**Products containing imidacloprid for Arboricultural Uses have been classified "Restricted Use" in New York State**

# Imidacloprid: Best Management Practices for Long Island, New York

## *Arboricultural Uses*

CORNELL Cooperative Extension of SUFFOLK COUNTY

New York State Department of Environmental Conservation

BAYER

Bayer CropScience

# BEST MANAGEMENT PRACTICES

## Arboricultural Use of Merit for Soil Drench Application in Nassau and Suffolk Counties, NY

### Introduction

When the New York Department of Environmental Conservation (NYDEC) granted state registration to imidacloprid products such as *Merit*, it did so with the understanding that the aquifer and soils of Nassau and Suffolk Counties on Long Island presented unique conditions. As a condition of registration, test wells were set up on Long Island, and researchers monitored the wells for imidacloprid levels to ensure the safety of both the public and the environment. Test wells were created, mutually agreed upon thresholds for acceptable levels of the product were established, and imidacloprid use on Long Island was monitored.

In 2002, trace amounts of imidacloprid were detected in certain test wells and in certain private drinking water wells. While the levels were below the mutually agreed upon threshold limits for any action, the NYDEC met with representatives of the Bayer Corporation and with industry leaders, to share the information and to discuss its concerns about the detections and *Merit* use in Nassau and Suffolk Counties on Long Island.

During meetings with members of the arboriculture community, both the NYDEC and the arborists recognized and understood the delicate environmental balance between the protection and preservation of trees from devastating pests, and the need to protect our aquifer system from chemical elements used in pest management. Both parties agreed to take a proactive approach to ensure public safety and environmental integrity. Both parties understood that if the amounts of imidacloprid detected in the test wells reached agreed-upon thresholds, certain uses of imidacloprid would be discontinued in Nassau and Suffolk counties on Long Island. These mutually agreed-upon threshold limits for action remain in place.

As a result, arborists, New York Department of Environmental Conservation and Bayer agreed to develop and present the arboricultural community with Best Management Practices (BMP), for soil applications of *Merit* for management of tree and shrub pests in Nassau and Suffolk Counties on Long Island, New York. (NOTE: Soil injections with *Merit* are currently excluded from use in these counties). This document has been reviewed by staff at F. A. Bartlett Tree Expert Co., the Davey Tree Expert Co., Bayer CropScience L.P., New York State Department of Environmental Conservation, Cornell Cooperative Extension of Suffolk County and Cornell University. The goal of this BMP is to help limit the amount of *Merit* being used in arboriculture in a manner that still allows professional arborists to ensure that the trees and shrubs in Nassau and Suffolk Counties on Long Island are protected from invasive and potentially devastating pests. Guidelines for other uses of imidacloprid in

agricultural crops and turf care are addressed in other Best Management Practices available from dealers, Bayer CropScience or Cornell Cooperative Extension.

## I. Purpose

The purpose of these Best Management Practices is to provide the arboricultural industry on Long Island with a clear, concise set of practices that will substantially reduce the amounts of *Merit* being applied to trees and shrubs, while at the same time protecting trees and shrubs from invasive and destructive insect pests. Adhering to these Best Management Practices should help reduce the environmental load of *Merit* used in landscapes.

In developing this manual, the scientists have taken the following factors into consideration:

- The specific concerns regarding the aquifer system and soil types in Nassau and Suffolk Counties in New York
- The viability of limiting the dosage and application rates of *Merit* tailored for Long Island conditions while still achieving plant protection
- The availability of other treatments and products for certain pests
- The viability of limiting the method of application
- The viability of limiting treatments to certain times of the year
- The need for *Merit* to protect trees and shrubs from invasive and destructive insect pests

The practices outlined in this manual are consistent with the U.S. Environmental Protection Agency registered label directions and will substantially reduce the amount of *Merit* used in tree care in Nassau and Suffolk Counties by recommending optimum application methods and techniques.

## II. ABC Evaluation of the Need for *Merit*

**A)** **A**lways identify the pest on the plant, or identify the host species in the area as having a history of being attacked and seriously damaged by the pest.

**B)** **B**efore prescribing *Merit* ensure that the pests that are not readily controlled by other techniques or products, and that the pests will cause significant impact to plant health and survival. Contact Cornell Cooperative Extension for more information on alternatives to Merit. Cornell Cooperative Extension's *Pest Management Guide for Commercial Production and Maintenance of Trees and Shrubs*, updated annually, also lists helpful information on alternatives and other relevant topics.

**C)** **C**ommit to making the most effective and environmentally sensitive use of *Merit* when needed by adhering to the guidelines set forth limiting applications to the specific target pests, times of the year for application, reduced mixture rates, and application techniques listed below.

## III. Limit the Target Pest

Limit *Merit* soil applications to the target pests and the treatment periods outlined in Table 1. Other labeled options might be considered particularly where more effective or suitable, such as foliar sprays or trunk injections. Consult the Cornell *Pest Management Guide for Commercial Production and Maintenance of Trees and Shrubs* or local County Extension offices for details.

**Table 1.** Labeled pest problems where few or less effective alternatives exist

| Pest | Treatment Period |
|---|---|
| Flathead borers | Spring or Fall |
| Adelgids | Spring or Fall |
| Japanese beetle | Spring or Fall |
| Leaf beetles | Spring or Fall |
| Leafminers | Spring or Fall |
| Soft scales | Spring or Fall |

**NOTE:** In addition to the applications shown in Table 1, *Merit* may also be used when all three of the following conditions exist:

i. The pest is listed on the label, and
ii. The pest, if left untreated, will seriously impact plant health, and the health and welfare of individuals or the environment
iii. The pest is impractical to manage with other control methods due to environmental and public safety considerations, such as the potential for drift.

## IV. Limit the Timing of the Application

- Only one treatment per plant should be applied per calendar year.
- Spring applications should generally be made from April 1 to May 31.
- Fall applications should generally be made from August 15 to November 1.
- Apply at suggested timings indicated in the table for best efficacy and root uptake.

## V. Limit the Application Rate

*Merit* is available as three different products: *Merit 75WP*, *Merit 75WSP* and *Merit 2*. *Merit 75WP* and *Merit 75WSP* are wettable powders with 75% active ingredient (ai). *Merit 75WSP* is sold in pre-measured 1.6 ounce water-soluble packets (WSP). *Merit 2* is a flowable liquid with 21% ai (2 lb ai/ gallon). For soil application, *Merit 75WP* label rates allow for 1.0 - 2.0 ounces per 30 cumulative inches of trunk diameter (DBH*) or 30 cumulative feet of shrub height. Each *Merit 75WSP* packet treats 24 - 48 cumulative inches of trunk diameter (DBH*) or 24 - 48 cumulative feet of shrub height. *Merit 2* label rates allow for 0.10 to 0.20 fluid ounces per cumulative inch of trunk diameter (DBH*) or foot of shrub height. For certain pests of ornamentals, such as adelgids and soft scales, acceptable control can be achieved with the rates listed in the table below. Efficacy of the product and residual activity at the prescribed does can depend on the timing of application, target pest and the species of ornamental being treated. **The reduced rates below are within these label specifications**. Mix *Merit* in sufficient water and apply, as described per label directions, to allow distribution of the product within the target root zone.

### Reduced Rate Ranges for Trees:

| MERIT 2 | MERIT 75WP | MERIT 75WSP |
|---|---|---|
| Apply 0.10 to 0.15 fluid ounces per inch of trunk diameter (DBH*) | Apply 1.0 to 1.5 ounce rate to treat trees per 30 cumulative inches of trunk diameter (DBH*) | Apply 1.6 ounce packet to treat trees with 32 to 48 cumulative inches of trunk diameter (DBH*) |

*DBH - diameter at breast height, i.e. measured 4 1/2 feet above the ground. “Cumulative inches of trunk diameter” is defined as the combined total of inches DBH of all trees to be treated. For example, if three hemlocks are to be treated having DBH of 10, 18 and 24 inches, the total cumulative inches of trunk diameter will be 52 inches (10 + 18 + 24 = 52).

## Reduced Rate Ranges for Shrubs:

| MERIT 2 | MERIT 75WP | MERIT 75WSP |
|---|---|---|
| Apply 0.10 to 0.15 fluid ounces per foot of shrub height | Apply 1.0 to 1.5 ounce rate to treat shrubs per 30 cumulative feet of height† | Apply 1.6 ounce packet to treat shrubs with 32 to 48 cumulative feet of height† |

†"Cumulative shrub height" is defined as the combined total, from the ground to the top of the shrub, of all shrubs being treated. For example, if four two-foot high boxwoods are to be treated, the cumulative height will be eight cumulative feet (4 x 2 = 8).

**NOTE:** Rates higher than 0.15 fluid ounces of *Merit 2* or 0.05 ounces of *Merit 75WP* or *Merit 75WSP* per inch of trunk diameter (or shrub height in feet) shall not be used in Nassau or Suffolk counties (i.e. *Merit 2* rates of 0.151 to 0.20 fluid ounces per inch of stem diameter, *Merit 75WP* rates of 1.51 ounces per 24 to 30 inches of trunk diameter or *Merit 75WSP* rates of 1.6 ounces per 24 to 31.9 inches of trunk diameter shall not be used in Nassau or Suffolk counties of New York). **The reduced rates outlined above represent a potential reduction of up to 50% in the amount applied while still used according to label specifications.**

## VI. Limit the Soil and Moisture Conditions

Do not apply *Merit* under any of the following soil conditions:

- Where the water table is shallow to prevent possible leaching into groundwater
- When soil is frozen or saturated
- Directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.
- When heavy rainfall is expected within 24 hours of the planned treatment

**NOTE:** The presence of a shallow water table can be determined from site inspection, the presence of standing water, the existence of poor drainage, or through the use of soil maps of the Long Island area.

## VII. Use Proper Application Technique

To assure optimum effectiveness, *Merit* must be placed where the target plant roots can readily absorb the active ingredient. Fine roots that absorb the material are typically located in the upper six inches of soil in an area close to the trunk of the tree or shrub. If organic mulch is present, move mulch aside prior to making drench applications.

## Check Application Equipment

- Equipment must be properly calibrated and be maintained in good working order.
- Equipment used to store and deliver *Merit* solutions must not have leaks or the reasonable potential for spillage.
- Mix and fill equipment over a spillage containment pad or impervious surface such as a plastic sheet, at least 25 feet (of which at least 15 feet must be heavily vegetated) from any potential groundwater or surface water conduits such as storm drains, sumps or well heads.
- Handle spills properly. In the event of a liquid spill, promptly spread an absorbent material such as sawdust or cat litter. When there is a high likelihood of surface or groundwater contamination, dam around the spill. Do not allow the material to wash into drains, recharge basins, or similar areas where there is a high risk of leaching or runoff. Sweep or shovel the absorbent material into a heavy-duty plastic bag. Repeat this procedure a number of times to ensure thorough decontamination. Sweep up granules or dry product. For areas where soil needs to be removed, immediately shovel the top 2-3 inches of soil into a heavy-duty bag and cover area with fresh topsoil. Imidacloprid-contaminated soil and absorbent material in quantities under 500 lbs can be disposed of through the normal waste stream. For larger spills and for more information regarding disposal and spill guidelines, contact Bayer CropScience at 1-800-334-7577, Chemtrec at 1-800-424-9300, or the State Department of Environmental Conservation at either 1-800-457-7362 (to report spills) or 631-444-0320 (for questions regarding spill clean-up).

## Limit the Method of Soil Drenching

- Uniformly apply the recommended dosage of *Merit* diluted in no less than 10 gallons of water per 1,000 square feet, using sufficient water to just adequately wet the root zone. Direct the drench to the root zone at the base of the tree or shrub.

## IMPORTANT!

This bulletin is not intended to provide all the information necessary for the use of this product. Before using the product, read and carefully observe the precautionary statements, directions for use, restrictions, storage and disposal statements and other pertinent information on the label. For additional product information, call toll-free 1-866-99BAYER (1-866-992-2937) or visit our Web site at BayerCropScienceUS.com, or contact Cornell Cooperative Extension of Suffolk County.

*ALWAYS READ AND FOLLOW LABEL DIRECTIONS. These guidelines are not a substitute for pesticide labeling. Applicators should be sure to verify current NY pesticide labels and registration status at http://pmep.cce.cornell.edu/pims/current/.*

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