



# Application | Guidelines





# Effective and Respectful. Mallet 2F T&O<sup>®</sup> Insecticide.

**Pest control with traditional foliar spray applications can be challenging.** Adequate spray coverage is difficult to achieve on large species, and overspray can be a concern for workers and the environment.

Mallet 2F T&O is a better choice for insect control in these applications because it can be applied by directing the application to the soil and root zone, allowing the growing vegetation to uptake and distribute the insecticide inside the plant where it is needed.

**Mallet 2F T&O has several label use features\* that have been designed to meet the needs of landscape professionals and arborists.**

- Higher use rate (0.3-0.4 fluid ounces) for large trees (>15 inches DBH) when making applications for: Emerald ash borer, Asian longhorned beetle, Eucalyptus longhorned borer, Bronze birch borer, and Alder borer
- Unique tree language for basal drench using slow release irrigation bags (Such as *Treegator*<sup>®</sup>, see page 6)
- Expanded labeling for use of Mallet 2F T&O on citrus and avocado in residential, commercial and industrial areas

**Imidacloprid, the active insecticide ingredient in Mallet 2F T&O, is systemic.**

It works inside the plant and is mobile within the plant's vascular system. Once taken up by the plant, Mallet 2F T&O stops insects in their tracks as feeding pests ingest the insecticide circulating through the plant. Mallet 2F T&O also provides protection of new plant growth without repeat applications.



\*these uses are pending state registration in CA and NY

# Powerful. Pest Protection.

- Adelgids
- Aphids
- Armored scales (*suppression*)
- Black vine weevil larvae
- Emerald ash borer
- Eucalyptus longhorned borer
- Flatheaded borers (*includes bronze birch and alder borer*)
- Japanese beetles
- Lace bugs
- Leaf beetles (*includes viburnum leaf beetle*)
- Leafhoppers (*includes glassy-winged sharpshooter*)
- Leafminers
- Mealybugs
- Pine tip moth larvae
- Psyllids
- Royal palm bugs
- Sawfly larvae
- Soft scales
- Thrips (*suppression*)
- White grub larvae
- Whiteflies

Approved for use in trees, shrubs, flowers,  
groundcovers, interior plantscapes, fruit and nut trees.



<sup>1</sup>David Cappaert, Michigan State University, Bugwood.org

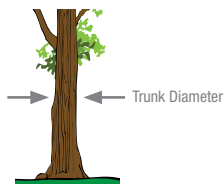
<sup>2</sup>Steven Katovich, USDA Forest Service, Bugwood.org

# Simple and Effective. Two Application Steps.

## Step One: Determine Application Rate

The rate of Mallet 2F T&O required to control insects in trees and shrubs is dependent upon the size of the plant being treated. Larger trees and shrubs require a higher dose of insecticide.

### Trees



1. Measure the diameter of the trunk at breast height. (Approximately 4-5 feet above the ground.)
2. Select an application method (see pages 5-6) and apply 0.1 to 0.2 fluid ounces of Mallet 2F T&O for each inch of trunk diameter. Note higher use rates for larger trees when making applications for certain pests.\*

*Example: A tree with a 8" trunk diameter requires 0.8 to 1.6 fluid ounces of Mallet 2F T&O insecticide.*

### Shrubs



1. Measure the height of the targeted shrub.
2. Select an application method (see pages 5-6) and apply 0.1 to 0.2 fluid ounces of Mallet 2F T&O for each 12" of total shrub height.

*Example: A 24" tall shrub requires 0.2 to 0.4 fluid ounces of Mallet 2F T&O insecticide.*

### Flowers and Groundcover



1. Measure the square footage of the flower bed or landscape area by multiplying length x width.
2. Apply 0.46 to 0.6 fluid ounces of Mallet 2F T&O for each 1,000 sq ft of area to be treated.

*Example: A 30' x 10' (300 sq ft) bed requires 0.138 to 0.18 fluid ounces of Mallet 2F T&O insecticide.*

\*For Asian longhorned beetle, Emerald ash borer, Eucalyptus longhorned borer, Bronze birch borer, and Alder borer, apply 0.1 to 0.4 fluid ounces (3 to 12 mL) of Mallet 2F T&O per inch of trunk diameter (DBH). You may use the higher rate (0.3 to 0.4 fluid ounces) only for trees >15 inches (DBH).

*Example: A tree with 16" trunk diameter where you are treating for Emerald ash borer requires 1.6 to 6.4 fluid ounces of Mallet 2F T&O insecticide.*

## Step Two: Select Application Method

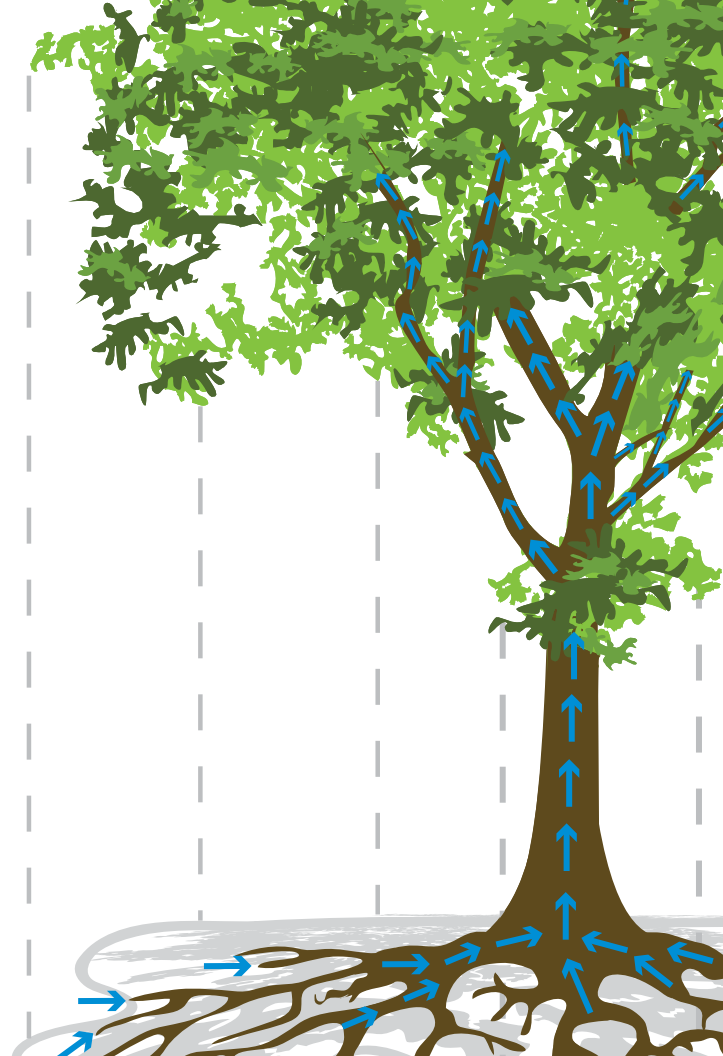
### Approved Application Options

Application	Tree	Shrub	Flowers and Groundcover
Soil Injection	Yes	Yes	No
Soil Drench	Yes	Yes	No
Broadcast	No	No	Yes

**Note:** For best results apply before extensive infestation and when tree is actively growing and sap movement is adequate. Treatments to heavily damaged plants may not prevent eventual plant loss.

**Note:** Consult your state agricultural experiment station or state service specialist for more specific information regarding timing of application.

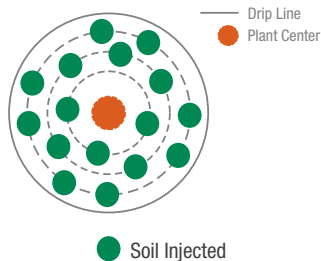
*(Soil injection, soil drench, and broadcast application methods are designed to deliver insecticide toward the roots, where the product can be taken up by the targeted plant.)*



# Application Options To Fit Your Needs.

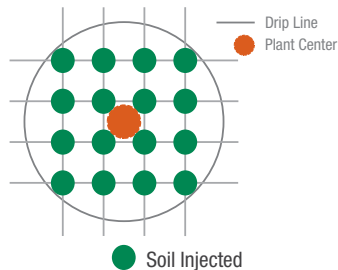
## Soil Injection, Basal Drench, Soil Drench, Broadcast.

### Soil Injection: Trees and Shrubs



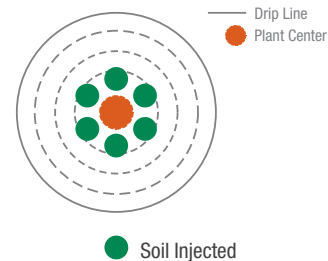
#### Circle System\*

Mix the Mallet 2F T&O solution calculated in Step One with clean water or fertilizer solution so that the solution may be effectively injected into the soil under the drip line of the targeted plant. Use enough water so that the dilution can be divided and injected in evenly spaced circles; use more than one circle depending on the size of the tree. Use no less than 4 injection points.



#### Grid System

Mix the Mallet 2F T&O solution calculated in Step One with clean water or fertilizer solution so that the solution may be effectively injected into the soil under the drip line of the targeted plant. Use enough water so that the dilution can be divided and injected in 2.5 foot centers around the tree. Use no less than 4 injection points.



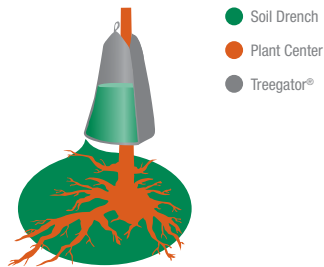
#### Basal System

Mix the Mallet 2F T&O solution calculated in Step One with clean water so that the solution may be effectively injected into the soil around the base of the targeted plant. Use enough water so that the dilution can be divided and injected evenly around the base of the tree trunk no more than 6 to 12 inches out from the base and no less than 4 injection points.

**\*Note:** In recent research studies, it has been found that Circle and Grid System treatments do not need to extend completely to the drip line, since fine root concentration is highest near the trunk. For example, in a recent Emerald ash borer presentation, Dan Hems of Ohio State recommends 12 grid injections within a 36" x 36" square for a 24" DBH tree. For detailed recommendation information, contact local state extension professionals for advice.



## Basal Drench: Trees and Shrubs

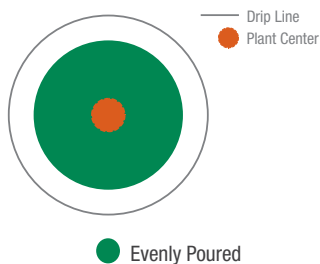


### Basal Drench using Slow Release Irrigation Bags

(Such as Treegator® 15, 20, or 50 gal capacity)

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.

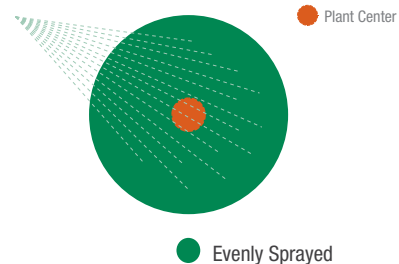
## Soil Drench: Trees and Shrubs



Mix the Mallet 2F T&O solution calculated in Step One with clean water so that the treatment solution may be effectively poured onto the soil around the base of the targeted plant. Use enough water so that the dilution rate can be evenly applied around the base of the plant. Dilution rates with water should be no less than 10 gallons of treated solution per 1,000 sq ft treated under the plant base.

Drench should be evenly applied to the area inside the drip line and/or plant canopy.

## Broadcast: Flowers and Groundcover



Mix the Mallet 2F T&O solution calculated in Step One with clean water so that the treatment solution may be broadcast sprayed onto the treatment area.

Treatment must be activated following application to allow the insecticide to be taken up by the plants. Activation in established beds and covers may be accomplished with irrigation. For applications made before planting, the insecticide may be activated with a light incorporation tillage or with irrigation immediately following application.



# Application Rates. Mallet® 2F T&O.

## Flowers and Groundcover

### Broadcast

fluid oz or ml of Mallet 2F T&O per 1,000 sq ft

Treatment Area	Low Rate 0.46 oz / 13.6 ml	High Rate 0.60 oz / 17.75 ml
100 sq ft	0.05 oz / 1.5 ml	0.06 oz / 1.75 ml
250 sq ft	0.12 oz / 3.55 ml	0.15 oz / 4.45 ml
500 sq ft	0.23 oz / 6.8 ml	0.3 oz / 8.85 ml
1,000 sq ft	0.46 oz / 13.6 ml	0.6 oz / 17.75 ml
2,000 sq ft	0.92 oz / 27.2 ml	1.2 oz / 35.5 ml
4,000 sq ft	1.84 oz / 54.4 ml	2.4 oz / 70.95 ml
5,000 sq ft	2.3 oz / 68.0 ml	3.0 oz / 88.7 ml
10,000 sq ft	4.6 oz / 136.0 ml	6.0 oz / 177.4 ml
15,000 sq ft	6.9 oz / 204.05 ml	9.0 oz / 266.15 ml
20,000 sq ft	9.2 oz / 272.05 ml	12.0 oz / 354.85 ml
30,000 sq ft	13.8 oz / 408.05 ml	18.0 oz / 532.26 ml
43,560 sq ft	20.04 oz / 603.25 ml	26.14 oz / 772.95 ml

## Trees

### Soil Injection / Drench

fluid oz or ml of Mallet 2F T&O per 1" diameter trunk

Tree Diameter	Low Rate 0.1 oz / 3.0 ml	High Rate 0.2 oz / 5.9 ml
1 in	0.1 oz / 3.0 ml	0.2 oz / 6.0 ml
2 in	0.2 oz / 6.0 ml	0.4 oz / 12.0 ml
4 in	0.4 oz / 12.0 ml	0.8 oz / 24.0 ml
6 in	0.6 oz / 18.0 ml	1.2 oz / 35.0 ml
8 in	0.8 oz / 24.0 ml	1.6 oz / 47.0 ml
10 in	1.0 oz / 30.0 ml	2.0 oz / 59.0 ml
12 in	1.2 oz / 35.0 ml	2.4 oz / 71.0 ml
16 in	1.6 oz / 47.0 ml	6.4 oz / 189.0 ml
20 in	2.0 oz / 59.0 ml	8.0 oz / 237.0 ml
24 in	2.4 oz / 71.0 ml	9.6 oz / 284.0 ml
30 in	3.0 oz / 89.0 ml	12.0 oz / 355.0 ml
36 in	3.6 oz / 106.0 ml	14.4 oz / 426.0 ml

## Shrubs

### Soil Injection / Drench

fluid oz or ml of Mallet 2F T&O per 12" height

Shrub Height	Low Rate 0.1 oz / 3.0 ml	High Rate 0.2 oz / 5.9 ml
6 in	0.05 oz / 1.5 ml	0.1 oz / 3.0 ml
8 in	0.07 oz / 2.1 ml	0.13 oz / 3.85 ml
12 in	0.1 oz / 3.0 ml	0.2 oz / 5.9 ml
16 in	0.13 oz / 3.85 ml	0.27 oz / 8.0 ml
18 in	0.15 oz / 4.45 ml	0.3 oz / 8.85 ml
24 in	0.2 oz / 5.9 ml	0.4 oz / 11.85 ml
28 in	0.23 oz / 6.8 ml	0.47 oz / 13.9 ml
36 in	0.3 oz / 8.9 ml	0.6 oz / 17.75 ml
40 in	0.33 / 9.75 ml	0.67 oz / 19.8 ml
48 in	0.4 oz / 11.85 ml	0.8 oz / 23.65 ml
54 in	0.45 oz / 13.3 ml	0.9 oz / 26.6 ml
60 in	0.5 oz / 14.9 ml	1.0 oz / 30.0 ml

See our complete product portfolio online then contact your Nufarm representative to learn how we can help deliver better choices and better business to you.

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Better Business.**

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