Spear® LEP

OPEN

GROUP 32 INSECTICIDE

Biological Insecticide

Active Ingredient:

GS-omega/kappa-Hxtx-Hv1a 2.0%

Other Ingredients: 98.0%

Total: 100.0%

Contains 0.17 lb active ingredient per gallon

*CAS No . 2307677-15-0

KEEP OUT OF REACH OF CHILDREN

CAUTION/PRECAUCIÓN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

See Inside Booklet for Additional Precautionary Statements and Directions for Use.

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 when going for treatment. You may also contact 1-800-535-5053 for emergency medical treatment information and chemical emergency assistance.

Manufactured for:
Vestaron Corporation
4025 Stirrup Creek Drive, Suite 400
Durham, NC 27703

EPA Reg. No.: 88847-6
EPA Est. No.: Printed on Container
Made in USA

20260609

NET CONTENTS: 1 GALLON (3.78 L)

L 21212 Spear LEP (US) FG 20001-US Rev072226v1

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals - CAUTION. Causes moderate eye irritation. Harmful if absorbed through skin. Avoid contact with eyes, skin, or clothing. Wear protective eyewear and waterproof gloves. 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

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no instructions are available, use detergent and hot water for washables. 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.

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 washwater or rinsate.

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 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.

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. 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 unless wearing the appropriate personal protective equipment.

Do not enter or allow workers to enter the treated greenhouse or enclosed space until the ventilation requirements in 40 CFR 170.405(b)(3) have been met and the Restricted-Entry Interval (REI) of 4 hours has expired. Until then, only handlers wearing the appropriate personal protective equipment can enter the greenhouse or enclosed space.

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

PRODUCT INFORMATION

Spear®-Lep is a biological insecticide that contains the peptide active ingredient GS-omega/kappa-Hxtx-Hv1a. It is for use on ornamental plants and edible crops. To be effective against the labeled lepidopteran and coleopteran pests, Spear®-Lep must be tank mixed with a low label rate of Bacillus thuringiensis (Bt) products or another product that improves the bioavailability of the active ingredient to the site of activity. When ingested at labeled rates along with Bt, Spear®-Lep functions as a central nervous system inhibitor. Spear®-Lep is mixed with water and applied as a foliar spray with ground or aerial equipment equipped for conventional insecticide spraying.

Spear®-Lep tank mixes with Bt products can be used in both field and greenhouse.

Spear®-Lep tank mixes with Bt products can be applied by ground or aerial application in field and orchard crops.

USE INSTRUCTIONS

In combination with Bt, the active ingredient in Spear®-Lep largely acts through ingestion. Spear®-Lep has no systemic activity, therefore thorough coverage of infested plant parts is necessary for best performance. For some crops, directed drop nozzles by a ground sprayer are required. Spear®-Lep in combination with Bt is only effective on the larval stages of the listed lepidopteran pests. Younger larvae or earlier instars should be considered more susceptible.

The application rate for all listed crops and targets is 1-2 pints per acre. Repeat applications at 3-10 day intervals (or at intervals necessary to maintain control) depending upon plant growth rate, pest activity and other factors. Under heavy pest pressure conditions, shorten the spray interval, use a higher rate, and/or increase spray volume to improve spray coverage. Do not spray to run off.

Spear®-Lep may be applied up to and including the day of harvest (Pre-harvest interval = 0 days).

Non-ionic surfactant (0.125% v/v) is recommended to achieve uniform plant coverage on plants that are difficult to wet, closed canopy or dense foliage. Use a spreader/sticker or an adjuvant that has been approved for the targeted crop use to enhance the adhesion of Spear®-Lep to the crop.

Spear®-Lep has been evaluated for phytotoxicity on a variety of edible and non-edible crops under various normal growing conditions. It is not feasible, however, to test all crop varieties in all mixtures and combinations. Therefore, prior to treating the entire crop, test a small portion of the crop for sensitivity.

Mixing Directions:

Do not add Spear®-Lep to the mix tank before introducing the desired amount of water. Add water to the mix tank. Start the mechanical or hydraulic agitation to provide moderate circulation before adding Spear®-Lep. Add the desired volume of Spear®-Lep to the mix tank and continue circulation. **Maintain circulation while loading and spraying.** Do not store tank mixes overnight.

Tank Mixing and Compatibility:

Do not combine Spear®-Lep in the spray tank with other pesticides, surfactants, adjuvants or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective, and non-injurious under your use conditions. Follow the most restrictive of the labeling limitations and precautions of all products used in mixtures.

To ensure compatibility of tank-mix combinations, evaluate prior to use. Use a jar test to determine the physical compatibility of this product with other products. Add the proportionate amounts of the products to one quart of water with agitation. Add dry formulations first, then flowables, then emulsifiable concentrates. After thoroughly mixing, let this mixture stand for 5 minutes. If the combination remains mixed or can be readily remixed, it is physically compatible. Once compatibility has been proven, use the same procedure for adding required ingredients to the spray tank.

When a surfactant is used, add it to the diluted spray solution last. Use the recommended dosage advised in the respective surfactant label to the diluted Spear®-Lep spray solution and mix thoroughly by agitation to prepare the spray solution for application.

Spray Volume:

Apply Spear®-Lep tank mixes 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 upon crop species, growth stage, weather, application equipment and local experience. In field crops, use a minimum of 20 gallons per acre for ground applications and a minimum of 5 gallons per acre for aerial application. In mature orchard crops, use a minimum of 50 gallons per acre for ground and 10 gallons per acre for aerial application.

Do not spray when wind speed favors drift beyond the area intended for use. Avoiding spray drift is the responsibility of the applicator.

Use Restrictions:

CHEMIGATION: Do not apply this product through any type of irrigation, except in cranberry for which application by sprinkler system is allowed.

For both indoor and outdoor uses, do not make more than 5 applications of Spear®-Lep per season or crop cycle, up to a maximum of 10 gallons per acre.

Integrated Pest Management (IPM):

Spear®-Lep is an important tool for sound pest management whenever pesticide use is necessary. Because the active ingredient has a novel mode of action, Spear®-Lep provides a new control method for the labeled pests. Based on sound scouting practices, use Spear®-Lep preventively to avoid infestations, as a spot spray to suppress localized infestations, or as a blanket spray to prevent outbreaks. Applying Spear®-Lep in rotation with other insecticides will reduce inputs of conventional insecticides and may also delay development of pesticide resistance. Based on a variety of evaluations, Spear®-Lep is not disruptive to the benefits of biological control agents or other non-target species. It is not feasible, however, to test all species of beneficials in all situations. Therefore, consult with a pest control advisor, extension agent or the manufacturer before treating an entire crop where beneficial insects serve as part of an IPM program. Consult local agricultural authorities for IPM strategies that are specific to your crop and location.

Resistance Management:

Spear®-Lep contains the biological peptide GS-omega/kappa-Hxtx-Hv1a, which has a novel mode of action. It is classified as a Group 32 Insecticide and is not known to be cross-resistant with any other class of insecticide. Repeated use of any mode of action, however, has the potential for pests to develop resistance. To delay development of insecticide resistance, the following practices are recommended:

- Carefully follow the specific guidelines within the use directions.
- Avoid using the same active ingredient or mode of action on consecutive generations of insects. Multiple applications to reduce a single generation, however, are acceptable. Treat the next generation with a different mode of action.
- Avoid using less than labeled rates of any insecticide when applied alone.
- Target the insect in early development to achieve the greatest benefit from the insecticide.
- Consult local agricultural authorities for specific IPM strategies developed for your crop(s) and location.

AERIAL DRIFT REDUCTION ADVISORY INFORMATION

General:

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 are responsible for considering all these factors when making decisions. Where states have more stringent regulations, they should be observed. Note: This section is advisory in nature and does not supersede the mandatory label requirements.

Boom Width:

For aerial applications, the boom width must not exceed 75% of the wingspan or 90% of the rotary blade. Use upwind swath displacement and apply only when wind speed is 3-10 mph as measured by an anemometer. Use medium or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles. If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or crop canopy.

Application Height:

Do not make aerial application at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment:
When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind:
Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature Inversions:
Do not apply during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas:
The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas). Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals.

CHEMIGATION
This product may only be applied via chemigation in cranberry, through sprinkler irrigation systems including center pivot, lateral move, end tow, side (wheel) roll, travelers, big gun, solid set or hand move. Do not apply this product through any other type of irrigation system. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop may result from non-uniform distribution of treated water . If you have questions about calibration, you should seek advice from State Extension Service specialists and equipment manufacturers.

APPLICATION RATES AND VOLUMES
For all listed crops and pests, apply 1-2 pints of Spear®-Lep per acre. Best performance depends on thorough coverage. In field crops use a minimum of 20 gallons for ground applications and 5 gallons for aerial applications. In mature orchard crops, use a minimum of 50 gallons per acre for ground and 10 gallons per acre for aerial applications. Do not spray to runoff.

PESTS CONTROLLED BY SPEAR®-LEP IN A TANK MIX WITH Bt

Colorado Potato Beetle*
*Apply in a tank mix with the low labeled rate of a beetle active Bt, such as Bt ssp. *tenebrionis*

Lepidopteran Larvae (caterpillars, loopers, "worms")*, such as:
*Apply in a tank mix with the low labeled rate of a lepidopteran active Bt, such as Bt ssp. *kurstaki*

Alfalfa Caterpillar
Amorbia spp.
Armyworms
Artichoke Plume Moth
Azalea Caterpillar
Bagworms
Banana Moth
Bollworms
Browntail Moth
Buck Moth
Budworms, such as
Blackheaded, Jack Pine, Spruce, Tobacco
California Oakworm
Cankerworms
Case Bearers, such as:
Pecan Nut
Chainspotted Geometer
Codling Moth
Cornborers, such as:
European, Southwestern
Corn Earworm
Cotton Bollworm
Cotton Leafperforator
Cotton Leafworm
Cutworms, such as
Citrus, Cranberry, Roughskinned, Spotted, Variegated
Diamondback Moth
Eastern Tent Caterpillar
European Grapevine Moth
European Pepper Moth
Forest Tent Caterpillar
Fruitworms, such as:
Cherry, Cranberry, Green, Tomato
Grape Berry Moth
Grape Leaffolder
Grapeleaf Skeletonizer
Green Cloverworm
Greenstriped Mapleworm
Gypsy Moth
Headworms
Helicoverpa spp.
Heliothis spp.
Hickory Shuckworm
Hornworms
Imported Cabbageworm
Io Moth
Leafrollers, such as
Filbert, Fruittree, Obliquebanded, Omnivorous, Redbanded
Leek Moth
Loopers, such as
Alfalfa, Cabbage, Hemlock, Omnivorous, Soybean
Melonworm
Navel Orangeworm
Oleander Caterpillar
Omnivorous Leaftier
Orange Tortrix
Orangedog
Orangestriped Oakworm
Oriental Fruit Moth
Peach Twig Borer
Pickleworm
Pineapple Feeding Caterpillars, such as:
Thecla basilides
Rindworms
Saddleback Caterpillar
Saddled Prominent
Saltmarsh Caterpillar
Satin Moth
Skippers, such as
Banana, Essex, European
Soybean Podworm
Spanworms, such as
Bruce, Cranberry, Currant, Elm
Sunflower Moth
Tomato Pinworm
Tufted Apple Bud Moth
Tussock Moths, such as
Douglas-fir, Hickory, Western Pine, Whitemarked
Velvetbean Caterpillar
Walnut Caterpillar
Webworms, such as
Cabbage, Fall, Filbert, Mimosa
Winter Moth

USE SPEAR®-LEP IN A TANK MIX WITH Bt ON THE FOLLOWING CROPS

Crops

Vegetables:

- **Vegetable, Root and Tuber (Group 1),** such as Beet, Carrot, Horseradish, Potato, Radish, Sugar Beet, Sweet Potato, Turnip, Turnip Greens
- **Vegetable, Bulb (Group 3)**, such as Garlic, Leek, Onion, Shallot
- **Vegetable, Leafy Except Brassica (Group 4)**, such as Celery, Endive, Lettuce, Parsley, Spinach
- **Vegetable, Brassica Leafy (Group 5)**, such as Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Collards, Kohlrabi
- **Vegetable, Legume (Group 6)**, such as Bean, Lentil, Pea, Soybean
- **Vegetable, Fruiting (Group 8)**, such as Eggplant, Pepper, Tomato
- **Vegetable, Cucurbit (Group 9)**, such as Cucumber, Melon, Squash, Watermelon
- **Other Vegetables,** such as Artichoke, Asparagus, Malanga, Watercress

Field Crops, such as
Alfalfa (Hay Seed), Canola, Corn (Field, Sweet, Popcorn), Cotton, Forage Crops, Hay, Hemp, Hops, Jojoba, Peanut, Rapeseed, Rice, Safflower, Small Grains, Sorghum, Sunflower, Tobacco

Herbs, Mints (Group 25), such as Basil, Oregano, Peppermint, Thyme

Spices (Group 26), such as Dill, Fennel, Black Pepper

Fruits, Nuts

- **Small Fruits and Berries (Group 13)**, such as Blackberry, Blueberry, Cranberry, Currant, Grape, Raspberry, Strawberry
- **Pome Fruits (Group 11)**, such as Apple, Pear, Quince
- **Stone Fruits (Group 12)**, such as Apricot, Cherry, Nectarine, Peach, Plum
- **Citrus Fruits (Group 10)**, such as Grapefruit, Lemon, Lime, Orange
- **Tree Nuts (Group 14-12)**, such as Almond, Chestnut, Hazelnut/Filbert, Pecan, Pistachio, Walnut
- **Other Fruits,** such as **Avocado, Banana, Kiwi, Persimmon, Pineapple, Pomegranate, Tropical Fruits**

Bedding Plants, Container Plants, Flowers, Ornamentals

Greenhouse Crops and Outdoor Nursery Crops, such as
Brassicas, Flowers, Fruiting groups, Hemp, Herbs and Spices, Leafy Vegetables, Ornamental Plants, Tobacco, Vegetable Groups

Forest, Ornamentals, Ornamental Fruit, Shade Trees, Shrubs, Sugar Maple Trees, Nut and Citrus Trees

STORAGE AND DISPOSAL

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

Pesticide Storage: Store unopened container at room temperature. Do not store product in an open/unsealed container. Discard any remaining product after use. Do not allow product to freeze.

Pesticide Disposal: Discard any remaining product after use on site, or send to a waste disposal facility or pesticide disposal program.

Container Handling: [For containers less than or equal to 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 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 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.

[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 enclosures . 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.

TERMS AND CONDITIONS OF USE

If the terms of the following WARRANTY DISCLAIMER, INHERENT RISKS OF USE, and LIMITATION OF REMEDIES are not acceptable, return the unopened package at once to Vestaron Corporation. Otherwise, use of the product will constitute acceptance of the terms under WARRANTY DISCLAIMER, INHERENT RISKS OF USE and LIMITATION OF REMEDIES.

WARRANTY DISCLAIMER

TO THE EXTENT PERMITTED BY APPLICABLE LAW, VESTARON CORPORATION MAKES NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE CONCERNING USE OF THE PRODUCT.

INHERENT RISKS OF USE

It is impossible to eliminate all risks associated with use of the product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use, storage or product handling not in accordance with the accompanying label instructions, abnormal conditions, presence of other materials, or other factors, all of which are beyond the control of Vestaron Corporation. All such risks shall be assumed by the user.

LIMITATION OF REMEDIES

To the extent permitted by applicable law, the exclusive remedy for losses or damages resulting from the product (including claims based on contract, negligence, strict liability, or other legal theories) shall be limited to replacement of the amount of product used. To the extent permitted by applicable law, Vestaron Corporation disclaims any liability for incidental, consequential, exemplary, special or indirect damages resulting from the use, storage or handling of the product.

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