

BIOPROTEC HP

GROUP	11	INSECTICIDE
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SUSPENSION AQUEOUS BIOLOGICAL INSECTICIDE

FORESTS and WOODLANDS,

RESTRICTED

READ THE LABEL BEFORE USING

POTENTIAL SENSITIZER

CAUTION EYE IRRITANT GUARANTEE:

Bacillus thuringiensis subspecies *kurstaki*, strain EVB113-19

Potency: 17,500 Cabbage Looper Units (CLU) per mg of product (equivalent to 20 billion CLU per liter)

REGISTRATION NO: 27099 PEST CONTROL PRODUCTS ACT

NET CONTENTS (litres): 205 litres, 1000 litres, bulk tanker truck

LOT NO.

DATE OF MANUFACTURE:

**AEF Global, Inc.
925 des Calfats
Lévis (Québec)
G6Y 9E8
Canada**

Toll-free Help-line: 1-866-622-3222

www.aefglobal.com

GENERAL DIRECTIONS FOR USE

DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands), estuarine/ marine habitats.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

BEFORE AERIAL APPLICATION TO FORESTS - Consult the most recent provincially approved topographic maps of the area to be treated (1: 50 000) or more up-to-date information (e.g., GPS Systems) to identify sensitive aquatic habitats.

Sensitive aquatic habitats include:

- a) All running (lotic) and standing (lentic) water bodies, including impoundments, beaver ponds and bog ponds, that appear on the map or GPS system;
- b) Running (lotic) and standing (lentic) water bodies that do not appear on the map or GPS system but are visible from the air.

Bioprotec HP is selectively toxic to some species of lepidopteran larvae. It is a stomach intoxicant only; to be effective, deposits of Bioprotec HP must be ingested by susceptible larvae. Thorough coverage of target foliage where larvae are feeding is essential. In general, larvae should be treated when they are newly hatched and actively feeding. After ingestion of a sufficient dose, larvae cease feeding within a few hours and death occurs in 2 - 5 days.

Bioprotec HP is a water-based formulation, which may be applied undiluted or diluted with clean water. Dilute with minimal quantities of clean water only when required to improve coverage. If diluting with water, add the recommended amount of Bioprotec HP to the required amount of water in the spray tank. Agitate as necessary to maintain suspension. Use diluted mixtures of Bioprotec HP within 18 hours of mixing and recirculate mixture before loading and/or application.

DO NOT allow spray mixture to stand in tank for more than 18 hours.

Avoid application when significant rainfall is imminent. For early morning applications, foliage should not be wet with dew to the point of runoff.

Consult with recognized forest pest management authority or AEF Global representative regarding appropriate timing and method of application. The timing and number of applications required for effective forest protection will depend upon target pest, target foliage development, pest pressure and larval activity. Applications should coincide 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 are 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 recommendations.

As this pesticide is not registered for the control of pests in aquatic system, DO NOT use to control pests.

DO NOT apply by any time of irrigation system

RESTRICTED USES FORESTS and WOODLANDS

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

NATURE OF RESTRICTION

This control product is to be used only in the manner authorized; consult local pesticide regulatory authorities about use permits that may be required. **Forestry Use:** Ground/Aerial Application for sites greater than 500 ha. **Woodlands Use:** Aerial Application for sites 500 ha or less. Consult local Transport Canada office regarding air regulations for forest and woodland aerial applications. Undiluted applications, at the volumes noted in the dose rates table, are highly recommended for most labelled pests. When deemed necessary to improve coverage, Bioprotec HP may be diluted with clean water only and applied at the rates indicated in the dose rates table. Total volume of spray material to be applied per hectare depends upon target pest, target foliage, weather, spray equipment and droplet size. Best results are expected when Bioprotec HP is applied undiluted to dry foliage with well calibrated aircraft and appropriate spray systems capable of delivering droplets in the range of 30-80 microns for coniferous foliage and 50 -150 microns for broadleaf foliage. Federal or provincial officials may recommend inclusion of a water soluble dye for purposes of recording spray deposit.

AERIAL APPLICATIONS

AERIAL APPLICATION INSTRUCTIONS

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 recommended 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.

USE PRECAUTIONS

Apply only when meteorological conditions at the treatment site allow for complete and even coverage. Apply only when meteorological conditions are in compliance with local and/or provincial authorities.

OPERATOR PRECAUTIONS

DO NOT allow the pilot to mix product to be loaded onto the aircraft. However, loading of premixed product with a closed system is permitted. It is desirable that the pilot have communication capabilities at each treatment site at the time of application. The field crew and the mixer/loaders must wear the personal protective equipment described in the

PRECAUTIONS section of this label. When handlers/loaders use closed systems to load the product onto the aircraft, the handler requirement for eye goggles and a NIOSH approved respirator/mask with any N-95, R-95, or P-95 filter for biological products may be waived. When reduced personal protective equipment is worn, the respirator/mask and eye goggles must be immediately available for use in an emergency such as a spill or equipment breakdown. All personnel on the job site must wash hands and face thoroughly before eating and drinking.

Protective clothing, aircraft cockpit and vehicle cabs must be washed before reuse. Decontaminate aircraft cockpits and vehicle cabs if contamination occurs.

PRODUCT PRECAUTIONS

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-866-622-3222 or obtain technical advice from the distributor or from your provincial agricultural or forestry representative. Application of this specific product must meet and/or conform to the aerial uses and rates on this label.

GROUND APPLICATION:

For ground application, dilute required amount of Bioprotec HP with clean water only to the volume required to provide thorough coverage. Wet foliage thoroughly but not to the point of excessive run-off.

For mist blower applications, add the recommended rate of Bioprotec HP to water, at a mix ratio ranging from 1:20 to 1:50. Recommended maximum volume of spray mixture is 100 Litres per hectare.

For high volume hydraulic sprayers, add the recommended volume of Bioprotec HP to water at a mix ratio ranging from 1:50 to 1:500. Recommended maximum volume of spray mixture is 1000 Litres per hectare.

DO NOT apply by any type of irrigation system.

DOSE RATES

Aerial 1 and Ground Application Forests and Woodlands.

Pest	Litres per Ha.
Gypsy Moth 2	1.5 –2.5
Eastern Spruce Budworm 3	0.75–1.5
Western Spruce Budworm 3	1.5-2.0
Jack Pine Budworm 4	1.0 – 1.5
Eastern Hemlock Looper 4	1.5 –2.0
White Marked Tussock Moth 4	2.5
Forest Tent Caterpillar 3	0.6-1.0

1. See Restricted Uses for aerial application to forests, woodlands, residential and other treed areas and ground application to forest sites > 500 ha.
2. Gypsy Moth: apply first application when larvae are in 2nd and 3rd instar and leaf expansion reaches 40- 50%. If egg hatch is extended or reinfestation occurs, 2 or more applications, 7 - 10 days apart, may be required. Use higher rates for heavy infestations.
3. For satisfactory control of and Eastern Spruce Budworm at lower rates and volumes (less than or equal to 1 litre/hectare), Bioprotec HP must be applied using enhanced atomization in order to ensure generation of sufficient spray droplets for impingement on conifer foliage (balsam fir, black spruce). This requires use of Micronaire AU4000 atomizers with appropriate flow rate, and blade angle settings to ensure a rotation of between 8000 and 9000 rpm. Treat spruce budworms prior to fifth 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.

4. 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.

RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, please note that Bioprotec HP contains a Group 11 insecticide. Any insect population may contain individuals naturally resistant to Bioprotec HP and other Group 11 insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay insecticide resistance:

- Where possible, rotate the use of Bioprotec HP and other Group 11 insecticides with different groups that control the same pests in a field.
- Insecticide use should be based on an Integrated Pest Management program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices.
- Monitor treated pest populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance management and/or integrated pest management recommendation for the specific site and pest problems in your area.
- For further information or to report suspected resistance, contact a AEF Global Inc. representative at 925^A des Calfats, Lévis, (Québec), Canada, G6Y 9E8, 1-866-622-3222, www.aefglobal.com.

PRECAUTIONS

KEEP OUT OF REACH OF UNAUTHORIZED PERSONNEL. POTENTIAL SENSITIZER. CAUTION EYE IRRITANT. Avoid contact with skin, eyes or clothing. Avoid breathing dust/spray mist. Wear a long-sleeved shirt, long pants, waterproof gloves, shoes plus socks, eye goggles and a NIOSH-approved respirator with any N-95, R- 95, or P-95 filter for biological products when handling, mixing/loading or applying the product and during all cleanup/repair activities. When applicators use closed systems (e.g. enclosed cabs) the personal protective equipment requirements may be reduced or modified. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye 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 centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

In order to ensure microbial purity and potency, Bioprotec HP should be stored in the original container at a temperature between 4°C and 20°C and be used within 18 months from 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.

DISPOSAL:

For disposable containers:

1. Triple-or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information or disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

For recyclable containers: **DO NOT** reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple-or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

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