

This is a specimen label, intended for use only as a guide in providing general information regarding use of this product. As labels are subject to revision, always carefully read and follow the label on the product container.



**FUNGICIDE**

# FATHOM™ 14.3 MEC

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

**ACTIVE INGREDIENT:**

Propiconazole . . . . . 14.3%

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

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

(Contains 1.3 Pounds Active Ingredient Per Gallon)

EPA Reg. No. 72112-3

EPA Est. No. indicated by the 8th digit of the batch number on this package

(A) = 4-NY-001; (C) = 5905-GA-001; (F) = 53883-TX-002; (G) = 67545-AZ-001;

(N) = 39578-TX-1; (P) = 34704-MS-2

SPECIMEN LABEL

Manufactured for:  
**PROKōZ, Inc.**  
100 North Point Center E.  
Suite 330  
Alpharetta, GA 30022

For FIRST AID and PRECAUTIONARY STATEMENTS:  
See Inside Booklet.

For PRODUCT USE Information Call 1-770-619-9832.

For MEDICAL and TRANSPORTATION  
Emergencies ONLY  
Call 24 Hours A Day 1-800-424-9300.

Product of China, Brazil, Switzerland, and Isreal.  
Formulated in the United States from  
U.S. and imported ingredients.

**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.)

REV 0206-45130

# Specimen Label

### 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 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 by 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 15-20 minutes.</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>

### 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 1-800-424-9300 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

Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Harmful if swallowed, inhaled, or absorbed through skin. Avoid contact with eyes, skin or clothing. Avoid breathing vapor or spray mist. Wear goggles or face shield. Wear rubber gloves and a long-sleeve shirt when mixing, handling and/or applying the product. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco. Remove and wash contaminated clothing before reuse.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemically resistant to this product are listed below. If you want more options, follow the instructions for Category C on an EPA chemical resistance category selection chart.

#### Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as barrier laminate, butyl rubber  $\geq$  14 mils, nitrile rubber  $\geq$  14 mils, neoprene rubber  $\geq$  14 mils, polyvinyl chloride (PVC)  $\geq$  14 mils, or viton  $\geq$  14 mils
- Shoes plus socks
- Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining 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 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 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 pesticide is toxic to fish. Do not apply directly to water, 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 washwater.

### PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame.

### 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.

**Note:** Do not apply more than 5.4 gals. of FATHOM™ 14.3 MEC per acre per calendar year.

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 24 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:

- Coveralls
- Chemical-resistant gloves such as barrier laminate, butyl rubber  $\geq$  14 mils, nitrile rubber  $\geq$  14 mils, neoprene rubber  $\geq$  14 mils, polyvinyl chloride (PVC)  $\geq$  14 mils, or viton  $\geq$  14 mils
- Shoes plus socks
- Protective eyewear

### 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.

### GENERAL INFORMATION

FATHOM™ 14.3 MEC is a systemic fungicide for use on turfgrasses for the control of:

Anthracnose ( <i>Colletotrichum graminicola</i> )	Powdery mildew ( <i>Erysiphe graminis</i> )
Brown patch ( <i>Rhizoctonia solani</i> )	Red thread ( <i>Laetisaria fuciformis</i> )
Dollar spot ( <i>Sclerotinia homoeocarpa</i> )	Rust ( <i>Puccinia graminis</i> )
Fusarium patch ( <i>Fusarium nivale</i> )	Spring dead spot ( <i>Leptosphaeria korrae</i> , <i>Leptosphaeria narmari</i> , <i>Ophiosphaerella herpotricha</i> , <i>Gaeumannomyces graminis</i> )
Gray leafspot ( <i>Pyricularia grisea</i> )	Stripe smut ( <i>Ustilago striiformis</i> and <i>Urocystis agropyri</i> )
Gray snowmold ( <i>Typhula spp.</i> )	Summer patch ( <i>Magnaporthe poae</i> )
Leafspot ( <i>Bipolaris spp.</i> , <i>Drechslera spp.</i> )	Take-all patch ( <i>Gaeumannomyces graminis</i> )
Necrotic ring spot ( <i>Leptosphaeria korrae</i> )	Yellow patch ( <i>Rhizoctonia cerealis</i> )
Pink patch ( <i>Limonomyces roseipellis</i> )	Zoysia patch ( <i>Rhizoctonia solani</i> )
Pink snowmold ( <i>Microdochium nivale</i> )	

FATHOM™ 14.3 MEC 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.

Do not apply this product through any type of irrigation system. Do not use FATHOM™ 14.3 MEC in greenhouses.

### MIXING INSTRUCTIONS

Fill the spray tank 1/2 – 3/4 full with water. Add the proper amount of FATHOM™ 14.3 MEC, then add the remaining water. Provide sufficient agitation during mixing and application to maintain a uniform emulsion.

If FATHOM™ 14.3 MEC 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 FATHOM™ 14.3 MEC, 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 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 FATHOM™ 14.3 MEC
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

FATHOM™ 14.3 MEC can be tank mixed with other fungicides for broader spectrum control. FATHOM™ 14.3 MEC 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 under "Mixing Instructions" for tank mixes. Observe all directions, precautions, and limitations on labeling of all products used in tank mixes. Tank mixtures or other applications of products referenced on this label are permitted only in those states in which the referenced products are registered.

### TURFGRASS AND DICHONDRA DISEASE CONTROL

1. Use FATHOM™ 14.3 MEC in a preventative disease control program.
2. Apply after mowing OR allow sprayed area to completely dry before mowing.
3. For control of soil-borne diseases, FATHOM™ 14.3 MEC can be watered in after application.
4. For control of foliar diseases, allow sprayed area to completely dry before irrigation.
5. For optimum turf quality and disease control, use FATHOM™ 14.3 MEC in conjunction with turf management practices that promote good plant health and optimum disease control.
6. 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.
7. Apply in sufficient water to ensure thorough coverage.
8. Under conditions optimum for high disease pressure, use the higher rate and the shorter interval.
9. Evaluate spray additives prior to use. Label directions are based on data obtained with no additives.
10. Do not apply more than 16 fl. oz./1,000 sq. ft. per calendar year.

**Important:** Bermudagrass can be sensitive to FATHOM™ 14.3 MEC. Do not exceed 4 fl. oz./1,000 sq. ft. every 30 days on any variety of bermudagrass. In Florida, do not apply FATHOM™ 14.3 MEC to bermudagrass golf course greens when temperatures exceed 90°F.

**Note:** Do not feed clippings from treated areas to livestock or poultry. Do not graze animals on treated areas.

### TURFGRASS – SPECIFIC DISEASES, RATES, AND APPLICATION TIMING

Disease	Fl. Oz. per 1,000 sq. ft.	Fl. Oz. per Acre	Application Interval/ Timing	Instructions
<b>Dollar Spot</b> ( <i>Sclerotinia homoeocarpa</i> )	0.5	22	7 days	Apply when conditions are favorable for disease development.
	0.5	22	14 days	Tank mix with low label rate of a fungicide product containing chlorothalonil as the active ingredient.
	1	44	21-28 days	Tank mix with low label rate of a fungicide product containing chlorothalonil or iprodione as the active ingredient.
	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 FATHOM™ 14.3 MEC 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 FATHOM™ 14.3 MEC per 1,000 sq. ft. with the label rate of the above mentioned contact fungicides.

**TURFGRASS – SPECIFIC DISEASES, RATES,  
AND APPLICATION TIMING (continued)**

**TURFGRASS – SPECIFIC DISEASES, RATES,  
AND APPLICATION TIMING (continued)**

Disease	Fl. Oz. per 1,000 sq. ft.	Fl. Oz. per Acre	Application Interval/ Timing	Instructions
<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 FATHOM™ 14.3 MEC 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 FATHOM™ 14.3 MEC 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.
<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 spp.</i> ) ( <i>Drechslera spp.</i> )	1-2	44-176	14 days	Under light to moderate pressure, apply FATHOM™ 14.3 MEC to reduce the severity of leaf spot and melting out caused by Helminthosporium-type pathogens. For broad spectrum disease control, tank mix the 1 fl. oz. FATHOM™ 14.3 MEC rate with a registered contact fungicide at the label rate. Tank mix the 1-2 fl. oz./1,000 sq. ft. FATHOM™ 14.3 MEC rate with a registered contact fungicide at the labeled rate.

Disease	Fl. Oz. per 1,000 sq. ft.	Fl. Oz. per Acre	Application Interval/ Timing	Instructions
<b>Summer Patch, Poa Patch</b> ( <i>Magnaporthe poae</i> )	2 4	88 176	14 days 28 days	Apply FATHOM™ 14.3 MEC 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.
<b>Take-All Patch</b> ( <i>Gaeumannomyces graminis</i> )	2-4	88-176	Spring and Fall	FATHOM™ 14.3 MEC can be applied 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 FATHOM™ 14.3 MEC. 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 Snowmold</b> ( <i>Typhula spp.</i> ) <b>Pink Snowmold</b> ( <i>Microdochium nivale</i> )	2-4	88-176	Late Fall	Make one application of FATHOM™ 14.3 MEC in the late fall before snow cover. Do not apply on top of snow. For optimum disease control, the 2 and 3 fl. oz. FATHOM™ 14.3 MEC rates should be tank mixed 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 FATHOM™ 14.3 MEC 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.

**TURFGRASS – SPECIFIC DISEASES, RATES, AND APPLICATION TIMING** (continued)

Disease	Fl. Oz. per 1,000 sq. ft.	Fl. Oz. per Acre	Application Interval/ Timing	Instructions
<b>Zoysia Patch</b> , large patch of zoysia ( <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 turf-grass extension experts to determine the optimum application timing for your area.

**DICHONDRA – SPECIFIC DISEASE, RATE, AND APPLICATION TIMING**

Disease	Fl. Oz. per 1,000 sq. ft.	Fl. Oz. per Acre	Application Interval/ Timing	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 FATHOM™ 14.3 MEC is as a fungicide for use against the diseases listed on this label. As an additional benefit, FATHOM™ 14.3 MEC 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. 2-6 weeks before cutting for increased sod knitting and faster establishment after laying.

**DISEASE CONTROL IN NURSERIES (FIELD) AND LANDSCAPE PLANTINGS**

1. Use FATHOM™ 14.3 MEC 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 in parenthesis 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.
2. Allow spray to dry before overhead irrigation is applied.
3. Optimum benefit of FATHOM™ 14.3 MEC is obtained when used in conjunction with sound disease management practices.

**GENERAL RECOMMENDATIONS**

FATHOM™ 14.3 MEC may be used at rates of 2-24 fl. oz./100 gallons of water for control of diseases of ornamental plant species (Refer to Tables 1, 2, and 3).

**Note:** For outdoor uses, up to 5.4 gallons of FATHOM™ 14.3 MEC/acre/crop/calendar year may be applied.

For general disease control in landscapes, apply 6-8 fl. oz./100 gallons of water every 21 days. For best control, begin FATHOM™ 14.3 MEC applications before disease development.

**Note:** Plant tolerances to FATHOM™ 14.3 MEC have been found to be acceptable for the specific genera and species of plants listed under the Directions for Use section of this label. Other plant species may be sensitive to FATHOM™ 14.3 MEC and diseases other than those listed may not be controlled. Before using FATHOM™ 14.3 MEC on plants or for diseases that are not listed in the Directions for Use section of this label, test FATHOM™ 14.3 MEC on a small scale basis first. Do not apply FATHOM™ 14.3 MEC to African violets, begonias, Boston fern, or geraniums. Apply the recommended rates for a particular type of disease, i.e., rust, powdery mildew, etc., and evaluate for phytotoxicity and disease control prior to widespread use.

**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) Rhamphiolepis (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]
  - 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. *Pososphaera* 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]

**Table 3. Application Regimes**

- [1] Mix 2-4 fl. oz. of FATHOM™ 14.3 MEC 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 FATHOM™ 14.3 MEC 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 FATHOM™ 14.3 MEC every 28 days.
- [2] Mix 5-8 fl. oz. of FATHOM™ 14.3 MEC 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 *diplo-dia* 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 FATHOM™ 14.3 MEC 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 to 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 FATHOM™ 14.3 MEC 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 FATHOM™ 14.3 MEC in 100 gallons of water and apply as a full coverage spray to the point of drip. Apply during June to August time period.

**Note:** To avoid possible illegal residues, do not apply to apple, cherry, citrus, nectarine, peach, pecan, plum or walnut trees that will bear harvestable fruit within 12 months. Do not apply to maple trees that will be used for maple syrup production within one year.

**A FLARE ROOT-INJECTED SYSTEMIC FUNGICIDE FOR CONTROL OF SELECTED DISEASES IN TREES**

**General Information**

FATHOM™ 14.3 MEC 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 (*Apiognomonina veneta*), and (4) leaf diseases (i.e., *Venturia inaequalis*, *Gymnosporangium juniperi-virginianae*, *Pucciniastrum goeppertianum*, etc.) of crabapple (*Malus* spp.). It is recommended that FATHOM™ 14.3 MEC be administered by trained arborists or others trained in injection techniques and in the identification of tree diseases.

**Notes:** The active ingredient in FATHOM™ 14.3 MEC has been shown to be safe on a wide range of plant species. Before using FATHOM™ 14.3 MEC on plants or for diseases that are not listed in the Directions for Use, test FATHOM™ 14.3 MEC on a small-scale basis and evaluate for phytotoxicity and disease control prior to widespread use.

**Correct Location for Injector Placement**

The flare root area is the transitional zone between the trunk and the root system. Uptake and distribution of FATHOM™ 14.3 MEC 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. Heavy, thick, or loose outer bark may be carefully shaved 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. Drill hole diameter should be adequate to allow insertion of injection tees and formation of airtight contact between active xylem and the delivery point of the injection tees. Generally, a drill hole diameter of 7/32 – 5/16 inch for elms, sycamores, and crabapples, and 5/16 inch for oaks is appropriate. Follow manufacturer's instructions for the particular injection device used in the treatment. Drill hole depth should be adequate to deliver the product into active xylem tissue. Generally, 3/4 inch depth is appropriate, but trees with thick bark may 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 should have inlet and outlet valves.
6. Mix the specified amount of FATHOM™ 14.3 MEC 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 4-1/2 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 FATHOM™ 14.3 MEC in up to 1 liter of water per inch DBH. Refer to the following table as an example of the amounts of FATHOM™ 14.3 MEC 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

\*Use up to the amount indicated.

**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. Soil should be replaced 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 FATHOM™ 14.3 MEC, 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 FATHOM™ 14.3 MEC. Preventive applications should be considered 12-36 months after the initial injection. Trees in high disease risk areas or high value trees should be evaluated 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 FATHOM™ 14.3 MEC in up to 1 liter of water per inch DBH. For very high disease pressure, 20 ml of FATHOM™ 14.3 MEC per inch DBH may be used.

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 treatment by FATHOM™ 14.3 MEC. Preventive application is more effective than therapeutic treatment. Trees in advanced stages of disease development may not respond to treatment.

Uninfected trees will generally absorb the full amount of FATHOM™ 14.3 MEC:water solution within 2 hours when injected under pressure. Trees exhibiting specific symptoms or those symptomless trees immediately adjacent to a diseased tree should be considered infected. Symptomless trees separated by a primary plow line from diseased trees may 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 FATHOM™ 14.3 MEC:water solution is not absorbed within 24 hours, the tree is considered high risk and has a poor chance of survival.

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

## LEAF DISEASE: CRABAPPLES

### Preventative Treatment

Use 10 ml of FATHOM™ 14.3 MEC in up to 1 liter of water per inch trunk diameter. For trees less than 10 inches trunk diameter, use 6 ml of FATHOM™ 14.3 MEC 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 may not be reduced the year of application.

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

**Note:** Do not use fruit from treated trees for food or feed purposes.

## ANTHRACNOSE: SYCAMORE

### Preventive Treatment

Use 10 ml of FATHOM™ 14.3 MEC in up to 1 liter of water per inch DBH. For trees less than 10 inches DBH, use 6 ml of FATHOM™ 14.3 MEC 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 **General Information** section for details on retreatment.

## DUTCH ELM DISEASE IN ELMS

### Preventive and Therapeutic Treatment

Use 6-10 ml of FATHOM™ 14.3 MEC in up to 1 liter of water per inch DBH. For very high disease pressure, 20 ml of FATHOM™ 14.3 MEC per inch DBH may be used.

**Notes:** (1) Accurate diagnosis of Dutch elm disease is important since FATHOM™ 14.3 MEC only provides control of Dutch elm disease in elms. (2) FATHOM™ 14.3 MEC will be most effective when used in conjunction with other cultural practices recommended 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 should provide 24 months control and the 10 ml rate should provide 36 months control. (4) Therapeutic treatment in trees showing disease symptoms should be made at 10-20 ml/inch DBH. Retreatment may be needed every 12-36 months. Trees in advanced stages of disease development may not respond to treatment.

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

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

## STORAGE AND DISPOSAL

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

**PESTICIDE 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 DISPOSAL:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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