-FOOD, GREENHOUSE, AND FORESTRY USE**

**Active Ingredient:**

*Bacillus thuringiensis* ssp. *kurstaki* strain EVB-113-19

fermentation solids, spores, and insecticidal toxins ..... 14.49%\*

**Other Ingredients** ..... 85.51%

**Total** ..... 100.00%

\*Potency: 17,500 Cabbage Looper Units (CLU) per mg of product (equivalent to 76 billion CLU per gallon of product)

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

KEEP OUT OF REACH OF CHILDREN

**CAUTION**

[See back/inside/side panel for additional first aid and precautionary statements.]

**Manufactured [for][by]:**

AEF Global, Inc.  
925 des Calfats  
Lévis, QC  
Canada  
G6Y 9E8

**EPA Registration No.: 89046-12**

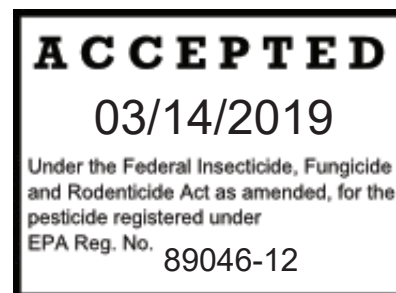
**Establishment No.:**

**Use this product within 18 months of the date of manufacture.**

Date of Manufacture: \_\_\_\_\_

Lot number: \_\_\_\_\_

Net Contents: \_\_\_\_\_



<b>FIRST AID</b>	
If on skin or clothing:	<ul style="list-style-type: none"> <li>- Take off contaminated clothing.</li> <li>- Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>- Call a poison control center or doctor for treatment advice.</li> </ul>
If in eyes:	<ul style="list-style-type: none"> <li>- Hold eye open, and rinse slowly and gently with water for 15-20 minutes.</li> <li>- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>- Call a poison control center or doctor for treatment advice.</li> </ul>
<b>HOTLINE NUMBER</b>	
<p>Have the product container or label with you when calling a poison control center or doctor or when going for treatment. You may contact your local poison control center at 1-800-222-1222 for emergency and medical information.</p> <p>For information concerning this product, call the National Pesticide Information Center (NPIC) at 1-800-858-7378. Open from 8:00AM to 12:00PM Pacific Time, Mon-Fri.</p>	

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**CAUTION.** Harmful if absorbed through skin. Causes moderate eye irritation. 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 and wash contaminated clothing before reuse.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- waterproof gloves
- shoes plus socks
- protective eyewear

Mixers/loaders and applicators must wear a NIOSH-approved particulate respirator with any R or P filter with NIOSH approval number prefix TC-84A; or a NIOSH-approved powered air purifying respirator with an HE filter with NIOSH approval number TC-21C. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

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.

**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 170.607(d), (e), and (f)], 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 breakdown.

### **USER SAFETY RECOMMENDATIONS**

Users should:

- 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**

For terrestrial uses, except when applying aerially over the forest canopy: 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 disposing of equipment washwater or rinsate.

This product must not be applied aerially within ¼ mile of any habitats of threatened or endangered *Lepidoptera*. No manual applications 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 State or Tribal agency responsible for pesticide regulation.

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

### **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 (REI). 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
- Protective eyewear

### **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.

Keep unprotected persons out of treated areas until sprays have dried.

## PRODUCT INFORMATION

Bioprotec PLUS is a water-based formulation that may be applied undiluted or diluted with water. Dilute with minimal quantities of water to improve coverage. The amount of water needed per acre will depend upon crop size, weather, spray equipment, and local experience.

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/treatment coordinator are responsible for considering all of these factors when making decisions.

Make applications early in the morning, in the evening, or during overcast conditions for best results. Make sure to apply the product when there is little or no wind. Do not make early morning application if foliage is wet with dew to the point of runoff. Do not make applications when significant rainfall is imminent. Bioprotec PLUS is more effective when rain is not forecasted within 24-48 hours following application. Dry weather will allow larvae to ingest a lethal quantity of spray deposits.

### MIXING

Add the specified amount of Bioprotec PLUS to the required amount of water in the spray tank. Agitate as necessary to maintain suspension.

DO NOT store spray mixture in spray equipment for more than 18 hours.

### APPLICATION INSTRUCTIONS (OTHER THAN FORESTRY AND LAWN APPLICATIONS)

Bioprotec PLUS is toxic to select species of *Lepidopteran* larvae. Bioprotec PLUS must be ingested by susceptible larvae to be effective. Thorough coverage of target foliage where larvae are feeding is essential. **Treat larvae when they are newly hatched and actively feeding.** After ingestion, larvae cease feeding within a few hours and death occurs in 2-5 days.

Apply at first signs of infestation when larvae are small. Repeat applications, according to economic threshold, as necessary to maintain control. Thorough coverage of all foliage is essential. To improve wetting and distribution on difficult to wet foliage (e.g. crucifers), the addition of a wetting agent is recommended.

Bioprotec PLUS may be applied up to and on the day of harvest.

#### Ground Application:

Use specified amount of Bioprotec PLUS in a minimum of 31.25 gallons of water per acre, depending on the type of equipment and crop. This minimum can be lower with ultra-low volume sprayers. Use diluted spray mixtures within an 18-hour period.

#### Aerial Application:

Apply undiluted Bioprotec PLUS with aerial equipment. Dilute with minimal quantities of water only when required to improve deposit. In the Western U.S., use a normal minimum of 5-10 gallons of water per acre; in the Eastern U.S., use a normal minimum of 2-3 gallons of water per acre. Best results can be expected when Bioprotec PLUS is applied to dry foliage with calibrated aircraft capable of obtaining droplet sizes above 50 U.S. mesh (below 300 microns) and preferably in the range of 270-100 U.S. mesh (50-150 microns).

To dilute, fill the mix tank or plane hopper with the desired quantity of water. Start the mechanical or hydraulic agitation to provide moderate circulation before adding Bioprotec PLUS. Add the specified amount of Bioprotec PLUS to the tank or plane hopper and agitate until uniformly suspended. Continuous mixing is not necessary when using undiluted product.

**FOR AGRICULTURAL USES:**

CROP	TARGET PESTS	RATE OF BIOPROTEC PLUS (PINT/ACRE)
<b>NONGRASS ANIMAL FEEDS (FORAGE, FODDER, STRAW AND HAY)</b>		
<b>Crop group 18</b> Alfalfa and Other Nongrass Animal Feeds	Armyworm <sup>1</sup>	1.0-3.5
	Alfalfa Caterpillar Loopers European Skipper (Essex Skipper) Loopers	1.0-2.0
<b>FRUITS AND NUTS</b>		
<b>Crop groups 11 and 12</b> <b>Pome and Stone Fruits</b> such as: Apples, Pears, Quince, Prunes, Apricots, Cherries, Nectarines, Peaches, Plums  <b>Crop group 14</b> <b>Tree Nuts</b> such as: Almonds, Filberts, Chestnuts, Walnuts, Pecans	Pandemis Leafroller <sup>2</sup> European Grapevine Moth <sup>1</sup> Hickory Shuckworm	0.8-3.1
	Citrus Cutworm Navel Orangeworm Redhumped Caterpillar Tent Caterpillar Omnivorous Leafroller <sup>2</sup> Tortrix Moth Cankerworm Peach Twig Borer Fruittree Leafroller <sup>2</sup> Gypsy Moth Tufted Apple Budmoth Fall Webworm Variegated Leafroller <sup>2</sup> Redbanded Leafroller <sup>2</sup> Walnut Caterpillar Codling Moth Cutworms Filbert Leafroller <sup>2</sup> Oblique Banded Leafroller <sup>2</sup> Cankerworms Fruitworms <sup>2</sup> Oriental Fruit Moth	1.0-3.5
	Winter Moth (Apples only)	0.4
<b>Crop group 10-10</b> <b>Citrus Fruits</b> such as: Oranges, Lemons, Limes, Grapefruit	Orangedog	0.5-2.0
	Fruittree Leafroller <sup>2</sup> Citrus Cutworm	1.0-3.5
	Amorbia <sup>3</sup>	2.0-2.5

CROP	TARGET PESTS	RATE OF BIOPROTEC PLUS (PINT/ACRE)	
<b>Crop group 13-07 Small Fruits and Berries</b> such as: Blackberries, Currants, Grapes, Raspberries, Strawberries, Cranberries (Except Highbush Blueberries and Kiwifruit)	Light Brown Apple Moth	2.75	
	Gypsy Moth, Blueberry Leafroller <sup>2</sup> Loopers, Fruittree Leafroller <sup>2</sup> Grape Berry Moth <sup>4</sup> Oblique Banded Leafroller <sup>2</sup> Achema Sphinx Moth (Hornworm)	1.0-2.0	
	Green and Brown Spanworm	0.4-0.8	
	Bagworms <sup>5</sup>	1.5	
	White Marked Tussock Moth <sup>6</sup>	2.2	
	Pandemis Leafroller <sup>2</sup>	1.0-3.5	
	Tobacco Budworm	3.5	
	Cherry Fruitworm <sup>2</sup> Green Fruitworm <sup>2</sup>	0.5-1.0	
	Grape Leafroller <sup>7</sup> Grapeleaf Skeletonizer Omnivorous Leafroller <sup>2</sup> Orange Tortrix Saltmarsh Caterpillar	1.0-2.5	
	Grape Leafroller Roughskinned Cutworm	0.8-1.5	
	Lowbush Blueberries <sup>8</sup>	Blueberry Spanworm ( <i>Itame argillacearia</i> )	0.4-0.8
		Chainspotted Geometer ( <i>Cingilia catenaria</i> )	
		Rannoch Looper ( <i>Itame brunneata</i> )	
Highbush Blueberries <sup>9</sup>	Cranberry Fruitworm <sup>2</sup> Cherry Fruitworm <sup>2</sup>	0.8-1.5	
<b>OTHER FRUITS</b>			
Bananas	Banana Skipper	1.0-2.0	
<b>Crop group 24 Tropical and Subtropical Fruits (Inedible Peel)</b> such as: Sugar Apples, Dragon Fruit, Lychee, Passionfruit, Prickly Pear (Except Avocadoes, Bananas, Persimmons, Pineapple and Pomegranate)	Hornworms Leafrollers <sup>2</sup> Loopers Omnivorous Looper	1.0-3.5	
Kiwifruit	Omnivorous Leafroller <sup>2</sup>	1.0-3.5	
Pineapple	<i>Batrachedra comosae</i> (Hodges)	0.5-1.0	
	<i>Thecla basilides</i> (Geyr)		



CROP	TARGET PESTS	RATE OF BIOPROTEC PLUS (PINT/ACRE)	
<b>VEGETABLES AND COLE CROPS</b>			
<b>Crop group 1 Root &amp; Tuber Vegetables Crop group 2 Leaves of Root &amp; Tuber Vegetables</b> such as: Beets, Carrots, Horseradish, Radish, Potatoes, Sweet Potatoes, Turnips, Sugar Beets	Diamondback Moth Imported Cabbageworm Green Cloverworm	0.50-2.00	
	Hornworms	0.25-2.00	
	Cutworms Loopers Webworms Saltmarsh Caterpillar Omnivorous Leafroller <sup>2</sup>	1.00-2.00	
	Armyworm <sup>1</sup>	1.00-3.50	
	European Corn Borer	2.00-2.50	
	Alfalfa Caterpillar	0.25-0.50	
	<b>Crop group 3-07 Bulb Vegetables</b> such as: Garlic, Leeks, Onions, Shallots	Saltmarsh Caterpillar Omnivorous Leafroller <sup>2</sup> Cutworms Webworms	1.00-2.00
		Hornworms	0.25-2.00
		Leek Moth <sup>10</sup>	0.80-1.50
Imported Cabbageworm Green Cloverworm Loopers		0.50-2.00	
Armyworm <sup>1</sup>		1.0-3.5	
Diamondback Moth		0.50-1.00	
European Corn Borer		2.00-2.50	
Corn Earworm, Cotton Bollworm, Tomato Fruitworm ( <i>Helicoverpa zea</i> ) <sup>12</sup> Tobacco Budworm ( <i>Heliothis virescens</i> )		2.00	
<b>Crop group 8-10 Fruiting Vegetables</b> such as: Eggplant, Peppers, Tomatoes		Imported Cabbageworm Loopers Diamondback Moth Green Cloverworm	0.50-2.00
		Hornworms	0.25-2.00
	Cutworms Loopers Webworms Saltmarsh Caterpillar Tomato Fruitworm ( <i>Helicoverpa zea</i> ) <sup>12</sup> Omnivorous Leafroller <sup>2</sup>	1.00-2.00	
	Armyworm <sup>1</sup>	1.00-3.50	

CROP	TARGET PESTS	RATE OF BIOPROTEC PLUS (PINT/ACRE)	
	European Corn Borer <sup>11</sup>	2.00-2.50	
	Pinworm	1.50-3.50	
<b>Crop group 6 Legume Vegetables Crop group 7 Foliage of Legume Vegetables</b> such as: Lentils, Peas, Beans, Soybeans	Diamondback Moth Loopers	0.50-2.0	
	Hornworms	0.25-1.00	
	Podworms Imported Cabbageworm Green Cloverworm Saltmarsh Caterpillar Soybean Loopers Velvetbean Caterpillar	1.00-2.00	
	Armyworm <sup>1</sup>	1.00-3.50	
	European Corn Borer <sup>11</sup>	2.00-2.50	
	Cutworm	1.00-2.50	
	<b>Crop group 4 Leafy Vegetables (Except Brassica Vegetables)</b> Such as: Lettuce, Spinach, Celery, Endive, Parsley  <b>Crop group 5 Brassica (Cole) Leafy Vegetables</b> such as: Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Collards, Kohlrabi	Hornworms	0.25-2.00
Webworms Loopers Cutworms Saltmarsh Caterpillar Omnivorous Leafroller <sup>2</sup>		1.00-2.00	
Diamondback Moth Imported Cabbageworm Green Cloverworm		0.50-2.00	
Armyworm <sup>1</sup>		1.00-3.50	
European Corn Borer		2.00-2.50	
<b>Crop group 9 Cucurbit Vegetables</b> such as: Cucumbers, Melons, Pumpkins, Squash, Watermelon		Imported Cabbageworm Green Cloverworm Diamondback Moth	0.50-2.00
		Loopers Saltmarsh Caterpillar Melonworm Pickleworm Rindworm Complex	
	Armyworm <sup>1</sup>	1.00-3.50	
	European Corn Borer	2.00-2.50	
	Hornworms	0.25-1.00	
	<b>OTHER VEGETABLES</b>		
	<b>Artichokes</b>	Artichoke Plume Moth Armyworm <sup>1</sup>	1.00-2.50

CROP	TARGET PESTS	RATE OF BIOPROTEC PLUS (PINT/ACRE)
	Loopers	0.50-2.50
Asparagus	Armyworm <sup>1</sup>	1.00-3.50
	Diamondback Moth Green Cloverworm Imported Cabbageworm	0.50-1.00
	Loopers	0.50-2.00
Malanga	Armyworm <sup>1</sup>	1.00-3.50
	Saltmarsh Caterpillar	1.00-2.00
Watercress	Loopers Diamondback Moth	0.50-1.70
	Armyworm <sup>1</sup>	1.00-3.50
	Green Cloverworm Imported Cabbageworm	0.50-1.00
	Saltmarsh Caterpillar	1.00-2.00
	European Corn Borer	2.00-2.50
<b>HERBS, SPICES, MINTS</b>		
<b>Crop group 19</b> <b>Herbs &amp; Spices</b> such as: Basil, Dill, Oregano, Thyme  Peppermint	Loopers <sup>13</sup>	0.50-2.00
	Diamondback Moth Green Cloverworm Imported Cabbageworm	0.50-1.00
	Armyworm <sup>1</sup>	1.00-3.50
	European Corn Borer	2.00-2.50
	Saltmarsh Caterpillar	0.80-1.50
<b>OTHER CROPS</b>		
Avocados	Loopers	2.00-2.50
	Orange Tortrix Omnivorous Leafroller <sup>2</sup> Omnivorous Looper Spanworm Amorbia <sup>3</sup>	1.00-3.50
	Cutworms	1.00-2.50
Rice	Armyworm <sup>1</sup>	1.00-3.50
	Loopers Saltmarsh Caterpillar	1.00-2.00
	Green Cloverworm Velvetbean Caterpillar	0.50-1.00
	Corn Earworm, Cotton Bollworm ( <i>Helicoverpa zea</i> ) <sup>12</sup>	2.00
	Tobacco Budworm ( <i>Heliothis virescens</i> )	

CROP	TARGET PESTS	RATE OF BIOPROTEC PLUS (PINT/ACRE)
Cotton	Cotton Leaf Perforator Cotton Leafworm  Saltmarsh Caterpillar Loopers	1.0-2.0
	Armyworm <sup>1</sup> Cotton Bollworm <sup>15</sup> Tobacco Budworm <sup>15</sup>	1.0-3.5
	Diamondback Moth	0.50-1.00
Canola/Rapeseed	Loopers	1.00-2.00
	Armyworm <sup>1</sup> Corn Earworm, Cotton Bollworm ( <i>Helicoverpa zea</i> ) <sup>12</sup> Tobacco Budworm ( <i>Heliothis virescens</i> )	1.00-3.50
	Armyworm <sup>1</sup>	1.00-3.50
Crop group 15 Cereal Grains such as: Barley, Millet, Oats, Rye, Wheat	Loopers	1.00-2.00
	Armyworm <sup>1</sup>	1.00-3.50
Corn such as: Field, Sweet, Popcorn	European Corn Borer (Whorl Stage Only)	1.00-2.50
	Southwestern Corn Borer	2.00-2.50
	Armyworm <sup>1</sup>	1.00-3.50
Hops	Loopers	0.50-2.00
	Omnivorous Leaftier Spotted Cutworm Oblique Banded Leafroller <sup>2</sup>	1.00-2.00
	Loopers ( <i>Anacamptodes</i> spp.)	1.00-2.00
Peanuts	Green Cloverworm Loopers	1.00-2.00
	Velvetbean Caterpillar Podworms	2.00
	Corn Earworm, Cotton Bollworm ( <i>Helicoverpa zea</i> ) <sup>12</sup>	
	Tobacco Budworm ( <i>Heliothis virescens</i> )	
Persimmons, Pomegranate	Fall Webworm Filbert Webworm	1.00-2.00
	Omnivorous Leafroller <sup>2</sup> Redhumped Caterpillar Tent Caterpillar	1.00-2.50
	Citrus Cutworm	

CROP	TARGET PESTS	RATE OF BIOPROTEC PLUS (PINT/ACRE)
Safflower	Armyworm <sup>1</sup>	1.00-3.50
	Loopers Saltmarsh Caterpillar	1.00-2.00
Sorghum	Headworm	1.00-2.00
Sunflowers	Headmoth <sup>14</sup> Loopers	1.00-2.00
Tobacco	Tobacco Hornworm	0.25-1.00
	Loopers	0.50-2.00
	Tobacco Budworm <sup>3</sup>	2.00
<b>FLOWERS, BEDDING PLANTS AND ORNAMENTALS</b>		
Ornamentals, Flowers, Bedding Plants	Armyworm <sup>1</sup>	1.00-3.50
	White Marked Tussock Moth	2.20
	Azalea Moth Diamondback Moth	0.50-1.00
	Ello Moth (Hornworm) Io Moth	
	Loopers Oleander Moth	
	Omnivorous Leafroller <sup>2</sup> Omnivorous Looper	
	Tobacco Budworm	
<b>GREENHOUSE AND OUTDOOR NURSERY CROPS</b>		
Ornamental Plants, Flowers, Brassica (Cole) Leafy Vegetables (Crop groups 4 and 5) (e.g., Lettuce and Broccoli,) Fruiting Vegetables (Crop group 8-10) (e.g., Peppers), Herbs & Spices (Crop group 19) (e.g., Basil)	Tomato Hornworm	0.50-1.00
	Omnivorous Leafroller <sup>2</sup>	1.00
	<i>Duponchelia fovealis</i> <i>Opogona sacchari</i>	0.90
	Armyworm <sup>1</sup> Corn Earworm, Cotton Bollworm, Tomato Fruitworm ( <i>Helicoverpa zea</i> ) <sup>12</sup> Tobacco Budworm ( <i>Heliothis virescens</i> )	1.00-3.50
	Loopers	1.00-2.00

<sup>1</sup>Armyworm Control: Use Bioprotec PLUS to control small armyworms (1<sup>st</sup> and 2<sup>nd</sup> instar) when populations are light and full coverage sprays are applied. Repeat treatment as necessary. If mature larvae or heavy populations are present, achieve greater control by adding a contact insecticide.

<sup>2</sup>Leafrollers and Fruitworms: Apply at pink stage and, if populations are heavy, at petal fall using an airblast orchard sprayer. For high volume sprayers, add specified volume of Bioprotec PLUS

to water at ratio between 1:50 to 1:500. Weekly applications may be necessary if egg hatch is asynchronous. Leafrollers in small fruits and berries: Treat when larvae are young (early instar) before crop is damaged. Repeat applications at an interval sufficient to maintain control, usually 3 – 14 days. Spray volume: Apply in a minimum of 31.25 gallons of water per acre; higher spray volumes may be used for berry crops with larger plant stature.

<sup>3</sup>Suppression Only: Use to aid in control of light to moderate populations of 1<sup>st</sup> and 2<sup>nd</sup> instar in Integrated Pest Management conditions. Repeat treatments at four- to five-day intervals. Use an additional ovicidal or larvicidal insecticide to aid in control.

<sup>4</sup>Grape Berry Moth: Start applications before egg hatch and after seeing adult flight. Ensure complete coverage. Repeat application if needed every 7 to 10 days (6 total applications maximum per growing season).

<sup>5</sup>Grape Bagworms: Make one application when larvae are observed feeding on grapes.

<sup>6</sup>White Marked Tussock Moth: Make 2 applications. Apply the first application at peak 2<sup>nd</sup> instar larval development. Apply second application 2 – 5 days later.

<sup>7</sup>Grape Leafrollers: Repeat application if needed every 3 to 14 days (4 total applications maximum per growing season).

<sup>8</sup>Lowbush Blueberries: Apply in a minimum of 31.25 gallons of water per acre. Apply when larvae in the 1<sup>st</sup> or 2<sup>nd</sup> instar are present at or above the economic threshold.

<sup>9</sup>Highbush Blueberries: Apply Bioprotec PLUS by adjusting the application rate within this range as a function of the density of larvae or the density of the foliage to treat, i.e., when crop canopy is dense in late summer, the higher rate may be required. Allow 5-10 days between applications. Monitor for the pests and apply at hatching, when larvae are small. Apply from petal fall to green fruit stage. Weekly applications may be necessary if egg hatch is asynchronous. Ground application by boom sprayer or mist blower: Use a minimum of 31.25 gallons of water per acre. Bioprotec PLUS is more effective when no rain occurs within 24-48 hours after application, allowing time for larvae to ingest a lethal quantity of spray deposits.

<sup>10</sup>Leek Moth (Shallots): The use of pheromone traps on the site of treatment is critical to application timing. Since application is targeted at the larval stages, a period of 7-10 days following peak flight helps to ensure maximal egg hatch.

<sup>11</sup>European Corn Borer: Beans: Apply 2.0-2.5 pints of Bioprotec PLUS per acre. Adjust the dosage per acre within this range as a function of the density of the foliage to treat, i.e., when crop canopy is dense in late summer, the higher dosage may be required. Allow 5-10 days between applications. Timing: Monitor for the pest and apply at hatching, before larvae bore into the plant tissues. Peppers: Apply to young larvae at first signs of infestation; repeat application 2-4 times as necessary to maintain control of young larvae; application interval is 7-10 days.

<sup>12</sup> Helicoverpa zea: Apply every 5-7 days based on pest monitoring.

<sup>13</sup>Herbs and Spices Loopers: Adjust the dosage per acre as a function of the density of larvae or the density of the foliage to be treated. When crop canopy is dense in late summer, a higher dosage may be required. Allow 5-10 days between applications. Do not make more than 5 applications per growing season. Use diluted spray mixture within 12-hour period. Adjust timing by monitoring target pests to apply at hatching, when larvae are small.

<sup>14</sup>Sunflower Moth: Apply aerially when 20-50% heads in bloom. Thorough coverage of larval feeding sites within flowers is necessary for adequate control.

<sup>15</sup>For early season management, begin applications at pinhead square cotton stage when eggs are present. Time applications to coincide with egg hatch. Apply at 5-day intervals based on pest monitoring. Continue applications of Bioprotec PLUS throughout the season, as needed. If additional activity is required, increase rates of Bioprotec PLUS and/or tank mix with other larvicides. Before mixing Bioprotec PLUS, evaluate physical compatibility by mixing all components in a small container in appropriate quantities. Use and mix this product with other pesticides only in accordance with the most restrictive labeling limitations and precautions. Do not mix this product with any product containing label prohibition against such mixing. Do not exceed label dosage rates.

### **FORESTRY APPLICATION INSTRUCTIONS**

Consult with recognized forest pest management authorities or an AEF Global Inc. representative regarding appropriate timing and method of application. The timing and number of applications required for effective forest protection will depend upon the target pest, target foliage development, pest pressure and larval activity. Correspond applications with sufficient foliage development (shoot elongation or leaf expansion) to ensure maximum spray deposit. To the extent possible, apply treatments after egg hatch has been completed to assure that the maximum number of larvae is present during the treatment period. In conditions where egg hatch is extended and/or larval development is significantly advanced and/or larval populations are high, use of higher rates and/or additional applications, 3-10 days apart, is recommended. See dose rate table for pest-specific application instructions.

#### **Ground Application:**

Dilute required amount of Bioprotec PLUS with water only to the volume required to provide thorough coverage. Do not wet foliage to the point of excessive runoff.

For mist blower applications, add Bioprotec PLUS to water at a ratio of 1:20 to 1:50. Use a maximum of 10.7 gallons of spray mixture per acre.

For high volume hydraulic sprayers, add Bioprotec PLUS to water at a ratio of 1:50 to 1:500. Use a maximum of 107 gallons of spray mixture per acre.

#### **Aerial Application:**

Apply only by fixed-wing or rotary aircraft equipment that has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific.

Apply only at the rate specified for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment. Ensure uniform application by using appropriate marking devices and/or electronic guidance equipment.

Undiluted applications are highly recommended for most labeled pests. To improve coverage, Bioprotec PLUS may be diluted with water and applied at the rates indicated in the dose rates table. Total volume of spray material to be applied per acre depends upon the target pest, target foliage, weather, spray equipment and droplet size. Best results are expected when Bioprotec PLUS is applied undiluted to dry foliage with well calibrated aircraft and appropriate spray systems capable of delivering droplets in the range of 500-170 U.S. mesh (30-80 microns) for coniferous foliage and 270-100 U.S. mesh (50-150 microns) for broadleaf foliage.

#### **FOR NON-AGRICULTURAL USES:**

Not for use on trees or shrubs being grown for sale or other commercial use, or for commercial seed production, or for research purposes.

CROP	TARGET PESTS	RATE OF BIOPROTEC PLUS (PINT/ACRE) <sup>1</sup>
<b>FORESTS, SHADE TREES, ORNAMENTAL TREES, SHRUBS, SUGAR MAPLE TREES</b>		
<b>Forests, Shade Trees, Ornamental Trees (e.g., Fruit, Nut, &amp; Citrus), Shrubs, Sugar Maple Trees</b>	Gypsy Moth <sup>2</sup>	1.3-2.2
	Bagworm Jackpine Budworm Elm Spanworm Fall Spanworm Eastern Spruce Budworm <sup>3</sup>	0.9-1.3
	Eastern & Western Hemlock Western Spruce Budworm <sup>3</sup>	1.3-1.7
	Spruce Budworm <sup>3</sup> Browntail Moth Douglas Fir Tussock Moth Coneworm Buck Moth	0.8-3.2
	Satin Moth Tussock Moths	2.2
	Pine Butterfly Loopers Orangestriped Oakworm Blackheaded Budworm Saddled Prominent Saddleback Caterpillar Leafrollers Tortrix Moth Mimosa Webworm	0.6-1.7
	Tent Caterpillar	0.5-0.9
	Forest Tent Caterpillar Greenstriped Mapleworm	0.4-1.2
	Redhumped Caterpillar Spring & Fall Cankerworm California Oakworm Fall Webworm	0.5-0.9
	Eastern Tent Caterpillar	
	Oakmoth Larvae	0.8-1.5

<sup>1</sup>Use the higher rates on advanced larval stages or under high density larval populations.

<sup>2</sup>**Gypsy Moths:** In treating infested trees and shrubs in urban, rural, and semi-rural areas, exposure of non-target vegetation including, but not limited to, native and ornamental species and food or feed crops is permitted. This product can be mixed and used with other pesticides only in accordance with the most restrictive of label limitations and precautions. This product cannot be mixed with any product containing a label prohibition against such mixing. Do not exceed label dosage rates. Apply first application when larvae are in 2<sup>nd</sup> and 3<sup>rd</sup> instar and leaf expansion reaches 40-50%. If egg hatch is extended or re-infestation occurs, 2 or more applications, 7-10 days apart, may be required. Use higher rates for heavy infestations.



<sup>3</sup>Spruce Budworms: Treat prior to 5<sup>th</sup> instar larval development, when bud flush/shoot development is sufficient to ensure good deposit on emerging needles. For heavy infestations, higher rates and a second application are recommended. In mountainous terrain, higher rates and volumes may be required to ensure adequate coverage. For forest stands with a high spruce component in addition to fir, a second application may be necessary, after the spruce buds have opened.

**FOR AGRICULTURAL USES:**

For use on trees or shrubs being grown for sale or other commercial use, such as for commercial seed production or research purposes.

CROP	TARGET PESTS	RATE OF BIOPROTEC PLUS (PINT/ACRE) <sup>1</sup>
<b>FORESTS, SHADE TREES, ORNAMENTAL TREES, SHRUBS, SUGAR MAPLE TREES</b>		
<b>Forests, Shade Trees, Ornamental Trees (e.g., Fruit, Nut, &amp; Citrus), Shrubs, Sugar Maple Trees</b>	Gypsy Moth <sup>2</sup>	1.3-2.2
	Bagworm Jackpine Budworm Elm Spanworm Fall Spanworm Eastern Spruce Budworm <sup>3</sup>	0.9-1.3
	Eastern & Western Hemlock Western Spruce Budworm <sup>3</sup>	1.3-1.7
	Spruce Budworm <sup>3</sup> Browntail Moth Douglas Fir Tussock Moth Coneworm Buck Moth	0.8-3.2
	Satin Moth Tussock Moths	2.2
	Pine Butterfly Loopers Orangestriped Oakworm Blackheaded Budworm Saddled Prominent Saddleback Caterpillar Leafrollers Tortrix Moth Mimosa Webworm	0.6-1.7
	Tent Caterpillar	0.5-0.9
	Forest Tent Caterpillar Greenstriped Mapleworm	0.4-1.2
	Redhumped Caterpillar Spring & Fall Cankerworm California Oakworm Fall Webworm	0.5-0.9
	Eastern Tent Caterpillar	
	Oakmoth Larvae	0.8-1.5

<sup>1</sup>Use the higher rates on advanced larval stages or under high density larval populations.

<sup>2</sup>Gypsy Moths: In treating infested trees and shrubs in urban, rural, and semi-rural areas, exposure of non-target vegetation including, but not limited to, native and ornamental species and food or feed crops is permitted. This product can be mixed and used with other pesticides only in accordance with the most restrictive of label limitations and precautions. This product cannot be mixed with any product containing a label prohibition against such mixing. Do not exceed label dosage rates. Apply first application when larvae are in 2<sup>nd</sup> and 3<sup>rd</sup> instar and leaf expansion reaches 40-50%. If egg hatch is extended or re-infestation occurs, 2 or more applications, 7-10 days apart, may be required. Use higher rates for heavy infestations.

<sup>3</sup>Spruce Budworms: Treat prior to 5<sup>th</sup> instar larval development, when bud flush/shoot development is sufficient to ensure good deposit on emerging needles. For heavy infestations, higher rates and a second application are recommended. In mountainous terrain, higher rates and volumes may be required to ensure adequate coverage. For forest stands with a high spruce component in addition to fir, a second application may be necessary, after the spruce buds have opened.

Other Pests: Apply after egg hatch is complete, when early instar larvae are feeding on exposed foliage. For broadleaf foliage, apply when leaf expansion reaches 40-50%. For coniferous foliage, apply when bud flush/shoot development is sufficient to ensure good deposit. If egg hatch is extended or larval populations are high, higher rates and/or additional applications, 3-10 days apart, may be required.

#### LAWN APPLICATION INSTRUCTIONS

Not for use on turf being grown for sale or other commercial use, or for commercial seed production, or for research purposes.

For applications that will use irrigation, use 50 to 100 gallons of spray volume per acre of turf. Do not apply this product through the irrigation system. The treated area must be irrigated after spray application ( $\frac{1}{8}$  inch of water) to increase penetration of turf surface. If irrigation is not possible, use a spray volume of 200 gallons per acre of turf. Best results are obtained if applications are made in the evening.

CROP	TARGET PESTS	RATE OF BIOPROTEC PLUS (PINT/ACRE)
LAWNS	Cutworm	3.0
	Armyworm Sod Webworm Tropical Sod Webworm	1.5-3.0

## STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store Bioprotec PLUS in the original container between 39°F (4°C) and 68°F (20°C) to ensure microbial purity and potency. Use product within 18 months of the date of manufacture. Store container upright and keep tightly closed when not in use. After extended storage, shake or stir contents to assure a uniform suspension.

**Pesticide Disposal:** Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

### **Container Handling:**

For containers equal to 5 gallons or less:

Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ 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 flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill or by incineration or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

For containers greater than 5 gallons:

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. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill or by incineration.

For 264-gallon containers and/or larger returnable mini-bulk and bulk containers:

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Return empty container for reuse, or offer for recycling if available or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities.

## WARRANTY

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

### **[Optional Marketing/ Advertising Claims]**

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