

9468-43

01-11-2011

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U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Registration Division (7505C)  
1200 Pennsylvania Ave., N.W.  
Washington, D.C. 20460

EPA Reg. Number:

9468-43

Date of Issuance:

JAN 11 2011

NOTICE OF PESTICIDE:

Registration  
 Reregistration

(under FIFRA, as amended)

Term of Issuance:

Unconditional

Name of Pesticide Product:

Impale Insecticide

Name and Address of Registrant (include ZIP Code):

Ritter Chemical, LLC  
c/o Michael Kellogg  
Pyxis Regulatory Consulting, Inc.  
4110 136<sup>th</sup> St. NW  
Gig Harbor, WA 98332

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is unconditionally registered in accordance with FIFRA section 3(c)(5) provided that you:

1. Submit and/or cite all data required for registration/reregistration of your product when the Agency requires all registrants of similar products to submit such data.
2. Make the following label changes before you release the product for shipment:
  - Revise the EPA Registration Number to read, "EPA Reg. No 9468-43."
  - On page 3, revise the heading "DIRECTIONS FOR USE" by making it more prominent so that it is clear that all of the sections following are under this section.
  - On page 6, under "APPLICATION INSTRUCTIONS," put the subheading "**Restriction:**" in front of the sentence that reads "**DO NOT** apply more than 0.5 lbs. active ingredient per acre, per year, regardless of formulation or method of application" for prominence.

Signature of Approving Official:

Venus Eagle, Product Manager 01  
Insecticide-Rodenticide Branch, Registration Division (7505P)

Date:

JAN 11 2011

- On page 10, in the last sentence of the crop box for “COTTON,” revise the statement “Refer to BIDRIN 8 product label for specific use instructions; observe all use restrictions...” to read ““Refer to BIDRIN 8 product label for specific use instructions; follow all use restrictions...””
- On page 42, in the “FOLIAR” section of the box for “Ornamentals and Non-bearing Fruit and Nut trees, Shrubs, Evergreens, Flowers, Foliage Plants, Groundcovers, Interior Plantscapes, and Vegetable plants intended for resale only” add the restriction “**DO NOT** apply more than .8 pints (12.8 fl. oz.) (0.4 lbs AI) per acre per year for application to outdoor ornamentals.”
- On page 43, in the “USE RATES” section of the box for “Ornamentals and Non-bearing Fruit and Nut trees, Shrubs, Evergreens, Flowers, and Groundcovers,” revise the rates in the sentence “You may use the higher rate(0.2 fl. oz) only” to read “You may use the higher rate(0.20 fl. oz) only” for consistency purposes.
- On page 43, in the “Restrictions” section of the box for “Ornamentals and Non-bearing Fruit and Nut trees, Shrubs, Evergreens, Flowers, and Groundcovers,” revise the restriction to read “**DO NOT** apply more than 0.8 pints (12.8 fl. oz.) (0.4 lbs AI) per acre per year.”
- On page 46, in the bottom of the crop box for “EBB & FLOOD APPLICATION,” revise the 5<sup>th</sup> note by revising the word “NOTE:” to read “RESTRICTION:”

3. Storage stability (830.6317) and corrosion characteristics (830.6320) data must be submitted within 18 months from the date of this registration notice.

4. Submit one copy of the revised final printed label for the record before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. If you have any questions, please contact Autumn Metzger at 703-305-5314 or metzger.autumn@epa.gov.

A stamped copy of the label is enclosed for your records.

Venus Eagle  
Product Manager 01  
Insecticide-Rodenticide Branch  
Registration Division (7505P)

Enclosure

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[MASTER LABEL/COVER PAGE]

**Note:** This Master label contains 2 Sub-labels which bear directions for use in Commercial Agriculture; and in Nursery, Greenhouse and Landscape Ornamentals.

# IMPALE INSECTICIDE

**SUB-LABEL A: COMMERCIAL AGRICULTURE**

**SUB-LABEL B: NURSERY, GREENHOUSE and LANDSCAPE ORNAMENTALS**

**ACTIVE INGREDIENT:**

Imidacloprid: 1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine ..... 40.4%

**OTHER INGREDIENTS:** ..... 59.6%

**TOTAL:** ..... 100.0%

**ACCEPTED  
With COMMENTS  
In EPA Letter Dated:  
JAN 11 2011**

**Under the Federal Insecticide, Fungicide  
and Rodenticide Act, As amended, for the  
pesticide Registered under EPA Reg. No:**

9468-43

**EPA Reg. No. 9468-xx**

**EPA Est. No.**

**Manufactured for:**  
Ritter Chemical, LLC  
P.O. Box 430974  
Houston, TX 77243

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GROUP	4	INSECTICIDE
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# IMPALE INSECTICIDE

**A SYSTEMIC AND FOLIAR INSECTICIDE FOR USE ON FIELD CROPS including COTTON, TOBACCO, POTATO, SOYBEANS and PEANUTS; IN CITRUS, TREE NUT, and FRUIT ORCHARDS; ON FIELD and GREENHOUSE VEGETABLES; ON BERRY, BUSH and VINE CROPS; and ON OTHER LISTED CROPS**

**ACTIVE INGREDIENT:**

Imidacloprid: 1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine ..... 40.4%

**OTHER INGREDIENTS:** ..... 59.6%

**TOTAL:** ..... 100.0%

Contains 4 pounds of imidacloprid per gallon.

### KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID	
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<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>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency information concerning this product, call the National Pesticides Information Center (NPIC) at 1-800-858-7378 seven days a week, 6:30 am to 4:30 pm Pacific Time or your poison control center at 1-800-222-1222.	

See inside label booklet for additional Precautionary Statements.

EPA Reg. No. 9468-xx

EPA Est. No.

**Manufactured for:**  
Ritter Chemical, LLC  
P.O. Box 430974  
Houston, TX 77243

**Net Contents: Gals.**

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

Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco. Avoid contact with eyes or clothing. Wear protective eye wear. Wear long sleeved shirt and long pants, socks, shoes, and chemical resistant gloves made of waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves made of any waterproof material such as, barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton.
- Shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining personal protective equipment, PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

**Engineering Controls Statement:** 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.

**USER SAFETY RECOMMENDATIONS**

**User must:**

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing 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**

**DO NOT** apply directly to water, 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 washwaters. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. **DO NOT** apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area. This product is toxic to wildlife and highly toxic to aquatic invertebrates. This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

**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 agency responsible for pesticide regulation.

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

**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 12 hours.

**Exception:** If the product is soil-injected or soil-incorporated, 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.

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
- Chemical-resistant gloves made of any waterproof material such as, barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton
- Shoes plus socks

**PRODUCT INFORMATION**

Thorough uniform coverage is necessary to achieve insect control. A spray adjuvant may be used to improve coverage. This product may not knockdown established and heavy insect populations with a single application. Two applications may be required to achieve control; retreat if needed and as directed on this label. This product may be tank mixed with other insecticides as specified for knockdown of pests or for improved control of other pests.

Applying this product to crops grown for production of true seed intended for private or commercial planting may be allowed under State specific supplemental labeling but is generally not permitted. As with any insecticide, care must be taken to minimize exposure of this product to honey bees and other pollinators. Additional information on this product uses for listed crops and other questions may be obtained from the Cooperative Extension Service, PCA's, consultants or your local Ritter Chemical, LLC representative.

**Restrictions**

- Do not use this product on crops requiring bee pollination during bloom and a minimum of 10 days prior to bloom.

**RESISTANCE MANAGEMENT**

Some insects are known to develop resistance to insecticides after repeated use. As with any insecticide, the use of this product must conform to resistance management strategies established for your use area.

This product contains a Group 4A insecticide called imidacloprid. Insect biotypes with acquired or inherent tolerance to group 4A insecticides may eventually dominate the insect population if Group 4A insecticides are used repeatedly as the predominant method of control of targeted species. This may eventually result in partial or total loss of control of those species by this product and other Group 4A products.

The active ingredient in this product is a member of neonicotinoid chemical group. Avoid using a block of more than three consecutive applications of this product and/or other Group 4A products having the same or similar mode of action.

Following a neonicotinoid block of treatments, Ritter Chemical, LLC strongly encourages the rotation to a block of applications with effective products of a different mode of action before using additional applications of neonicotinoid products. Use of a block rotation or windowed approach, along with other IPM practices, is considered an effective use strategy for preventing or delaying an insect's pest's ability to develop resistance to this class of chemistry.

Foliar applications of this product or other Group 4A products from the neonicotinoid chemical class must not be used on crops previously treated with a long-residual, soil-applied product from the neonicotinoid chemical class.

Other Group 4A, neonicotinoid products used as foliar treatments include: Actara, Assail, Calypso, Centric, Intruder, Impulse, Leverage, Pasada, Provado, Trimax Pro and Venom. Other 4A Group, neonicotinoid products used as soil/seed treatment include: Admire Pro, Advise, Alias, Belay, Clutch, Couraze, Cruiser, Gaucho, Macho, Macho Max, Platinum, Venom and Widow. Contact your local extension specialist, certified crop advisor and/or product manufacturer for additional insect resistance management recommendations. Also, for more information on Insect Resistance Management (IRM), visit the Insecticide Resistance Action Committee (IRAC) on the web at <http://irac-online.org/>.

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### PRODUCT USE PRECAUTIONS

OBSERVE THE FOLLOWING PRECAUTIONS WHEN MIXING AND APPLYING IN THE VICINITY OF AQUATIC AREAS SUCH AS LAKES; RESERVOIRS; RIVERS; PERMANENT STREAMS, MARSHES OR NATURAL PONDS; ESTUARIES AND COMMERCIAL FISH FARM PONDS.

#### SPRAY DRIFT MANAGEMENT

The responsibility of avoiding spray drift is with the applicator. The applicator must consider weather related factors and the interaction of application equipment when making application decisions.

#### Mixing and Loading Requirements

The use of a properly designed and maintained containment pad for mixing and loading of any pesticide into application equipment is required. If containment pad is not used, maintain a minimum distance of 25 feet between mixing and loading areas and potential surface to groundwater conduits such as field sumps, uncased well head, sinkholes or field drains.

#### Aerial Applications

The spray boom should be mounted on the aircraft so as to minimize drift caused by wing tip vortices. The minimum practical boom length should be used, and must not exceed 75% of the wing span or rotor diameter.

#### Importance of Droplet Size

The droplet size is an important factor and can influence drift. Typically smaller droplet sizes, such as less than 150 to 200 microns, have a greater tendency to drift compared to larger droplets. Applications typically should be made to deliver the largest droplet range that provides adequate control and coverage. Formation of very small droplets may be minimized by appropriate nozzle selection.

#### Wind Speed Restrictions

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors, including droplet size, canopy and equipment specifications determine drift potential at any given wind speed. **DO NOT** apply when winds are greater than 15 mph and avoid gusty and windless conditions.

#### Restrictions During Temperature Inversions

**DO NOT** make aerial or ground applications during temperature inversions. Drift potential is high during temperature inversions. Temperature inversions typically restrict vertical air mixing, which then could cause small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Temperature inversions typically are characterized by increasing temperature 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. 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 mixing.

#### Airblast (Air Assist) Specific Recommendations for Tree Crops and Vineyards

Airblast sprayers carry droplets into the canopy of trees/vines via a radially, or laterally directed air stream. The following specific drift management practices must be followed.

- Adjust deflectors and aiming devices so that spray is only directed into the canopy;
- Block off upward pointed nozzles when there is no overhanging canopy;
- Use only enough air volume to penetrate the canopy and provide good coverage;
- **DO NOT** allow the spray to go beyond the edge of the cultivated area (i.e., turn off sprayer when turning at end rows);
- Only spray inward, toward the orchard or vineyard, for applications to the outside rows.

#### No-Spray Zone Requirements for Foliar Applications

**DO NOT** apply by ground within 25 feet, or by air within 150 feet of lakes, reservoirs, rivers, permanent streams, marshes or natural ponds, estuaries and commercial fish farm ponds.

#### RUNOFF MANAGEMENT

**DO NOT** cultivate within 10 feet of the aquatic areas to allow growth of a vegetative filter strip. When used on erodible soils, best management practices for minimizing runoff must be employed.

#### ENDANGERED SPECIES NOTICE

Under the Endangered Species Act, it is a Federal Offense to use any pesticide in a manner that results in the death of a member of an endangered species. Consult your local county bulletin, County Extension Agent, or Pesticide State Lead Agency for information concerning endangered species in your area.

#### ROTATIONAL CROPS

Crops which are listed on imidacloprid labels or crops that have existing tolerances for imidacloprid may be planted in treated areas as soon as practical after the last imidacloprid application. Crops that are not found on an imidacloprid label, or crops

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

that do not have existing tolerances for imidacloprid, must not be planted in treated areas for 12-months after the last application. Refer to the table below for plantback intervals for different crops. Note that if cover crops are planted any time after an application of this product, those crops must not be grazed or harvested for food or feed.

ROTATIONAL CROPS - PLANT-BACK INTERVALS
<b>IMMEDIATE PLANT-BACK:</b> All crops on this label plus the following crops not on this label: barley, canola, corn (field, pop & sweet), rapeseed, sorghum, sugar beet and wheat.
<b>30-DAY PLANT-BACK:</b> Cereals (including buckwheat, millet, oats, rice, rye, and triticale), soybeans and safflower
<b>10-MONTH PLANT-BACK:</b> Onions and bulb vegetables
<b>12-MONTH PLANT-BACK:</b> All other crops

**APPLICATION INSTRUCTIONS**

This product can be applied as a foliar spray, or as a soil treatment (see Crop Specific Restrictions and Limitations). Thorough uniform coverage is necessary to achieve insect control. Use adequate spray volumes, properly calibrated application equipment, and an adjuvant to improve coverage. Failure to provide adequate coverage and retention of this product on leaves and fruit may result in loss of insect control or delay in onset of activity.

This product may not knockdown established and heavy insect populations with a single application. Two applications may be required to achieve control. Scout fields and retreat if needed.

This product may be tank mixed with other insecticides for knockdown of pests or for improved control of other pests.

Apply this product with properly calibrated ground or aerial application equipment.

Minimum spray volumes unless otherwise specified on the Crop Specific Restrictions and Limitations section are 10 gallons/Acre by ground applications and 5 gallons/Acre through aerial equipment.

This product may also be applied by overhead chemigation (see **CHEMIGATION APPLICATION** section below) if allowed in crop specific application section.

Apply specified rate per acre as a foliar spray as pest populations begin to build. **DO NOT** apply more than 0.5 lbs. active ingredient per acre, per year, regardless of formulation or method of application.

**Mix Preparation**

To prepare the application mixture:

1. Fill the spray tank with a portion of the required amount of water and begin agitation.
2. Add the specified amount of Impale.
3. Fill the tank with the remaining water needed. Maintain sufficient agitation during mixing and application.

NOTE: This product may also be used with other pesticides and/or fertilizer solutions; refer to the Tank Mix and Compatibility Note below. When tank mixtures of this product and other pesticides are involved, prepare the tank mixture as specified above and follow the suggested Mixing Order below.

**Tank Mixes**

Unless otherwise prohibited on this label or the label of an intended tank mix product, this product may be applied in combination with any pesticide registered for the same crop, timing, and method of application. Observe the most restrictive label statements of various tank mix products used. **IMPORTANT: PESTICIDE TANK MIXES MAY INCREASE THE RISK OF MIXING INCOMPATIBILITIES, REDUCED EFFECTIVENESS AND/OR CAUSE CROP INJURY OR LOSS. ANY LIABILITY FOR LOSS, INJURY OR DAMAGE RESULTING FROM A TANK MIXTURE NOT SPECIFIED ON THIS LABEL OR IN MANUFACTURER'S SUPPLEMENTAL LABELING DISTRIBUTED FOR THIS PRODUCT IS SPECIFICALLY DISCLAIMED BY MANUFACTURER.**



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### **Compatibility**

Before full-scale mixing of this product with other pesticides, fertilizers, secondary plant nutrients, adjuvants, surfactants or oils, you must determine the compatibility of the proposed mixture. Use proportionate quantities of each ingredient and mix in a small container. Always mix one product thoroughly with the diluent before adding another product. If no incompatibility is evident after 30 minutes, the mixture is generally compatible for spraying. To evaluate potential short term effects of applying the mixture, test the tank mix combination on a few plants or a small area before larger-scale treatments. Wait at least 2 to 3 days for problems to become apparent.

### **Mixing Order**

When pesticide mixtures are needed, add wettable powders first, this product or other flowables second, and emulsifiable concentrates last. Ensure good agitation as each component is added and do not add an additional component until the previous is thoroughly mixed. A fertilizer/pesticide compatibility agent may be needed if a fertilizer solution is to be added to the mixture. Be sure to maintain constant agitation during both mixing and application to ensure uniformity of spray mixture.

Further information on Tank Mixes is available from your local Ritter Chemical, LLC representative.

## **CHEMIGATION APPLICATION**

### **Types of Irrigation Systems**

Chemigation applications of this product may be made to crops through overhead sprinkler chemigation systems if specified in crop- specific sections. **Restriction: DO NOT** apply this product through any other type of irrigation system.

### **Water Volume**

Chemigation applications of this product must be made as concentrated as possible. Retention of this product on target site of insect infestation is necessary for optimum activity. During chemigation of this product, do not exceed 0.10 inches/Acre of water volume.

### **Uniform Water Distribution and System Calibration**

The irrigation system must provide uniform distribution of treated water. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. The system must be calibrated to uniformly apply the rates specified. If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

### **Chemigation Monitoring**

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.

### **Drift**

**DO NOT** apply when the wind speed favors drift beyond the area intended for treatment.

### **Required System Safety Devices**

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. The pesticide injection pipeline must contain a functional automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. 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 normally shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. 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. 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.

### **Using Water from Public Water Systems**

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back flow 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 must be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and to top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. The pesticide injection pipeline must contain a functional automatic quick-closing check valve to prevent the flow of fluid back toward the injection. The pesticide injection pipeline must contain a functional normally closed solenoid-operated valve located on the intake side of the injection pump

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and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

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Be sure to maintain agitation as each component is added and do not add an additional component until the previous component is thoroughly integrated into the mixture. If a fertilizer solution is added, a fertilizer-pesticide compatibility agent may be needed.

**Restrictions** (in addition to those listed above for Impale foliar applications)

<sup>1</sup> Refer to the BIDRIN 8 product label for specific use instructions; observe all use restrictions and precautions that appear on the BIDRIN 8 label.

**POTATO**

SOIL APPLICATIONS		
Pests	Fluid ounces/1,000 row-feet	Fluid ounces/Acre
<b>For control of:</b> Aphids Colorado potato beetle Flea beetles Leafhoppers Potato psyllid <b>For suppression of:</b> Wireworms (with in-furrow spray at planting) <b>For suppression of disease symptoms of:</b> Potato leaf roll virus (PLRV) Potato yellows Net necrosis (PLRV)	0.45 – 0.65	6.5 – 10.0

**Application Methods**

Apply specified dosage in one of the following methods:

1. In-furrow spray during planting directed on seed pieces or seed potatoes; OR
2. Subsurface side-dress on both sides of the row covered with 3 or more inches of soil; OR
3. Narrow band spray at ground cracking directly over the row during hilling covered with 3 or more inches of soil; OR
4. Narrow band directly below the eventual seed row in a bedding operation 7 or fewer days before planting. For effective pest control or suppression, applications of this product must be placed below soil surface and in contact with seed piece or within root zone. For potatoes grown on highly permeable soils with shallow water table, at-plant applications of this product may be made in a 2 to 4 inch band (width of planter shoe opening) and completely covered.

**Restrictions**

Maximum amount of product allowed per crop season: **10.0 fluid ounces/Acre** (0.31 lb AI/Acre)

FOLIAR APPLICATIONS	
Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Colorado Potato beetle Flea beetles Fleahoppers Psyllids	1.5

**Application Methods**

Apply as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.

**Restrictions**

Pre-Harvest Interval (PHI): **7 days**

Minimum interval between applications: **7 days**

Maximum amount allowed per season: **6.4 fluid ounces/Acre** (0.20 lb. AI/A)

SEED PIECE APPLICATIONS <sup>1</sup>		
Pests	Fluid ounces/100 lbs seed	Fluid ounces/Acre
<b>For control of:</b> Aphids Colorado potato beetle Flea beetles Leafhoppers Potato psyllid Wireworms (seed piece protection)	0.2 – 0.4	4.0 – 8.0
<b>For suppression of disease symptoms of:</b> Potato leaf roll virus (PLRV) Potato yellows Net necrosis (PLRV)	0.4	8.0

**Application Methods**

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

Apply specified dosage as a diluted spray onto seed pieces using a shielded spray system. Dilute with 3 parts water, or less, to 1 part this product. Agitate or stir spray solution as needed. Fungicidal or inert absorbent dusts may be applied after this product's application. Apply only in areas with adequate ventilation or in areas that are equipped to remove spray mist or dust. Plant seed pieces as soon as possible after treating avoiding prolonged exposure of seed pieces treated with this product to sunlight and in accordance with the recommendation of your local Extension specialist. Consult your local Ritter Chemical, LLC representative or crop protection product dealer for information relevant to your area.

**Remarks**

<sup>1</sup> Based on a seeding rate of 2000 lbs/Acre

**Restrictions**

Maximum amount of product allowed per crop season: **10.0 fluid ounces/Acre** (0.31 lb AI/Acre)

**DO NOT** use treated seed pieces for food, feed, or fodder.

**DO NOT** apply any subsequent applications of this product or any imidacloprid containing product (in-furrow) following a seed-piece treatment of this product.

Apply only in areas that are equipped to remove spray mist or dust or with adequate ventilation.

**SOYBEAN**

**FOLIAR APPLICATIONS<sup>1</sup>**

Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Bean leaf beetle Cucumber beetles / Rootworm adults Japanese beetle (adults) Leafhoppers Whiteflies	1.5

**Application Methods**

Apply as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.

**Restrictions**

Pre-Harvest Interval (PHI): **7 days**

Minimum interval between applications: **7 days**

Maximum amount allowed per crop season: **4.5 fluid ounces/Acre** (0.14 lb. AI/A)

<sup>1</sup> This use is not permitted in CA unless otherwise directed by state approved supplemental labeling.

**TOBACCO**

**SOIL APPLICATIONS**

Pests	Fluid ounces/1,000 plants (as seedling tray drench)	Fluid ounces/1,000 plants (in-furrow or transplant-water)
<b>For control of:</b> Aphids Flea beetles	0.5	0.7
<b>For control of:</b> Mole crickets Whiteflies Wireworms	0.7 – 1.4	0.9 – 1.4
<b>For suppression of disease symptoms of:</b> Tomato spotted wilt virus (TSWV)	1.4	1.4

**Application Methods**

Apply specified dosage of this product in one of the following methods:

1. Uniform, broadcast foliar spray to seedlings in trays (tray drench) not more than 7 days prior to transplanting, followed immediately by overhead irrigation to wash this product from foliage into potting media. Failure to wash this product from foliage may result in a reduction in pest control. Transplants must be handled carefully during setting to avoid dislodging treated potting media from roots.; OR
2. In-furrow spray or transplant-water drench during setting.; OR
3. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment.

**Remarks**

**Important Note:** Proper tray drench applications of this product have been shown to be the most efficacious method of application. However, the specified rate of this product may be applied as a combination of the tray drench in the planthouse and/or transplant-water drench in field. Adverse growing conditions may cause a delay in uptake of this product into the plant and a delay in control.

**Restrictions**

Pre-Harvest Interval (PHI): **14 days**

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.50 lb AI/Acre)	
<b>FOLIAR APPLICATIONS</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids	0.8 – 1.6
<b>For control of:</b> Flea beetles Japanese beetles	1.6
<b>Application Methods</b>	
Apply as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>14 days</b> Minimum interval between applications: <b>7 days</b> Maximum amount allowed per crop season: <b>9.0 fluid ounces/Acre</b> (0.28 lb. AI/A)	

<b>PEANUT</b>	
<b>SOIL APPLICATIONS<sup>1</sup></b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Leafhoppers Whiteflies	8.0 – 12.0
<b>For suppression of:</b> Thrips	12.0
<b>Application Methods</b>	
Apply as a: 1. Chemigation into root-zone through properly calibrated low-pressure (drip, trickle, micro-sprinkler or equivalent) equipment; OR 2. In-furrow spray directed on or below seed.	
<b>Remarks</b>	
Applications of this product have been shown to increase the incidence of Tomato spotted wilt virus (TSWV), and possibly other tospoviruses, on multiple varieties of peanut. Prior to making product applications, contact the State, Cooperative This use is not permitted in CA unless otherwise directed by state approved supplemental labeling. Extension Service, or Ritter Chemical, LLC representative, for recommendations to discuss the risk and benefits of imidacloprid applications.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>14 days</b> Maximum amount allowed per crop season: <b>12.0 fluid ounces/Acre</b> (0.38 lb. AI/A) <sup>1</sup> This use is not permitted in CA unless otherwise directed by state approved supplemental labeling.	
<b>FOLIAR APPLICATIONS<sup>1</sup></b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Leafhoppers Whiteflies	1.4
<b>Application Methods</b>	
Apply as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>14 days</b> Minimum interval between applications: <b>5 days</b> Maximum amount allowed per crop season: <b>4.2 fluid ounces/Acre</b> (0.13 lb. AI/A) <sup>1</sup> This use is not permitted in CA unless otherwise directed by state approved supplemental labeling.	

**VEGETABLE CROPS**

**CUCURBIT VEGETABLES:** Chayote (fruit), Chinese waxgourd (Chinese preserving melon), Citron melon, Cuban pumpkin, Cucumber, Gherkin, Gourd (edible, includes hyotan, cucuzza, hechima, Chinese okra), *Momordica* spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), Muskmelon (hybrids and/or cultivars of *Cucumis melo* including true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, snake melon and Winter melon), Pumpkin, Squash (includes summer squash types such as: butternut squash, calabaza, crookneck squash, Hubbard squash, scallop squash, straightneck squash, vegetable marrow and zucchini, and winter squash types such as acorn squash and spaghetti squash), Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*).

**SOIL APPLICATIONS (FIELD)**

Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Cucumber beetles Leafhoppers Thrips (foliage-feeding thrips only) Whiteflies	8.0 – 12.0
<b>For suppression of disease symptoms of:</b> Bacterial wilt (as vectored by various cucumber beetles) Leaf silvering resulting from whitefly feeding	12.0

**Application Methods**

- Apply specified dosage of this product in one of the following methods:
1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment;
  2. In-furrow spray directed on or below seed;
  3. Narrow (2 or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1.5 with sufficient irrigation within 24 hours of application;
  4. Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting;
  5. Post-seeding drench, transplant-water drench, or hill drench;
  6. Subsurface side-dress on both sides of each row. This product must be incorporated into root-zone.

**Restrictions**

Pre-Harvest Interval (PHI): **21 days**  
 Maximum amount of product allowed per application: **12.0 fluid ounces/Acre** (0.38 lb AI/Acre)  
**DO NOT** use on crops grown for seed unless allowed by state-specific supplemental labeling

**GREENHOUSE APPLICATIONS<sup>1</sup>**

Pests	Fluid ounces/1000 plants
<b>For control of:</b> Aphids Whiteflies	0.05

**Application Methods**

- Apply specified dosage to seedlings in trays in the planthouse, targeting soil media (tray drench), not more than 7 days prior to transplanting, in one of the following manners:
1. Uniform, broadcast high-volume foliar spray, followed immediately by sufficient overhead irrigation to wash this product from foliage into potting media without loss of gravitational liquid from the bottom of the tray. Failure to wash this product from foliage may result in reduced pest control; OR
  2. Injection into overhead irrigation system, using adequate volume to thoroughly saturate soil media without loss of gravitational solution from the bottom of the tray.

**Remarks**

The application made in the planthouse is not intended as a substitution for a field application. An additional field application must be made within 2 weeks following transplanting to provide continuous protection. Applications of higher rates or increased number of applications in planthouse may result in significant plant injury. Transplants must be handled carefully during setting to avoid dislodging treated potting media from roots.  
**Important Note:** Not all varieties of cucurbit vegetables have been tested for tolerance to this product applied to seedling flats. Therefore, treat a small number of plants and confirm tolerance for 7 days prior to treating entire planthouse.

**Restrictions**

Maximum number of greenhouse applications: **1**  
 Maximum amount of product allowed per greenhouse application: **0.05 fluid ounce** (0.001568 lb AI)/1,000 plants.  
**DO NOT** use on crops grown for seed unless allowed by state-specific supplemental labeling.

<sup>1</sup> This use is not permitted in CA unless otherwise directed by state approved supplemental labeling.

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**FRUITING VEGETABLES:** Eggplant, Ground cherry, Okra, Pepper (including bell, chili, cooking, pimento and sweet) Tomato, Pepinos, Tomatillo.

**SOIL APPLICATIONS (FIELD)**

Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Colorado potato beetles Flea beetles Leafhoppers Thrips (foliage-feeding only) Whiteflies	Okra & Pepper 8.0 – 16.0  Other Listed Crops 8.0 – 12.0
<b>For suppression of disease symptoms of:</b> Tomato mottle virus Tomato spotted wilt virus Tomato yellow leaf curl virus	

**Application Methods**

- Apply specified dosage of this product in one of the following methods:
1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment;
  2. In-furrow spray directed on or below seed;
  3. Narrow (2 or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1.5 with sufficient irrigation within 24 hours of application;
  4. Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting;
  5. Post-seeding drench, transplant-water drench, or hill drench;
  6. Subsurface side-dress on both sides of each row. This product must be incorporated into root-zone.

**Restrictions**

Pre-Harvest Interval (PHI): **21 days**  
 Maximum amount of product allowed on Okra and Pepper per application: **16.0 fluid ounces/Acre** (0.5 lb AI/Acre).  
 Maximum amount of product allowed on other listed fruiting vegetable crops per application: **12.0 fluid ounces/Acre** (0.38 lb AI/Acre).  
**DO NOT** use on crops grown for seed unless allowed by state-specific supplemental labeling.

**FOLIAR APPLICATIONS (FIELD)**

Pests	Fluid ounces/1000 plants
<b>For control of:</b> Aphids Colorado potato beetle Leaf beetles Whiteflies <sup>1</sup>	1.5 – 2.5
<b>For control of:</b> Pepper weevil (Pepper only) <sup>2</sup>	2.5

**Application Methods**

Apply this product as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.

**Remarks**

Applications of this product must be incorporated into a full-season program, where alternations of effective products from multiple classes of chemistry and different modes of actions are utilized in a blocked or windowed approach. For additional information, please contact your Ritter Chemical, LLC representative, Extension Specialist or crop advisor.  
<sup>1</sup>Use higher rate when targeting adult whiteflies.  
<sup>2</sup>For pepper weevil, apply specified dosage of this product by ground equipment only. Time applications prior to a damaging pest population becoming established. Good coverage of foliage and fruit is necessary for target pest control.

**Restrictions**

Pre-Harvest Interval (PHI): **0 days**  
 Minimum interval between applications: **5 days**  
 Maximum amount of product allowed per crop season: **7.7 fluid ounce** (0.24 lb AI)/A  
**DO NOT** use on crops grown for seed unless allowed by state-specific supplemental labeling.

**GREENHOUSE APPLICATIONS<sup>1</sup>**

Pests	Fluid ounces/1000 plants
<b>For control of:</b> Aphids Whiteflies	0.05

**Application Methods**

- Apply specified dosage to seedlings in trays in the planthouse, targeting soil media (tray drench), not more than 7 days prior to transplanting, in one of the following manners:
1. Uniform, broadcast high-volume foliar spray, followed immediately by sufficient overhead irrigation to wash this product



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<p>from foliage into potting media without loss of gravitational liquid from the bottom of the tray. Failure to wash this product from foliage may result in reduced pest control; OR</p> <p>2. Injection into overhead irrigation system, using adequate volume to thoroughly saturate soil media without loss of gravitational solution from the bottom of the tray.</p>
<b>Remarks</b>
<p>The application made in the planthouse is not intended as a substitution for a field application. An additional field application must be made within 2 weeks following transplanting to provide continuous protection. Applications of higher rates or increased number of applications in planthouse may result in significant plant injury. Transplants must be handled carefully during setting to avoid dislodging treated potting media from roots.</p> <p><b>Important Note:</b> Not all varieties of cucurbit vegetables have been tested for tolerance to this product applied to seedling flats. Therefore, treat a small number of plants and confirm tolerance for 7 days prior to treating entire planthouse.</p>
<b>Restrictions</b>
<p>Maximum number of greenhouse applications allowed: <b>1</b></p> <p>Maximum amount of product allowed per greenhouse application: <b>0.05 fluid ounce</b> (0.001568 lb AI)/1,000 plants.</p> <p><b>DO NOT</b> use on crops grown for seed unless allowed by state-specific supplemental labeling.</p> <p><sup>1</sup> This use is not permitted in CA unless otherwise directed by state approved supplemental labeling.</p>

<b>GREENHOUSE VEGETABLES:</b> Mature Cucumber and Tomato plants in production greenhouses ONLY.	
<b>Pests</b>	<b>Fluid ounces/1000 plants</b>
<p><b>For control of:</b> Aphids Whiteflies</p>	0.7
<b>Application Methods</b>	
<p>Apply specified dosage in a minimum of 16 gallons of water for tomatoes and 21 gallons of water for cucumbers using soil drenches, micro-irrigation, drip irrigation, or hand-held or motorized calibrated irrigation equipment. <b>DO NOT</b> apply to immature plants since phytotoxicity may occur.</p>	
<b>Remarks</b>	
<p>Make application when infestation pressure surpasses threshold and beneficials are not able to maintain pest populations below damage thresholds. Repellency of bumble bee pollinators and negative effects on some beneficials (<i>Onius</i> sp.) can occur when this product is applied.</p> <p>Many varieties of vegetables have been tested for tolerance to this product and show good safety. However, certain varieties may show more sensitivity to this product. Therefore, treat a few plants before treating the whole greenhouse.</p>	
<b>Restrictions</b>	
<p>Pre-Harvest Interval (PHI): <b>0 days</b></p> <p>Maximum number of applications per crop season: <b>1</b></p> <p>Maximum amount of product allowed per crop season: <b>0.7 fluid ounce</b> (0.022 lb. AI)/1,000 plants.</p> <p><b>DO NOT</b> use on crops grown for seed unless allowed by state-specific supplemental labeling.</p>	

<b>GLOBE ARTICHOKE</b>	
<b>SOIL APPLICATION<sup>1</sup></b>	
<b>Pests</b>	<b>Fluid ounces/1000 plants</b>
<p><b>For control of:</b> Aphids Leafhoppers</p>	8.0 – 16.0
<b>Application Methods</b>	
<p>Apply specified dosage of this product in one of the following methods:</p> <ol style="list-style-type: none"> <li>Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; OR</li> <li>In-furrow spray directed on or below seed.</li> </ol>	
<b>Restrictions</b>	
<p>Pre-Harvest Interval (PHI): <b>7 days</b></p> <p>Maximum amount of product allowed per crop season: <b>16.0 fluid ounce/Acre</b> (0.50 lb. AI/A)</p> <p><sup>1</sup> This use is not permitted in CA unless otherwise directed by state approved supplemental labeling.</p>	
<b>FOLIAR APPLICATION</b>	
<b>Pests</b>	<b>Fluid ounces/1000 plants</b>
<p><b>For control of:</b> Aphids Leafhoppers</p>	1.6 – 4.0
<b>Application Methods</b>	
<p>Apply this product as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.</p>	

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

Restrictions
Pre-Harvest Interval (PHI): <b>7 days</b> Minimum Interval between applications: <b>14 days</b> Maximum amount of product allowed per crop season: <b>16.0 fluid ounce/Acre</b> (0.50 lb. AI/A)

**HERBS:** Angelica, Balm (lemon balm), Basil (fresh and dried), Borage, Bumet, Camomile, Catnip, Chervil (dried), Chinese chive, Chive, Clary, Coriander (cilantro or Chinese parsley leaves), Costmary, Culantro (leaf), Curry (leaf), Dillweed, Horehound, Hyssop, Lavender, Lemongrass, Lovage (leaf), Marigold, Marjoram, Nasturtium, Parsley (dried), Pennyroyal, Rosemary, Rue, Sage, Savory (summer and winter), Sweet bay (bay leaf), Tansy, Tarragon, Thyme, Wintergreen, Woodruff, Wormwood.

SOIL APPLICATIONS <sup>1</sup> (FIELD)	
Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Flea beetles Leafhoppers Whiteflies	8.0 – 12.0
<b>For suppression of:</b> Thrips (foliage-feeding only)	

Application Methods
Apply specified dosage in one of the following methods: 1. In-furrow spray during planting directed on or below seed; OR 2. In-furrow spray or transplant-water drench during setting or transplanting; OR 3. Shankd-into or below eventual seed-line; OR 4. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment.

**Remarks**

Not all crops and/or varieties listed above have been tested for phytotoxic effects. Without specific knowledge about a particular crop and variety, treat only small areas or numbers of plants and evaluate prior to full-scale use.

Restrictions
Pre-Harvest Interval (PHI): <b>14 days</b> Maximum amount of product allowed per season: <b>12.0 fluid ounces/Acre</b> (0.38 lb AI/Acre) <sup>1</sup> This use is not permitted in CA unless otherwise directed by state approved supplemental labeling.

FOLIAR APPLICATIONS (FIELD)	
Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Leaf beetles Leafhoppers Whiteflies	1.4

Application Methods
Apply as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.

**Remarks**

The addition of an organosilicone-based spray adjuvant at a rate not to exceed the adjuvant manufacturer's specified use rate may improve coverage and control.

Not all crops and/or varieties listed above have been tested for phytotoxic effects. Without specific knowledge about a particular crop and variety, treat only small areas or numbers of plants and evaluate prior to full-scale use.

Restrictions
Pre-Harvest Interval (PHI): <b>7 days</b> Minimum interval between applications: <b>5 days</b> Maximum amount of product allowed per season: <b>4.2 fluid ounce</b> (0.13 lb AI/A)

[SUB-LABEL A: COMMERCIAL AGRICULTURE]

**HEAD and STEM BRASSICA VEGETABLES<sup>1</sup>:** Broccoli, Broccoli raab (*rapini*), Brussels sprouts, Cabbage, Cauliflower, Cavalo broccoli, Chinese (*gailon*) broccoli, Chinese (*bok choy*) cabbage, Chinese (*napa*) cabbage, Chinese mustard (*gai choy*) cabbage, Collards, Kale, Kohlrabi, Mizuna, Mustard greens, Mustard spinach, Rape greens, plus Turnip tops (leaves).

**LEAFY VEGETABLES<sup>1</sup>:** Amaranth (leafy amaranth, Chinese spinach, tampala), Arugula (Roquette), Chervil, Chrysanthemum (edible leaved and garland), Corn salad, Cress (garden), Cress (upland, yellow rocket, winter cress), Dandelion, Dock (sorrel), Endive (escarole), Lettuce (head and leaf), Orach, Parsley, Purslane (garden and winter), Raddicchio (red chicory), Spinach (including New Zealand and vine (Malabar spinach, Indian spinach)), **Watercress<sup>2</sup>** (including upland).

**SOIL APPLICATIONS (FIELD)**

Pests	Fluid ounces/Acre (on 36 inch rows)
<b>For control of:</b> Aphids Leafhoppers Thrips (foliage-feeding only) Whiteflies	5.0 – 12.0

**Application Methods**

- Apply specified dosage of this product in one of the following methods:
1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; OR
  2. In-furrow spray directed on or below seed; OR
  3. Narrow (2" or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1.5" with sufficient irrigation within 24 hours of application; OR
  4. Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting; OR
  5. Post-seeding drench, transplant-water drench, or hill drench; OR
  6. Subsurface side-dress on both sides of each row. This product must be incorporated into root-zone.

**Restrictions**

Pre-Harvest Interval (PHI): **21 days**  
 Maximum amount of product allowed per season: **12.0 fluid ounces/Acre** (0.38 lb AI/Acre)  
<sup>1</sup> **DO NOT** use on crops grown for seed unless permitted by state-specific supplemental labeling.  
<sup>2</sup> For applications made to watercress, production fields must be drained of water at least 24 hours prior to application and water must not be reapplied to the field for a minimum of 24 hours following application. Applications must be made to fully leafed-up canopies only. **DO NOT** apply to native cress growing in streams or other bodies of water.

**FOLIAR APPLICATIONS (FIELD)**

Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Flea beetles Leafhoppers Whiteflies	1.5

**Application Methods**

Apply this product as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.

**Restrictions**

Pre-Harvest Interval (PHI): **7 days**  
 Minimum interval between applications: **5 days**  
 Maximum amount of product allowed per season: **7.7 fluid ounces/Acre** (0.24 lb. AI/A)  
<sup>1</sup> **DO NOT** use on crops grown for seed unless permitted by state-specific supplemental labeling.  
<sup>2</sup> For applications made to watercress, production fields must be drained of water at least 24 hours prior to application and water must not be reapplied to the field for a minimum of 24 hours following application. Applications must be made to fully leafed-up canopies only. **DO NOT** apply to native cress growing in streams or other bodies of water.

**LEAFY PETIOLE VEGETABLES:** Cardoon, Celery, Celtuce, Chinese celery (fresh leaves and stalk only), Florence fennel (including sweet anise, sweet fennel, finocchio), Rhubarb, Swiss chard

**SOIL APPLICATIONS (FIELD)**

Pests	Fluid ounces/Acre (on 36 inch rows)
<b>For control of:</b> Aphids Leafhoppers Thrips (foliage-feeding only) Whiteflies	5.0 – 12.0

**Application Methods**

Apply specified dosage of this product in one of the following methods:

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

<ol style="list-style-type: none"> <li>1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; OR</li> <li>2. In-furrow spray directed on or below seed; OR</li> <li>3. Narrow (2" or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1.5" with sufficient irrigation within 24 hours of application; OR</li> <li>4. Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting; OR</li> <li>5. Post-seeding drench, transplant-water drench, or hill drench; OR</li> <li>6. Subsurface side-dress on both sides of each row. This product must be incorporated into root-zone.</li> </ol>
<b>Restrictions</b>
Pre-Harvest Interval (PHI): <b>45 days</b> Maximum amount of product allowed per season: <b>12.0 fluid ounces/Acre</b> (0.38 lb AI/Acre) <b>DO NOT</b> use on crops grown for seed unless permitted by state-specific supplemental labeling.

<b>LEGUME VEGETABLES (except Soybean, dry):</b>	
Edible podded and Succulent shelled pea and Bean and Dried Shelled Pea and Bean including:	
Bean - <i>Lupinus</i> spp. (grain lupin, sweet lupin, white lupin, and white sweet lupin)	
Bean - <i>Phaseolus</i> spp. (field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean) Bean - <i>Vigna</i> spp. (adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea, Crowder pea, moth bean, mung bean, rice bean, Southern pea, urd bean, yardlong bean)	
Pea - <i>Pisum</i> spp. (dwarf pea, edible-pod pea, English pea, field pea, garden pea, green pea, snow pea, sugar snap pea)	
Other Beans and Peas - Broad bean (fava), Chickpea (garbanzo bean), Guar, Jackbean, Lablab bean (hyacinth bean), Lentil, Pigeon pea, Soybean (immature seed), Sword bean.	
<b>SOIL APPLICATIONS (FIELD)</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Flea beetles Leafhoppers Whiteflies	8.0 – 12.0
<b>For suppression of disease symptoms of:</b> Bean common mosaic virus (BCMV) Bean golden mosaic virus (BGMV) Beet curly top hybrigeminivirus (BCTV)	
<b>Application Methods</b>	
Apply specified dosage of this product in one of the following methods:	
<ol style="list-style-type: none"> <li>1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; OR</li> <li>2. In-furrow spray at planting directed on or below seed; OR</li> <li>3. In a narrow (2" or less) surface band over seed-line during planting incorporated to a depth of 1 to 1.5" with sufficient irrigation within 24 hours following application; OR</li> <li>4. In a narrow band directly below the eventual seed row in a bedding operation 7 or fewer days before planting; OR</li> <li>5. As a post-seeding drench, transplant drench, or hill drench.</li> </ol>	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>21 days</b> Maximum amount of product allowed per season: <b>12.0 fluid ounces/Acre</b> (0.38 lb AI/Acre) <b>DO NOT</b> use on crops grown for seed unless permitted by state-specific supplemental labeling.	
<b>FOLIAR APPLICATIONS (FIELD)</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Leafhoppers Whiteflies	1.4
<b>Application Methods</b>	
Apply this product as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>7 days</b> Minimum interval between applications: <b>7 days</b> Maximum amount of product allowed per season: <b>4.2 fluid ounce</b> (0.13 lb AI/A) <b>DO NOT</b> use on crops grown for seed unless permitted by state-specific supplemental labeling.	

[SUB-LABEL A: COMMERCIAL AGRICULTURE]

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**ROOT VEGETABLES:** Beet (garden)<sup>†</sup>, Burdock (edible)<sup>†</sup>, Carrot<sup>†</sup>, Celeriac<sup>†</sup>, Chervil (turnip-rooted)<sup>†</sup>, Chicory<sup>†</sup>, Ginseng, Horseradish, Parsley (turnip-rooted), Parsnip<sup>†</sup>, Radish<sup>†</sup>, Oriental radish (diakon)<sup>†</sup>, Rutabaga<sup>†</sup>, Salsify (black)<sup>†</sup>, Salsify (oyster plant), Salsify (Spanish), Skirret, Turnip<sup>†</sup>

**TUBEROUS and CORM VEGETABLES (except Potato):** Arracacha, Arrowroot, Artichoke (Chinese and Jerusalem), Canna (edible, Queensland arrowroot), Cassava (bitter and sweet)<sup>†</sup>, Chayote (root), Chufa, Dasheen (taro)<sup>†</sup>, Ginger, Leren, Sweetpotato, Tanier (cocoyam)<sup>†</sup>, Tumeric, Yam bean (jicama, manioc pea), Yam (true)<sup>†</sup>

**SOIL APPLICATIONS<sup>†</sup> (FIELD)**

Pests	Fluid ounces/1,000 row ft.	Fluid ounces/Acre
<b>For control of:</b> Aphids Flea beetles Leafhoppers Thrips (foliage-feeding) Whiteflies	0.35 – 0.85	5.0 – 12.0

**Application Methods**

Apply specified dosage of this product in one of the following methods:

1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; OR
2. In-furrow spray (rate specified per 1,000 row-feet) or, shanked-in 1 to 2 inches below seed depth during planting; OR
3. In a narrow (2 inches or less) band directly (1 to 2 inches) below the eventual seed row in a bedding operation 14 or fewer days before planting.
4. Side-dress not more than 0.6 fluid ounces/1000 row-feet no later than 45 days after planting.

**Remarks**

Important Note: The rate applied affects the length of control. Use higher rates where infestations occur later in crop development, or where pest pressure is continuous. Rates of this product less than 0.7 fluid ounce/1,000 row-feet will not provide adequate residual pest control. Crops treated with this product grown on very high organic matter soils (muck) may also require additional pest management control.

<sup>†</sup> The tops or greens from these crops may be utilized for food or feed.

**Restrictions**

Pre-Harvest Interval (PHI) for Root Vegetables: **21 days**  
 Pre-Harvest Interval (PHI) for Tuberos and Corm Vegetables: **3 days** (leaves); **125 days** (corms)  
 Maximum amount of product allowed per crop season: **12.0 fluid ounces/Acre** (0.38 lb AI/Acre)  
 Maximum applications per crop season: **1**

**DO NOT** use on crops grown for seed unless permitted by state-specific supplemental labeling.

<sup>†</sup> Soil application to Root Vegetables is not permitted in California unless otherwise directed by supplemental labeling.

**FOLIAR APPLICATIONS<sup>†</sup> (FIELD)**

Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Flea beetles Leafhoppers Whiteflies	1.4

**Application Methods**

Apply this product as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.

**Remarks**

<sup>†</sup> The tops or greens from these crops may be utilized for food or feed.

**Restrictions**

Pre-Harvest Interval (PHI): **7 days**  
 Minimum interval between applications: **5 days**  
Maximum amount of product allowed per crop season:  
 Radish: **1.4 fluid ounce** (0.044 lb AI/A)  
 All other listed crops: **4.2 fluid ounces/Acre** (0.13 lb. AI/A)  
Maximum applications per crop season:  
 Radish: **1**

All other listed crops: **3**

**DO NOT** use on crops grown for seed unless permitted by state-specific supplemental labeling.

<sup>†</sup> This use is not permitted in CA unless otherwise directed by state approved supplemental labeling.

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[SUB-LABEL A: COMMERCIAL AGRICULTURE]

<b>SUGARBEET: (California only)</b>	
<b>SOIL APPLICATIONS (FIELD)</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Flea beetles Leafhoppers Whiteflies	3.0 – 6.0
<b>For suppression of disease symptoms of:</b> Western yellows virus Beet curly top hybrigeminivirus (BCTV)	
<b>Application Methods</b>	
Apply specified dosage of this product in the following method: Apply specified dosage in sufficient carrier volume to insure uniform application. Apply directly below each seed furrow either during the bedding operation immediately prior to planting or at the time of planting.	
<b>Remarks</b>	
The low rate may be applied to aid establishment of stands in whitefly areas, or for early season control of the other pests listed.	
<b>Restrictions</b>	
Maximum amount of product allowed per crop season: <b>6.0 fluid ounces/Acre</b> (0.19 lb AI/Acre) <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging. <b>DO NOT</b> use on crops grown for seed unless permitted by state-specific supplemental labeling.	

<b>IMPALE CONVERSION CHART FOR LINEAR APPLICATION ONLY</b>								
<b>RATE fluid ounces/Acre</b>	<b>RATE fluid ounces/1,000 row-feet</b>							
	<b>Based on average row spacing (in inches):</b>							
	10	15	20	25	30	35	40	45
10	0.10	0.15	0.19	0.24	0.29	0.34	0.38	0.43
12	0.12	0.17	0.23	0.29	0.35	0.40	0.46	0.52
14	0.14	0.20	0.27	0.34	0.40	0.47	0.54	0.61
16	0.16	0.23	0.31	0.39	0.46	0.54	0.61	0.69
18	0.17	0.26	0.35	0.43	0.52	0.61	0.69	0.78
20	0.19	0.29	0.38	0.48	0.58	0.67	0.77	0.86
22	0.21	0.32	0.42	0.53	0.63	0.74	0.84	0.95
24	0.23	0.35	0.46	0.58	0.69	0.81	0.92	1.04
26	0.25	0.38	0.50	0.62	0.75	0.87	1.00	1.12
28	0.27	0.40	0.54	0.67	0.81	0.94	1.07	1.21
30	0.29	0.43	0.58	0.72	0.86	1.01	1.15	1.29
32	0.31	0.46	0.61	0.76	0.92	1.07	1.23	1.38

**Important Note:** Rate of this product applied affects the length of control and, to a considerable extent, the degree of control or effect. Row-spacing X rate combinations in shaded blocks may not provide adequate residual pest control and are not recommended for long-term, residual control. Use higher labeled rates where infestations may occur later in crop development or where pest pressure is continuous. Ritter Chemical, LLC offers no warranty for use of this product at rates below 0.35 fluid ounce/1,000 row- feet (the Row-Spacing/Rate combinations that are shaded).

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**BERRY, BUSH and VINE CROPS**

<b>STRAWBERRY:</b> annual and perennial varieties	
<b>SOIL APPLICATIONS</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Whiteflies	12.0 – 16.0
<b>Application Methods</b>	
Apply specified dosage of this product in one of the following methods: 1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment after plants are established or on perennial crops in early spring prior to bud opening; OR 2. As a plant material or plant hole treatment just prior to, or during transplanting; OR 3. As a band spray over the row in a minimum of 20 gallons of water per acre, followed immediately by overhead irrigation to incorporate product into root zone. <b>DO NOT</b> use plastic or other mulch that limits movement of this product into root zone.	
<b>Remarks</b>	
The rate applied affects the length of control. Use higher rates where infestations may occur later in crop development or where pest pressure is continuous.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>14 days</b> Maximum amount allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.50 lb AI/Acre) <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging. <b>DO NOT</b> make both a soil and foliar application on the same crop in the same season. <b>DO NOT</b> use on crops grown for seed unless allowed by state-specific supplemental labeling.	
<b>SOIL APPLICATIONS</b> (post-harvest use on perennial varieties)	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> White grub complex (grubs of Asiatic garden beetle, European and Masked chafer, Japanese beetle, Oriental beetle)	8.0 – 12.0
<b>Application Methods</b>	
Apply a single application post harvest to coincide with renovation of strawberry fields and during active egg-laying period of beetles. Apply specified dosage of this product in one of the following methods: 1. As a ground spray via boom or backpack sprayer in a minimum of 20 gallons of water per acre; 2. As a row-band spray using an adjusted amount of product based on the treated row band area in proportion to the amount required per full acre. The bandwidth must be equivalent to the width of the anticipated fruiting bed; 3. As a chemigation application with 600 to 1,000 gallons of water followed by 0.10 to 0.25 inch irrigation.	
<b>Remarks</b>	
All soil-surface applications must be followed by 0.25 inch of rainfall or overhead irrigation water per acre within 2 hours of application. Failure to adequately incorporate this product into egg-deposition zone may result in decreased activity of beetle grubs.	
<b>Restrictions</b>	
Maximum amount allowed per season: <b>12.0 fluid ounces/Acre</b> (0.38 lb. AI/A)	
<b>FOLIAR APPLICATIONS</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Spittlebugs Whiteflies	1.5
<b>Application Methods</b>	
Apply this product as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.	
<b>Remarks</b>	
All soil-surface applications must be followed by 0.25 inch of rainfall or overhead irrigation water per acre within 2 hours of application. Failure to adequately incorporate this product into egg-deposition zone may result in decreased activity of beetle grubs.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>7 days</b> Minimum interval between applications: <b>5 days</b> Maximum amount of product allowed per crop season: <b>4.6 fluid ounces/Acre</b> (0.14 lb. AI/A) <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging. <b>DO NOT</b> make both a soil and foliar application on the same crop in the same season.	

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[SUB-LABEL A: COMMERCIAL AGRICULTURE]

DO NOT use on crops grown for seed unless allowed by state-specific supplemental labeling.

**BUSHBERRY:** Blueberry, Currant, Elderberry, Gooseberry, Huckleberry, Juneberry, Ligonberry, Salal

**SOIL APPLICATIONS**

Pests	Fluid ounces/Acre
<b>For control of:</b> Japanese beetle (adults, feeding on foliage) White grub complex (grubs of Asiatic garden beetle, European and Masked chafer, Japanese beetle and Oriental beetle)	8.0 – 16.0

**Application Methods**

Apply specified dosage of this product in one of the following methods:  
 1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; OR  
 2. 18-inch band on each side of the row followed with 0.25 inch of irrigation immediately after application.

**Remarks**

For grub control, apply this product to control 1st or 2nd (early) instar larvae. Application may be made post-bloom up to 7 days prior to harvest, or post-harvest until October 1st. For control of Japanese beetle larvae, make applications from June 1 to July 15. **DO NOT** apply during bloom.  
 Application to grass covered rows, row middles, drive lanes, headlands, and other grassy areas in and around the berry field will control resident grub populations. Applications directed to the root zone will help protect berry plant roots from grub feeding. Apply this product to moist soil. If necessary, apply one hour of irrigation water immediately before application. To ensure maximum efficacy, 0.5 to 1 inch of irrigation water or rainfall must be applied or received within 24 hours of application of this product to facilitate movement into the soil and into the root zone.

**Restrictions**

Pre-Harvest Interval (PHI): **7 days**  
 Maximum amount of product allowed per crop season: **16.0 fluid ounces/Acre (0.50 lb AI/Acre)**  
**DO NOT** apply pre-bloom or during bloom or when bees are actively foraging.

**FOLIAR APPLICATIONS**

Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Leafhoppers/Sharpshooters	1.2 – 1.6
<b>For control of:</b> Japanese beetles (adults) Thrips (foliage feeding)	2.4 – 3.2
<b>For control of:</b> Blueberry maggot	3.2

**Application Methods**

Apply this product as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.

**Restrictions**

Pre-Harvest Interval (PHI): **3 days**  
 Minimum interval between applications: **7 days**  
 Maximum amount of product allowed per season: **16.0 fluid ounces/Acre (0.5 lb. AI/A)**  
 Maximum number of product applications per crop season: **5**  
 Maximum application volume (water): **Ground: 20.0 GPA; Air: 5.0 GPA**  
**DO NOT** apply pre-bloom or during bloom or when bees are actively foraging.

**CANEBERRY:** Blackberry (*Rubus eubatus*, including bingleberry, black satin berry, boysenberry, Cherokee blackberry, Chesterberry, Cheyenne blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, Himalayaberry, hullberry, Lavacaberry, Loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, nectarberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, youngberry, and varieties and/or hybrids of these). Raspberry (black and red, *Rubus occidentalis*, *Rubus strigosus*, *Rubus idaeus*).

**SOIL APPLICATIONS**

Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Leafhoppers Whiteflies	8.0 – 16.0
<b>For control of:</b>	12.0 – 16.0



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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

Rednecked cane borer	
<b>For suppression of:</b> Thrips (foliage-feeding only)	16.0
<b>Application Methods</b>	
Apply specified dosage in one of the following methods: 1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; OR 2. Basal, soil drench in a minimum of 500 gallons solution per acre.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>7 days</b> Maximum amount of product allowed per season: <b>16.0 fluid ounces/Acre</b> (0.5 lb AI/Acre) <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging.	
<b>FOLIAR APPLICATIONS<sup>1</sup></b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Leafhoppers	3.2
<b>For suppression of:</b> Thrips (foliage-feeding only)	
<b>Application Methods</b>	
Apply this product as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>3 days</b> Minimum interval between applications: <b>7 days</b> Maximum amount of product allowed per season: <b>9.6 fluid ounces/Acre</b> (0.3 lb. AI/A) <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging. <sup>1</sup> This use is not permitted in CA unless otherwise directed by supplemental labeling.	

<b>CRANBERRY</b>	
<b>SOIL APPLICATIONS</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Rootgrubs (Scarab) Rootworms (Chrysomelid)	8.0 – 16.0
<b>Application Methods</b>	
Apply this product to moist soil. Apply specified dosage of this product in one of the following methods: 1. As a soil spray (ground application) directed to the root and crown area using a minimum of 20 gal of water per acre; OR 2. As a chemigation application with 600 to 1,000 gallons water. Immediately upon application, this product must be incorporated into root zone by 0.1 to 0.3 inch water/Acre, either with the chemigation application or through irrigation/rainfall if not applied through chemigation. Inadequate incorporation within 24 hours of application may result in reduced control.	
<b>Rootgrubs and Rootworms</b> Make application post-bloom immediately after honeybees are removed. Application should target early instar larvae.	
<b>Remarks</b>	
Best control may be achieved when application is made post-bloom immediately after bees are removed. Target early instar larvae. This product has not been tested for crop response in tank mixes with other registered fungicides or insecticides. If tank mixing is desired, premix a sample of this product and the desired fungicide or insecticide partner at labeled rates and apply to a small area. Evaluate crop response within 48 hours and for at least two weeks prior to utilizing the tank mix on larger acreage. If crop injury results from the premix test, do not apply the tank mix to larger acreage.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>30 days</b> Maximum amount of product allowed per season: <b>16.0 fluid ounces/Acre</b> (0.5 lb AI/Acre) <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging.	

<b>GRAPES:</b> American bunch grape, Muscadine grape, and Vinifera grape.	
<b>SOIL APPLICATIONS</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> European fruit lecanium Leafhoppers/Sharpshooters Mealybugs	8.0 – 16.0

[SUB-LABEL A: COMMERCIAL AGRICULTURE]

<i>Phylloxera</i> spp. <sup>1</sup>	
For suppression of: Grapeleaf skeletonizer Nematodes <sup>2</sup>	16.0
For suppression of disease symptoms of: Pierce's disease	
<b>Application Methods</b>	
Apply specified dosage of this product in one of the following methods: 1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; OR 2. Subsurface side-dress shanked into the root zone on both sides of the plants followed by irrigation; OR 3. Hill drench in sufficient water to insure incorporation into the root zone followed by irrigation.	
<b>Remarks</b>	
Make application between bud-break and the pea-berry stage. A total of 14 fluid ounces/acre is required under the following conditions: 1. Where vigorous vine growth is expected 2. In warmer growing areas 3. Where mealybug and European fruit lecanium populations are expected to be heavy 4. Where vine populations exceed 600 per acre, or; 5. For suppression of nematodes <sup>1</sup> Repeated and regular use of this product over multiple consecutive growing seasons controls existing <i>Phylloxera</i> infestations over time or prevents <i>Phylloxera</i> from becoming established. <sup>2</sup> For suppression of nematodes, apply 14 fluid ounces in a single application or two 7-fluid ounce applications on a 30 to 45-day interval. Only make treatments by 1) chemigation into root zone through above ground low pressure drip, tickle, micro sprinkler or equivalent equipment or 2) French plow technique, followed immediately by sufficient irrigation to move the product into the entire root zone of the plant. Repeated and regular use of this product over several consecutive growing seasons provides the greatest degree of nematode suppression and yields the greatest plant response.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>30 days</b> Maximum amount of product allowed per season: <b>16.0 fluid ounces/Acre</b> (0.5 lb AI/Acre)	
<b>FOLIAR APPLICATIONS</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
For control of: Leafhoppers/Sharpshooters Mealybugs	1.2 – 1.6
For control of: Grapeleaf skeletonizer	1.6
<b>Application Methods</b>	
Apply specific dosage of this product using properly calibrated ground application equipment only. Apply as a broadcast or directed spray to infested areas ensuring thorough coverage.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>0 days</b> Minimum interval between applications: <b>14 days</b> Maximum amount of product allowed per crop season: <b>3.2 fluid ounces/Acre</b> (0.1 lb. AI/A)	

<b>HOPS:</b>	
<b>SOIL APPLICATIONS<sup>1</sup></b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
For control of: Aphids	9.6
<b>Application Methods</b>	
Apply specified dosage of this product in one of the following methods: 1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; OR 2. Subsurface side-dress shanked into the root zone on both sides of the plants followed by irrigation; OR 3. Hill drench in sufficient water to insure incorporation into the root zone followed by irrigation.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>60 days</b> Maximum amount of product allowed per crop season: <b>9.6 fluid ounces/Acre</b> (0.3 lb AI/Acre) <sup>1</sup> This use is not permitted in CA unless otherwise specified by supplemental labeling.	
<b>FOLIAR APPLICATIONS</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

<b>For control of:</b> Aphids	3.2
<b>Application Methods</b>	
Apply this product as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>28 days</b> Minimum interval between applications: <b>21 days</b> Maximum amount of product allowed per season: <b>9.6 fluid ounces/Acre</b> (0.3 lb. AI/A)	

<b>COFFEE:</b>	
<b>SOIL APPLICATIONS<sup>1</sup></b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Leafhoppers Leafminers	8.0 – 16.0
<b>For suppression of:</b> Scales	
<b>Application Methods</b>	
Apply specified dosage in one of the following methods: 1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment.; OR 2. Subsurface side-dress shanked into the root zone on both sides of the plants followed by irrigation.; OR 3. Basal, soil drench in sufficient water to insure incorporation into the root zone followed by irrigation.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>7 days</b> Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.5 lb AI/Acre) <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging. <sup>1</sup> This use is not permitted in California unless otherwise directed by supplemental labeling.	
<b>FOLIAR APPLICATIONS</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Leafhoppers Whiteflies	3.2
<b>For suppression of:</b> Scales	
<b>Application Methods</b>	
Apply this product as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>7 days</b> Minimum interval between applications: <b>7 days</b> Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.5 lb. AI/A) <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging.	

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[SUB-LABEL A: COMMERCIAL AGRICULTURE]

**CITRUS, TREE NUT and ORCHARD CROPS**

<b>CITRUS (containerized):</b> Calamondin, Citrus citron, Citrus hybrids (includes chironja, tangelo, and tangor), Grapefruit, Kumquat, Lemon, Lime, Mandarin (tangerine), Pummelo, Orange (sweet and sour), Tangelo, Satsuma mandarin, White sapote ( <i>Casimiroa</i> spp.), and other cultivars and/or hybrids of these.	
SOIL APPLICATIONS	
Pests	mL/ft <sup>3</sup> of container
<b>For control of:</b> Aphids Asian citrus psyllid Black fly Citrus leafminer Leafhoppers/Sharpshooters Mealybugs Scales Whiteflies	0.38
<b>For control of:</b> Citrus root weevil (larval complex) <sup>1</sup>	0.63 – 1.25
<b>For suppression of:</b> Citrus thrips (foliage-feeding only)	1.25
Application Methods	
Determine volume of container and calculate dosage necessary to treat container. Apply calculated dosage of this product per container as a soil drench or through low-pressure drip or trickle irrigation water. Use sufficient carrier volume to ensure thorough uniform distribution throughout the media without loss of gravitational water from the container. For optimal results, treatment must be made at planting prior to insect infestation. Retreat if necessary.	
Remarks	
<sup>1</sup> For control of larvae of the citrus root weevil complex, make application prior to neonate larvae entering potting media. Utilize higher dosage for heavy infestations.	

<b>CITRUS:</b> Calamondin, Citrus citron, Citrus hybrids (includes chironja, tangelo, and tangor), Grapefruit, Kumquat, Lemon, Lime, Mandarin (tangerine), Pummelo, Orange (sweet and sour), Tangelo, Satsuma mandarin, White sapote ( <i>Casimiroa</i> spp.), and other cultivars and/or hybrids of these.	
SOIL APPLICATIONS	
Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Asian citrus psyllid Black fly Citrus leafminer Leafhoppers/Sharpshooters Mealybugs Scales Termites (FL only) Whiteflies	8.0 – 16.0
<b>For suppression of:</b> Citrus nematode Thrips (foliage-feeding thrips only)	16
<b>For suppression of disease symptoms of:</b> Citrus tristeza virus (CTV) through vector control Citrus yellows	
Application Methods	
Apply specified dosage of this product in one of the following methods: <ol style="list-style-type: none"> <li>1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment. Apply to newly planted trees or those previously trained to drip, trickle or micro-sprinkler irrigation. Soil must be lightly pre-wetted to break soil surface tension prior to applications of this product. Chemigation application can be made separate to normal irrigation but followed by 10 to 20 minutes of additional watering to move this product into root zone. Allow 24 hours before initiating subsequent irrigations; OR</li> <li>2. Soil surface band spray on both sides of the tree. Bands must overlap at the tree base to create a continuous band within the drip-line area of the tree, to be followed immediately with light sprinkler irrigation sufficient to move the product into the upper portion of the root zone. This method is suitable for very coarse soils with 0.75% organic matter or less; OR</li> <li>3. Drench to base of tree not exceeding one quart total solution per tree immediately around trunk of tree and extending outward covering the entire fibrous root system of the tree. Only for trees up to 8 feet tall; OR</li> <li>4. For control of existing termite infestations, apply specified dosage in 1 to 4 quarts of total solution volume, depending on size</li> </ol>	

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

<p>of tree, as a drench application to the basal portion of the tree trunk and surrounding soil in the immediate vicinity of the tree trunk; OR</p> <p>5. For suppression of citrus nematode, apply specific dosage through low pressure chemigation or soil surface spray only, ensuring complete coverage of the root system and utilizing application directions stated above for the respective application method. Repeated and regular use of this product over several consecutive growing seasons provides the greatest degree of nematode suppression and yields the greatest plant response.</p>		
<b>Restrictions</b>		
<p>Pre-Harvest Interval (PHI): <b>0 days</b>            Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.5 lb. AI/A)  <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging.</p>		
<b>FOLIAR APPLICATIONS</b>		
<b>Pests</b>	<b>Fluid ounces/100 gallons</b>	<b>Fluid ounces/Acre</b>
<p><b>For control of:</b>            Aphids Asian citrus psyllid            Black fly            Leafhoppers/Sharpshooters            Leafminers            Mealybugs            Scales<sup>1</sup>            Whiteflies</p>	<p>1.4 – 2.0            (dilute application)</p>	<p>4.0 – 8.0            (depending on tree size, target pest, and infestation pressure)</p>
<p><b>For suppression of:</b>            Thrips (foliage-feeding thrips only)</p>	<p>2.0</p>	<p>8.0</p>
<b>Application Methods</b>		
<p>Apply specific dosage of this product as a broadcast or directed spray to infested area ensuring thorough coverage. Apply through properly calibrated ground or aerial equipment.</p>		
<b>Remarks</b>		
<p>Aerial application of this product may result in slower activity and reduced control compared to ground application. Where higher rate applications are appropriate, increase the spray solution concentration to apply an equivalent rate per acre to that applied in the diluted application. The 8.0 fluid ounce/Acre rate is based on full sized trees. This rate may be reduced proportionally for smaller trees.  <sup>1</sup>Scales - time applications to the crawler stage. Treat each generation.</p>		
<b>Restrictions</b>		
<p>Pre-Harvest Interval (PHI): <b>0 days</b>            Minimum interval between sprays: <b>10 days</b>            Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.5 lb. AI/A)  <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging.</p>		

<b>POMEFRUIT:</b> Apple, Crabapple, Loquat, Mayhaw, Pear (including Oriental pear), Quince		
<b>SOIL APPLICATIONS</b>		
<b>Pests</b>	<b>Fluid ounces/Acre</b>	
<p><b>For control of:</b>            Aphids (including Woolly apple aphid)            Leafhoppers</p>	<p>8.0 – 12.0</p>	
<b>Application Methods</b>		
<p>Apply specified dosage of this product in the following method: Chemigation into root-zone through low-pressure (drip, trickle, micro-sprinkler or equivalent) equipment.</p>		
<b>Restrictions</b>		
<p>Pre-Harvest Interval (PHI): <b>21 days</b>            Maximum amount of product allowed per crop season: <b>12.0 fluid ounces/Acre</b> (0.38 lb. AI/A)  <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging.</p>		
<b>FOLIAR APPLICATIONS</b>		
<b>Pests</b>	<b>Fluid ounces/100 gallons</b>	<b>Fluid ounces/Acre</b>
<p><b>For control of:</b>            Leafhoppers</p>	<p>0.4 – 0.8</p>	<p>1.6 – 3.2</p>
<p><b>For control of:</b>            Aphids (except Woolly apple aphid)            Apple maggot Leafminers            San Jose scale</p>	<p>0.8</p>	<p>3.2</p>
<p><b>For use on Pears Only to control:</b>            Mealybugs            Pear psylla</p>	<p>2.0</p>	<p>8.0</p>
<b>Application Methods</b>		

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

Apply specific dosage of this product as a broadcast or directed spray to infested area ensuring thorough coverage. Apply this product through properly calibrated ground or aerial equipment.

**Remarks**

Combine applications targeting apple maggot with manufacturer's specified rate of a sticker.

**Restrictions**

Pre-Harvest Interval (PHI): **7 days**  
 Minimum interval between sprays: **10 days**  
 Maximum amount of product allowed per crop season: **16.0 fluid ounces/Acre** (0.5 lb. AI/A)  
**DO NOT** apply during bloom or within 10 days prior to bloom or when bees are actively foraging.

**POMEGRANATE**

**SOIL APPLICATIONS<sup>1</sup>**

Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Leafhoppers/Sharpshooters Whiteflies	8.0 – 16.0

**Application Methods**

Apply specified dosage of this product in the following method: Chemigation into root-zone through low-pressure (drip, trickle, micro-sprinkler or equivalent) equipment.

**Restrictions**

Pre-Harvest Interval (PHI): **0 days**  
 Maximum amount of product allowed per crop season: **16.0 fluid ounces/Acre** (0.5 lb. AI/A)  
**DO NOT** apply during bloom or within 10 days prior to bloom or when bees are actively foraging.  
<sup>1</sup>This use is not permitted in CA unless otherwise directed by supplemental labeling.

**FOLIAR APPLICATIONS**

Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Leafhoppers/Sharpshooters Whiteflies	3.2
<b>For suppression of:</b> Scales	

**Application Methods**

Apply specific dosage of this product as a broadcast or directed spray to infested area ensuring thorough coverage. Apply this product through properly calibrated ground or aerial equipment.

**Restrictions**

Pre-Harvest Interval (PHI): **7 days**  
 Minimum interval between sprays: **7 days**  
 Maximum amount of product allowed per crop season: **9.6 fluid ounces/Acre** (0.3 lb. AI/A)  
**DO NOT** apply during bloom or within 10 days prior to bloom or when bees are actively foraging.

**STONEFRUIT:** Apricot, Cherry (including sweet and tart), Nectarine, Peach, Plum (including Chickasaw, Damson and Japanese), Plumcot, Prune (fresh and dried)

**PRE-PLANT ROOT DIP APPLICATIONS**

Pests	Fluid ounces/10 gallons root dip solution
<b>For control of:</b> Black peach aphid (infesting roots)	1.0

**Application Methods**

Mix this product at a rate of 1.0 fluid ounce per 10 gallons of water. Thoroughly wet bare-root transplant to slightly above the graft union by soaking roots in this product's solution for up to 5 minutes. Allow solution to dry on roots and transplant trees as soon as possible following treatment.

**SOIL APPLICATIONS**

Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids (including Woolly apple aphid) Leafhoppers	8.0 – 12.0

**Application Methods**

Apply specified dosage of this product in the following method: Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment.

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

Restrictions		
Pre-Harvest Interval (PHI): <b>21 days</b>		
Maximum amount of product allowed per crop season: <b>12.0 fluid ounces/Acre</b> (0.38 lb. AI/A)		
<b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging.		
FOLIAR APPLICATIONS		
Pests	Fluid ounces/100 gallons	Fluid ounces/Acre
<b>For control of:</b> Aphids Green June beetle Japanese beetle Leafhoppers/Sharpshooters Plant bugs Rose chafer San Jose scale	0.8	1.6 – 3.2
<b>For control of:</b> Cherry fruit fly (maggot of Eastern & Western)		2.4 – 3.2
<b>For suppression of:</b> Plum curculio Stinkbugs		3.2
Application Methods		
Apply specific dosage of this product as a broadcast or directed spray to infested area ensuring thorough coverage. Apply this product through properly calibrated ground or aerial equipment.		
Restrictions		
<b>Apricot, Nectarine, Peach:</b> Pre-Harvest Interval (PHI): <b>0 days</b> Minimum interval between applications: <b>7 days</b> Maximum amount of product allowed per crop season: <b>9.6 fluid ounces/Acre</b> (0.30 lb. AI/A) Minimum application volume (water): <b>Ground: 50 GPA; Air: 25 GPA</b> <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging.		
<b>Cherry, Plum, Plumcot, Prune:</b> Pre-Harvest Interval (PHI): <b>7 days</b> Minimum interval between applications: <b>10 days</b> Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.50 lb. AI/A) Minimum application volume (water): <b>Ground: 50 GPA; Air: 25 GPA</b> <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging.		

SOIL APPLICATIONS <sup>1</sup>	
Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Leafhoppers/Sharpshooters Mealybugs Spittlebugs Termites Two-lined spittlebugs Whiteflies	8.0 – 16.0
<b>For suppression of:</b> Thrips (foliage-feeding only)	16.0
<b>For suppression of disease symptoms of:</b> Pecan scab (from reduction in honeydew deposition)	
Application Methods	
Apply specified dosage prior to or at onset of pest infestation in one of the following methods: <ol style="list-style-type: none"> <li>Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment. Pre-wet soil prior to applications of this product and allow soil to dry following application and prior to subsequent irrigation; OR</li> <li>Emitter or spot application in a minimum of 4 fluid ounces of mixture per emitter site; OR</li> <li>Shank or subsurface side-dress, injected to a depth just above or just within the root zone and between the trunk and drip line of the tree canopy. Apply this product in a minimum of 10 gallons per acre using multiple shanks on both sides of trees. Ensure product placement is below sod or orchard floor debris. Irrigation covering entire treated area must follow within 48 hours to promote uptake by root system; OR</li> <li>For control of termites, apply specified dosage to slightly moist soil as a high-volume drench to the basal portion of the tree trunk and surrounding soil in the immediate vicinity of the tree trunk. Utilize sufficient carrier volume to penetrate the soil to</li> </ol>	

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

a depth of 18 to 24 inches. Allow soil to dry following treatment and prior to applying any irrigation.	
<b>Remarks</b>	
Use higher rates when applied by shank or subsurface side-dress, used on larger trees, soils with high clay content, for high plant populations, and/or where extended control is desired. Under some conditions, control may not occur for 14 or more days or until two (2) irrigations have been made. Applications made later in the season may result in reduced efficacy.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>7 days</b> Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.50 lb. A/A) <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging. <sup>1</sup> Soil Application in Tree Nut orchards is not permitted in California unless otherwise directed by supplemental labeling.	
<b>FOLIAR APPLICATIONS</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids (except Black pecan aphid) Leafhoppers/Sharpshooters <i>Phylloxera</i> spp. (leaf infestations) Spittlebugs Whiteflies	1.4 – 2.8
<b>For control of:</b> Black pecan aphid Mealybugs San Jose scale <sup>1</sup>	3.2
<b>Application Methods</b>	
Apply specific dosage of this product as a broadcast or directed spray to infested area ensuring thorough coverage. Apply this product through properly calibrated ground or aerial equipment.	
<b>Remarks</b>	
<sup>1</sup> Applications for control of San Jose scale must be timed according to crawler stage, treating each successive generation. Two applications on a 10 to 14-day interval may be required to achieve control.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>7 days</b> Minimum interval between applications: <b>6 days</b> Maximum amount of product allowed per crop season: <b>11.5 fluid ounces/Acre</b> (0.36 lb. A/A) Minimum application volume (water): <b>Ground: 50 GPA; Air: 25 GPA</b> <b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging.	

<b>BANANA and PLANTAIN</b>	
<b>SOIL APPLICATIONS<sup>1</sup></b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Leafhoppers	8.0 – 16.0
<b>For suppression of:</b> Scales	
<b>Application Methods</b>	
Apply specified dosage of this product in the following method: Chemigation into root-zone through low-pressure (drip, trickle, micro-sprinkler or equivalent) equipment.	
<b>Restrictions</b>	
Pre-Harvest Interval (PHI): <b>0 days</b> Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.50 lb. A/A) <sup>1</sup> This use is not permitted in CA unless otherwise directed by supplemental labeling.	
<b>FOLIAR APPLICATIONS</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Leafhoppers Thrips	3.2
<b>Application Methods</b>	
Apply specified dosage of this product as a broadcast or directed spray to infested area ensuring thorough coverage. Apply this product through properly calibrated ground or aerial equipment.	
<b>Remarks</b>	
Aerial application of this product may result in slower activity and reduced control relative to results from ground application. Addition of an organosilicone adjuvant at a rate not to exceed 2.0 fluid ounces/100 gallons finished spray solution may improve	



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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

coverage and pest control.	<b>Restrictions</b>
Pre-Harvest Interval (PHI): <b>0 days</b>	
Minimum interval between applications: <b>14 days</b>	
Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.5 lb. AI/A)	

**TROPICAL FRUIT:** Acerola, Atemoya<sup>1</sup>, Avocado, Birida<sup>1</sup>, Black sapote, Canistel, Cherimoya<sup>1</sup>, Custard apple<sup>1</sup>, Feijoa, Jaboticaba, Guava, Llama<sup>1</sup>, Longan, Lychee, Mamey sapote, Mango, Papaya, Passionfruit, Persimmon, Pulasan, Rambutan, Sapodilla, Soursop<sup>1</sup>, Spanish lime, Star apple, Starfruit, Sugar apple<sup>1</sup>, Wax jambu.

<b>SOIL APPLICATIONS<sup>1</sup></b>	
Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Avocado lacebug Leafhoppers Whiteflies	12.0 – 16.0
<b>For suppression of:</b> Scales Thrips (foliage-feeding thrips only)	16.0

**Application Methods**

Apply specified dosage of this product in the following method: Chemigation into root-zone through low-pressure (drip, trickle, micro-sprinkler or equivalent) equipment.

<b>Restrictions</b>
Pre-Harvest Interval (PHI): <b>6 days</b>
Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.50 lb. AI/A)
<sup>1</sup> Soil application use on noted crops is not permitted in California unless otherwise directed by supplemental labeling.

<b>FOLIAR APPLICATIONS</b>	
Pests	Fluid ounces/Acre
<b>For control of:</b> Aphids Leafhoppers/Sharpshooters Mealybugs Thrips Whiteflies	3.2
<b>For suppression of:</b> Thrips	

**Application Methods**

Apply specific dosage of this product as a broadcast or directed spray to infested area ensuring thorough coverage. Apply this product through properly calibrated ground or aerial equipment.

**Remarks**

Ground applications of this product are more effective than aerial applications.

<b>Restrictions</b>
Pre-Harvest Interval (PHI): <b>7 days</b>
Minimum interval between applications: <b>10 days</b>
Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.5 lb. AI/A)
<b>DO NOT</b> apply during bloom or within 10 days prior to bloom or when bees are actively foraging.

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[SUB-LABEL A: COMMERCIAL AGRICULTURE]

**OTHER CROPS**

<b>Christmas Trees</b>	
<b>SOIL APPLICATIONS<sup>1</sup></b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> White grub complex (e.g., grubs of Asiatic garden beetle, European and Masked chafer, Japanese beetle and Oriental beetle)	8.0 – 16.0
<b>Application Methods</b>	
Soil incorporation and movement of this product to the root zone is required for activity. This product can be incorporated most readily when applied to moist soil. Apply specified dosage in one of the following methods: 1. Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; OR 2. 18-inch band on each side of the row (small trees) to full broadcast application (large trees) followed by rainfall or 0.25 to 1 inch of irrigation within 12 hours after application.	
<b>Remarks</b>	
Apply this product during adult flight activity, or up to mid-July, when first instar larvae are present.	
<b>Restrictions</b>	
Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.50 lb. AI/A) <sup>1</sup> This use is not permitted in California unless otherwise directed by supplemental labeling.	
<b>FOLIAR APPLICATIONS</b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Adelgids Sawflies	1.6 – 3.2
<b>Application Methods</b>	
Apply specific dosage of this product as a broadcast or directed spray to infested area ensuring thorough coverage. Apply this product through properly calibrated ground or aerial equipment.	
<b>Remarks</b>	
Ground applications of this product are more effective than aerial applications. For gall-forming adelgids, time applications to coincide with full bud-swell or first bud-break of earliest bud-breaking trees. Once galls form spraying this product is ineffective.	
<b>Restrictions</b>	
Minimum interval between applications: <b>7 days</b> Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.5 lb. AI/A)	
<b>Poplar/Cottonwood:</b> (including members of the genus <i>Populus</i> grown for pulp or timber)	
<b>SOIL APPLICATIONS<sup>1</sup></b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Cottonwood leaf beetle	8.0 – 16.0
<b>For suppression of:</b> <i>Phylloxera popularia</i>	
<b>Application Methods</b>	
Apply specified dosage of this product in the following method: 1. Chemigation through low-pressure drip irrigation; OR 2. For narrow row, cutting orchards/nurseries used for plant propagation, shank into root zone followed by adequate irrigation to promote uptake. Adequate irrigation depends on soil moisture level at application. Under dry conditions 0.25 inch/acre is recommended.	
<b>Remarks</b>	
For Cottonwood leaf beetle, protection against damage will occur when application is made early-season, when beetles first begin feeding. Larger trees may require earlier treatment as a result of slower uptake. For <i>Phylloxera</i> , apply early in the year, from break of dormancy through May.	
<b>Restrictions</b>	
Maximum amount of product allowed per crop season: <b>16.0 fluid ounces/Acre</b> (0.50 lb. AI/A) <sup>1</sup> This use is not permitted in California unless otherwise directed by supplemental labeling.	
<b>CUTTING/WHIP APPLICATIONS<sup>1</sup></b>	
<b>Pests</b>	<b>Soaking Solution Fluid ounces needed per 100 gallons</b>

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**[SUB-LABEL A: COMMERCIAL AGRICULTURE]**

<b>For control of:</b> Cottonwood leaf beetle	6.65 to 13.3 (unhydrated cuttings/whips) 13.3 to 20.0 (partially hydrated cuttings/whips)
<b>For suppression of:</b> Aphids <i>Phylloxera popularia</i>	13.3 (unhydrated cuttings/whips) 20.0 (partially hydrated cuttings/whips)
<b>Application Methods</b>	
<p>Apply this product in one of the following cuttings/whips soaking methods:</p> <ol style="list-style-type: none"> <li>For freshly cut (hydrated) cuttings/whips, soak plant material in specified solution concentration for 24 hours prior to cold storage. After removal from cold storage, plant as needed; OR</li> <li>For previously hydrated cuttings/whips removed from cold storage, allow plant material to reach room temperature and soak in specified solution concentration for 24 hours prior to planting.</li> </ol> <p>Take proper care in disposal of any residual soaking solution. Apply solution to existing trees or other registered crops as long as all product label precautions and restrictions are observed.</p>	
<b>Remarks</b>	
<p>The moisture content prior to application of the cuttings/whips, the solution concentration and the length of soaking interval interact to affect the amount of product absorbed into plant material. For a constant soaking interval of 24 hours, dry cuttings/whips absorb a higher quantity of solution and require a lower concentration. Conversely, more hydrated cuttings/whips absorb less solution and require a higher concentration. Soaking of cuttings/whips must occur in a covered container in absence of UV light. Not all <i>Populus</i> sp. clones/varieties/hybrids have been tested for crop safety. Without specific knowledge about a particular <i>Populus</i> sp. clone/variety/hybrid, a small number of cuttings/whips of each must be treated and evaluated prior to commercial use.</p>	
<b>Restrictions</b>	
<p>Maximum amount of product allowed at plant per crop season: <b>16.0 fluid ounces/Acre</b> (0.5 lb. AI/A)  <sup>1</sup> This use is not permitted in California unless otherwise directed by supplemental labeling.</p>	
<b>FOLIAR APPLICATIONS<sup>1</sup></b>	
<b>Pests</b>	<b>Fluid ounces/Acre</b>
<b>For control of:</b> Aphids Leaf beetles	1.6 – 3.2
<b>Application Methods</b>	
<p>Apply this product as a broadcast or directed spray method through properly calibrated ground, aerial or chemigation application equipment. Thorough coverage of foliage is necessary.</p>	
<b>Remarks</b>	
<p>Ground application of this product is more effective than aerial application for these crops.</p>	
<b>Restrictions</b>	
<p>Minimum interval between applications: <b>10 days</b>  Maximum amount of product allowed per season: <b>16.0 fluid ounces/Acre</b> (0.5 lb. AI/A)  <b>DO NOT</b> apply during bloom or with 10 days prior to bloom or when honeybees are actively foraging.  <sup>1</sup>Use as a foliar application to Poplar/Cottonwood is not permitted in California unless otherwise directed by supplemental labeling.</p>	

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**COMMERCIAL POULTRY PRODUCTION FACILITIES**

<b>POULTRY HOUSING STRUCTURES</b>	
<b>Pests</b>	<b>Fluid ounces / 1,000 ft<sup>2</sup></b>
<b>For control of:</b> Darkling beetles Hide beetles (Dermestids)	3.0 (90 ml)
<b>Application Methods</b>	
Apply between flocks after de-caking and sanitation procedures have been completed. Apply as a spot, crack and crevice, or surface spray on floors, walls, and support beams of structure. Apply using a minimum of 1/2 to 2 gallons of spray mixture per 1000 square feet. To prepare the spray mixture, fill the spray tank with 1/2 the required amount of water, then add the specified amount of product. Add the remaining water while agitating or mixing. Maintain constant agitation while applying.	
Apply spray mixture to the entire footing including 1 foot up the wall above the footing, and in 3 to 4 foot wide bands directly beneath all feed lines. The areas beneath the feed lines typically harbor large numbers of adult and larval stages of the target pest when an infestation occurs. Measure these areas to determine the appropriate amount of spray mixture to apply. For structures that are prone to large infestations, treat the footings including 1 foot up the wall and the entire floor area of the structure.	
Cracks and crevice areas also are prone to large infestations of the target pest. Apply as a crack and crevice treatment around wall insulation or other areas that may harbor the target pest. If structures have supporting beams, treat the floor with a 1 foot band around each beam and apply 2 feet up the beam.	
For structures prone to extreme infestation, treat the entire structure with a broadcast application. Apply 3.0 fluid ounces in 2 gallons of water per 1000 square feet of surface. Apply as a broadcast spray to areas where litter has accumulated (floor, under feed and water lines, lower sections of walls, corners).	
<b>Remarks</b>	
In order to avoid problems with pest resistance to imidacloprid, rotate to an insecticide with a different mode of action every 2-3 flocks. Rotate between 3 different insecticide mode of action classes labeled for control of target pests during a calendar year.	
<b>Restrictions</b>	
<b>DO NOT</b> apply when birds are present or within 7 days of bird placement. <b>DO NOT</b> allow food or feed to be contacted by the spray. Remove feed and water from the treatment area before applying.	
<b>Pests</b>	<b>Fluid ounces / Gallon</b>
<b>For control of:</b> Nuisance ants	0.125 – 0.25  (3/4 – 1.5 TSP)
<b>Application Methods</b>	
Apply as a crack and crevice or wall void treatment inside structures. Apply to cracks, crevices, drilled holes, onto walls, around entry points such as doors, windows, vents, eaves, soffits, and utility access openings. If nests are present in voids, apply into the void if possible. Apply evenly to treatment surfaces but not to the point of runoff. Apply to areas around the exterior of the structure where ants may present (soil, turf, ornamental shrubs and plantings, and groundcover in close proximity to or touching the structure). For above-ground nests, such as in wood posts, decks, or fences, or in trees, spray into holes/openings where ants are traveling and on the wood surface.	
<b>Restrictions</b>	
<b>DO NOT</b> use for control of native or imported fire ants, harvester ants or pharaoh ants. Keep people and pets out of treated areas until sprays have dried.	

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[SUB-LABEL A: COMMERCIAL AGRICULTURE]

**STORAGE AND DISPOSAL**

**DO NOT** contaminate water, food or feed by storage or disposal.

**PESTICIDE STORAGE:** Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Handle and open container in a manner as to prevent spillage. If the container is leaking, invert to prevent leakage. If container is leaking or material spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material. **DO NOT** walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides below. In spill or leak incidents, keep unauthorized people away.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:**

**For Nonrefillable Container. DO NOT reuse or refill this container.** Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Then offer for recycling, if available, or puncture and dispose of in an approved sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**Triple rinse containers small enough to shake (capacity ≤ 5 gallons) 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.

**Triple rinse containers too large to shake (capacity > 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ 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. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

**Pressure rinse as follows:** Empty the remaining contents into application equipment or mix tank and drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**For Refillable container.** Refill this container with pesticide 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% full with water and, if possible, spray all sides while adding water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with the pesticide product. **DO NOT** reuse the container for any other purpose. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

**WARRANTY DISCLAIMER**

The directions for use of this product must be followed carefully. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, (1) THE GOODS DELIVERED TO YOU ARE FURNISHED "AS IS" BY MANUFACTURER OR SELLER AND (2) MANUFACTURER AND SELLER MAKE NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THE PRODUCT SOLD, INCLUDING, BUT NOT LIMITED TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE, OR ELIGIBILITY OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE. UNINTENDED CONSEQUENCES, INCLUDING BUT NOT LIMITED TO INEFFECTIVENESS, MAY RESULT BECAUSE OF SUCH FACTORS AS THE PRESENCE OR ABSENCE OF OTHER MATERIALS USED IN COMBINATION WITH THE GOODS, OR THE MANNER OF USE OR APPLICATION, INCLUDING WEATHER, ALL OF WHICH ARE BEYOND THE CONTROL OF MANUFACTURER OR SELLER AND ASSUMED BY BUYER OR USER. THIS WRITING CONTAINS ALL OF THE REPRESENTATIONS AND AGREEMENTS BETWEEN BUYER, MANUFACTURER AND SELLER, AND NO PERSON OR AGENT OF MANUFACTURER OR SELLER HAS

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ANY AUTHORITY TO MAKE ANY REPRESENTATION OR WARRANTY OR AGREEMENT RELATING IN ANY WAY TO THESE GOODS.

**LIMITATION OF LIABILITY**

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**If you do not agree with or do not accept any of directions for use, the warranty disclaimers, or limitations on liability, do not use the product, and return it unopened to the Seller, and the purchase price will be refunded.**

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GROUP	4	INSECTICIDE
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# IMPALE INSECTICIDE

**A SYSTEMIC and FOLIAR INSECTICIDE FOR USE on ORNAMENTALS, FRUIT and NUT TREES, and VEGETABLE PLANTS grown in LAWN and LANDSCAPE AREAS, in GREENHOUSES, NURSERIES, and INTERIOR PLANTSCAPES.**

**ACTIVE INGREDIENT:**

Imidacloprid: 1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine ..... 40.4%

**OTHER INGREDIENTS:** ..... 59.6%

**TOTAL:** ..... 100.0%

Contains 4 pounds of imidacloprid per gallon.

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

FIRST AID	
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>Move person to fresh air.</li> <li>If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>Call a poison control center or doctor immediately for treatment advice.</li> <li>Have person sip a glass of water if able to swallow.</li> <li>Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>Do not give anything by mouth to an unconscious person.</li> </ul>
<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>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>Take off contaminated clothing.</li> <li>Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency information concerning this product, call the National Pesticides Information Center (NPIC) at 1-800-858-7378 seven days a week, 6:30 am to 4:30 pm Pacific Time or your poison control center at 1-800-222-1222.	

See inside label booklet for additional Precautionary Statements.

EPA Reg. No. 9468-xx

EPA Est. No.

**Manufactured for:**  
Ritter Chemical, LLC  
P.O. Box 430974  
Houston, TX 77243

Net Contents: Gals.

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

Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco. Avoid contact with eyes or clothing. Wear protective eye wear. Wear long sleeved shirt and long pants, socks, shoes, and chemical resistant gloves made of waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves made of any waterproof material such as, barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton.
- Shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining personal protective equipment, PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

**Engineering controls statement:** 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.

**USER SAFETY RECOMMENDATIONS**

**User must:**

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing 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**

**DO NOT** apply directly to water, areas where surface water is present or to intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment washwaters. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. **DO NOT** apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area. This product is toxic to wildlife and highly toxic to aquatic invertebrates. This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

**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 agency responsible for pesticide regulation.

Shake well before using.

**DO NOT** apply when wind speed favors drift beyond the area intended for treatment.

**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 12 hours.

**Exception:** If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain



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circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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
- Chemical-resistant gloves made of any waterproof material such as, barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton
- Shoes plus socks

### 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.

- Keep children and pets off treated areas until sprays have dried.

### PRODUCT INFORMATION

Thorough uniform coverage is necessary to achieve target pest control. A spray adjuvant may be used to improve coverage. This product may not knockdown established and heavy insect populations with a single application. Two applications may be required to achieve control; retreat if needed and as directed on this label. This product may be tank mixed with other insecticides as specified for knockdown of pests or for improved control of other pests.

Apply this product as a broadcast or directed spray application. Time applications to begin as target pest populations begin to build. Ensure that the treated area receives a thorough, uniform coverage of the spray solution. To improve coverage, a spray adjuvant may be added to the Impale tank mix.

Apply using either ground equipment in a minimum spray volume of 10 gallons per acre or with aerial equipment in a minimum spray volume of 5 gallons of water per acre. Use adequate spray volumes and calibrated application equipment.

**RESISTANCE:** Some insects are known to develop resistance to insecticides after repeated use. As with any insecticide, the use of this product must conform to resistance management strategies established for the use area. Consult your local or state pest management authorities for details.

#### Mix Preparation

To prepare the application mixture:

1. Fill the spray tank with a portion of the required amount of water and begin agitation.
2. Add the specified amount of Impale.
3. Fill the tank with the remaining water needed. Maintain sufficient agitation during mixing and application.

This product can be used with other pesticides and/or fertilizer solutions; refer to the Tank Mix and Compatibility Notes below. When tank mixtures of this product and other pesticides are involved, prepare the tank mixture as specified above and follow the suggested Mixing Order below.

This product may be applied by chemigation (see APPLICATION THROUGH IRRIGATION SYSTEMS section below) if allowed in the specific application sections.

#### TANK MIXES

Unless otherwise prohibited on this label or the label of an intended tank mix product, this product may be applied in combination with any pesticide registered for the same crop, timing, and method of application. Observe the most restrictive label statements of various tank mix products used. **IMPORTANT: PESTICIDE TANK MIXES MAY INCREASE THE RISK OF MIXING INCOMPATIBILITIES, REDUCED EFFECTIVENESS AND/OR CAUSE CROP INJURY OR LOSS. ANY LIABILITY FOR LOSS, INJURY OR DAMAGE RESULTING FROM A TANK MIXTURE NOT SPECIFIED ON THIS LABEL OR IN MANUFACTURER'S SUPPLEMENTAL LABELING DISTRIBUTED FOR THIS PRODUCT IS SPECIFICALLY DISCLAIMED BY MANUFACTURER.**

#### Compatibility

Before full-scale mixing of this product with other pesticides, fertilizers, secondary plant nutrients, adjuvants, surfactants or oils, you must determine the compatibility of the proposed mixture. Use proportionate quantities of each ingredient and mix in a small container. Always mix one product thoroughly with the diluent before adding another product. If no incompatibility is evident after 30 minutes, the mixture is generally compatible for spraying. To evaluate potential short term effects of applying the mixture, test the tank mix combination on a few plants or a small area before larger-scale treatments. Wait at least 2 to 3 days for problems to become apparent, **IMPORTANT:**

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MIXING WITH OTHER SUBSTANCES MAY INCREASE THE RISK OF MIXING INCOMPATIBILITIES, REDUCED EFFECTIVENESS AND/OR CAUSE CROP INJURY OR LOSS. ANY LIABILITY FOR LOSS, INJURY OR DAMAGE RESULTING FROM A MIXTURE NOT SPECIFIED ON THIS LABEL OR IN MANUFACTURER'S SUPPLEMENTAL LABELING DISTRIBUTED FOR THIS PRODUCT IS SPECIFICALLY DISCLAIMED BY MANUFACTURER.

**Mixing Order**

When pesticide mixtures are needed, add wettable powders first, this product or other flowables second, and emulsifiable concentrates last. Ensure good agitation as each component is added and do not add an additional component until the previous is thoroughly mixed. A fertilizer/pesticide compatibility agent may be needed if a fertilizer solution is to be added to the mixture. Be sure to maintain constant agitation during both mixing and application to ensure uniformity of spray mixture. Further information on Tank Mixes is available from your local Ritter Chemical, LLC representative.

**APPLICATION THROUGH IRRIGATION SYSTEMS (CHEMIGATION)**

This product may be applied at rates specified on this label either alone or in tank mixture with other pesticides and chemicals registered for application through irrigation systems. The normal dilution ratio is 1:100 to 1:200, depending on the system. Always meter the product into the irrigation water during the first part of the irrigation cycle. The product may be mixed separately prior to injection. Agitation may be necessary if the mixture is allowed to stand more than 24 hours.

- **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.
- Apply this product only through micro-irrigation (individual spaghetti tube), drip irrigation, overhead irrigation, and ebb and flood or hand-held or motorized calibrated irrigation equipment and only as directed in the specific directions. ***DO NOT** apply this product through any other type of irrigation system.* Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.
- Be sure to remove scale, pesticide residue and other foreign matter from the tank and entire irrigation system prior to application.
- A person knowledgeable of the chemigation system and responsible for its operation, or a person who is under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.
- If you have any questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

**SAFETY DEVICES FOR IRRIGATION SYSTEMS CONNECTED TO PUBLIC WATER SUPPLIES**

If the source of water for your irrigation system is a public water supply, follow the instructions below:

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, water from the public water system must be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the 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 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.

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7. **DO NOT** apply when wind speed favors drift beyond the area intended for treatment.

### **SAFETY DEVICES FOR IRRIGATION SYSTEMS NOT CONNECTED TO A PUBLIC WATER SUPPLY**

If the source of water for your irrigation system is NOT a public water supply, follow the instructions below:

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 the 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 material that is 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.

### **Water Volume**

Chemigation applications of this product must be made as concentrated as possible. Retention of this product on target site of insect infestation is necessary for optimum activity. Chemigation of this product in water volumes exceeding 0.10 inch/Acre is not recommended.

### **Uniform Water Distribution and System Calibration**

The irrigation system must provide uniform distribution of treated water. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. The system must be calibrated to uniformly apply the rates specified. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

### **Chemigation Monitoring**

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.

### **Drift**

**DO NOT** apply when wind speed favors drift beyond the area intended for treatment.

## **RESTRICTIONS**

**DO NOT** graze treated areas or use clippings from treated areas for feed or forage.

Prevent runoff or puddling of irrigation water following application.

Keep children and pets off treated area until dry.

**DO NOT** apply this insecticide to areas which are water logged or saturated, which will not allow penetration into the root zone of the plant.

Treated areas may be replanted with any crop specified on an imidacloprid label, or with any crop for which a tolerance exists for the active ingredient. For crops not listed on an imidacloprid label, or for crops for which no tolerances for the active ingredient have been established, a 12-month plant-back interval must be observed.

## **APPLICATION INSTRUCTIONS**

### **NURSERY and GREENHOUSE GROWN ORNAMENTALS and VEGETABLE PLANTS**

This product is for foliar and systemic insect control in and around field-grown nursery and container stock, indoor and outdoor ornamentals (including both greenhouse and interior landscapes) and ornamentals grown in flats, on benches or in beds. Apply this product by foliar application or soil applications; including soil injection, drenches, and broadcast sprays. Foliar applications offer locally systemic activity against insect pests. Soil applications will result in translocation of the active ingredient upward into the plant system from root uptake. To assure optimum root uptake, apply product where the growing portion of the target plant can absorb the active ingredient. The addition of a

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nitrogen containing fertilizer, where applicable, into the solution has been shown to enhance the uptake of the active ingredient. When making soil applications to plants with woody stems, systemic activity will be delayed until the active ingredient is translocated throughout the plant. In some cases, this translocation delay could take 60 days or longer. For this reason, soil applications must be made prior to anticipated pest infestation to achieve optimum levels of control.

Ornamental and Non-bearing Fruit and Nut trees, Shrubs, Evergreens, Flowers, Foliage Plants, Groundcovers, Interior Plantscapes, and Vegetable plants intended for resale only <sup>1</sup>		
FOLIAR APPLICATION		
Pests	Fluid ounces/ 100 gallons of water	
<b>For control of:</b> Larvae of: Adelgids Aphids Japanese beetles (adults) Lacebugs Leaf beetles (including Elm, Viburnum) Leafhoppers/Sharpshooters Leaf miners Mealybugs Sawfly larvae Whiteflies	0.75 (22 ml)	
<b>For suppression of:</b> Thrips		
Application Methods		
Mix product with the required amount of water and apply as desired dependent upon the selected use pattern. When making foliar applications on hard-to-wet foliage such as holly, pine, or ivy, the addition of a spreader/sticker is recommended. If concentrate or mist type spray equipment is used, apply an amount of product on the treatment area equivalent to the amount that would be used in a dilute application. This insecticide has been found to be compatible with commonly used fungicides, miticides, liquid fertilizers, and other commonly used insecticides. The physical compatibility of this product may vary with different sources of pesticide products and local cultural practices. Any tank mixture which has not been previously tested must be prepared on a small scale (pint or quart jar), using the proper proportions of pesticides and water to ensure the physical compatibility of the mixture.		
Remarks		
Start treatments prior to establishment of high pest populations and reapply on an as needed basis.		
Restrictions		
<sup>1</sup> Only for use on vegetable plants intended for resale including: Broccoli, Chinese Broccoli, Broccoli Raab, Brussel Sprouts, Cabbage, Chinese Cabbage, Cauliflower, Collards, Eggplant, Ground Cherry, Kale, Kohlrabi, Lettuce, Mustard Greens, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets, Tomatillo, and Tomato.		
BROADCAST APPLICATION		
Pests	Fluid ounces/1,000 FT <sup>2</sup>	Fluid ounces/Acre
<b>For control of:</b> White grub larvae such as: Japanese beetle larvae, Chafers, <i>Phyllophaga</i> spp., Asiatic garden beetle, Oriental beetle	0.23 – 0.30 (7.0 – 9.0 ml)	10.0 – 12.8 (0.625 – 0.8 pints)
Application Methods		
Mix required amount of product in sufficient water to uniformly and accurately cover the treatment area. <b>DO NOT</b> use less than 2 gallons of water per 1,000 sq ft		
Remarks		
For control of soil inhabiting pests, irrigate thoroughly to incorporate this insecticide into the upper soil profile. <b>Bark Media:</b> Media with 30% or more bark content may confer a shorter period of protection when treated with this product.		
Restrictions		
<b>DO NOT</b> apply more than <b>0.8 pints (12.8 fluid ounces)</b> (0.4 lbs AI) <b>per acre per year</b> by broadcast application to outdoor ornamentals.		
<sup>1</sup> Only for use on vegetable plants intended for resale including: Broccoli, Chinese Broccoli, Broccoli Raab, Brussel Sprouts, Cabbage, Chinese Cabbage, Cauliflower, Collards, Eggplant, Ground Cherry, Kale, Kohlrabi, Lettuce, Mustard Greens, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets Tomatillo, and Tomato.		

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Ornamental and Non-bearing Fruit and Nut trees, Shrubs, Flowers, and Groundcover	
SOIL APPLICATION (injection & drench)	
Pests	USE RATES
<b>For control of:</b> Adelgids Aphids Black vine weevil larvae Emerald ash borer <sup>1</sup> Eucalyptus longhorned borer <sup>1</sup> Flatheaded borers (including Bronze birch and Alder) <sup>1</sup> Japanese beetles Lace bugs Leaf beetles (including Elm and Viburnum) Leafhoppers/Sharpshooters Leafminers Mealybugs Pine tip moth larvae Psyllids Royal palm bugs Sawfly larvae Soft scales White grub larvae Whiteflies	For TREES :  Use the following rates as a function of tree diameter at breast height (DBH):  Apply 0.05 - 0.20 fl oz (1.5 – 6.0 ml) per inch of trunk diameter (DBH).  You may use the higher rate (0.2 fl oz) only for trees greater than 15 DBH to control the following pests:  Asian longhorned beetle Emerald Ash Borer Eucalyptus longhorned borer Bronze birch borer Alder borer  Restriction: Do not apply more than 12.8 fl oz (0.4 lb of active ingredient) per acre per year.  Diameter at Breast Height (D.B.H.) = is measured at 4.5 feet from the ground.
	SHRUBS: per foot of shrub height  0.05 – 0.10 fluid ounces (1.5 – 3.0 ml)
	FLOWERS and GROUDCOVER:  0.23 - 0.30 fluid ounces (7.0 - 9.0 ml) / 1000 FT <sup>2</sup>
<b>For suppression of:</b> Armored scales Thrips	Use the higher rates listed in the TREES, SHRUBS, FLOWERS and GROUDCOVER sections above.
Application methods for TREES and SHRUBS	
<b>Soil injection:</b> Mix the required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. Keep the treated area moist for 7 to 10 days. <b>DO NOT</b> use less than 4 holes per tree or shrub.	
<b>Specific Soil Injection methods for trees and large shrubs:</b>	
GRID System:	Holes must be spaced on 2.5 foot centers, in a grid pattern, extending to the drip line of the tree.
CIRCLE System:	Apply in holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) beneath the drip line of the tree extending in from that line.
BASAL System:	Space injection holes evenly around the base of the tree trunk no more than 6 to 12 inches out from the base.
<b>Soil Drench:</b> Uniformly apply the dosage in no less than 10 gallons of water per 1,000 square feet as a drench around the base of the tree or shrub, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.	
Remarks	
<sup>1</sup> Application to trees already heavily infested with listed borers may not prevent the eventual loss of the trees due to existing pest damage and tree stress.	
Restrictions	
<b>DO NOT</b> apply using Soil Injection methods in Nassau or Suffolk Counties of New York. <b>DO NOT</b> apply more than 0.8 pints (0.4 lbs AI) per acre per year.	
Application methods for FLOWERS and GROUDCOVER	
Apply as a broadcast treatment and incorporate into the soil before planting or apply after plants are established. For control of target pest, immediately irrigate following application to established plants. <b>Bark Media:</b> Media with 30% or more bark content may confer a shorter period of protection when treated with this product.	

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**GRASSY AREAS IN NURSERIES**

Apply this product to grassy areas under and around field and container grown plants, on roadways and other grassy areas in and around nurseries to control soil inhabiting pests. Use this product for the suppression of Mole crickets and Cutworms. The active ingredient in this product has sufficient residual activity so that applications can be made prior to the egg laying activity of the target pest. Base the need for an application on historical monitoring of the site, previous records and experience, current season adult trapping, and other methods. Make applications prior to egg hatch of the target pests. Sufficient irrigation or rainfall is needed to facilitate the movement of active ingredient through the thatch.

Pests	Fluid ounces/1,000 FT <sup>2</sup>	Fluid ounces/Acre
<b>For control of:</b> <u>Larvae of:</u> Annual bluegrass weevil Asiatic garden beetle Billbugs Black turfgrass atenioides Chafer (Northern masked, Southern masked, European) Green June beetle Japanese beetle May or June beetle Oriental beetle <i>Phyllophaga spp.</i>	0.23 – 0.30 (7.0 – 9.0 ml)	10.0 – 12.8 (0.625 – 0.8 pints)
<b>For control of:</b> Mole crickets <sup>1</sup>	0.30 (9.0 ml)	12.8 (0.8 pints)
<b>For suppression of:</b> Chinchbugs <sup>2</sup>		
<b>Application Methods</b>		
Apply this product in sufficient water to provide adequate distribution over the treatment area. The use of accurately calibrated equipment normally used for the application of soil insecticides is required. Use equipment which will produce a uniform, coarse spray droplet, use a low pressure setting to eliminate off target drift. Check calibration periodically to ensure that equipment is working properly. Irrigation or rainfall must occur within 24 hours after application to move the active ingredient through the thatch. <b>DO NOT</b> mow turf or lawn area until after sufficient irrigation or rainfall has occurred so that uniformity of application will not be affected.		
<b>Remarks</b>		
For control of grubs, billbugs and annual bluegrass-weevil, make application prior to egg hatch of the target pest. Consult your local turf, state Agricultural Experiment Station, or State Extension Service Specialists for more specific information regarding timing of application. <sup>1</sup> For control of Mole crickets make application prior to or during the peak egg hatch period. When adults or large nymphs are present and actively tunneling, make a curative insecticide application with the application of this product. See tank mixing section above for general instructions on tank mixtures. <sup>2</sup> For suppression of Chinchbugs, make application prior to or during the hatching of the first instar nymphs.		
<b>Restrictions</b>		
Maximum application rate per acre per year: 0.8 pints ( <b>12.8 fluid ounces</b> ) (0.4 lb of active ingredient) <b>DO NOT</b> make application when treatment area is waterlogged or soil is saturated with water. Adequate distribution of the active ingredient cannot be achieved when these conditions exist. The treatment area must be in such a condition that the rainfall or irrigation will penetrate vertically in the soil profile.		

**TURFGRASS (including Sod farms)**

Use this product for the control of soil inhabiting pests of turfgrass. Use this product for suppression of cutworms and chinch bugs. Use as directed on turfgrass on sites such as home lawns, business and office complexes, shopping complexes, multi-family residential complexes, golf courses, airports, cemeteries, parks, playgrounds, athletic fields and sod farms. The active ingredient in this product has sufficient residual activity so that applications can be made preceding the egg laying activity of the target pests. Base the need for an application on historical monitoring of the site, previous records or experiences, current season adult trapping or other methods. Make applications prior to egg hatch of the target pests, followed by sufficient irrigation or rainfall to move the active ingredient through the thatch.

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Pests	Fluid ounces/1,000 FT <sup>2</sup>	Fluid ounces/Acre
<b>For control of:</b> <b>Larvae of:</b> Annual bluegrass weevil Asiatic garden beetle Billbugs Black turfgrass ataenius Chafers (Northern masked, Southern masked, European) European crane fly Green June beetle Japanese beetle May or June beetle Oriental beetle <i>Phyllophaga</i> spp.	0.23 – 0.30 (7.0– 9.0 ml)	10.0 – 12.8 (0.625 – 0.8 pints)
<b>For control of:</b> Mole crickets <sup>1</sup>	0.30 (9.0 ml)	12.8 (0.8 pints)
<b>For suppression of:</b> Chinchbugs <sup>2</sup>		
<b>Application Methods</b>		
Apply this product in sufficient water to provide adequate distribution over the treatment area. The use of accurately calibrated equipment normally used for the application of soil insecticides is required. Use equipment which will produce a uniform, coarse spray droplet, use a low pressure setting to eliminate off target drift. Check calibration periodically to ensure that equipment is working properly. Irrigation or rainfall must occur within 24 hours after application to move the active ingredient through the thatch. <b>DO NOT</b> mow turf or lawn area until after sufficient irrigation or rainfall has occurred so that uniformity of application will not be affected.		
<b>Remarks</b>		
For control of grubs, European crane fly, billbugs and annual bluegrass-weevil, make application prior to egg hatch of the target pest. Consult your local turf, state Agricultural Experiment Station, or State Extension Service Specialists for more specific information regarding timing of application. <sup>1</sup> For control of Mole crickets make application prior to or during the peak egg hatch period. When adults or large nymphs are present and actively tunneling, make a curative insecticide application with the application of this product. See tank mixing section above for general instructions on tank mixtures. <sup>2</sup> For suppression of Chinchbugs, make application prior to or during the hatching of the first instar nymphs.		
<b>Restrictions</b>		
Maximum application rate per acre per year: <b>12.8 fluid oz</b> (0.8 pints) (0.4 lb of active ingredient) <b>DO NOT</b> make application when treatment area is waterlogged or soil is saturated with water. Adequate distribution of the active ingredient cannot be achieved when these conditions exist. The treatment area must be in such a condition that the rainfall or irrigation will penetrate vertically in the soil profile.		

**EBB & FLOOD APPLICATION**

Apply this product through Ebb and Flood applications. To assure accurate uptake prior to treatment, bring a minimum of 10 plants up to a known field capacity and allow to dry out for one or two days. Re-wet these plants to determine how much water on average each plant will absorb to bring it back at field capacity. Use the volume absorbed per plant (keeping pot sizes uniform) multiplied by the number of pots being treated. Add to this volume a required minimum to flood your smallest treatment area. This will minimize the return back to the storage tank. Re-use the returned volume with subsequent irrigation or nutrients on the same plants.

Pests	Ornamental and vegetable plants <sup>5</sup> grown in containers		
	Pot size (inches)	Herbaceous species including vegetable plants <sup>5</sup> (1 or 2 plants/pot)	Woody perennials, Herbaceous species including vegetable plants <sup>5</sup> (3 or more/pot)
		ml / 100 plants	
<b>For control of:</b> Adelgids Aphids Armored scales (suppression)	2	0.80	1.25
	3	1.25	1.85

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Fungus gnats (larvae only) <sup>1</sup>	4	1.65	2.50
Japanese beetles (adults)			
Lacebugs			
Leaf Beetles (including Elm and Viburnum)	5	2.10	3.15
Leafhoppers/Sharpshooters	6	2.50	3.85
Leafminers			
Mealybugs	7	2.95	4.55
Psyllids			
Root mealybugs <sup>2</sup>	8	3.30	5.00
Root weevil complex: (such as Apoka, Black vine, Citrus root) <sup>3</sup>	9	3.70	5.55
Soft scales			
Thrips (suppression) <sup>4</sup>	10	4.15	6.25
Whiteflies			
White grub larvae (such as Japanese beetle, Masked chafer, European chafer, Oriental beetle, Asiatic garden beetle)	11	4.50	7.15
	12	5.00	8.35

<sup>1</sup> **Fungus gnat larvae** in the soil will be controlled by drench or incorporation. **No adult Fungus Gnat control.** Other foliar insect control is achieved by the uptake of this product from a healthy root system translocating the active ingredient up into the plant.

<sup>2</sup> **Root Mealybug** control will require a thorough drenching of containerized media. Coverage is essential for control while minimizing the amount of leachate. Rate: 1.0 fluid ounces (30 ml) in 150 gallons of water.

<sup>3</sup> **Citrus Root Weevil:** For use on non-bearing citrus nursery stock.

<sup>4</sup> **Thrips** suppression on foliage only. Thrips in buds and flowers will not be suppressed.

<sup>5</sup> **Note:** For use on vegetable plants intended for resale only including: Broccoli, Chinese Broccoli, Broccoli Raab, Brussels Sprouts, Cabbage, Chinese Cabbage, Cauliflower, Collards, Eggplant, Ground Cherry, Kale, Kohlrabi, Lettuce, Mustard Greens, Pepinos, Peppers, Potatoes, Rape

**DRENCH and IRRIGATION APPLICATIONS**

Use this product for drench and irrigation application only on greenhouse and nursery grown ornamentals, vegetable plants intended for resale only, and interior plantscapes using soil drenches, micro-irrigation, drip irrigation, overhead irrigation, ebb and flood irrigation, or hand-held or calibrated motorized irrigation equipment. Apply this product at the rates listed on the label either alone or in tank mixtures with other pesticides and chemicals registered for application through irrigation systems. The normal dilution ratio is 1:100 to 1:200, depending on the system. Always meter the product into the irrigation water during the first part of the irrigation cycle. The product may be mixed separately prior to injection. Agitation is necessary if the mixture is allowed to stand more than 24 hours. Remove scale, pesticide residue and other foreign matter from the tank and entire irrigation system. Only use this product through micro irrigation (individual spaghetti tubes), drip irrigation, overhead irrigation, ebb and flood, or handheld or motorized calibrated irrigation equipment. Crop injury or lack of effectiveness can result from non uniform distribution of treated water.

**RESTRICTION: DO NOT** apply this product through any other type of irrigation system.

Pests	Ornamental and vegetable plants <sup>5</sup> grown in containers		
	Container size (inches)	Herbaceous species including vegetable plants <sup>5</sup> (1 or 2 plants/pot)	Woody perennials, Herbaceous species including vegetable plants <sup>5</sup> (3 or more/pot)
		# of Containers treated with 1.0 fluid oz (30 ml)	
<b>For control of:</b>	2	3000	2000
Adelgids	3	2000	1350
Aphids	4	1500	1000
Fungus gnats (larvae only) <sup>1</sup>	5	1200	800
Japanese beetles (adults)			
Lacebugs	6	1000	650



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Leaf Beetles (including Elm and Viburnum leaf beetles)	7	850	550
Leafhoppers (including glassy-winged sharpshooter)	8	750	500
Leafminers	9	675	450
Mealybugs	10	600	400
Psyllids	11	550	350
Root mealybugs <sup>2</sup>	12	500	300
Root weevil complex: (such as Apopka, Black vine, Citrus root weevils) <sup>3</sup>	<b>Application method</b>		
Soft scales	Use sufficient volume to wet most of the potting medium without loss of liquid from the bottom of the container. Apply according to label directions. Follow application with moderate irrigation. Irrigate carefully during the next 10 days in order to avoid loss of active ingredient due to leaching.		
Thrips (suppression) <sup>4</sup>	<b>Ornamental and vegetable plants<sup>5</sup> grown in flats, benches, or beds</b>		
Whiteflies	0.34 fl. oz. (10 mL) per 1,000 square feet		
White grub larvae (such as Japanese beetle, Masked chafers, European chafer, Oriental beetle, Asiatic garden beetle)	<b>Application method</b>		
	Mix required amount in sufficient water to uniformly cover the area being treated. Do not use less than 2 gallons of mixture per 1,000 square feet. Apply as a broadcast treatment and incorporate into the medium before planting or apply after plants are established. To optimize control lightly water the treated areas if application is made to established plants. Allow no leaching or runoff for 10 days after application.		

**Remarks**

- <sup>1</sup> **Fungus gnat larvae** in the soil will be controlled by drench or incorporation. **No adult Fungus Gnat control.** Other foliar insect control is achieved by the uptake of this product from a healthy root system translocating the active ingredient up into the plant.
- <sup>2</sup> **Root Mealybug** control will require a thorough drenching of containerized media. Coverage is essential for control while minimizing the amount of leachate. Rate: 1.0 fluid ounces (30 ml) in 150 gallons of water.
- <sup>3</sup> **Citrus Root Weevil:** For use on non-bearing citrus nursery stock.
- <sup>4</sup> **Thrips** suppression on foliage only. Thrips in buds and flowers will not be suppressed.
- <sup>5</sup> For use on vegetable plants intended for resale only including: Broccoli, Chinese Broccoli, Broccoli Raab, Brussels Sprouts, Cabbage, Chinese Cabbage, Cauliflower, Collards, Eggplant, Ground Cherry, Kale, Kohlrabi, Lettuce, Mustard Greens, Peppinos, Peppers, Potatoes, Rape

Pests	Containerized plants	
	Container Size (gallons)	# of Containers treated with 1.0 fluid oz (30 ml)
<b>For control of:</b>		
Adelgids	1	340 – 244
Aphids		
Fungus gnats (larvae only) <sup>1</sup>	2	280 – 210
Japanese beetles (adults)		
Lacebugs		
Leaf Beetles (including Elm and Viburnum)	3	220 – 185
Leafhoppers/Sharpshooters		
Leafminers		
Mealybugs	5	160 – 110
Psyllids		
Root mealybugs <sup>2</sup>		
Root weevil complex: (such as Apoka, Black vine, Citrus root) <sup>3</sup>	7	100 – 75
Soft scales	10	60 – 45
Thrips (suppression) <sup>4</sup>		
Whiteflies		
White grub larvae (such as Japanese beetle, Masked chafers, European chafer, Oriental beetle, Asiatic garden beetle)	15	40 – 30
	20	20 – 15
<b>Application method</b>		

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Apply in sufficient water to wet the potting medium. Make applications prior to egg hatch of the target pest. Irrigate moderately after application to move the active ingredient into the root zone.
<b>Remarks</b>
<sup>1</sup> <b>Fungus gnat larvae</b> in the soil will be controlled by drench or incorporation. <b>No adult Fungus Gnat control.</b> Other foliar insect control is achieved by the uptake of this product from a healthy root system translocating the active ingredient up into the plant.
<sup>2</sup> <b>Root Mealybug</b> control will require a thorough drenching of containerized media. Coverage is essential for control while minimizing the amount of leachate. Rate: 1.0 fluid ounce (30 mL) in 150 gallons of water.
<sup>3</sup> <b>Citrus Root Weevil:</b> For use on non-bearing citrus nursery stock.
<sup>4</sup> <b>Thrips</b> suppression on foliage only. Thrips in buds and flowers will not be suppressed.

<b>Field and Forest Nurseries</b>		
Pests	Fluid ounces / 1,000 ft of row	Fluid ounces / 1,000 square ft
<b>For control of:</b> White grub larvae <sup>1</sup> (such as Japanese beetle, Masked chafers, European chafer, Oriental beetle, Asiatic garden beetle)	1.0 (30 ml)	0.34 (10 ml)  12.8 Fluid ounces / Acre
<b>Application method</b>		
Apply as a uniform band on either side of the row using a band width six (6) inches wider than the actual root ball diameter to be dug.		
<b>Remarks</b>		
Mowing of the vegetation in the area to be treated to a height of 3 inches or less prior to application will improve the consistency of control.		
Apply May through July. For target pest control, treatment must be followed by rainfall or irrigation.		
<sup>1</sup> For grub control in areas of turf, apply as a broadcast application using 0.25 – 0.34 fluid ounces (7 – 10 ml) per 1,000 square feet (10.9 – 12.8 fluid ounces / Acre)		
<b>Restrictions</b>		
<b>DO NOT</b> use less than 2 gallons of spray volume per 1,000 square feet (85 GPA). <b>DO NOT</b> exceed 12.8 fluid ounces / acre per year (0.4 lbs AI/A). <b>DO NOT</b> allow bands in adjacent rows to overlap.		

**LANDSCAPE ORNAMENTALS and PLANTINGS**

This product is for use on ornamentals and plantings in commercial and residential landscapes and interior plantscapes. It is a systemic product. Apply this product by foliar application or soil applications; including soil injection, drenches, and broadcast sprays. Foliar applications offer locally systemic activity against insect pests. Soil applications will result in translocation of the active ingredient upward into the plant system from root uptake. Apply this product where the growing portion of the target plant can absorb the active ingredient. The addition of a nitrogen containing fertilizer, where applicable, into the solution has been shown to enhance the uptake of the active ingredient. When making soil applications to plants with woody stems, systemic activity will be delayed until the active ingredient is translocated throughout the plant. In some cases, this translocation delay could take 60 days or longer. For this reason, soil applications must be made prior to anticipated pest infestation to achieve optimum levels of control.

<b>Ornamental and Non-bearing Fruit and Nut trees, Shrubs, Evergreens, Flowers, Foliage Plants, Groundcovers, Interior Plantscapes</b>	
<b>FOLIAR APPLICATION</b>	
Pests	Fluid ounces/ 100 gallons of water

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**Ornamental and Non-bearing Fruit and Nut trees, Shrubs, Evergreens, Flowers, Foliage Plants, Groundcovers, Interior Plantscapes**

FOLIAR APPLICATION	
Pests	Fluid ounces/ 100 gallons of water
<b>For control of:</b> <u>Larvae of:</u> Adelgids Aphids Japanese beetles (adults) Lacebugs Leaf beetles (including Elm, Viburnum) Leafhoppers/Sharpshooters Leaf miners Mealybugs Sawfly larvae Whiteflies	0.75 (22 ml)
<b>For suppression of:</b> Thrips	

**Nuisance Ant Management:**  
 Use this product to control aphids, scale insects, mealybugs and other sucking pests on ornamentals to limit the honeydew available as a food source for nuisance ant populations. Applications can then be supplemented with residual sprays, bait placements or other ant control tactics to further reduce ant populations.

**Application Methods**  
 Mix product with the required amount of water and apply as desired dependent upon the selected use pattern. When making foliar applications on hard-to-wet foliage such as holly, pine, or ivy, the addition of a spreader/sticker is recommended. If concentrate or mist type spray equipment is used, use an equivalent amount of product on the area sprayed, as would be used in a dilute application. This insecticide has been found to be compatible with commonly used fungicides, miticides, liquid fertilizers, and other commonly used insecticides. The physical compatibility of this product may vary with different sources of pesticide products and local cultural practices. Any tank mixture which has not been previously tested must be prepared on a small scale (pint or quart jar), using the proper proportions of pesticides and water to ensure the physical compatibility of the mixture.

**Remarks**  
 Start treatments prior to establishment of high pest populations and reapply on an as needed basis.

**BROADCAST APPLICATION**

Pests	Fluid ounces/1,000 FT <sup>2</sup>	Fluid ounces/Acre
<b>For control of:</b> White grub larvae such as: Japanese beetle larvae, Chafers, <i>Phyllophaga</i> spp., Asiatic garden beetle, Oriental beetle	0.23 – 0.30 (7.0 – 9.0 ml)	10.0 – 12.8 (0.625 – 0.8 pints)

**Application Methods**  
 Mix required amount of product in sufficient water to uniformly and accurately cover the treatment area. **DO NOT** use less than 2 gallons of water per 1,000 sq ft

**Remarks**  
 Irrigate thoroughly to incorporate this insecticide into the upper soil profile.

**Restrictions**  
**DO NOT** apply more than **0.8 pints (0.4 lbs AI) per acre per year** by broadcast application to outdoor ornamentals.  
**DO NOT** use in commercial greenhouses, nurseries, or on grasses grown for seed, or on commercial production fruit and nut trees.  
**DO NOT** apply to Landscape Ornamentals and Plantings through any irrigation system.

**Ornamental and Non-bearing Fruit and Nut trees, Shrubs, Flowers, and Groundcover**

SOIL APPLICATION	
Pests	USE RATES
<b>For control of:</b> Adelgids Aphids Black vine weevil larvae Emerald ash borer <sup>1</sup> Eucalyptus longhorned borer <sup>1</sup> Flatheaded borers (including Bronze birch and Alder) <sup>1</sup>	For TREES : Use the following rates as a function of tree diameter at breast height (DBH): Apply 0.05 - 0.20 fl oz (1.5 – 6.0 ml) per inch of trunk diameter (DBH).

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**Ornamental and Non-bearing Fruit and Nut trees, Shrubs, Flowers, and Groundcover**

SOIL APPLICATION	
Pests	USE RATES
Japanese beetles Lace bugs Leaf beetles (including Elm and Viburnum) Leafhoppers/Sharpshooters Leafminers Mealybugs Pine tip moth larvae Psyllids Royal palm bugs Sawfly larvae Soft scales White grub larvae Whiteflies	You may use the higher rate (0.2 fl oz) only for trees greater than 15 DBH to control the following pests:  Asian longhorned beetle Emerald Ash Borer Eucalyptus longhorned borer Bronze birch borer Alder borer  Restriction: Do not apply more than 12.8 fl oz (0.4 lb of active ingredient) per acre per year.  Diameter at Breast Height (D.B.H.) = is measured at 4.5 feet from the ground.
	SHRUBS: per foot of shrub height  0.05 – 0.10 fluid ounces (1.5 – 3.0 ml)
	FLOWERS and GROUDCOVER:  0.23 - 0.30 fluid ounces (7.0 – 9.0 ml) / 1000 FT <sup>2</sup>
<b>For suppression of:</b> Armored scales Thrips	Use the higher rates listed in the TREES, SHRUBS, FLOWERS and GROUNDCOVER sections above.

**Application methods for TREES and SHRUBS**

**Soil injection:** Mix the required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. Keep the treated area moist for 7 to 10 days. **DO NOT** use less than 4 holes per tree or shrub.

**Specific Soil Injection methods for trees and large shrubs:**

GRID System:	Holes must be spaced on 2.5 foot centers, in a grid pattern, extending to the drip line of the tree.
CIRCLE System:	Apply in holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) beneath the drip line of the tree extending in from that line.
BASAL System:	Space injection holes evenly around the base of the tree trunk no more than 6 to 12 inches out from the base.

**Soil Drench:** Uniformly apply the dosage in no less than 10 gallons of water per 1,000 square feet as a drench around the base of the tree or shrub, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.

**Remarks**

<sup>1</sup> Application to trees already heavily infested with listed borers may not prevent the eventual loss of the trees due to existing pest damage and tree stress.

**Restrictions**

**DO NOT** apply using Soil Injection methods in Nassau or Suffolk Counties of New York.  
**DO NOT** apply more than 0.8 pints (0.4 lbs AI) per acre per year.

**Application methods for FLOWERS and GROUNDCOVER**

Apply as a broadcast treatment and incorporate into the soil before planting or apply after plants are established. Irrigate immediately following application to established plants.

**Pomefruits:** Apple, Crabapple, Loquat, Mayhew, Pear, Pear (oriental), Quince

FOLIAR APPLICATION		
Pests	USE RATES	
<b>For control of:</b> Aphids (except Woolly apple aphid) <sup>1</sup> Leafhoppers/Sharpshooters <sup>2</sup> Leafminers <sup>3</sup>	0.75 fluid ounces (22 ml) / 100 gallons of water	3.0 fluid ounces/ Acre (90 ml)

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Mealybugs <sup>4</sup> San Jose scale <sup>5</sup>		
<b>Application methods</b>		
Apply the specified dosage as a foliar spray as needed after petal-fall is complete.		
<b>Remarks</b>		
The amount of this product required per acre will depend on tree size and volume of foliage present. The rate per acre is based on a standard of 400 gallons of dilute spray solution per acre for large trees.		
<sup>1</sup> For control of Rosy apple aphid, apply prior to leafrolling caused by the pest.		
<sup>2</sup> For late season (preharvest) control of Leafhopper species, apply this product while most Leafhoppers are in the nymphal stage.		
<sup>3</sup> For first generation Leafminer control, make 1 <sup>st</sup> application as soon as petal-fall is complete. Greatest Leafminer control will result from the earliest possible application. For 2 <sup>nd</sup> and succeeding generations of Leafminer, optimal control is obtained from applications made early in the adult flight against egg and early instar larvae. A 2 <sup>nd</sup> application may be required 10 days later if severe pressure continues or if generations are overlapping. A single application may result in suppression only. This product will not control late state larvae.		
<sup>4</sup> For control of Mealybugs, insure good spray coverage of the trunk and scaffolding limbs or other resting sites of the Mealybugs.		
<sup>5</sup> For San Jose scale, time applications to the crawler stage. Treat each generation.		
<b>Restrictions</b>		
DO NOT apply more than <b>3.0 fluid ounces</b> (0.09 lbs AI) per acre in a single application.		
DO NOT make more than <b>5</b> applications.		
Allow <b>10</b> or more days between applications.		
Allow at least <b>7</b> days between last application and harvest.		
DO NOT use on Pomefruits grown for commercial production.		
DO NOT use in California for control on Pears.		

<b>Ornamental Pecan trees</b>		
<b>FOLIAR APPLICATION</b>		
<b>Pests</b>	<b>USE RATES</b>	
For control of: Yellow pecan aphid Black margined aphid Pecan leaf phylloxera Pecan spittlebug Pecan stem phylloxera	0.75 fluid ounces (22 ml) / 100 gallons of water	3.0 fluid ounces/ Acre (90 ml)
<b>Application methods</b>		
Make foliar applications as pests begin to build before populations become extreme. Two applications at a 10 to 14-day interval may be required to achieve control. Scout and retreat if needed. Thorough uniform coverage of foliage is necessary for optimal control. Addition of an organosilicone-based spray adjuvant at a rate not to exceed the adjuvant manufacturer's use rate may improve coverage.		
<b>Remarks</b>		
The amount of this product required per acre will depend on tree size and volume of foliage present. The rate per acre is based on a standard of 400 gallons of dilute spray solution per acre for large trees.		
<b>Restrictions</b>		
DO NOT apply more than <b>9.0 fluid ounces</b> (0.28 lbs AI) per acre per year.		
DO NOT make more than <b>3</b> applications per year.		
Allow <b>10</b> or more days between applications.		
DO NOT use on Pecans grown for commercial production.		
DO NOT use on Pecans in California unless directed by specific supplemental labeling.		

<b>Grapes</b>		
<b>FOLIAR APPLICATION</b>		
<b>Pests</b>	<b>USE RATES</b>	
For control of: Leafhoppers/Sharpshooters Mealybugs	0.75 fluid ounces (22 ml) / 100 gallons of water	1.5 fluid ounces/ Acre (45 ml)
<b>Application methods</b>		
Apply specified dosage of this product as a foliar spray using 200 gallons of water per acre.		
<b>Restrictions</b>		

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**DO NOT** apply more than **3.0 fluid ounces** (0.09 lbs AI) per acre per year. .  
Allow **14** or more days between applications.  
Application can be made up to and including the day of harvest.

**STORAGE AND DISPOSAL**

**DO NOT** contaminate water, food or feed by storage or disposal.

**PESTICIDE STORAGE:** Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Handle and open container in a manner as to prevent spillage. If the container is leaking, invert to prevent leakage. If container is leaking or material spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material. **DO NOT** walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides below. In spill or leak incidents, keep unauthorized people away.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:**

**Nonrefillable container: DO NOT** reuse or refill this container. Triple rinse (or equivalent) promptly after emptying. 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 or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**WARRANTY DISCLAIMER**

The directions for use of this product must be followed carefully. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, (1) THE GOODS DELIVERED TO YOU ARE FURNISHED "AS IS" BY MANUFACTURER OR SELLER AND (2) MANUFACTURER AND SELLER MAKE NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THE PRODUCT SOLD, INCLUDING, BUT NOT LIMITED TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE, OR ELIGIBILITY OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE. UNINTENDED CONSEQUENCES, INCLUDING BUT NOT LIMITED TO INEFFECTIVENESS, MAY RESULT BECAUSE OF SUCH FACTORS AS THE PRESENCE OR ABSENCE OF OTHER MATERIALS USED IN COMBINATION WITH THE GOODS, OR THE MANNER OF USE OR APPLICATION, INCLUDING WEATHER, ALL OF WHICH ARE BEYOND THE CONTROL OF MANUFACTURER OR SELLER AND ASSUMED BY BUYER OR USER. THIS WRITING CONTAINS ALL OF THE REPRESENTATIONS AND AGREEMENTS BETWEEN BUYER, MANUFACTURER AND SELLER, AND NO PERSON OR AGENT OF MANUFACTURER OR SELLER HAS ANY AUTHORITY TO MAKE ANY REPRESENTATION OR WARRANTY OR AGREEMENT RELATING IN ANY WAY TO THESE GOODS.

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**[SUB-LABEL B: NURSERY, GREENHOUSE and LANDSCAPE ORNAMENTALS]**

EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S OR USER'S EXCLUSIVE REMEDY, AND MANUFACTURER'S OR SELLER'S TOTAL LIABILITY SHALL BE FOR DAMAGES NOT EXCEEDING THE COST OF THE PRODUCT.

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[EPA approval date]