

Specimen Label

HELICOVERPA ARMIGERA
NUCLEOPOLYHEDROVIRUS
STRAIN BV-0003

GROUP

31

INSECTICIDE



CORTEVA™ **bíológicos**
agriscience

Hearken™

BIOLOGICAL INSECTICIDE

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Insecticidal Virus for Use in Open Fields for the Control of the Corn earworm, the Tobacco budworm and the Old World bollworm.

FOR ORGANIC PRODUCTION



Active Ingredient*:

<i>Helicoverpa armigera</i> nucleopolyhedrovirus strain BV-0003	0.60 %
Other Ingredients	99.40 %
Total	100.00 %

*Contains a minimum of 7.5×10^{12} viral occlusion bodies per liter of product.

Store below 41°F

SEE SIDE/INSIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS AND FIRST AID

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

EPA Reg. No. 69553-2-62719

KEEP OUT OF REACH OF CHILDREN CAUTION

CAUTION. Causes moderate eye and skin irritation. Avoid contact with eyes, skin 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
- 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 prefix TC-21C. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

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.

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.

FIRST AID

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 center or doctor for treatment advice.

If on skin or clothing: 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.

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 the National Poison Control Hotline at 1-800-222-1222 for emergency medical treatment information.

Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meet the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.607(d-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.

Environmental Hazards

For terrestrial uses: 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 wash waters or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

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. For any requirements specific to your State or Tribe, consult the State or Tribal 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 interval (REI). The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

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

PRODUCT INFORMATION

SHAKE WELL BEFORE USING

Hearken™ Biological Insecticide acts very specifically against larvae of *Helicoverpa* sp., such as the corn earworm (*Helicoverpa zea*, also known as cotton bollworm or tomato fruitworm), the tobacco budworm (*Helicoverpa/Heliopsis virescens*) and the Old World bollworm (*Helicoverpa armigera*).

After ingestion by the larva, the virus multiplies within the cells of the host insect causing a fatal infection. Rapid virus multiplication within the host cells results in cell destruction and death of the organism, typically within 3-7 days.

Application

Start spraying before larvae hatch from the eggs and onto young instar larvae after hatching. If moths are still flying and laying eggs, reapply as directed in the table below. Due to certain weather conditions, such as lower temperatures, the flight, egg laying, and hatching may extend over a longer period of time making more applications necessary. Frequent applications at low rates may be more effective than one or two applications at high rates.

Use sufficient water to obtain thorough, uniform coverage. Because Hearken™ Biological Insecticide acts through ingestion of treated plant material, thorough spray coverage is essential for optimum control of targeted pest insects. Using increased water volumes will typically result in better spray coverage, especially under adverse conditions such as dry hot weather or dense plant foliage. Run-off should be avoided. Hearken™ Biological Insecticide is rainfast as soon as it has dried.

For chemigation applications: See "CHEMIGATION" section of this label for guidance.

Tank Mixes

Hearken™ Biological Insecticide is compatible with most commonly used insecticides, fungicides or liquid fertilizers. Do not mix with copper

products. Otherwise the protective protein capsule will be destroyed and the active substance inactivated. Spraying of copper a few days before or after a Hearken™ Biological Insecticide application has no adverse effect.

It is not necessary to add feeding stimulants, surfactant/wetting agents, or other adjuvants, though use of a non-ionic or oil-based spreader/sticker and ultraviolet screening agent may enhance the performance of this product. Silicone-based spreaders may interfere with adhesion of virus particles to the plant surface. Do not use these spreaders with this product.

Fill the mix tank with desired quantity of clean water. Ideal pH is between 5 and 8.5; adjust highly alkaline (pH>8.5) or acidic (pH<5) water to a pH around 7 with a buffering agent before adding Hearken™ Biological Insecticide. Shake the Hearken™ Biological Insecticide container well, or invert it several times before pouring to ensure uniform suspension. Keep the tank agitated during mixing. If a spreader/sticker or ultraviolet screen is used, add prior to the addition of Hearken™ Biological Insecticide. Mixing time can be reduced by premixing Hearken™ Biological Insecticide with a small amount of clean water and agitating vigorously before adding to the tank. Spray as soon as possible after mixing; do not allow the spray mix to stand overnight.

CROPS	APPLICATION RATE	APPLICATION METHOD	EQUIPMENT	COMMENTS
Alfalfa* Field Corn* Cotton (Non-Food)* Cottonseed* Oilseeds* Popcorn* Sorghum Soybean	0.5 - 2.5 fl. oz. per acre	Sprayer, Aircraft	Sprayer, Sprinkler Irrigation, Mist Sprayer	Repeat application every 6 - 8 sunny days (counting 2 partially sunny days as 1 sunny day) if monitoring indicates that reapplication is necessary. Lower rates may be used during vegetative stages of the crop, when tank mixed with other insecticides or when pest pressure is low. Use the higher rates when flowers, fruits or other harvested structures of the plant are present or when infestation becomes strong. Field Corn: use 0.5 to 1.25 fl. oz./acre every 3 days during silking. Before and after silking, standard application rate and interval is suitable Cover the whole larval hatching period of the treated pest until harvest.

*Not for use in California

For Hearken™ Biological Insecticide no pre-harvest intervals are defined. It can be applied until the day of harvest.

Aerial applications

Apply in a minimum of 5 gallons of spray solution per acre by aircraft spray equipment. Aerial applications made to dense canopies may not provide sufficient coverage of lower leaves to provide acceptable pest control. Under these conditions, the higher rate of Hearken™ Biological Insecticide specified in the crop specific tables within the Directions for Use section of this label may be necessary for optimum pest control. If application in water by air during hot and dry conditions cannot be avoided, increase application volume and/or use an anti-evaporation additive (such as an emulsifiable oil) to improve coverage.

CHEMIGATION

Apply this product only through pressurized sprinkler irrigation systems (impact or micro sprinklers overhead boom, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems). Do not apply this product through any other type of irrigation system.

Lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

SPRINKLER CHEMIGATION:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store this product in original sealed container in a cool, dry place inaccessible to children and pets. Storing the product below 41°F (5°C), Hearken™ Biological Insecticide can be used for 2 years without loss of efficacy. Storing the product under freezing temperatures will extend its shelf life. Bioactivity may be impaired by storage above 86°F (30°C).

PESTICIDE DISPOSAL: To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

CONTAINER HANDLING: Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after

STORAGE AND DISPOSAL (Cont.)

emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain 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. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by State and local ordinances. If burned, stay out of smoke.

Warranty

Corteva Agriscience warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. To the extent consistent with applicable law, NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

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