

228-486

3/31/2010

10914

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460



MAR 31 2010

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

Mr. Nathan Ehresman  
Nufarm Americas, Inc.  
501 Cascade Pointe Lane, Suite 103  
Cary, NC 27513

Dear Mr. Ehresman:

Subject: Amendment of label to add tree & shrub irrigation bag uses  
Mantra 2F Insecticide  
EPA Registration No. 228-486  
Your Submissions Dated 09/23/09

The labeling referred to above submitted in connection with the Federal Insecticide, Fungicide and Rodenticide Act, as amended is acceptable. However, to retain the claim for the Emerald Ash Borer pest on your label, you will have 30 days from the date of this letter to submit or cite efficacy data.

A stamped copy of the labeling is enclosed for your records. Please submit one final printed copy of the labeling before releasing the product for shipment. If you have any questions regarding this label, please contact Autumn Metzger at (703) 305-5314 or metzger.autumn@epa.gov.

Sincerely,

A handwritten signature in black ink that reads "Venus Eagle".

Venus Eagle  
Product Manager (1)  
Insecticide-Rodenticide Branch  
Registration Division (7505P)

20914

ACCEPTED

MAR 31 2010

Under the Federal Insecticide, Fungicide,  
and Rodenticide Act, as amended, for the  
pesticide registered under:

GROUP **4A** INSECTICIDE

EPA. Reg. No: 228-486

# MANTRA™ 2F

## Greenhouse and Nursery Insecticide

FOR FOLIAR AND SYSTEMIC INSECT CONTROL ON ORNAMENTALS,  
FRUIT AND NUT TREES, AND VEGETABLE PLANTS IN  
GREENHOUSES, NURSERIES, AND INTERIOR PLANTSCAPES.

<b>ACTIVE INGREDIENT:</b>	
Imidacloprid, 1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine.....	21.4%
<b>OTHER INGREDIENTS:</b> .....	<u>78.6%</u>
<b>TOTAL</b> .....	<b>100.0%</b>

Contains 2 pounds of imidacloprid per gallon.

**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION**  
 SEE INSIDE BOOKLET FOR FIRST AID AND ADDITIONAL PRECAUTIONARY STATEMENTS

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300  
For Medical Emergencies Only, Call (877) 325-1840

EPA REG. NO. 228-486  
EPA EST. NO. \_\_\_\_\_

MANUFACTURED FOR  
NUFARM AMERICAS INC.  
150 HARVESTER DRIVE  
BURR RIDGE, IL 60527  
800-455-2000



NET CONTENTS \_\_\_\_\_ GALS. ( \_\_\_\_\_ Liters)

000228-00486.20091208.Irrigation\_bag  
NUP-06243

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

Harmful if absorbed through skin. Harmful if inhaled. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist. Wear long-sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves (such as Natural Rubber, Selection Category A).

**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, 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.

Important: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "Applicators and Other Handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

<b>USER SAFETY RECOMMENDATIONS</b>	
<b>User should:</b>	
<ul style="list-style-type: none"> <li>• Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.</li> <li>• Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.</li> <li>• 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.</li> </ul>	

<b>FIRST AID</b>	
<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>• <b>DO NOT</b> induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• <b>DO NOT</b> give anything by mouth to an unconscious person.</li> </ul>
<b>IF INHALED</b>	<ul style="list-style-type: none"> <li>• Move the person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further 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 to 20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</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 to 20 minutes. 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>

**HOT LINE NUMBER**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-325-1840 for emergency medical treatment information.

**NOTE TO PHYSICIAN**

No specific antidote is available. Treat the patient symptomatically.

## ENVIRONMENTAL HAZARDS

This product is highly toxic to aquatic invertebrates. **DO NOT** apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment 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 chemical demonstrates the properties and characteristics associated with chemicals detected in groundwater. 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.

**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 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

### APPLICATION TO GRASSY AREAS IN NURSERIES

This product can be used for the control of soil inhabiting pests of grassy areas of nurseries, such as Northern and Southern masked chafers, *Cyclocephala borealis*, *C. immaculata*, and/or *C. lurida*; Asiatic garden beetle, *Maladera castanea*; European chafer, *Rhizotroqus majalis*; Green June beetle, *Cotinis nitida*; May or June beetle, *Phyllophaga* spp.; Japanese beetle, *Popillia japonica*; Oriental beetle, *Anomala orientalis*; Billbugs, *Spherophorus* spp.; Annual bluegrass weevil, *Hyperodes* spp.; Black turfgrass ataenius, *Ataenius spretulus* and *Aphodius* spp. and mole crickets, *Scapteriscus* spp. This product can also be used for suppression of cutworms and chinchbugs. This product can be used as directed on nursery grass in sites such as under or around field or container grown plants, on roadways or other grassy areas in or around nurseries. **DO NOT** use this product on commercial 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. The need for an application can be based on historical monitoring of the site, previous records or experiences, current season adult trapping or other methods. When applications are made prior to egg hatch of the target pests, sufficient irrigation or rainfall is needed to allow the movement of the active ingredient through the thatch.

**DO NOT** make application when grassy areas are waterlogged or the soil is saturated with water. Adequate distribution of the active ingredient cannot be achieved when these conditions exist. The treated grassy area must be in such a condition that the rainfall or irrigation will penetrate vertically in the soil profile. Application cannot exceed a total of 25.6 fluid ounces (1.6 pints) (0.4 lb of active ingredient) per acre per year.

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**Application Equipment for Use on Grassy Areas in Nurseries**

Apply this product in sufficient water to provide adequate distribution in the treated 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 droplet spray, using a low pressure setting to eliminate off target drift. Check calibration periodically to ensure that equipment is working properly.

GRASSY AREAS OF FIELD AND FOREST NURSERIES	
PEST	USE RATE
<b>Larvae of:</b> Annual bluegrass weevil Asiatic garden beetle Billbugs Black turfgrass ataenius Cutworms (suppression) European chafer European crane fly Green June beetle Japanese beetle Northern masked chafer Oriental beetle <i>Phyllophaga</i> spp. Southern masked chafer	19.2 to 25.6 fl oz per acre (1.25 to 1.6 pt per acre) or 0.46 to 0.6 fl oz (14 to 17 ml) per 1,000 sq ft
Chinchbugs (suppression) Mole crickets	25.6 fl oz per acre (1.6 pt per acre) or 0.6 fl oz (17 ml) per 1,000 sq ft
Remarks	
<p>For control of grubs, billbugs and annual bluegrass-weevil, make application prior to egg hatch of the target pest. Read "<b>APPLICATION EQUIPMENT</b>" section of this label.</p> <p>For suppression of chinchbugs, make application prior to or during the hatching of the first instar nymphs. 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, accompany the application of this product with a remedial insecticide. Follow the most restrictive label instructions when tank-mixing.</p> <p>Consult your local turf, state Agricultural Experiment Station, or State Extension Service Specialists for more specific information regarding timing of application. Time application so that Irrigation or rainfall occurs within 24 hours after application to move the active ingredient through the thatch. <b>DO NOT</b> apply more than 25.6 fluid ounces (1.6 pt) (0.4 lb of active ingredient) per acre per year.</p> <p>Delay mowing turf or lawn area until after sufficient irrigation or rainfall has occurred so that uniformity of application will not be affected.</p>	

**APPLICATION TO ORNAMENTALS AND VEGETABLE PLANTS**

This product is for insect control on ornamental and vegetable plants in nurseries and greenhouses and interior plantscapes. This product is a systemic product and will be translocated upward into the plant system. To assure optimum effectiveness, the product must be placed 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 may enhance the uptake of the active ingredient. Application can be made by foliar application or soil applications; including soil injection, drenches, and broadcast sprays.

When making soil applications to plants with woody stems, systemic activity will be delayed until the active ingredient is translocated throughout the plant. Make application prior to anticipated pest infestation.

For outdoor ornamentals, applications cannot exceed a total of 25.6 fluid ounces (1.6 pints) (0.4 lb of active ingredient) per acre per year.

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**Bark Media:** Media with 30% or more bark content may confer a shorter period of protection when treated with this product.

**Resistance:** Some insects are known to develop resistance to insecticides after repeated use. Because the development of resistance cannot be predicted, 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.

**Application Equipment for Ornamentals and Vegetable Plants**

Mix product with the required amount of water and apply as specified for 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 will improve coverage. If concentrate or mist type spray equipment is used, apply an equivalent amount of product on the area sprayed, as would be used in a dilute application.

This product 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. For any tank mixture that has not been previously tested, prepare on a small scale (pint or quart jar), using the proper proportions of pesticides and water to ensure the physical compatibility of the mixture.

**Application through Irrigation Systems**

Apply this product at rates specified 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. Agitate the mixture if 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.

**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.

If you have any questions about calibration, contact your State Extension Service specialist, equipment manufacturers or other experts in this area.

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

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

**SAFETY DEVICES FOR IRRIGATION SYSTEMS CONNECTED TO PUBLICWATER 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.

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5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. **DO NOT** apply when wind speed favors drift beyond the area intended for treatment.

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

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.

<b>FOLIAR &amp; BROADCAST APPLICATIONS: ORNAMENTAL TREES (including non-bearing fruit &amp; nut trees), SHRUBS, EVERGREENS, FLOWERS, FOLIAGE PLANTS, GROUNDCOVERS, INTERIOR PLANTSCAPES, VEGETABLE PLANTS*</b> (around field-grown nursery and container stock, indoor and outdoor ornamentals (including both greenhouse and interior plantscapes) and ornamentals grown in flats, benches or beds)		
<b>FOLIAR APPLICATIONS</b>		
<b>PEST</b>	<b>USE RATE</b>	<b>REMARKS</b>
Adelgids Aphids Japanese beetles (adults) Lace bugs Leaf beetles (including Elm and Viburnum leaf beetles) Leafhoppers (including Glassy-winged sharpshooter) Leafminers Mealy bugs Sawfly larvae Thrips (suppression) Whiteflies	1.7 fl oz (50 ml)  per 100 gallons of water	Start treatments prior to establishment of high pest populations and reapply on an as needed basis. For resistance management purposes, <b>DO NOT</b> make an imidacloprid foliar application following a soil application in the same crop.
<b>BROADCAST APPLICATIONS</b>		
<b>PEST</b>	<b>USE RATE</b>	<b>REMARKS</b>
White grub larvae (such as Japanese beetle larvae, chafers, <i>Phyllophaga</i> spp., Asiatic garden beetle, Oriental beetle)	0.46 to 0.6 fl oz (14 to 17 ml)  per 1,000 sq ft	Mix required amount of product in sufficient water to uniformly and accurately cover the area being treated. <b>DO NOT</b> use less than 2 gallons of water per 1,000 square feet. Irrigate thoroughly to incorporate this insecticide into the upper soil profile. Refer to specific use directions (found below), for Flowers and Ground Covers.
<b>RESTRICTIONS:</b>		
*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.		
<b>DO NOT</b> apply more than 25.6 fluid ounces (1.6 pints) (0.4 lbs AI) per acre per year.		

**SOIL APPLICATIONS: NURSERY, GREENHOUSE AND INTERIORSCAPE PLANTS**

PEST	USE RATE	APPLICATION SITE
<b>TREES</b>		
Adelgids Alder borer Aphids Armored scales (suppression) Black vine weevil larvae Bronze birch borer Emerald ash borer Eucalyptus longhorned borer Flatheaded borers (including Bronze birch and Alder) Japanese beetles Lace bugs Leaf beetles (including elm and viburnum leaf beetles)	(0.1 to 0.2 fl oz) (3 to 6 ml) per inch of trunk diameter for trees < 15" (D.B.H.)  -OR-  (0.1 to 0.4 fl oz) (12 ml) per inch of trunk diameter for trees > 15" (D.B.H.)	<p><b>Soil Injection:</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.</p> <p>Mix 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.</p> <p><b>NEW YORK SPECIFIC RESTRICTION: No Soil Injection Applications Allowed in Nassau or Suffolk Counties of New York.</b></p> <p><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, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.</p> <p><b>For Control of Specified Borers:</b> Application to trees already heavily infested may not prevent the eventual loss of the trees due to existing pest damage and tree stress.</p> <p><b>Basal Soil Drench using Slow Release Irrigation Bags (such as Tregator® 15, 20, or 50 Gallon capacity):</b> Follow manufacturer's instructions for installation and setup of drip irrigation water bag. Fill bag to ¼ capacity with irrigation water. Add the specified rate of this product for the tree diameter to which the bag is attached. Add remaining volume of water needed to fill bag.</p>
<b>SHRUBS</b>		
Leafhoppers (including glassy-winged sharpshooter) Leafminers Mealybugs Pine tip moth larvae Psyllids Royal palm bugs Sawfly larvae Soft scales Thrips (suppression)	0.1 to 0.2 fl oz (3 to 6 ml) per foot of shrub height	<p><b>Soil Injection:</b> Apply to individual plants using dosage indicated.</p> <p>Mix 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 shrub.</p> <p><b>NEW YORK SPECIFIC RESTRICTION: No Soil Injection Applications Allowed in Nassau or Suffolk Counties of New York.</b></p> <p><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, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.</p> <p><b>Basal Soil Drench Using Slow Release Irrigation Bags (such as Tregator® 15, 20, or 50 Gallon capacity):</b> Follow manufacturer's instructions for installation and setup of drip irrigation water bag. Fill bag to ¼ capacity with irrigation water. Add the specified rate of this product for the shrub height to which the bag is attached. Add remaining volume of water needed to fill bag.</p>
White grub larvae Whiteflies	0.46 to 0.6 fl oz (14 to 17 ml)  per 1000 sq ft	<p style="text-align: center;"><b>FLOWERS &amp; GROUNDCOVERS</b></p> <p>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.</p>

**RESTRICTIONS:**

- **DO NOT** apply more than 25.6 fluid ounces (1.6 pints) (0.4 lbs AI) per acre per year.



<b>SOIL APPLICATIONS: FIELD AND FOREST NURSERIES</b>		
<b>Pests</b>	<b>Fluid ounces / 1,000 ft of row</b>	<b>Fluid ounces / 1,000 square ft</b>
<b>For control of:</b> White grub larvae <sup>1</sup> (such as Japanese beetle, Masked chafers, European chafer, Oriental beetle, Asiatic garden beetle)	1.7 fl oz (50 ml)	0.6 fl oz (17 ml)  25.6 fl oz / Acre
<b>Application methods</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>DO NOT</b> allow bands in adjacent rows to overlap.		
<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. Time the treatment so that rainfall or irrigation occurs within 24 hours following the application. <sup>1</sup> For grub control in areas of turf, apply as a broadcast application using 0.46 – 0.60 fluid ounces (14 – 17 ml) per 1,000 square feet (19.6 – 25.6 fluid ounces / Acre)		
<b>RESTRICTIONS:</b>		
<ul style="list-style-type: none"> <li>• <b>DO NOT</b> use less than 2 gallons of spray volume per 1,000 square feet (85 GPA)</li> <li>• <b>DO NOT</b> exceed 25.6 fluid ounces / acre per year (1.6 pints) (0.4 lbs A/A)</li> </ul>		

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**EBB & FLOOD APPLICATIONS**

This product may be applied through Ebb and Flood applications to Ornamental and Vegetable Plants (intended for resale only) grown in containers. 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.

<b>EBB &amp; FLOOD APPLICATIONS: ORNAMENTAL AND VEGETABLE PLANTS<sup>5</sup> GROWN IN CONTAINERS</b>			
<b>PEST</b>	<b>Container size (inches)</b>	<b>Herbaceous species including vegetable plants<sup>5</sup> (1 or 2 plants/pot)</b>	<b>Woody perennials, Herbaceous species including vegetable plants<sup>5</sup> (3 or more/pot)</b>
		<b>ml / 100 plants</b>	
Adelgids	2	1.6	2.5
Aphids			
Armored scales (suppression)	3	2.5	3.7
Fungus gnats (larvae only) <sup>1</sup>			
Japanese beetles (adults)	4	3.3	5.0
Lacebugs			
Leaf Beetles (including Elm and Viburnum)	5	4.2	6.3
Leafhoppers/Sharpshooters			
Leafminers	6	5.0	7.7
Mealybugs			
Psyllids	7	5.9	9.1
Root mealybugs <sup>2</sup>			
Root weevil complex: (such as Apopka, Black vine, Citrus root) <sup>3</sup>	8	6.6	10.0
Soft scales	9	7.4	11.1
Thrips (suppression) <sup>4</sup>			
Whiteflies	10	8.3	12.5
White grub larvae (such as Japanese beetle, Masked chafer, European chafer, Oriental beetle, Asiatic garden beetle)	11	9.0	14.3
	12	10.0	16.7
<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: 2.0 fluid ounces (60 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. <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, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets, Tomatillo, and Tomato			

**DRENCH & IRRIGATION APPLICATIONS**

This product may be applied through Drench and Flood applications. See instructions above "For Application Through Irrigation Systems". Apply only to greenhouse and nursery grown ornamentals, vegetable plants (intended for resale only), and interiorscape plants using soil drenches, microirrigation, drip irrigation, overhead irrigation, ebb and flood irrigation, or hand-held or motorized calibrated irrigation equipment.

**DRENCH & IRRIGATION APPLICATIONS: ORNAMENTAL AND VEGETABLE PLANTS<sup>5</sup> GROWN IN SMALL CONTAINERS, IN FLATS, ON BENCHES, OR IN BEDS**

PEST	CONTAINERIZED PLANTS (small 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 2.0 fluid ounces (60 ml)	
Adelgids	2	3000	2000
Aphids	3	2000	1350
Fungus gnats (larvae only) <sup>1</sup>	4	1500	1000
Japanese beetles (adults)	5	1200	800
Lacebugs	6	1000	650
Leaf Beetles (including Elm and Viburnum leaf beetles)	7	850	550
Leafhoppers (including glassy-winged sharpshooter)	8	750	500
	9	675	450
Leafminers	10	600	400
Mealybugs	11	550	350
Psyllids	12	500	300
Root mealybugs <sup>2</sup>	<b>Application methods</b>		
Root weevil complex: (such as Apopka, Black vine, Citrus root weevils) <sup>3</sup>	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 prevent loss of active ingredient due to leaching.		
Soft scales	<b>PLANTS IN FLATS, ON BENCHES, OR IN BEDS</b>		
Thrips (suppression) <sup>4</sup>	0.67 fluid ounces (20 ml) per 1,000 square feet		
Whiteflies	<b>Application methods</b>		
White grub larvae (such as Japanese beetle, Masked chafers, European chafer, Oriental beetle, Asiatic garden beetle)	Mix required amount in sufficient water to uniformly cover the area being treated. <b>DO NOT</b> 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. 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: 2.0 fluid ounces (60 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, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets, Tomatillo, and Tomato

**RESTRICTIONS:**

\* For outdoor ornamentals grown in beds or turf, applications of this product cannot exceed a total of 25.6 fluid ounces (1.6 pints) (0.4 lb of active ingredient) per acre per year.

**DRENCH AND IRRIGATION APPLICATIONS: ORNAMENTAL AND VEGETABLE PLANTS<sup>5</sup> GROWN IN LARGE CONTAINERS**

**Application instructions:** Use 2.0 fl oz (60 ml) of product in an appropriate amount of water to prevent leaching. 2.0 fl oz (60 ml) will treat the number of containers specified below, based on container size.

Pests	Container Size (gallons)	# of Containers treated with 2.0 fluid ounces (60 ml)
Adelgids Aphids Fungus gnats (larvae only) <sup>1</sup> Japanese beetles (adults)	1	340 – 244
Lacebugs Leaf Beetles (including Elm and Viburnum leaf beetles)	2	280 – 210
Leafhoppers (including glassy-winged sharpshooter)	3	220 – 185
Leafminers Mealybugs Psyllids	5	160 – 110
Root mealybugs <sup>2</sup> Root weevil complex: (such as Apopka, Black vine, Citrus root) <sup>3</sup>	7	100 – 75
Soft scales Thrips (suppression) <sup>4</sup> Whiteflies	10	60 – 45
White grub larvae (such as Japanese beetle, Masked chafers, European chafer, Oriental beetle, Asiatic garden beetle)	15	40 – 30
	20	20 – 15

**Application methods**

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.

**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: 2.0 fluid ounces (60 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>6</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, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets, Tomatillo, and Tomato

### SPECIFIC 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. **DO NOT** apply this product to soils which are water logged or saturated, which will not allow penetration into the root zone of the plants. **DO NOT** allow leachate run out for the first 10 days after application, in order to retain the product and facilitate full plant uptake of the active ingredient.

For outdoor ornamentals grown in beds or turf, applications of this product cannot exceed a total of 25.6 fluid ounces (1.6 pints) (0.4 lb of active ingredient) per acre per year.

**Food crops:** 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.

### 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. You may contact CHEMTREC at 800-424-9300 for decontamination procedures or any other assistance that may be necessary.

**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.

Refillable Container: Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Close all openings and replace all caps. Contact Nufarm's Customer Service Department at 1-800-345-3330 to arrange for return of the empty refillable container.

### 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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**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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