

# **ORNAMENTAL TREES - SOIL INJECTION AND DRENCH APPLICATIONS**

## General Information

### RESISTANCE MANAGEMENT

Certain insects may develop resistance to insecticides after repeated use. Use different resistance management practices such as rotating classes of insecticides to help delay or minimize insect resistance.

This product contains the active ingredient imidacloprid, which is a Group 4A insecticide. Repeated use of Group 4A insecticides may lead to insect pests that become resistant to imidacloprid or other neonicotinoids (Group 4A) insecticides.

To reduce the chances of development of resistance to Group 4A insecticides, do not make more than three (3) consecutive foliar applications of this product and/or other Group 4A insecticides with similar modes of action. In addition, Nufarm strongly recommends the use of other insecticides with a different mode of action prior to or after application of this product. This strategy of insecticide rotation in concert with other IPM practices is considered an effective way to delay or minimize an insect's ability to develop resistance to this class of chemistry.

Some Group 4A neonicotinoid products used as foliar treatments include the active ingredients thiamethoxam (found in Actara and Centric), acetamiprid (found in Assail and Intruder), thiacloprid (found in Calypso), and imidacloprid (found in Leverage, Provado, and Trimax). Some Group 4A neonicotinoid products used as soil treatment include thiamethoxam (found in Platinum) and imidacloprid (found in Admire).

Additional information on insect resistance management may be obtained from your local Extension specialist, certified crop advisor and/or product manufacturer, or from the Insecticide Resistance Action Committee (IRAC) on the Web at <http://iraconline.org/>.

### USE INFORMATION

Thorough uniform coverage is necessary to achieve optimal control. A spray

adjuvant may be used to improve coverage. This product may not knock down established and heavy insect populations. Two applications may be required to achieve control; retreat if needed and as directed on this label. Tank mix this product with other insecticides as specified for knockdown of pests or for improved control of other pests.

#### USE RESTRICTIONS (All Uses)

- DO NOT make a foliar application of any chloronicotinyl insecticide for resistance management purposes following a soil application of this product on the same crop.
- DO NOT use product packets in a tank mix with products that contain boron or release free chlorine; the PVA packet reacts with boron or free chlorine to produce a plastic that is not soluble in water. NOTE: Normal chlorinated water is acceptable for mixing.
- DO NOT use this product on commercial sod farms.
- DO NOT allow livestock to graze in treated areas or use clippings from treated areas for feed or forage unless specified otherwise on this label.
- DO NOT apply this product to soils that are waterlogged or saturated.
- DO NOT allow runoff or puddling of irrigation water following application.
- DO NOT allow leachate to run off for the first 10 days after application or reduced efficacy may result.
- DO NOT exceed the total 5.375 packets (8.6 oz.) of this product (0.4 lb. AI)/Acre per year specified for the uses indicated on this label.

#### ROTATION CROPS RESTRICTIONS

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 crop that do not have existing tolerances for imidacloprid, may not be planted in treated areas for 12 months after the last application.

Refer to the table in the label for plantback intervals for different crops. Note that if cover crops are planted any time after an application of this product, those crops may not be grazed or harvested for food or feed.

#### APPLICATION THROUGH IRRIGATION SYSTEMS (CHEMIGATION)

Apply this product 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 1:10 to 1:200, depending on the system. Always meter the product into the irrigation water during the first part of the irrigation cycle. Mix the product separately prior to injection. Agitate as 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. 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 should 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 to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. DO NOT apply when wind speed favors drift beyond the area intended for treatment.

#### 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 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.

Limitations, Restrictions, and Exceptions

#### APPLICATION TO LANDSCAPE ORNAMENTALS

Use this product as directed below on ornamentals in and around commercial and residential landscapes and interior plantscapes to control or suppress listed insects.

This is a systemic product and will be translocated upward into the plant system from root uptake. Plants absorb this product from either foliar or soil applications. Apply this product to areas 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. Application can be made by foliar application or soil applications; including soil injection, drenches, and broadcast sprays. Foliar applications offer locally systemic activity against insect pests.

**Woody Perennials:** 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, applications must be made prior to anticipated pest infestation to achieve control.

**Bark Media:** Treatments of this product to media with 30 to 50% or more bark content may confer a shorter period of protection.

**Ant Management Programs:** 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 ant populations. Applications can then be supplemented with residual sprays, bait placements or other ant control tactics to further reduce the pest population.

**ORNAMENTAL TREES** (in and around the perimeter of industrial and commercial buildings and residential areas, and state, national, and private wooded and

forested areas for the insect pests listed.

Use Rate:

Diameter at Breast Height (DBH) is measured at 4.5 feet from the ground.

Use the following rates as a function of tree diameter at breast height (DBH): Apply 1 packet (1.6 oz.) per 12–48 inches of trunk diameter (DBH).

You may only use the higher rate on trees >15 inches (DBH) to control: Asian longhorned beetle, Emerald ash borer, Eucalyptus longhorned borer, Bronze birch borer, and Alder borer.

To calculate the higher rates, divide trunk diameter by 12–23 inches. Refer to example calculations below.

**RESTRICTION: DO NOT** apply more than 5.375 packets (8.6 oz.) (0.4 lb. AI) per acre per year.

## TREES

Soil Injection: **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.

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. **DO NOT** use less than 4 holes per tree.

**NEW YORK SPECIFIC RESTRICTION:** No Soil Injection Applications Allowed in Nassau or Suffolk Counties of New York.

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, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.

For Control of Specified Borers:

Application to trees already heavily infested may not prevent the eventual loss of the trees due to existing pest damage and tree stress.

#### EXAMPLE CALCULATIONS:

Example 1 (to calculate the standard rate): If you have three trees having DBH of 8, 10 & 16 inches, the total cumulative inches of trunk diameter is 34 inches ( $8 + 10 + 16 = 34$ )

$34/48 = 0.708 \times 1.6 \text{ fl. oz. (1 packet)} = 1.13 \text{ oz. -OR- } 34/24 = 1.417 \times 1.6 \text{ fl. oz. (1 packet)} = 2.27 \text{ oz.}$

If you have a single tree with a DBH of 12 inches, the lower rate range will be:

$12/48 = 0.25 \times 1.6 \text{ oz. (1 packet)} = 0.4 \text{ oz. -OR- } 12/24 = 0.5 \times 1.6 \text{ oz. (1 packet)} = 0.8 \text{ oz.}$

Example 2 (To calculate the higher rate): If you have three trees having DBH of 15, 20 & 25 inches, the total cumulative inches of trunk diameter is 60 inches ( $15 + 20 + 25 = 60$ )

$60/23 = 2.6 \times 1.6 \text{ fl. oz. (1 packet)} = 4.17 \text{ oz. -OR- } 60/12 = 5 \times 1.6 \text{ fl. oz. (1 packet)} = 8 \text{ oz.}$

If you have a single tree with a DBH of 30 inches, the higher rate range will be:

$30/23 = 1.3 \times 1.6 \text{ oz. (1 packet)} = 2.08 \text{ oz. -OR- } 30/12 = 2.5 \times 1.6 \text{ oz. (1 packet)} = 4.0 \text{ oz.}$

#### Application Instructions

- Pine sawfly larvae feed on mature foliage beginning in early spring. Make treatments in the fall before pine sawfly emergence in spring to allow adequate time for imidacloprid translocation into mature foliage.
- Diameter at Breast Height (DBH) is measured at 4.5 feet from the ground.

Method

[Soil drench](#)

[Soil Injection](#)

Rates

[field rates 0](#)

[field rates 1](#)

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Restricted Entry Interval

12 hours

Exception: If the product is applied by drenching, 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.

Timings

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