

BIOPROTEC HP

GROUP	11	INSECTICIDE
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SUSPENSION AQUEOUS BIOLOGICAL INSECTICIDE

FORESTS and WOODLANDS,

RESTRICTED

CAUTION EYE IRRITANT

POTENTIAL SENSITIZER

READ THE LABEL BEFORE USING

GUARANTEE:

Active Ingredient: *Bacillus thuringiensis* subspecies *kurstaki*, strain HD-1, at a potency of 17,500 International Units (IU) per mg., equivalent to 20 BIU (Billion International Units) 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.
201, Mgr-Bourget
Lévis (Québec)
G6V 9V6
Canada

Toll-free Help-line:
1-866-622-3222
www.aefglobal.com

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.

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 72 hours of mixing and recirculate mixture before loading and/or application.

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.

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 runoff.

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.

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 fields. 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 or other Group 11 insecticides with different groups that control the same pests in a field.
- Use tank mixtures with insecticides from a different group when such use is permitted.
- Insecticide use should be based on an IPM 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 IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance contact AEF Global, Inc., 201, Mgr-Bourget, Levis (Quebec), Canada, G6V 9V6 at 1-866-622-3222 or at www.aefglobal.com.

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 on 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. Loading of premixed product with a closed system is permitted. It is desirable that the pilot has 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. 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 decontaminated regularly.

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.

Dose Rates: Aerial ¹ and Ground Application

Forests and Woodlands.

Pest	BIU's per Ha.	Litres per Ha.
Gypsy Moth ²	30 - 50	1.5 –2.5
Eastern Spruce Budworm ³	15 - 30	0.75–1.5
Western Spruce Budworm ³	30 - 40	1.5-2.0
Jack Pine Budworm ⁴	20 - 30	1.0 – 1.5
Eastern Hemlock Looper ⁴	30 - 40	1.5 –2.0
White Marked Tussock Moth ⁴	50	2.5

¹See 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 Eastern Spruce Budworm at lower rates and volumes (less than or equal to 1 litre/hectare; 20 BIU/ha.), 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.

⁴Other 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.

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 and socks, eye goggles and a NIOSH-approved respirator with any –95, R-95, P-95 filter for biological products when handling, mixing/loading or applying the product and during all clean-up/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 on skin or clothing:

Rinse skin immediately with plenty of water. Remove contaminated clothing and wash separately before reuse. If irritation occurs and persists or is severe, immediately seek medical attention.

If in eyes:

Hold eye open and rinse slowly and gently with water. Remove contact lenses, if present, then continue rinsing eye. If irritation occurs and persists or is severe, immediately seek medical attention.

If inhaled:

Move to fresh air, apply respiration if needed and seek medical attention.

If swallowed:

Rinse mouth and throat with copious amounts of water. Do not induce vomiting. Promptly contact a physician or poison control centre. Do not give anything by mouth to an unconscious person.

General:

Seek medical attention immediately if irritation or signs of toxicity occur and persist or is severe. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention

TOXICOLOGICAL INFORMATION: Treat symptomatically.

STORAGE:

Store at temperatures between 0°C and 15°C for up to 12 months or at 25°C for up to 12 months. Cooler storage temperatures are preferred. 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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