

# Strider™

ACCEPTED FOR REGISTRATION

April 6, 2020

**APPROVED**

# Fungicide

New York State Department of Environmental Conservation  
Division of Materials Management  
Pesticide Product Registration

**Broad Spectrum and Systemic Disease Control for Turf and Ornamentals and a Flare Root-Injected\* Systemic Fungicide for Control of Selected Diseases in Trees**

**\*Flare Root-Injected uses are not registered for use in CA & NY**

**ACTIVE INGREDIENT:**

Propiconazole ..... 14.3%

**OTHER INGREDIENTS:** ..... 85.7%

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

Contains 1.3 lb active ingredient per gallon

## KEEP OUT OF REACH OF CHILDREN WARNING / AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand this label, find someone to explain it to you in detail.)

**SEE INSIDE LABEL BOOKLET FOR FIRST AID AND 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. 228-623

EPA Est. No. indicated by the first two letters of the batch number on this package: (AL) 228-IL-002, (ST) 72344-MO-004

Manufactured for  
Nufarm Americas Inc.  
11901 S. Austin Avenue  
Alsip, IL 60803



**Net Contents  
2.5 Gal.  
(9.46 L)**



## FIRST AID

<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 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 the poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</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>
<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 mouth-to-mouth, if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>

## HOTLINE 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

If ingested, induce emesis or lavage stomach. Treat symptomatically.

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS WARNING / AVISO

Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

### Applicators and other handlers must wear:

- Protective eyewear
- Long-sleeved shirt and long pants
- Chemical resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC), or viton
- Shoes plus socks

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

### Engineering controls

Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40CFR 160.240(d)(6)].

When handlers use closed systems or enclosed cabs 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

Users should:

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

This product is toxic to fish and shrimp. 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 cleaning equipment or disposing of equipment washwater or rinsate.

## PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame.

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## DIRECTIONS FOR USE

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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 requirement specific to your state or tribe, consult the agency responsible for pesticide regulation.

Failure to follow the directions for use and precautions on this label may result in plant injury or poor disease control.

### 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), notification to workers, 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.

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:

- Protective eyewear
- Coveralls
- Chemical resistant gloves made of any waterproof material
- 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.

Do not enter treated areas without protective clothing until sprays have dried.

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## PRODUCT INFORMATION

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This product is a systemic fungicide for use on turfgrasses for the control of:

Anthracnose (*Colletotrichum graminicola*)

Brown patch (*Rhizoctonia solani*)

Dollar spot (*Sclerotinia homoeocarpa*)

Fusarium patch (*Fusarium nivale*)

Gray leafspot (*Pyricularia grisea*)

Gray snow mold (*Typhula* spp.)

Leafspot (*Bipolaris* spp., *Drechslera* spp.)

Necrotic ring spot (*Leptosphaeria korrae*)

Pink patch (*Limonomyces roseipellis*)

Pink snow mold (*Microdochium nivale*)

Powdery mildew (*Erysiphe graminis*)

Red thread (*Laetisaria fuciformis*)

Rust (*Puccinia graminis*)

Spring dead spot (*Leptosphaeria korrae*,

*Leptosphaeria narmari*, *Ophiosphaerella herpotricha*, *Gaeumannomyces graminis*)

Stripe smut (*Ustilago striiformis* and *Urocystis agropyri*)

Summer patch (*Magnaporthe poae*)

Take-all patch (*Gaeumannomyces graminis*)

Yellow patch (*Rhizoctonia cerealis*)

Zoysia patch (*Rhizoctonia solani*)

This product also controls numerous diseases on ornamentals and other landscape and nursery plantings such as powdery mildews, rusts, leafspots, scabs, and blights. Refer to the appropriate section of this label for specified diseases and plants.

### SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of application can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

#### Wind Speed

Do not apply at wind speeds greater than 15 mph.

### Droplet Size

Apply as a medium or coarser spray (ASAE Standard 572)

### Temperature Inversions

If applying at wind speeds less than 3 mph, the applicator must determine if a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or stable atmospheric conditions.

### Other State and Local Requirements

Applicators must follow all state and local pesticide drift requirements regarding application of propiconazole. Where states have more stringent regulations, they must be observed.

### Equipment

All application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

#### *Additional requirements for aerial applications:*

1. The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.
2. Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.
3. When applications are made with a crosswind, the swath must be displaced downwind. The applicator must compensate for this displacement at the up and downwind edge of the application area by adjusting the path of the aircraft upwind.

#### *Additional requirement for groundboom application:*

1. Do not apply with a nozzle height greater than 4 feet above the crop canopy.

## **MIXING INSTRUCTIONS**

Fill the spray tank  $\frac{1}{2}$  -  $\frac{3}{4}$  full with water. Add the proper amount of this product, then add the remaining water. Provide sufficient agitation during mixing and application to maintain a uniform emulsion.

If this product is tank mixed with other products, use the following sequence:

1. Always check the compatibility of the tank mix using a jar test with proportionate amounts of this product, other chemicals to be used, and the water, before mixing in the spray tank.
2. Provide sufficient jet or mechanical agitation during filling and application to keep the tank mix uniformly suspended.
3. Fill tank at least  $\frac{1}{2}$  full of clean water.
4. Add wettable powders to the tank first, allowing them to completely suspend in the tank before proceeding. Premixing the product in water before adding to the tank will hasten the process.
5. Add flowables or suspensions next.
6. Add the proper amount of this product
7. Add emulsifiable concentrates last.
8. Do not leave tank mix combinations in the spray tank for prolonged periods without agitation. Mix and apply them the same day.

## **TANK MIXES**

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

This product can be tank mixed with other fungicides for broader spectrum control. This product is also compatible with numerous herbicides and insecticides. Check compatibility before tank mixing. Add Unite® (3 pts./100 gals.) to tank mixes which are incompatible. Follow the directions for tank mixes under "Mixing Instructions". Tank mixtures or other applications of products referenced on this label are permitted only in those states in which the referenced products are registered.

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## **TURFGRASS AND DICHONDRA**

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### **RESTRICTIONS**

- Do not apply more than 1.79 lb a.i./A (equivalent to 1.4 gallons of product/A or 4 fl oz/1,000 sq ft) per application.
- Do not apply more than 7.2 lb a.i./A (equivalent to 5.5 gallons of product/A or 16 fl oz/1,000 sq ft) per calendar year.
- Do not graze animals on treated areas
- Do not feed clippings from treated areas to livestock or poultry.
- Do not apply this product through any type of irrigation system.
- Bermudagrass can be sensitive to this product. Do not exceed 4 fl oz/1,000 sq ft every 30 days on any variety of bermudagrass to reduce the potential for injury. In Florida, do not apply this product to bermudagrass golf course greens when temperatures exceed 90°F to reduce the risk of bermudagrass injury.

### **APPLICATION INFORMATION**

- Use this product in a preventative disease control program.
- Apply after mowing OR allow sprayed area to completely dry before mowing.
- For control of soil-borne diseases, this product can be watered in after application.

- For control of foliar diseases, allow sprayed area to completely dry before irrigation.
- For optimum turf quality and disease control, use this product in conjunction with turf management practices that promote good plant health and optimum disease control.
- Proper diagnosis of the organism causing the disease is important prior to using any fungicide. Use of diagnostic kits or other means of identification of the disease organism is essential to determine the best control measures.
- Apply in sufficient water to ensure thorough coverage.
- Under conditions optimum for high disease pressure, use the higher rate and the shorter application interval.
- Evaluate spray additives prior to use. Label directions are based on data obtained with no additives.

#### TURFGRASS DISEASE CONTROL

Disease	fl oz per 1,000 sq ft	fl oz per Acre	Application Interval/ Timing	Application Instructions
<b>Dollar Spot</b> ( <i>Sclerotinia homoeocarpa</i> )	0.5	22	14 days	Apply when conditions are favorable for disease development.
	0.5	22	14 days	Tank mix with low label rate of a product containing chlorothalonil such as Daconil 2787 F or Daconil Ultrex®
	1	44	21-28 days	Tank mix with low label rate of a product containing chlorothalonil (such as Daconil 2787 F or Daconil Ultrex) or iprodione (such as Nufarm Iprodione SPC Fungicide).
	1-2	44-88	14-28 days	If using the 1-2 fl oz/1,000 sq ft rate without tank mixing, make no more than 3 consecutive applications for dollar spot control before rotating to an alternate EPA-registered fungicide having a different mode of action.
<b>Anthracnose</b> ( <i>Colletotrichum graminicola</i> )	1-2	44-88	14-28 days	Apply when conditions are favorable for disease development. Use higher rates of this product and shorter intervals when disease pressure is high. For broad-spectrum control, tank mix with a registered contact fungicide at the label rate. If disease is present, mix 2 fl oz of this product per 1,000 sq ft with the label rate of the above mentioned contact fungicides.
<b>Brown Patch</b> ( <i>Rhizoctonia solani</i> )	1-2	44-88	14-21 days	Tank mix with a registered contact fungicide labeled for brown patch control at the label rate. Begin applications in May or June before the disease is present. Use the higher rates of this product and shorter intervals under conditions of high temperatures and high humidity.
<b>Powdery Mildew</b> ( <i>Erysiphe graminis</i> ) <b>Rust</b> ( <i>Puccinia graminis</i> )	1-2	44-88	14-28 days	Make applications when conditions are favorable for disease development. If disease is present, use 2 fl oz of this product per 1,000 sq ft
<b>Pink Patch</b> ( <i>Limonomyces roseipellis</i> ) <b>Red Thread</b> ( <i>Laetisaria fuciformis</i> )	2	88	14-21 days	Apply when conditions are favorable for disease development.
<b>Stripe Smut</b> ( <i>Ustilago striiformis</i> ) ( <i>Urocystis agropyri</i> )	1-2	44-88	Fall or Spring	Apply once in the fall after grass becomes dormant or in the early spring before grass starts to grow.

(continued)

**TURFGRASS DISEASE CONTROL** (continued)

<b>Disease</b>	<b>fl oz per 1,000 sq ft</b>	<b>fl oz per Acre</b>	<b>Application Interval/ Timing</b>	<b>Instructions</b>
<b>Gray Leafspot</b> ( <i>Pyricularia grisea</i> )	1-2	44-88	14 days	Make applications when conditions are favorable for disease development. If using the 1 fl oz/1,000 sq ft rate, tank mix with a registered contact fungicide at the label rate.
<b>Melting Out, Leaf Spot</b> ( <i>Bipolaris</i> spp.) ( <i>Drechslera</i> spp.)	1-4	44-176	14 days	Under light to moderate pressure, apply this product to reduce the severity of leaf spot and melting out caused by Helminthosporium-type pathogens. Tank mix the 1-4 fl oz/1,000 sq ft product rate with a registered contact fungicide at the labeled rate. For broad spectrum disease control, tank mix the 1 fl oz product rate with a registered contact fungicide at the label rate.
<b>Summer Patch, Poa Patch</b> ( <i>Magnaporthe poae</i> )	2	88	14 days	Apply this product beginning in April. Use the 2 fl oz/1,000 sq ft rate on a 14 day schedule and the 4 fl oz/1,000 sq ft rate on a 28 day schedule.
	4	176	28 days	
<b>Take-All Patch</b> ( <i>Gaeumannomyces graminis</i> )	2-4	88-176	Spring and Fall	Apply this product to reduce the severity of take-all patch. Make 1-2 fall applications in September and October or when night temperatures drop to 55°F, and 1-2 spring applications in April and May, depending on local recommendations.
<b>Spring Dead Spot</b> ( <i>Leptosphaeria korrae</i> , <i>Leptosphaeria narmari</i> , <i>Ophiosphaerella herpotricha</i> , <i>Gaeumannomyces graminis</i> )	4	176	30 days	Make 1-3 applications of this product. For one application, apply in September or October. For multiple applications, begin sprays in August.
<b>Necrotic Ring Spot</b> ( <i>Leptosphaeria korrae</i> )	4	176	Fall or Spring	Apply in the fall and/or the early spring depending on local recommendations.
<b>Gray Snow Mold</b> ( <i>Typhula</i> spp.) <b>Pink Snow Mold</b> ( <i>Microdochium nivale</i> )	2-4	88-176	Late Fall	Make one application of this product in the late fall before snow cover. Do not apply on top of snow. For optimum disease control, tank mix the 2 and 3 fl oz product rates with either PCNB or chlorothalonil at label rates.
<b>Fusarium Patch</b> ( <i>Fusarium nivale</i> )	2-4	88-176	Fall-Early Spring	Apply when conditions are favorable for disease development.
<b>Yellow Patch</b> ( <i>Rhizoctonia cerealis</i> )	3-4	130-176	Late Fall	Make one application of this product in the late fall before snow cover. Do not apply on top of snow. If using a 3 fl oz/1,000 sq ft rate, tank mix with a registered contact fungicide at the label rate.
<b>Zoysia Patch, large patch of zoysia</b> ( <i>Rhizoctonia solani</i> )	3-4	130-176	Early Fall	Make one application in the early fall (mid-September to mid-October) prior to development of disease symptoms. Consult local turfgrass extension experts to determine the optimum application timing for your area.

## DICHONDRA DISEASE CONTROL

Disease	fl oz per 1,000 sq ft	fl oz per Acre	Application Interval/ Timing	Application Instructions
<b>Dichondra Rust</b> ( <i>Puccinia dichondrae</i> )	2	88	14-21 days	Apply when conditions are favorable for disease development.

## ESTABLISHMENT OF COOL SEASON TURFGRASS

The primary use of this product is as a fungicide for use against the diseases listed on this label. As an additional benefit, this product will improve the establishment rate when it is applied to cool season grass seedlings or sod.

**New Seedlings:** Apply 1 fl oz/1,000 sq ft at the 2 to 3-leaf stage of growth for faster root development and top growth.

**Sod:** Apply 1 fl oz/1,000 sq ft 2 to 6 weeks before cutting for increased sod knitting and faster establishment after laying.

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## ORNAMENTALS AND NON-BEARING FRUIT & NUT TREES IN NURSERIES (FIELD) AND LANDSCAPE PLANTINGS

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### RESTRICTIONS

- Do not apply more than 1.79 lb a.i./A (equivalent to 1.4 gallons of product/A or 4 fl oz/1,000 sq ft) per application.
- Do not apply more than 7.2 lb a.i./A (equivalent to 5.5 gallons of product/A or 16 fl oz/1,000 sq ft) per calendar year.
- Do not apply this product through any type of irrigation system.
- Do not apply to apple, cherry, citrus, nectarine, peach, pear, pecan, plum or walnut trees that will bear harvestable fruit within 12 months.

### DISEASE CONTROL

- Use this product in a preventative disease control program.
- To determine the use directions for controlling a disease on an ornamental plant species, select the plant species in Table 1. The number/letter in parentheses following the plant species refers you to the disease(s) controlled in Table 2. Find the disease in Table 2. The number in brackets following the disease refers you to the application regime in Table 3.
- Allow spray to dry before overhead irrigation is applied.
- Optimum benefit of this product is obtained when used in conjunction with sound disease management practices.

### APPLICATION INSTRUCTIONS

- Use this product at rates of 2 to 24 fl oz/100 gallons of water for control of diseases of ornamental plant species (Refer to Tables 1, 2, and 3).
- For disease control in landscape plantings, apply 6 to 8 fl oz/100 gallons of water every 21 days. For best control, begin applications of this product before disease development.

### Note on Plant Tolerance:

Plant tolerance to this product has been found to be acceptable for the specific genera and species of plants listed on this label. Other plant species may be sensitive to this product. Before full-scale use of this product on ornamental plants and trees, evaluate the product for phytotoxicity and disease control on a small-scale basis. **Do not apply this product to African violets, begonias, Boston fern, or geraniums.**



## Table 1. Ornamentals – Plant Species

Numbers in parenthesis refer to diseases controlled. See Table 2

Herbaceous Ornamental	Woody Ornamental	Nonbearing Fruits and Nuts (Nurseries and Landscape Plantings)
Calendula (4a) Carnation (5f) Chrysanthemum (2a) Delphinium (4a) English Ivy (3e) Gomphrena (3a) Impatiens (3a, 3b, 4a) Iris (5d) Marigold (3a) Monarda (4c) Phlox (4c) Snapdragon (5d) Sweet William ( <i>Dianthus barbatus</i> ) (3k) Zinnia (4c)	Amelanchier (4d) Ash (4c) Azalea (2c, 4b) Bayberry (3n) Camellia (3e) Cotoneaster (3i) Crabapple (3c, 3q, 4c, 5a) Crape myrtle (4a) Dogwood (3h, 4c) Douglas fir (5b) Elm (4c) Euonymus (3e, 4c) Hawthorn (5a) Holly (3r) Juniper (1a) Lilac (4c) Linden (3e, 3b, 4b) Magnolia (3e, 4b) Maple (3e, 4f) Oaks (3p) Pines (1b, 1c) Poplars (5b) Pyracantha (3o) Red Tip Photinia (3i) Rhapsiolepis (3e, 3i) Rhododendron (2c, 3n) Roses (3g, 4e, 5c) (Outdoor use only) Shasta fir (5e) Sweetgum (3b, 3c, 3n) Sycamore (3e) Tulip tree (3e, 4a) Wax myrtle (3n)	Apple (3g, 4d, 5a) Bartlett pear (3q, 4c, 5a) Cherry (2b, 3d) Citrus (3m) Nectarine (2b) Peach (2b) Pecan (3b, 3c, 3f, 3l, 3n, 4e) Plum (2b) Walnut (3j)



## Table 2. Diseases

Numbers in brackets refer to application regimes. Refer to Table 3.

1. Conifer Blights
  - a. *Phomopsis juniperovora* (Phomopsis Blight) [2]
  - b. *Sirococcus strobolinus* (Tip Blight) [4]
  - c. *Sphaeropsis sapinea* (Diplodia Tip Blight) [2]
2. Flower Blight
  - a. *Ascochyta chrysanthemi* (Ray Blight) [3]
  - b. *Monilinia* spp. [1]
  - c. *Ovulinia* spp. [2]
3. Leaf Blights/Spots
  - a. *Alternaria* spp. [2]
  - b. *Cercospora* spp. (Brown Leaf Spot) [3]
  - c. *Cladosporium* spp. (Scab) [3]
  - d. *Coccomyces hiemalis* [1]
  - e. *Colletotrichum* spp. [2]
  - f. *Cristulariella* spp. (Zonate leafspot) [3]
  - g. *Diplocarpon rosae* (Blackspot) [2]
  - h. *Discula* spp. (Anthracnose) [1]
  - i. *Fabraea maculate* (syn. *Entomosporium maculate*) [2]
  - j. *Gnomonia leptostyla* (Anthracnose) [3]
  - k. *Heterosporium echinulatum* [2]
  - l. *Mycosphaerella caryigena* (Downy Spot) [3]
3. Leaf Blights/Spots (*continued*)
  - m. *Mycosphaerella fructicola* (Greasy Spot) [5]
  - n. *Septoria* spp. (Leaf Scorch) [3]
  - o. *Spilocaea pyracanthae* [2]
  - p. *Tubakia dryina* [4]
  - q. *Venturia inaequalis* (Scab) [1]
  - r. Rhizoctonia web blight\* [2]
4. Powdery Mildew
  - a. *Erysiphe* spp. [2]
  - b. *Microsphaera* spp. [3]
  - c. *Oidium* spp. [2]
  - d. *Podosphaera* spp. [2]
  - e. *Sphaerotheca pannosa* [2]
  - f. *Phyllactinia* spp.\* [2]
5. Rust
  - a. *Gymnosporangium juniperi-virginianae* [1]
  - b. *Melampsora occidentalis* [4]
  - c. *Phragmidium* spp. [2]
  - d. *Puccinia* spp. [2]
  - e. *Pucciniastrum goeppertianum* [4]
  - f. *Uromyces dianthi* [2]

\*Not registered for this use in CA

## Table 3. Application Regimes

[1]	Mix 2-4 fl oz of this product in 100 gallons of water and apply as a full coverage spray to the point of drip. Apply every 14-21 days during the period of primary infection. If disease is present, tank mix with an EPA-registered contact fungicide. For flower blight, apply this product when there is 5-10% bloom and again at 70-100% bloom. For dogwoods, apply the 2-4 fl oz rate every 14 days or apply 8 fl oz of this product every 28 days.
[2]	Mix 5-8 fl oz of this product in 100 gallons of water and apply as a full coverage spray to the point of drip. Begin applying when conditions are favorable for disease development and apply as necessary. For blackspot, apply with a registered contact fungicide labeled for blackspot. For Calendula, apply every 30 days. For diplodia tip blight, make 3 applications every 14 days prior to major period of infection. For juniper phomopsis blight, make the first application as soon as junipers start to grow, and repeat the applications every 14-21 days during periods of active growth.
[3]	Mix 8-12 fl oz of this product in 100 gallons of water and apply as a full coverage spray to the point of drip. Apply every 30 days, beginning when conditions are favorable for the disease development. For pecans, apply the 12 fl oz rate beginning at bud break. Apply 3 times at 14-day intervals. For walnuts, apply 8.5 fl oz at 14-21 day intervals. For ray blight, apply 12 fl oz at 7 day intervals or 20 fl oz at 14 day intervals. For impatiens, bayberry, linden, magnolia, sweetgum and wax myrtle, the maximum use rate is 8 fl oz.
[4]	Mix 16 fl oz of this product in 100 gallons of water and apply as a full coverage spray to the point of drip. Apply every 14-28 days, beginning when conditions are favorable for disease development. For Douglas fir needle rust, apply once in May. For tip blight, start applications in mid-late winter and apply 3 times at 2-month intervals.
[5]	Mix 20-24 fl oz of this product in 100 gallons of water and apply as a full coverage spray to the point of drip. Apply during June to August time period.

## A FLARE ROOT-INJECTED SYSTEMIC FUNGICIDE FOR CONTROL OF SELECTED DISEASES IN TREES (Not Registered for use in CA & NY)

### Product Information

This product is a systemic fungicide for use as a flare root injection for prevention and treatment of (1) oak wilt (*Ceratocystis fagacearum*) of oaks (*Quercus* spp.), (2) Dutch elm disease (*Ophiostroma ulmi*) of elms (*Ulmus* spp.), (3) sycamore anthracnose (*Apiognomonia veneta*), and (4) leaf diseases (i.e., *Venturia inaequalis*, *Gymnosporangium juniperi-virginianae*, *Pucciniastrum goeppertianum*, etc.) of crabapple (*Malus* spp.). Administer this product by trained arborists or others trained in injection techniques and in the identification of tree diseases.

**Notes:** The active ingredient in this product has been shown to be safe on a wide range of plant species. Before using this product on ornamental trees, conduct a small-scale test and evaluate for phytotoxicity and disease control prior to full-scale use.

### Restrictions

- Do not exceed 0.0069 lb a.i./DBH.
- Do not exceed one application per year.
- Do not use fruit from treated trees for food or feed purposes.

### Correct Location for Injector Placement

The flare root area is the transitional zone between the trunk and the root system. Uptake and distribution of this product is more effective when injections are made into the flare roots. In addition, wounds created in the flare root area close more rapidly in comparison to wounds above the flare root area.

### Tree Preparation

1. Carefully shave heavy, thick, or loose outer bark to form a smoother injection point and to ensure the operator that the drill hole penetrates through the bark to the xylem.
2. If the flare roots are not clearly exposed, carefully remove 2 to 4 inches of soil from the base of the tree to uncover the top of the flare roots. Brush away loose soil.
3. Drill holes through the bark, into sapwood using a clean sharp drill bit. Ensure that the drill hole diameter is adequate to allow insertion of injection tees and formation of airtight contact between active xylem and the delivery point of the injection tees. A drill hole diameter of 7/32 - 5/16 inch for elms, sycamores, and crabapples, and 5/16 inch for oaks is normally appropriate. Follow manufacturer's instructions for the particular injection device used in the treatment. Drill hole depth must be adequate to deliver the product into active xylem tissue. In most cases, ¾ inch depth is appropriate, but trees with thick bark require increased drill hole depth to reach the active xylem layer. Space injectors 3-6 inches apart around the base of the tree. Do not drill in the valleys between the flare roots or into cankered areas. Drill above these areas into the trunk, and then continue again into sound sapwood on the flares.
4. Disinfect the drill bit between trees with household bleach (20% solution), ethanol, or other disinfectant. Rinse bit with clean water after disinfecting.
5. Insert into the drilled holes the injection ports ("tees"), which are connected to plastic tubing. The tubing must have inlet and outlet valves.
6. Mix the specified amount of this product and water thoroughly in the tank before beginning the injection treatment.

### Tree Measurement

Measure the diameter of the tree using a tree diameter-tape (D-tape) at 4 ½ feet above the ground. This is the diameter at breast height (DBH). If only a regular tape is available, measure the tree circumference and divide that number by 3.14. For crabapples, measure the diameter at the point where the tree begins to branch.

### Preparation of Injection Solution

Dilute 10 ml of this product in up to 1 liter of water per inch DBH. Refer to the following table as an example of the amounts of this product and water to use:

DBH inches	Treatment Level (ml)	Water Volume (liters)
5	50	5
10	100	10
15	150	15
20	200	20
25	250	25
30	300	30
35	350	35
40	400	40

### Injection

For pressurized injections, with the outlet valve open, connect the tank to the inlet valve and begin pumping solution until all air bubbles come out of the outlet valve. Direct the solution into a container and return the solution to the tank. Shut off the outlet valve. Pressurize tank to 20-30 psi. Check for leaks and gently tap in tees if necessary. Maintain continuous pressure on the injection system until the full amount of solution is in the tree.

After injection is complete, remove injection tees and leave drill holes unplugged. A water flush to cleanse the hole will assist with wound closure. Replace soil around the tree. It is not necessary to treat the drill holes with wound paint or other sealing compounds.

Contact your local extension agent for more details on tree injection. The injection system described is meant as an example; please refer to manufacturer's instructions when using other types of tree injection systems.

## **Retreatment**

At the initial injection of this product, take notes on the level of disease in each tree. Reevaluate disease level in trees at 12-month intervals after treatment for the potential need for retreatment with this product. Consider preventive applications 12-36 months after the initial injection. Evaluate trees in high disease risk areas or high value trees for possible retreatment 12 months after each treatment.

Follow application procedures described above for repeat injections; new drill holes will be needed for subsequent treatments.

## **OAK WILT: OAKS**

### **Preventive and Therapeutic Treatment**

Use 10 ml of this product in up to 1 liter of water per inch DBH. For very high disease pressure, use 20 ml of this product per inch DBH.

In the upper Midwest, treat oaks after June 15. Wounds in oaks in the upper Midwest between May 15 and June 15 attract insects that transmit the oak wilt pathogen.

Oak trees exhibiting less than 20% crown loss from oak wilt have the best chance of responding to the treatment. Preventive application is more effective than therapeutic treatment. Response to treatment will vary with trees in advanced stages of disease development.

Uninfected trees normally absorb the full amount of product/water solution within 2 hours when injected under pressure. Consider trees exhibiting specific symptoms or those symptomless trees immediately adjacent to a diseased tree to be infected. Symptomless trees separated by a primary plow line from diseased trees will be at less risk of infection. Infected trees will absorb the material more slowly due to the vascular plugging caused by the disease. If the product/water solution is not absorbed within 24 hours, the tree is considered high risk and has a poor chance of survival.

Refer to the **Product Information** section for details on retreatment.

## **LEAF DISEASE: CRABAPPLES**

### **Preventative Treatment**

Use 10 ml of this product in up to 1 liter of water per inch trunk diameter. For trees less than 10 inches trunk diameter, use 6 ml of this product per inch trunk diameter. Make applications when the trees are in full leaf and actively growing for control of the next season's leaf disease development. Disease symptoms have the potential for not being reduced the year of application.

Refer to the **Product Information** section for details on retreatment.

## **ANTHRACNOSE: SYCAMORE**

### **Preventive Treatment**

Use 10 ml of this product in up to 1 liter of water per inch DBH. For trees less than 10 inches DBH, use 6 ml of product per inch DBH. Make applications when the trees are in full leaf and actively growing for control of the next season's anthracnose development.

Refer to the **Product Information** section for details on retreatment.

## **DUTCH ELM DISEASE IN ELMS**

### **Preventive and Therapeutic Treatment**

Use 6 to 10 ml of this product in up to 1 liter of water per inch DBH. For very high disease pressure, use 20 ml of product per inch DBH.

**Notes:** (1) Accurate diagnosis of Dutch elm disease is important since this product only provides control of Dutch elm disease in elms. (2) this product will be most effective when used in conjunction with other cultural practices specified for management of Dutch elm disease (removal of dead elm trees, pruning of diseased tree limbs and branches, control of bark beetles, etc.). (3) Preventive applications can be made at 6-10 ml/inch DBH. The 6 ml rate provides 24 months control and the 10 ml rate provides 36 months control. (4) Make therapeutic treatment in trees showing disease symptoms at 10-20 ml/inch DBH. Retreat every 12-36 months, if needed. Response to treatment will vary with trees in advanced stages of disease development.

For further information on the proper diagnosis and control of Dutch elm disease, consult your local extension agent.

Refer to the **Product Information** section for details on retreatment.

## STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

**STORAGE:** Store in original container in a cool area out of the reach of children.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER HANDLING:**

**Nonrefillable container.** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse 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 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, if available, 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 ordinance, by burning. If burned stay out of smoke.

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