



**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.

## 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.	

**EPA Reg. No.:** 84059-14

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**CAN BE USED IN ORGANIC PRODUCTION**

Manufactured by:



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**For Organic Use**

Zelto\_EM021519\_0918\_V3

**Lot No:** Printed on Container

PN 61701

Job 158819

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

**CAUTION.** Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- waterproof gloves
- shoes plus socks
- protective eyewear
- A NIOSH-approved particulate respirator with any P or R filter with NIOSH approval number prefix TC-84A or a NIOSH-approved powered air purifying respirator with a HE filter with NIOSH approval number prefix TC-21C. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables are available, 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.
- 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. 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.

- Do not apply this product by aerial application.
- 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.

#### Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

For all other non-WPS uses: Keep unprotected persons out of treated areas until sprays have dried.

#### PRODUCT INFORMATION

ZELTO is a biological insecticide/nematicide, containing killed cells of *Burkholderia* sp. strain A396 and spent fermentation media, for use against the pests listed in the Directions for Use section. ZELTO controls soil borne / dwelling insect and nematode pests by enzymatic degradation of exoskeletal structures and interference with the molting process leading to mortality through contact and/or ingestion. Zelto controls or suppresses many pests including aphids, whiteflies and plant sucking mites infesting labeled crops and plants.

#### USE INSTRUCTIONS

ZELTO is an insecticide /nematicide for use against listed pests. 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.

#### For Nematode Control

Nematode management considerations - To obtain maximum results in a nematode management program, it is important to take soil samples prior to application to assess nematode populations and determination of an appropriate management strategy. Take soil samples early enough to allow for the application of a pre-plant fumigant if warranted by nematode counts. Utilization of the services of a field person or crop consultant who is knowledgeable in nematode management is advised. For Columbia Root knot nematodes, base the initial foliar application upon soil degree days with an initial post-emergence application made at 1440 degree days (41 F base). Use ZELTO in rotation or combination with other registered foliar-applied nematicides. Foliar applications of ZELTO must be watered in by rainfall or irrigation, or applied by overhead sprinkler irrigation to move the product into the soil profile. Use a higher product rate when higher nematode pressure is expected.

Use adjuvants with ZELTO 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 or when rainfall may remove spray deposits.

#### 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.

ZELTO 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.

ZELTO 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.

#### **Mixing directions**

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

#### **Tank mixing**

Do not combine ZELTO 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.

#### **GROUND APPLICATION**

##### **1-4 quarts ZELTO per acre**

Apply ZELTO in ground 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.

For foliar applications using broadcast application equipment, apply ZELTO in a minimum of 30 gallons of water per acre.

For turf applications, apply ZELTO in a minimum of 1.5 gallons of water per 1,000 square feet or 65 gallons water per acre.

For dilute applications to bedding plants, tree and shrubs, apply Zelto at a dilution of 4 to 8 quarts per 100 gallons of water. Use of a quality surfactant will aid performance. Do not use carrier volumes and/or adjuvants that create spray run-off or drip-accumulation at the base of the commercial commodity.

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

#### **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.

#### **SOIL TREATMENT USE DIRECTIONS**

##### **4-8 quarts ZELTO per acre**

For low to medium infestations of soil pests, use an at-planting in-furrow, or T-band application, in a minimum of 3 gallons of water per acre. ZELTO can be applied by soil treatment to protect against labeled pests. In general, ZELTO can be applied by the following methods, (unless specified differently in the crops section)

**Shanked-In and Injected Applications:** ZELTO can be shanked-in or injected into the soil alone, or with most types of pesticides and nutrients prior to planting, and at planting. Use a jar test to confirm physical compatibility prior to application.

**Broadcast Soil Applications:** ZELTO can be applied to bare soil alone or with most types of pesticides and nutrients prior to planting, at planting, and at transplant. Apply with a minimum of 30 gallons of water and follow with a minimum of 0.5 inches of irrigation water or natural rainfall within 1-2 days to allow the material to move through the soil profile. Use of sufficient irrigation water to move the product into the root zone will vary depending upon initial soil moisture, organic matter and clay content of the soil. Use a jar test to confirm physical compatibility prior to application.

#### **CHEMIGATION USE**

##### **4-8 quarts ZELTO per acre**

For suppression/control of labeled pests apply ZELTO at the rate of 4-8 quarts per acre by sprinkler chemigation prior to planting, at planting or shortly thereafter, at transplant or shortly thereafter and in season on a 14-28 day interval as needed to maintain control.

### **Spray preparation**

First prepare a suspension of ZELTO in a mix tank. Fill tank with ½ to ¾ the needed amount of water. Start mechanical or hydraulic agitation. Add the required amount of ZELTO, 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 ZELTO into the irrigation water line so as to deliver the rate per acre targeted (which is within the labeled rate range). Inject the suspension of ZELTO 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 ZELTO 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. ZELTO 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 through sprinkler including center pivot, lateral move, end tow, side(wheel) roll, traveler, big gun, solid set, or hand move irrigation systems.
- 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.

### **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.
- 4) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 5) 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.
- 6) 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.
- 7) 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.
- 8) Do not apply when wind speed favors drift beyond the area intended for treatment.
- 9) Check to be sure that the system provides a uniform waterflow.
- 10) Irrigate crop with sufficient water to wet the root zone. Then, begin flow of the solution containing product solution from the chemical tank for a period to uniformly distribute the material. Discontinue flow of the ZELTO mixture and let the system continue to run only as necessary to purge the line with fresh water. Let the ZELTO solution remain in the root zone of the crop.

### **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.

### Specific Requirements for Sprinkler Drip Trickle Micro-emitter Low-pressure Micro-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.

### New Tree / Orchard Plantings

Apply the target rate within the labeled range by chemigation into the root zone through low-pressure micro sprinkler, drip, or trickle irrigation equipment. For optimal results soil should be pre-wetted prior to chemigation. Multiple applications may be necessary, use an application interval of 14 - 28 days. Inject ZELTO in the final 30-60 minutes of an irrigation cycle, sufficient to wet the root zone, maintaining a minimum concentration of 0.05% v/v to optimize product performance.

For situations where individual trees are being replanted, saturate the root ball and the soil at the planting site to the depth/ volume of the anticipated root zone of the new planting with a 1-2% v/v solution of ZELTO. Subsequent applications should follow within 14 - 28 days.

### FOR USE ON THE FOLLOWING CROPS FOR CONTROL OR SUPPRESSION OF THE FOLLOWING INSECTS, NEMATODES, SOIL BORNE / DWELLING INSECTS, AND MITES

## SHAKE WELL BEFORE USE

Pre-harvest Interval (PHI) = 0 days

### Flowering, Bedding and Ornamental Plants, Tree Farms and Plantations\*, Conifers including Christmas Trees\* and Deciduous Trees\*

#### GROUND APPLICATION

1-4 quarts ZELTO per acre

For dilute applications, apply Zelto at a dilution of 2 to 4 quarts per 100 gallons of water. Use of a quality surfactant will aid performance. Do not use carrier volumes and/or adjuvants that create spray run-off or drip-accumulation at the base of the commercial commodity.

armyworms  
azalea caterpillar  
bagworm  
canker worm  
Douglas fir tussock moth  
diamondback moth  
ello moth  
elm span worm  
fall webworm  
Florida red scale  
Gypsy moth  
Hemlock looper  
Jack pine webworm  
Light brown apple moth  
lo moth  
loopers

Mimosa webworm  
mites  
oleander moth  
omnivorous leafroller  
omnivorous looper  
Pacific spider mite  
Spider mites  
Spruce budworm  
Tent caterpillar  
tobacco budworm  
Tufted apple budmoth  
Two-spotted red mite  
Two-spotted spider mite

2-4 quarts ZELTO per acre

For dilute applications, apply Zelto at a dilution of 2 to 4 quarts per 100 gallons of water. Use of a quality surfactant will aid performance. Do not use carrier volumes and/or adjuvants that create spray run-off or drip-accumulation at the base of the commercial commodity.

Aphids  
azalea lace bug  
Cutworms  
Dingy cutworm  
jackpine budworm  
lygus

pine tip moth  
redhumped caterpillar  
sod webworms  
thrips  
tussock moths  
whiteflies

**Turfgrass and Ornamental grasses including Lawns and Recreational Turf, New or established TURFGRASS, Including Bluegrass, Bentgrass, Bermudagrass, Dichondra, Fescue, Orchardgrass, Ryegrass, St. Augustine, Zoysia Mixtures and other grasses.**

**Post-emergence to established turf or pre-emergence to newly seeded or sprigged ground.**

Zelto requires moisture in the soil. When soil samples or turf symptoms indicate nematodes are present, apply Zelto to moist soil and follow with 1/8 – ¼" or irrigation or natural rainfall within 24 hours of application. Including an adjuvant to promote soil penetration is recommended. Repeat applications every 2 to 4 weeks to maintain nematode control.

Ground application: Apply ZELTO™ at a rate of 2-4 quarts of per acre (4-8 tablespoons per 1000 ft<sup>2</sup>)

Armyworms  
bill bugs  
bluegrass billbugs  
Cutworms  
sod webworms

Soil Treatment: Apply ZELTO™ at a rate of 2-4 quarts of per acre (4-8 tablespoons per 1000 ft<sup>2</sup>)

annual bluegrass weevil – suppression  
Chinch bug  
Leafhoppers

Soil Treatment: Apply ZELTO™ at a rate of 4-8 quarts of per acre (8-16 tablespoons per 1000 ft<sup>2</sup>)

(Columbia) lance (*Hoplolaimus galeatus*, *Hoplolaimus columbus*) nematodes\*  
(Columbia) root-knot (*Meloidigyne* spp.) nematodes  
awl (*Dolichodoros* spp.) nematodes\*  
dagger (*Xiphinema* spp.) nematodes  
lesion (*Pratylenchus* spp.) nematodes  
pin (*Paratylenchus* spp.) nematodes  
reniform (*Rotylenchulus* spp.) nematodes  
ring (*Bursaphelenchus* spp.) nematodes  
sting (*Belonolaimus* spp.) nematodes  
stubby-root (*Paratrichodoros* spp.) nematodes\*  
stunt (*Tylenchorhynchus* spp.) nematodes  
white grubs  
wireworms

\*Not labeled for this use in CA

## 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 ZELTO 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.

### Marrone Bio Innovations 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 accordance with the accompanying directions.