



# VENERATE<sup>®</sup>

BIOINSECTICIDE **XC**

**Active Ingredient:**

Heat-killed *Burkholderia* spp. strain A396 cells and spent fermentation media\* ..... 94.46%

**Other Ingredients:** ..... 5.54%

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

\*Contains not less than 1,500 Beet Armyworm Killing Units (BAWKU)/mg. Note: The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

EPA Reg. No.: 84059-14

## KEEP OUT OF REACH OF CHILDREN

## CAUTION

<b>FIRST AID</b>	
<b>IF IN EYES:</b>	<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>HOT LINE NUMBER</b>	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.	



CAN BE USED IN ORGANIC PRODUCTION



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

**CAUTION:** Causes moderate eye irritation. Avoid contact with eyes or clothing. Wear goggles or safety glasses. 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 and protective eye wear. Mixers/loaders and applicators must wear NIOSH-approved particulate respirator with any P or R filter with NIOSH approval number prefix TC-84A or a NIOSH-approved powered air purifying aspirator with a 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 and maintaining PPE. If there are 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 170.240(d)(4-6)], 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. Users should 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. See the Directions for Use section of this label for application instructions that minimize risk to bees and other beneficial insects, including those used in *Integrated Pest Management (IPM) programs or organic agriculture*.

**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.

- In New York State, aerial application is prohibited.
- In New York State, application is prohibited within 100 feet of any surface water.

**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.

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:

- Protective eyewear
- Coveralls
- Chemical resistant gloves (made from any waterproof material)
- Shoes plus socks

**EXCEPTION:** If the product is soil incorporated or soil injected, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

**PRODUCT INFORMATION**

VENERATE® XC is a biological insecticide containing killed cells of *Burkholderia* spp. strain A396 and spent fermentation media for use on agricultural crops against the pests listed in the Directions for Use section. VENERATE® XC controls insect pests by enzymatic degradation of exoskeletal structures and interference with the molting process leading to mortality through contact and/or ingestion. VENERATE® XC controls or suppresses many foliar feeding pests including caterpillars and foliage feeding coleopteran and many soft-bodied insects such as, aphids, whiteflies and plant sucking mites infesting labeled crops and plants. For insect control, the concentrate of VENERATE® XC must be mixed with water and applied as a foliar spray with ground or aerial equipment equipped for conventional insecticide spraying.

VENERATE® XC can be used in either the field or greenhouse for the control of any labeled pest.

**GENERAL USE INSTRUCTIONS - FOR INSECT CONTROL**

VENERATE® XC is an insecticide for use against listed insects. Close scouting and early attention to infestations is highly recommended. Proper timing of application targeting newly hatched larvae, nymphs or immature pests is important for optimal results.

Thorough coverage of infested plant parts is necessary for effective control. For some crops, directed drop nozzles by ground machine are required.

Under heavy pest populations, use the higher label rates, shorten the spray interval, increase the spray volume to improve coverage, and/or apply in tank mixture with another product that has activity on the target pest.

Repeat applications at an interval sufficient to maintain control, usually 3–10 days depending upon plant growth rate, insect and mite activity, and other factors. If attempting to control an insect population with a single application, make the treatment when egg hatch is essentially complete but before economic damage occurs.

The use of adjuvants with VENERATE® XC is not recommended, except to improve control of insect pests in situations where achieving uniform plant coverage is difficult such as closed crop canopy, dense foliage and penetration into waxy leaf surfaces.

Bees and beneficial insects:

- To minimize potential exposure to bees and other pollinating insects, do not apply while bees are foraging.
- Do not allow product to drift to blooming crops or weeds if bees are foraging.
- Minimize spray drift away from the target area to reduce effects to other non-target insects.

VENERATE® XC has been evaluated for toxicity to non-target insects in a variety of bioassays and on a variety of crops under various normal growing conditions. However, testing all beneficial insects, in all situations, mixtures and combinations, is not feasible. Prior to treating entire crop where the release of beneficial insects serve as part of an Integrated Pest Management (IPM) program, consult with an extension specialist, a pest control advisor (PCA) or with the product manufacturer.

VENERATE® XC has been evaluated for phytotoxicity on a variety of crops under various normal growing conditions. However, testing all crop varieties, in all mixtures and combinations, is not feasible. Prior to treating entire crop, test a small portion of the crop for sensitivity.

**GROUND AND AERIAL APPLICATION**

Apply VENERATE® XC in ground and aerial equipment with quantities of water sufficient to provide thorough coverage of infested plant parts. Attention should be given to sprayer speed and calibration, wind speed, and foliar canopy to ensure adequate spray coverage.

**Mixing directions**

**Important** – Fill tank ½ to ¾ of desired amount of water. Start the mechanical or hydraulic agitation to provide moderate circulation before adding VENERATE® XC. Add the desired volume of VENERATE® XC to the mix tank and the remaining volume of water and continue circulation. Maintain circulation while loading and spraying. Do not mix more VENERATE® XC than can be used in 24 hours. Use a strainer no finer than 50 mesh in conventional spray systems.

**Tank mixing**

Do not combine VENERATE® XC 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, or non-injurious under your use conditions.

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

**Row Crop Application**

Use calibrated power-operated ground equipment capable of providing uniform coverage of the target crop. Orient the boom and nozzles to obtain uniform crop coverage. A minimum of 10 gallons per acre by ground or 5 gallons by aerial application should be utilized, increasing volume with crop size and/or pest pressure. Use hollow cone, disc core/hollow cone or twin jet flat fan nozzles suitable for insecticide spraying. Under certain conditions, drop nozzles may be required to obtain complete coverage of plant surfaces. Follow manufacturer's recommendations for ideal nozzle spacing and spray pressure and minimize boom height to optimize uniformity of coverage and maximize deposition to reduce drift.

### Orchard Spraying

- Dilute spray application: This application method is based on the premise that all plant parts are thoroughly wetted, to the point of runoff, with spray solution. To determine the number of gallons of dilute spray per acre, contact your extension specialist, state agricultural experiment station, or certified pest control advisor for assistance.
- Concentrate spray application: This application method is based on the premise that all plant parts are uniformly covered with spray solution but not to the point of runoff as with a dilute spray. Instead, a lower spray volume is used to deliver the same application rate of product per acre as is used for the dilute spray.

Do not spray when wind speed favors drift beyond the area intended for use.

Avoiding spray drift is the responsibility of the applicator.

### AERIAL APPLICATION AND DRIFT REDUCTION ADVISORY INFORMATION

**General:** Apply in a spray volume of 5 or more gallons per acre on row crops and 10 or more gallons per acre on tree or orchard crops. Insect control by aerial application may be less than control by ground application because of reduced coverage.

**Spray drift:** Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine 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.

**Information on droplet size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that will provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

**Controlling droplet size:** Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. **Pressure** – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When high flow rates are needed, use higher flow rate nozzles instead of increasing pressure. **Number of nozzles** – Use the minimum number of nozzles that provide uniform coverage. **Nozzle Orientation** – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential. **Nozzle Type** – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Use low-drift nozzles, such as solid stream nozzles that are oriented straight back to produce the largest droplets and the lowest drift.

**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 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 to 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 and humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**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. Do not allow product to drift to blooming crops or weeds if bees are foraging. Minimize spray drift away from the target area to reduce effects to other non-target insects.

### CHEMIGATION USE – DIRECTIONS FOR INSECT CONTROL

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand moved irrigation systems. Do not apply this product through any other type of irrigation system. Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system.

#### Spray preparation

First prepare a suspension of VENERATE® XC in a mix tank. Fill tank ½ to ¾ the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of VENERATE® XC, and then the remaining volume of water. Then set the sprinkler to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the suspension of VENERATE® XC into the irrigation water line so as to deliver the desired rate per acre. Inject the suspension of VENERATE® XC with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. Any questions on calibration should be directed to your State Extension Service Specialists, to equipment manufacturers or other experts.

Do not combine VENERATE® XC with pesticides, surfactants or fertilizers for application through chemigation equipment unless prior experience has shown the combination physically compatible, effective and non-injurious under conditions of use. VENERATE® XC has not been fully evaluated for compatibility with all adjuvants or surfactants. It is advisable to conduct a spray compatibility test if a mixture with adjuvants or surfactants is planned.

#### General Requirements

- 1) Apply this product only through sprinkler, including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation systems. Do not apply this product through any other type of irrigation system.
- 2) Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- 3) If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
- 4) 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.
- 5) 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.

#### Specific Requirements for Chemigation Systems Connected to Public Water Systems

- 1) 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.
- 2) 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.
- 3) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 4) 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.
- 5) 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.
- 6) 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.
- 7) Do not apply when wind speed favors drift beyond the area intended for treatment.

#### Specific Requirements for 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 (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- 7) Do not apply when wind speed favors drift beyond the area intended for treatment.

#### Application Instructions for All Types of Chemigation

- 1) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.
- 2) Determine the treatment rates as indicated in the directions for use and make proper dilutions.
- 3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required. Utilize agitation to keep solution in suspension.

– SHAKE WELL BEFORE USE –

**FOR USE ON THE FOLLOWING CROPS FOR CONTROL OR SUPPRESSION OF INSECTS AND MITES:**

Pre-harvest Interval (PHI) = 0 days

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**Asparagus**

1–4 quarts VENERATE® XC per acre

Armyworms

1–4 quarts VENERATE® XC per acre (Suppression)

Aphids

Stink bugs – tank-mix with a contact insecticide for improved control.

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**Bananas**

2–4 quarts VENERATE® XC per acre

Banana skipper, Banana rust thrips, Hawaiian flower thrips

2–4 quarts VENERATE® XC per acre (Suppression)

Stink bugs – tank-mix with a contact insecticide for improved control.

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**Bulbs**

**Leek, Garlic, and Onion (bulb and green)**

1–4 quarts VENERATE® XC per acre

Armyworms, Cross-striped cabbage worm, Cutworm, Diamondback moth, Green cloverworm, *Heliothis*, Hornworm, Imported cabbageworm, Loopers, Omnivorous leafrollers, Saltmarsh caterpillar, Webworm

2–4 quarts VENERATE® XC per acre (Suppression)

Aphids Thrips

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**Bushberries**

**Blueberry, High Bush Blueberry, Currant, Gooseberry, Huckleberry, Elderberry, Juneberry, Lingonberry, Salal**

1–2 quarts VENERATE® XC per acre

Armyworms, Cherry fruitworm, Cranberry fruitworm, Fireworms, Leafrollers, Loopers,

**Plum Curculio**

For Plum curculio, begin applications when adults are active and prior to start of oviposition. Repeat applications on a 4-7 day interval until adults are no longer active and developing fruit is no longer susceptible to damage. Rotation or tank-mixing with other insecticides labeled for plum curculio is recommended.

2–4 quarts VENERATE® XC per acre (suppression)

Aphids, Blueberry blossom weevil, Thrips

Spotted wing drosophila – begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use of VENERATE® XC for control of spotted wing drosophila should be part of an integrated management program that includes tank-mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications at no more than a 7-day interval and more frequently if necessary to maintain control.

Stink bugs – tank-mix with a contact insecticide for improved control.

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**Caneberries**

**Blackberry, Loganberry, Red and Black Raspberry, and Cultivars and/or hybrids of these**

1–2 quarts VENERATE® XC per acre

Armyworms, Green fruitworm, Leafrollers, Loopers, Western raspberry fruitworm

1–4 quarts VENERATE® XC per acre (Suppression)

Aphids, Thrips

**Spotted wing drosophila and Fruit flies**

Spotted wing drosophila and Fruit flies – begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use of VENERATE® XC for control of spotted wing drosophila should be part of an integrated management program that includes tank-mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications at no more than a 7-day interval and more frequently if necessary to maintain control.

Stink bugs – tank-mix with a contact insecticide for improved control

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**Cereal Grains**

**Barley, Buckwheat, Grain Amaranth, Milo, Oats, Pearl Millet, Proso Millet, Rye, Sorghum, Triticale, Wheat**

1–4 quarts VENERATE® XC per acre

Armyworms, Corn earworm (Headworm), Southwestern corn borer, Web worms

1–4 quarts VENERATE® XC per acre (Suppression)

Aphids (including Greenbug), Chinch bugs, Mites, Thrips,

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**Citrus**

**Grapefruit, Lemons, Limes, Oranges, Tangerines**

2–4 quarts VENERATE® XC per acre

Asian citrus psyllid, Citrus cutworm, Citrus leafminer, Citrus rust mite, Fruittree leafroller, Orangedog

2–4 quarts VENERATE® XC per acre (Suppression)

Aphids, Citrus red mite, Citrus thrips, Florida red scale, Mealybugs, Texas citrus mite, Twospotted spider mite, Six-spotted mite

Stink bugs – tank-mix with a contact insecticide for improved control.

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**Cranberry**

1–4 quarts VENERATE® XC per acre

Armyworms, Cranberry fruitworm, Fireworms, Leafrollers, Loopers, Spanworms, Sparganothis fruitworm

1–4 quarts VENERATE® XC per acre (Suppression)

Aphids, Cranberry blossom weevil, Mites, Thrips

**Stink Bugs**

Stink bugs – tank-mix with a contact insecticide for improved control.

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**Cole Crops**

**Broccoli, Broccoli Raab, Brussel Sprouts, Cabbage, Chinese Broccoli, Chinese Cabbage (Bok Choy), Chinese Cabbage (Napa), Chinese Mustard Cabbage (Gai Choy), Cauliflower, Cavallo, Collards, Kale, Kohlrabi, Mizuna, Mustard Greens, Mustard Spinach, Rape Greens, Turnip Greens**

1–4 quarts VENERATE® XC per acre

Armyworms, Cabbage looper, Cabbage webworm, Diamondback moth, Imported cabbageworm

2–4 quarts VENERATE® XC per acre (suppression)

Aphids, Billbugs, Leafhoppers, mites, Swede midge, Thrips, Whiteflies

Stink bugs – tank-mix with a contact insecticide for improved control.

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**Corn (Field Corn, Sweet Corn, Popcorn and Corn Grown for Seed)**

1–4 quarts VENERATE® XC per acre

Armyworm, Corn earworm, European corn borer, Southwestern corn borer, Western bean cutworm

2–4 quarts VENERATE® XC per acre (Suppression)

Corn leaf aphid, Leafhoppers, Mites

Stink bugs – tank-mix with a contact insecticide for improved control.

<p><b>Cotton</b>  <b>1–4 quarts VENERATE® XC per acre</b>  Armyworms, Cotton bollworm, European corn borer, Loopers (Soybean and Cabbage), Saltmarsh caterpillar, Tobacco budworm  <b>2–4 quarts VENERATE® XC per acre (Suppression)</b>  Cotton aphid, Leafhoppers, Mites, Thrips  Stink bugs – tank-mix with a contact insecticide for improved control.</p>
<p><b>Cucurbit Vegetables</b>  <b>Cucumber, Edible Gourds, Muskmelon (Cantaloupe, Muskmelon, etc.) Pumpkin, Watermelon, Winter and Summer Squash</b>  <b>1–4 quarts VENERATE® XC per acre</b>  Armyworm, Cabbage looper, Melonworm, Pickleworm, Rindworm complex  <b>1–4 quarts VENERATE® XC per acre (Suppression)</b>  Aphids, Mites, Silverleaf whitefly, Thrips, Whiteflies  Stink bugs – tank-mix with a contact insecticide for improved control.</p>
<p><b>Fig</b>  <b>1–4 quarts VENERATE® XC per acre</b>  Navel orangeworm  <b>2–4 quarts VENERATE® XC per acre (Suppression)</b>  Aphids, Thrips  <b>Spotted wing drosophila</b>  Spotted wing drosophila – begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use of VENERATE® XC for control of spotted wing drosophila should be part of an integrated management program that includes tank-mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications at no more than a 7-day interval and more frequently if necessary to maintain control.  Stink bugs – tank-mix with a contact insecticide for improved control.</p>
<p><b>Flowers, Bedding Plants and Ornamentals</b>  <b>1-4 quarts of VENERATE XC per acre or 1-4 quarts of VENERATE XC per 100 gallons of water</b>  Armyworms, Azalea caterpillar, Diamondback moth, Ello moth, Lo moth, Loopers,  Oleander moth, Omnivorous leafroller, Omnivorous looper, Tobacco budworm  <b>2-4 quarts of VENERATE XC per acre or 2-4 quarts of VENERATE XC per 100 gallons of water</b>  Aphids, Azalea lace bug, Lygus, Mites, Thrips, Whiteflies</p>
<p><b>Fruiting Vegetables</b>  <b>Eggplant, Ground Cherry, Okra, Pepino, Pepper, Tomato, Tomatillo</b>  <b>1–4 quarts VENERATE® XC per acre</b>  Armyworms, European corn borer, Hornworm, Loopers, Saltmarsh caterpillar, Thrips  Tomato fruitworm, Tomato pinworm, variegated cutworm  <b>2–4 quarts VENERATE® XC per acre (Suppression)</b>  Aphids, Mites, Psyllids, Whiteflies  Lygus, Pepper weevil, Plant bugs, Stink bugs – tank-mix with a contact insecticide for improved control. Use pheromone traps to time applications for control of pepper weevil.</p>
<p><b>Grape</b>  <b>1–2 quarts VENERATE® XC per acre</b>  Grape berry moth, Grape leafroller, Grape leaf skeletonizer, Leafhopper, Oblique banded leafroller, Omnivorous leafroller, Orange tortrix  <b>2–4 quarts VENERATE® XC per acre (suppression)</b>  Mealybug, Pacific spider mite, Thrips, Twospotted Spider Mite, Whiteflies, Willamette Spider Mite  <b>Stink Bugs</b>  Stink bugs – tank-mix with a contact insecticide for improved control.</p>
<p><b>Herbs, Spices and Mints (Outdoor or enclosed, including those grown as bedding plants) Angelica, Balm, Basil, Borage, Burnet, Chamomile, Catnip, Chervil, Chive, Clary, Coriander, Costmary, Cilantro, Curry, Dillweed, Horehound, Hyssop, Lavender, Lemongrass, Lovage, Marjoram, Nasturtium, Parsley (dried), Peppermint, Rosemary, Sage, Savory (Summer and Winter), Sweet Bay, Tansy, Tarragon, Thyme, Wintergreen, Woodruff and Wormwood</b>  <b>1–4 quarts VENERATE® XC per acre</b>  Armyworm, Loopers, Saltmarsh caterpillar  <b>2–4 quarts VENERATE® XC per acre (Suppression)</b>  Aphids, Mites, Thrips, Whiteflies</p>
<p><b>Hops and Dried Cones</b>  <b>1–4 quarts VENERATE® XC per acre</b>  Armyworm, Loopers  <b>2–4 quarts VENERATE® XC per acre (Suppression)</b>  Aphids, Mites, Thrips, Whiteflies</p>
<p><b>Leafy Vegetables and Leaves of Root and Tuber and Legume Vegetables</b>  <b>Arugula, Beets, Celery, Chervil, Cilantro, Corn Salad, Cress, Dandelion, Dock, Edible Chrysanthemum, Endive, Fennel, Garden Peas, Head Lettuce, Leaf lettuce, Parsley, Purslane, radicchio, Rhubarb, Spinach, Swiss Chard, Turnip Greens and Watercress</b>  <b>1–4 quarts VENERATE® XC per acre</b>  Armyworms, Cabbage Looper, Diamondback moth  <b>2–4 quarts VENERATE® XC per acre (Suppression)</b>  Aphids, Mites, Psyllids, Thrips, Whiteflies  Stink bugs – tank-mix with a contact insecticide for improved control.</p>
<p><b>Oil Crops</b>  <b>Canola, Castor, Flax, Jojoba, Rapeseed, Safflower, Sesame, Sunflower (including sunflower grown for seed)</b>  <b>1–4 quarts VENERATE® XC per acre</b>  Armyworm, Diamondback moth, Headworm, <i>Heliothis</i>, Looper, Saltmarsh caterpillar  <b>2–4 quarts VENERATE® XC per acre (Suppression)</b>  Aphids, Mites, Thrips, Whiteflies</p>
<p><b>Pineapple</b>  <b>2–4 quarts VENERATE® XC per acre</b>  Gummosos-Batracheda comosae (Hodges), Thecia-thecia basilides (Geyr)</p>
<p><b>Pome Fruit</b>  <b>Apples, Crabapples, Loquat, Mayhaw, Pears, and Quince</b>  <b>2–4 quarts VENERATE® XC per acre</b>  Pear psylla, San jose scale  Stink bugs and plum curculio – tank-mix with a contact insecticide for improved control.</p>
<p><b>Pomegranate</b>  <b>2–4 quarts VENERATE® XC per acre</b>  Armyworm, Cankerworm, Codling moth, Cutworm, Filbert leafroller, Fruittree leafroller, Gypsy moth, Oblique banded leafroller, Oriental fruit moth, Redbanded leafroller, Tufted apple budmoth, Twig borer, Variegated leafroller, Walnut caterpillar  <b>2–4 quarts VENERATE® XC per acre (Suppression)</b>  European red mite, McDaniel spider mite, Pacific spider mite, Twospotted red mite  Stink bugs – tank-mix with a contact insecticide for improved control.</p>

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**Potatoes and Tuberous and Corm Vegetables**

**Artichoke, Cassava, Chayote Root, Chinese Artichoke, Garden Beet, Ginger, Jerusalem Artichoke, Potato, Sugar Beet, Sweet Potatoes, Turmeric and Yams**

**1-4 quarts VENERATE® XC per acre**

Aphids, Armyworms, Artichoke plume moth, European corn borer, Loopers, Potato aphid, Psyllids, Whiteflies

**2-4 quarts VENERATE® XC per acre (Suppression)**

Potato leafhopper

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**Root Vegetables**

**Black Salsify, Carrot, Celeriac, Chicory, Edible Burdock, Ginseng, Horseradish, Parsnip, Radish, Oriental Radish, Rutabaga, Salsify, Skirret, Spanish Salsify, Turnip, Turnip-rooted Chervil, and Turnip Rooted Parsley**

**1-4 quarts VENERATE® XC per acre**

Armyworms, European corn borer, Loopers

**1-4 quarts VENERATE® XC per acre (Suppression)**

Aphids, Mites, Thrips, Whiteflies

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**Shade and Ornamental Trees and Forests**

**1-4 quarts VENERATE® XC per acre**

Bagworm, Blackheaded budworm, California oakworm, Douglas fir tussock moth, Elm spanworm, Fall webworm, Fruittree leafroller, Greenstriped mapleworm, Gypsy moth, Hemlock looper, Jack pine budworm, Mimosa webworm, Pine butterfly, Pine tip moth, Redhumped caterpillar, Saddle prominent caterpillar, Saddleback caterpillar, Spruce budworm, Tent caterpillar, Western tussock moth

**2-4 quarts VENERATE® XC per acre**

Aphids, Lace bugs, Mites, Whiteflies

**2-4 quarts VENERATE® XC per acre (Suppression)**

Black vine weevil, Stink bugs

Tank mix or rotate with contact insecticide for improved stink bug control.

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**Soybean**

**2-4 quarts VENERATE® XC per acre**

Armyworm, Cabbage looper, Corn earworm, Green cloverworm, Loopers, Podworm, Soybean looper, Veetbean caterpillar

**1-4 quarts VENERATE® XC per acre (Suppression)**

Aphids, Potato leafhopper, Mites, Soybean aphid, Thrips, Whiteflies

Kudzu bug – tank mix with contact insecticide for improved control

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**Stone Fruits**

**Apricots, Cherry, Nectarine, Peach, Plum, Prune**

**1-4 quarts VENERATE® XC per acre**

Green fruitworm, Leafrollers (including oblique-banded, fruit tree, pandemic, redbanded, variegated), Oriental fruit moth, Peach twig borer, Redhumped caterpillar, Tent caterpillar

Application timing: optimal timing for peach twig borer and leafrollers can vary between species and geographic locations. Monitor moth flights with pheromone traps and scout regularly to determine larval populations. Use a 7-10 day re-treatment schedule to maintain control if the crop is growing rapidly or if there is heavy pest pressure. Use a 3-4 day re-treatment schedule at flowering.

**2-4 quarts VENERATE® XC per acre (Suppression)**

Aphids, Mealybugs, Mites, Thrips, Whiteflies

Plum curculio – tank mix with a contact insecticide for improved control.

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**Strawberry**

**1-4 quarts VENERATE® XC per acre**

Armyworms, Leafrollers, Thrips

**2-4 quarts VENERATE® XC per acre (Suppression)**

Aphids, Mites, Whiteflies

**Spotted wing drosophila and Fruit flies**

Spotted wing drosophila and Fruit flies – begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use of VENERATE® XC for control of spotted wing drosophila should be part of an integrated management program that includes tank-mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications at no more than a 7-day interval and more frequently if necessary to maintain control.

Stink bugs, Plant bugs and Lygus – tank-mix with a contact insecticide for improved control.

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**Tobacco**

**1-4 quarts VENERATE® XC per acre**

Hornworm, Looper, Tobacco budworm

**2-4 quarts VENERATE® XC per acre (Suppression)**

Aphids, Mites, Thrips, Whiteflies

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**Tree Farms and Plantations**

**Conifers, including Christmas Trees and Deciduous Trees**

**2-4 quarts VENERATE® XC per acre**

Bagworm, Fall webworm, Gypsy moth, Hemlock looper, Jackpine budworm, Pine tip moth, Redhumped caterpillar, Spruce budworm, Tent caterpillar, Tussock moths

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**Tree Fruits**

**Acerola, Atemoya, Avocado, Biriba, Black Sapote, Canistel, Cherimoya, Custard Apple, Fejoa, Guava, Ilima, Jaboticaba, Kiwi, Longan, Lychee, Mamey Sapote, Mango, Papaya, Passionfruit, Pulasan, Rambutan, Sapodilla, Soursop, Spanish lime, Star Apple, Starfruit, Sugar Apple, Ti Palm Leaves, Wax Jambu (Wax Apple), White Sapote**

**1-4 quarts VENERATE® XC per acre**

Avocado leafroller, Citrus peelminer, Cutworms, Fruit tree leafroller, Omnivores leafroller, Orange tortrix, Western tussock moth

**2-4 quarts VENERATE® XC per acre (Suppression)**

Aphids, Mites, Thrips, Whiteflies

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**Tree Nuts**

**Almond, Cashew, Chestnut, Filbert (Hazelnut), Macadamia, Pecan, Pistachio, Walnut**

**2-4 quarts VENERATE® XC per acre**

Fall webworm, Filbert worm, Hickory shuckworm, Naval orange worm, Oblique banded leafroller, Peach twig borer, Pecan nut casebearer, Redhumped caterpillar

**2-4 quarts VENERATE® XC per acre (Suppression)**

Aphids, Mealybugs, Whiteflies

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## STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store in a cool, dry place. Do not freeze.

**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: For plastic 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 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.

**For plastic 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 1/4 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 plastic, refillable containers: Refillable container.** Refill this container with VENERATE® XC 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 rinsing procedure two more times.

Marrone Bio Innovations is a member of the Ag Container Recycling Council.

Visit <http://www.acrecycle.org/contact> for information on how to arrange pick-up of this empty pesticide container.



### WARRANTY

To the extent permitted by applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. The user assumes all risks of use, storage or handling that are not in strict accordance with the accompanying directions.

Label date: June 21, 2017

Patent pending

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