

# **TOPAZ<sup>®</sup> FUNGICIDE**

## A FUNGICIDE FOR THE CONTROL OF DOWNY MILDEW, PHYTOPHTHORA, PYTHIUM AND VARIOUS OTHER DISEASES ON AGRICULTURAL AND GREENHOUSE CROPS. INDOOR AND OUTDOOR ORNAMENTALS. BEDDING PLANTS AND FORESTRY APPLICATIONS AND DOMESTIC TREES INCLUDING CONIFERS, PINES, OAKS AND TURF

ACTIVE INGREDIENTS: Mono- and di-potassium salts of Phosphorous Acid*	%
OTHER INGREDIENTS:	<u>%</u>
TOTAL 100	%
*Containe 6.22 lbs /asllon of active ingradiants, mana, and di patassium	

Contains 6.22 lbs./gallon of active ingredients, mono- and di-potassium salts of Phosphorous Acid. Equivalent to 3.90 lbs. Phosphorous Acid/gallon.

## **KEEP OUT OF REACH OF CHILDREN**

## CAUTION

## **PRECAUTIONARY STATEMENTS** HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Avoid contact with eyes, or clothing. Wash thoroughly with soap and water after handling.

FIRST AID STATEMENTS				
If in eyes	Hold eye open and rinse slowly and gently with water for 15-20 minutes.			
	Remove contact lenses, if present, after the first 5 minutes, then			
	continue rinsing eye.			
	·Call a poison control center or doctor for treatment advice.			
HOT LINE NUMBER				
Have the container or I	abel with you when calling a poison control center or doctor, or going for			
treatment. For addition	al information, in case of emergency medical treatment information, call			
toll free 1-877-424-745	toll free 1-877-424-7452.			
EPA Reg. No. 68573-2-1381         EPA Est. No. 68573-CA-001				
NOT FOR USE IN CALIFORNIA				
MANUFACTURED FOR: NET CONTENTS: 2.5 GALLONS (9.46 L)				

#### MANUFACTURED FOR:

Agriliance, LLC P.O. Box 64089 St. Paul, MN 55164-0089

0/0919/6

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear long-sleeved shirt and long pants, shoes plus socks and protective eyewear.

Follow manufacturer's instructions for cleaning/maintaining personal protective equipment (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft 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.

Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Users should remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

#### ENVIRONMENTAL HAZARDS

For terrestrial uses: 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 washwaters or rinsate.

#### DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read entire label before using this product.

Do not apply this product in a way that will contact workers or other person, 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 State or Tribal agency responsible for pesticide regulation.

#### 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) 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 4 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 over long-sleeved shirt and long pants, socks, shoes, chemical resistant gloves and protective eyewear.

#### NON-AGRICULTURAL USE REQUIREMENTS

The requirements of 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.

#### STORAGE AND DISPOSAL

**PESTICIDE STORAGE:** Do not contaminate water, food, or feed by storage or disposal. Store in a cool, dry place.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:** Do not reuse empty container. Triple rinse (or equivalent) and offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, keep out of smoke.

#### **GENERAL APPLICATION INSTRUCTIONS**

Apply TOPAZ<sup>®</sup> by various application methods, including foliar sprays, trunk injection, soil drench, soil incorporation, and bare root dip. For foliar sprays, apply TOPAZ<sup>®</sup> with sufficient water for adequate coverage of foliage, according to crop and growth stage. To insure good coverage, spray to wet.

#### MIXING INSTRUCTIONS

- 1. Fill the spray tank with 1/2 of the required volume of water.
- 2. Add TOPAZ<sup>®</sup> slowly to the tank and agitate by hydraulic or mechanical means.
- 3. Continue to fill the tank with water to the desired volume while agitating.
- 4. Continue agitation when applying.

For 1 gallon (3.785 liters) container sizes: this package can treat up to 34,848 sq. ft. at the maximum treatment rate.

For 2 1/2 gallon (9.463 liters) container sizes: this package can treat up to 2 acres at the maximum treatment rate.

For 5 gallon (18.925 liters) container sizes: this package can treat up to 4 acres at the maximum treatment rate.

#### LOW VOLUME AND ULTRA-LOW VOLUME APPLICATIONS

Label rates are written for conventional application equipment. For LV/ULV equipment, use per acre rate of TOPAZ<sup>®</sup> and adjust amount of water to equipment needs. Always conduct a phytotoxicity test on a small area before applying to a large area in order to assess any potential risk to plants.

#### COMPATIBILITY

Mixing TOPAZ<sup>®</sup> with certain surfactants, foliar fertilizers or other pesticides may cause crop injury. TOPAZ<sup>®</sup> is a slightly acidic buffer solution. Avoid mixing TOPAZ<sup>®</sup> with strongly acidic or alkaline materials. Do not tank mix without first testing the mixture's compatibility nor apply it without assessing its safety to the crop (phytotoxicity). It is not possible to test all material combinations and environmental tank mix combinations. Always conduct a test with the intended tank mix on a small area prior to any large scale applications. To determine if a combination is phytotoxic to a specific crop, spray a small area of foliage and fruit, and then evaluate 3-7 days later for visual symptoms.

Test the compatibility of spray adjuvants (i.e. stickers, spreaders, wetting agents) with TOPAZ<sup>®</sup> before use. Do not use acidifying type compatibility agents.

To determine the compatibility of  $TOPAZ^{\text{®}}$  with other products, use a jar compatibility test. Add the correct proportions of each product and the appropriate quantity of water to clean container, thoroughly mix, then let stand for 3-5 minutes. If the mixture remains in solution or can be remixed readily, the products are considered compatible.

#### **CHEMIGATION**

#### APPLICATIONS THROUGH SPRINKLER AND DRIP IRRIGATION SYSTEMS

Apply this product through microjet, drip, solid set and center pivot sprinkler irrigation systems. Do not apply this product through any other type of irrigation system.

**PREPARATION OF INJECTION EQUIPMENT:** Remove scale, pesticide residues and other foreign matter from the chemical tank and entire injector system. Flush with clean water.

**APPLICATION INSTRUCTIONS:** Fill tank with 1/2 to 3/4 of desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of Topaz<sup>®</sup>, then the remaining volume of water. Set sprinkler to deliver 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the solution of TOPAZ<sup>®</sup> into the irrigation water line so as to deliver the desired rate per acre. Inject the TOPAZ<sup>®</sup> solution with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. For other questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

**NOTE:** For Microjet and Drip Irrigation Systems: Avoid further irrigation of the treated area for 24 to 48 hours after treatment with TOPAZ<sup>®</sup> has been completed. For Solid Set and Center Pivot Irrigation Systems: Avoid further irrigation of the TOPAZ<sup>®</sup> treated area until after the foliage has completely dried. This will help to prevent washing the chemical off the crop.

#### GENERAL PRECAUTIONS FOR APPLICATIONS THROUGH SPRINKLER AND DRIP IRRIGATION SYSTEMS

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. Do not apply when wind speed favors drift beyond the area intended for treatment.

**Maintain continuous agitation in mix tank during mixing and application to assure uniformity solution.** Do not apply when wind speed favors drift, when system connection or fittings leak, when nozzles do not provide uniform distribution, or when lines containing the product must be dismantled or drained. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop may result from non-uniform distribution of chemigation water.

Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation shall shut down and adjust the system as needed.

Do not connect an irrigation system (including greenhouse system) used for pesticide application to a public water system unless the label-prescribed safety devices for public water supplies are in place.

#### GENERAL INSTRUCTIONS FOR APPLICATIONS FOOD CROPS

TOPAZ<sup>®</sup> fungicide is used for control of Downy Mildew, Powdery Mildew, *Erwinia amylovora*, Pythium, Fusarium, Rhizoctonia and Phytophthora disease (such as purple blotch, late blight, blue mold, soft rot, root rot, brown rot, foot rot, crown/collar rot, canker, fruit/foliar rot, fire blight, heart rot, pink rot, pythium leak, red stele, leather rot, etc.) of agronomic crops. (See specific crop groupings for additional diseases.) This product may be applied up to the day of harvest. TOPAZ<sup>®</sup> is applied to plants including:

**Berry Crop Grouping:** Blackberry (including bingberry, black satin berry, boysenberry, Cherokee blackberry, Chesterberry, Cheyenne blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, Grapes (all types), Himalayaberry, hullberry, Lavacaberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, nectarberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, youngberry, and varieties and/or hybrids of these), Blueberry, Cane Berries, Cranberry, Currant, Elderberry, Gooseberry, Huckleberry, Loganberry, Raspberry (black and red) and Strawberry.

Make applications prior to disease development in conjunction with good cultural management practices. Use the higher rate when disease pressure is severe. Use rates and frequency are designed to prevent plant injury. If more frequent applications are necessary for disease control, consult a crop expert and follow their recommendations. Do not exceed the highest rate per application. Do not apply at less than 3 day intervals. Do not apply to plants that are dormant or heat or moisture stressed. To avoid undesirable copper phytotoxicity, do not apply TOPAZ<sup>®</sup> foliarly to plants treated with copper based compounds at less than 20 day intervals unless instructed to do so by your consultant. Allow foliage to completely dry after application. Do not apply when conditions favor wet tissue for prolonged periods (>4 hours).

Disease	Application Method	Rate	Application Program
Phytophthora Pythium Fusarium Rhizoctonia	Foliar or	1 to 3 quarts in a minimum of 20 gallons of water/acre. (5 to 7 liters in minimum of 100 liters of water /hectare)	<b>Disease Prevention Program*:</b> Apply lower rate at 2-4 week intervals after plants become established. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in minimum of 75 liters of water /hectare)	Disease Control Program: Apply higher rate at 2-3 week intervals until control is reached. Consult with Farm Advisor or crop expert to determine disease severity. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Root Dip	2 quarts/100 gallons of water, 2/3 fluid ounce/ gallon of water. (5 liters/1000 liters of water)	Apply as pre-plant dip to the roots for 15-30 minutes. Plant within 24 hours after dipping.
	Irrigation	Overhead: 2-4 quarts in at least 100 gallons of water. (7-9 liters in at least 1000 liters of water) Drip: 2-3 quarts in at least 100 gallons of water. (5-7 liters in at least 1000 liters of water)	Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
Downy Mildew Powdery Mildew	Foliar or	1 to 3 quarts in a minimum of 20 gallons of water/acre. (5 to 7 liters in minimum of 100 liters of water/hectare)	Apply at 2-3 week intervals. Follow <b>Disease Prevention</b> <b>Program</b> or <b>Disease Control</b> <b>Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in minimum of 75 liters of water/hectare)	

**Brassica Crop Grouping**: Broccoli (all types), Brussels sprouts, Cabbage (all types), Cauliflower, Cavalo broccoli, Collards, Kale, Kohlrabi, Mizuna, Mustard greens, Mustard spinach and Rape greens.

Make applications prior to disease development in conjunction with good cultural management practices. Use the higher rate when disease pressure is severe. Use rates and frequency are designed to prevent plant injury. If more frequent applications are necessary for disease control, consult a crop expert and follow their recommendations. Do not exceed the highest rate per application. Do not apply at less than 3 day intervals. Do not apply to plants that are dormant or heat or moisture stressed. To avoid undesirable copper phytotoxicity, do not apply TOPAZ<sup>TM</sup>

foliarly to plants treated with copper based compounds at less than 20 day intervals unless instructed to do so by your consultant. Allow foliage to completely dry after application. Do not apply when conditions favor wet tissue for prolonged periods (>4 hours).

Disease	Application Method	Rate	Application Program
Phytophthora Pythium Fusarium Rhizoctonia	Foliar or Aerial Application	<ol> <li>to 3 quarts in a minimum of 20 gallons of water/acre.</li> <li>to 7 liters in minimum of 100 liters of water/hectare)</li> <li>to 3 quarts in a minimum of 10 gallons of water/acre.</li> <li>to 7 liters in minimum of 75 liters of water/hectare)</li> </ol>	Disease Prevention Program*: Apply lower rate at 2-4 week intervals after plants become established. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days. Disease Control Program: Apply higher rate at 2-3 week intervals until control is reached. Consult with Farm Advisor or crop expert to determine disease severity. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Root Dip Irrigation	1 quart/100 gallons of water, 1/3 fluid ounce/ gallon of water. (2.5 liters/1000 liters of water) Overhead: 2-4 quarts in at least 100 gallons of water. (7-9 liters in at least 1000 liters of water) Drip: 2-3 quarts in at least 100 gallons of water. (5-7 liters in at	Apply as pre-plant dip immediately prior to planting. (100 gallons is intended to treat the number of slips required to plant one acre). Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
		least 1000 liters of water)	
Downy Mildew Powdery Mildew	Foliar or	1 to 3 quarts in a minimum of 20 gallons of water/acre. (5 to 7 liters in a	Apply at 2-3 week intervals. Follow <b>Disease Prevention</b> <b>Program</b> or <b>Disease Control</b> <b>Program</b> as stated above. Do
	Aerial Application	minimum of 100 liters of water/hectare)	not apply TOPAZ <sup>®</sup> at intervals less than 3 days
		1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters of water/hectare.)	

**Cereal Grains, Forage and Fiber Crop Grouping:** Alfalfa, Barley, Buckwheat, Canola, Clover (all types), Corn (all types), Cotton, Hay, Kudzu, Lespedeza, Lupin, Millet, Oats, Popcorn, Rice, Rye, Safflower, Sainfoin, Sorghum, Sunflower, Teosinte, Trefoil, Triticale, Vetch, Wheat and Wild rice.

Make applications prior to disease development in conjunction with good cultural management practices. Use the higher rate when disease pressure is severe. Use rates and frequency are designed to prevent plant injury. If more frequent applications are necessary for disease control, consult a crop expert and follow their recommendations. Do not exceed the highest rate per application. Do not apply at less than 3 day intervals. Do not apply to plants that are dormant or heat or moisture stressed. To avoid undesirable copper phytotoxicity, do not apply TOPAZ<sup>®</sup> foliarly to plants treated with copper based compounds at less than 20 day intervals unless instructed to do so by your consultant. Allow foliage to completely dry after application. Do not apply when conditions favor wet tissue for prolonged periods (>4 hours).

Disease	Application Method	Rate	Application Program
Phytophthora Pythium Fusarium Rhizoctonia	Foliar or Aerial Application	<ol> <li>to 3 quarts in a minimum of 20 gallons of water/acre.</li> <li>to 7 liters in minimum of 100 liters of water/hectare)</li> <li>to 3 quarts in a minimum of 10 gallons of water/acre.</li> <li>to 7 liters in a minimum of 75 liters of water/hectare)</li> </ol>	Disease Prevention Program*: Apply lower rate at 2-4 week intervals after plants become established. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days. Disease Control Program: Apply higher rate at 2-3 week intervals until control is reached. Consult with Farm Advisor or crop expert to determine disease severity. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Irrigation	Overhead: 2-4 quarts in at least 100 gallons of water. (7-9 liters in at least 1000 liters of water) Drip: 2-3 quarts in at least 100 gallons of water. (5-7 liters in at least 1000 liters of water)	Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
Downy Mildew	Foliar or	1 to 3 quarts in a minimum of 20 gallons of water/acre. (5 to 7 liters in minimum of 100 liters of water/hectare)	Apply at 2-3 week intervals. Follow <b>Disease Prevention</b> <b>Program</b> or <b>Disease Control</b> <b>Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in minimum of 75 liters of water/hectare)	

**Citrus Crop Grouping (Bearing and Non-Bearing) including Avocado:** Avocado, Calamondin, Citrus hybrids, Grapefruit, Kumquat, Lemon, Lime, Mandarin, Orange (all types), Pummelo and Satsuma mandarin.

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Disease	Application Method	Rate	Application Program
Phytophthora Pythium Fusarium Rhizoctonia	Foliar or Aerial Application	<ol> <li>to 3 quarts in a minimum of 100 gallons of water/acre.</li> <li>to 7 liters in a minimum of 1000 liters of water/hectare)</li> <li>to 3 quarts in a minimum of 10 gallons of water/acre.</li> <li>to 7 liters in a minimum of 75 liters of water/hectare)</li> </ol>	Disease Prevention Program*: Apply lower rate at 2-4 week intervals after plants become established. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days. Disease Control Program: Apply higher rate at 2-3 week intervals until control is reached. Consult with Farm Advisor or crop expert to determine disease severity. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Root Dip	2 quarts/100 gallons of water, 2/3 fluid ounces/gallon of water (5 liters/1000 liters of water)	Apply as pre-plant dip to the roots for 15-30 minutes. Plant within 24 hours after dipping.
	Irrigation	Overhead: 2-4 quarts in at least 100 gallons of water. (7-9 liters in at least 1000 liters of water) Drip: 2-3 quarts in at least 100 gallons of water. (5-7 liters in at least 1000 liters of water)	Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Trunk Injection	3 teaspoons/linear yard of canopy width or 2 inch of trunk diameter at breast height (DBH) (15 milliliters/linear meter of canopy width or 5 centimeters DBH.) Inject directly in to tree.	Apply according to injection equipment instructions. Adjust rate based on injection equipment suggestions for specific applications. Repeat 2- 4 times a year until control is reached.

Disease	Application Method	Rate	Application Program
Downy Mildew	Foliar or Aerial Application	1 to 3 quarts in a minimum of 100 gallons of water/acre. (5 to 7 liters in a minimum of 1000 liters of water/hectare)	Apply at 2-3 week intervals. Follow <b>Disease Prevention</b> <b>Program</b> or <b>Disease Control</b> <b>Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
		1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters/hectare)	

**Cucurbit Crop Grouping:** Chayote, Chinese waxgourd, Citron melon, Cucumber (all types), Gherkin, Gourd, Muskmelon, Pumpkin, Squash (summer and winter) and Watermelon.

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Disease	Application Method	Rate	Application Program
Phytophthora Pythium Fusarium Rhizoctonia	Foliar or Aerial Application	<ol> <li>to 3 quarts in a minimum of 20 gallons of water/acre.</li> <li>to 7 liters in minimum of 100 liters of water/hectare)</li> <li>to 3 quarts in a minimum of 10 gallons of water/acre.</li> <li>to 7 liters in minimum of 75 liters of water/hectare)</li> </ol>	Disease Prevention Program*: Apply lower rate at 2-4 week intervals after plants become established. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days. Disease Control Program: Apply higher rate at 2-3 week intervals until control is reached. Consult with Farm Advisor or crop expert to determine disease severity. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Irrigation	Overhead: 2-4 quarts in at least 100 gallons of water. (7-9 liters in at least 1000 liters of water) Drip: 2-3 quarts in at least 100 gallons of water. (5-7 liters in at least 1000 liters of water)	Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
Downy Mildew Powdery Mildew	Foliar or	1 to 3 quarts in a minimum of 20 gallons of water/acre. (5 to 7 liters in a minimum of 100 liters of water/hectare)	Apply at 2-3 week intervals. Follow <b>Disease Prevention</b> <b>Program</b> or <b>Disease Control</b> <b>Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters of water/hectare)	

Herbs and Spices Crop Grouping:: Allspice, Angelica, Anise, Annatto, Balm, Basil, Borage, Bumet, Camomile, Caper buds, Caraway, Cardamom, Cassia bark and buds, Catnip, Celery seed, Chervil, Chive, Cinnamon, Clary, Clove, Cocoa, Coriander, Costmary, Cilantro, Cumin, Curry, Dill, Fennel, Fenugreek, Grains of paradise, Hops, Horehound, Hyssop, Juniper berry, Lavender, Lemongrass, Lovage, Mace, Marigold, Marjoram, Mint, Mustard, Nasturtium, Nutmeg, Parsley, Pennyroyal, Pepper, Poppy seed, Rosemary, Rue, Saffron, Sage, Savory, Sweet bay, Tansy, Tarragon, Thyme, Vanilla, Wintergreen, Woodruff and Wormwood.

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	Irrigation	Overhead: 2-4 quarts in at least 100 gallons of water. (7-9 liters in at least 1000 liters of water) Drip: 2-3 quarts in at least 100 gallons of water. (5-7 liters in at least 1000 liters of water)	less than 3 days. Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
Downy Mildew Powdery Mildew	Foliar or	1 to 3 quarts in a minimum of 20 gallons of water/acre. (5 to 7 liters in minimum of 100 liters of water/hectare)	Apply at 2-3 week intervals. Follow <b>Disease Prevention</b> <b>Program</b> or <b>Disease Control</b> <b>Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters of water/hectare)	

**Legume Vegetables Crop Grouping**: Bean (all types), broad bean (fava bean), Chick pea (garbanzo bean), Guar, Jackbean, Lablab bean, Lentil, Pea (all types), Peanut, Pigeon pea, Soybean and Sword bean.

Make applications prior to disease development in conjunction with good cultural management practices. Use the higher rate when disease pressure is severe. Use rates and frequency are designed to prevent plant injury. If more frequent applications are necessary for disease control, consult a crop expert and follow their recommendations. Do not exceed the highest rate of application. Do not apply at less than 3 day intervals. Do not apply to plants that are dormant or heat or moisture stressed. To avoid undesirable copper phytotoxicity, do not apply TOPAZ<sup>®</sup> foliarly to plants treated with copper based compounds at less than 20 day intervals unless instructed to do so by your consultant. Allow foliage to completely dry after application. Do not apply when conditions favor wet tissue for prolonged periods (>4 hours).

Disease	Application Method	Rate	Application Program
Phytophthora Pythium Fusarium Rhizoctonia Early and Late Leaf Spot on Peanut (Cercospora arachidicola and Cercosporidium personatum)	Foliar or Aerial Application	<ol> <li>to 3 quarts in a minimum of 20 gallons of water/acre.</li> <li>to 7 liters in minimum of 100 liters of water/hectare)</li> <li>to 3 quarts in a minimum of 10 gallons of water/acre.</li> <li>to 7 liters in a minimum of 75 liters of water/hectare)</li> </ol>	Disease Prevention Program*: Apply lower rate at 2-4 week intervals after plants become established. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days. Disease Control Program: Apply higher rate at 2-3 week intervals until control is reached. Consult with Farm Advisor or crop expert to determine disease severity. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Irrigation	Overhead: 2-4 quarts in at least 100 gallons of water. (7-9 liters in at least 1000 liters of water) Drip: 2-3 quarts in at least 100 gallons of water. (5-7 liters in at least 1000 liters of water)	Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
Downy Mildew Powdery Mildew	Foliar or	1 to 3 quarts in a minimum of 20 gallons of water/acre. (5 to 7 liters in minimum of 100 liters of water/hectare)	Apply at 2-3 week intervals. Follow <b>Disease Prevention</b> <b>Program</b> or <b>Disease Control</b> <b>Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters of water/hectare)	

### Pome Fruits Crop Grouping (Bearing and Non-Bearing) including Papaya: Apple,

Crabapple, Loquat, Mayhaw, Papaya, Pear, and Quince.

Make applications prior to disease development in conjunction with good cultural management practices. Use the higher rate when disease pressure is severe. Use rates and frequency are designed to prevent plant injury. If more frequest applications are necessary for disease control, consult a crop expert and follow their recommendations. Do not exceed the highest rate per application. Do not apply at less than 3 day intervals. Do not apply to plants that are dormant or heat or moisture stressed. To avoid undesirable copper phytotoxicity, do not apply TOPAZ<sup>®</sup> foliarly to plants treated with copper based compounds at less than 20 day intervals unless instructed to do so by your consultant. Allow foliage to completely dry after application. Do not apply when conditions favor wet tissue for prolonged periods (>4 hours).

Disease	Application Method	Rate	Application Program
Phytophthora Pythium Fusarium Rhizoctonia	Foliar	1 to 3 quarts in a minimum of 100 gallons of water/acre. (5 to 7 liters in a	Disease Prevention Program*: Apply lower rate at 2-4 week intervals after plants become
Fire Blight ( <i>Erwinia</i> <i>amylovora</i> )	or	minimum of 1000 liters of water/hectare)	established. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
amylovoray	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters/hectare)	<b>Disease Control Program:</b> Apply higher rate at 2-3 week intervals until control is reached. Consult with Farm Advisor or crop expert to determine disease severity. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Root Dip	2 quarts/100 gallon of water, 2/3 fluid ounces/gallon of water. (5 liters/1000 liters of water )	Apply as pre-plant dip to the roots for 15-30 minutes. Plant within 24 hours after dipping.
	Irrigation	Overhead: 2-4 quarts in at least 100 gallons of water. (7-9 liters in at least 1000 liters of water) Drip: 2-3 quarts in at least 100 gallons of water. (5-7 liters in at least 1000 liters of water)	Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Trunk Injection	3 teaspoons / linear yard of canopy width or 2 inch of trunk diameter at breast height (DBH) (15 milliliter/linear meter of canopy width or 5 centimeters DBH.) Inject directly in to tree.	Apply according to injection equipment instructions. Adjust rate based on injection equipment suggestions for specific applications. Repeat 2- 4 times a year until control is reached.

Disease	Application Method	Rate	Application Program
Downy Mildew Powdery Mildew	Foliar or	1 to 3 quarts in a minimum of 100 gallons of water/acre. (5 to 7 liters in a minimum of 1000 liters of water/hectare)	Apply at 2-3 week intervals. Follow <b>Disease Prevention</b> <b>Program</b> or <b>Disease Control</b> <b>Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters/hectare)	

**Stone Fruits Crop Grouping including Olives**: Apricot, Cherry, Nectarine, Olive, Peach, Plum, Plumcot and Prune.

Make applications prior to disease development in conjunction with good cultural management practices. Use the higher rate when disease pressure is severe. Use rates and frequency are designed to prevent plant injury. If more frequent applications are necessary for disease control, consult a crop expert and follow their recommendations. Do not exceed the highest rate rate per application. Do not apply at less than 3 day intervals. Do not apply to plants that are dormant or heat or moisture stressed. To avoid undesirable copper phytotoxicity, do not apply TOPAZ<sup>®</sup> foliarly to plants treated with copper based compounds at less than 20 day intervals unless instructed to do so by your consultant. Allow foliage to completely dry after application. Do not apply when conditions favor wet tissue for prolonged periods (>4 hours).

Disease	Application Method	Rate	Application Program
Phytophthora Pythium Fusarium Rhizoctonia	Foliar or	1 to 3 quarts in a minimum of 100 gallons of water/acre. (5 to 7 liters in a minimum of 1000 liters of water/hectare)	Disease Prevention Program*: Apply lower rate at 2-4 week intervals after plants become established. Do not apply TOPAZ <sup>®</sup> at intervals less than
	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters/hectare)	3 days. <b>Disease Control Program:</b> Apply higher rate at 2-3 week intervals until control is reached. Consult with Farm Advisor or crop expert to determine disease severity. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Root Dip	2 quarts/100 gallon of water, 2/3 fluid ounces/gallon of water. (5 liters/1000 liters of water)	Apply as pre-plant dip to the roots for 15-30 minutes. Plant within 24 hours after dipping.
	Irrigation	Overhead: 2-4 quarts in at least 100 gallons of water.	Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or

		(7-9 liters in at least 1000 liters of water) Drip: 2-3 quarts in at least 100 gallons of water. (5-7 liters in at least 1000 liters of water)	<b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Trunk Injection	3 teaspoons / linear yard of canopy width or 2 inch of trunk diameter at breast height (DBH) (15 milliliter/linear meter of canopy width or 5 centimeters DBH.) Inject directly in to tree.	Apply according to injection equipment instructions. Adjust rate based on injection equipment suggestions for specific applications. Repeat 2- 4 times a year until control is reached.
Downy Mildew Powdery Mildew	Foliar or	1 to 3 quarts in a minimum of 100 gallons of water/acre. (5 to 7 liters in a minimum of 1000 liters of water/hectare)	Apply at 2-3 week intervals. Follow <b>Disease Prevention</b> <b>Program</b> or <b>Disease Control</b> <b>Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
*0+	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters/hectare)	

**Tree Nuts Crop Grouping including Vines**: Almond, Beech nut, Brazil nut, Butternut, Cashew, Chestnut, Chinquapin, Filbert, Grapes (all types), Hickory nut, Kiwi, Macadamia nut, Pecan, Pistachio and Walnut.

Make applications prior to disease development in conjunction with good cultural management practices. Use the higher rate when disease pressure is severe. Use rates and frequency are designed to prevent plant injury. If more frequent applications are necessary for disease control, consult a crop expert and follow their recommendations. Do not exceed the highest rate per application. Do not apply at less than 3 days intervals. Do not apply to plants that are dormant or heat or moisture stressed. To avoid undesirable copper phytotoxicity, do not apply TOPAZ<sup>®</sup> foliarly to plants treated with copper based compounds at less than 20 day intervals unless instructed to do so by your consultant. Allow foliage to completely dry after application. Do not apply when conditions favor wet tissue for prolonged periods (>4 hours).

Disease	Application Method	Rate	Application Program
Phytophthora Pythium Fusarium Rhizoctonia	Foliar or	1 to 3 quarts in a minimum of 100 gallons of water/acre. (5 to 7 liters in a minimum of 1000 liters of water/hectare)	Disease Prevention Program*: Apply lower rate at 2-4 week intervals after plants become established. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters/hectare)	<b>Disease Control Program:</b> Apply higher rate at 2-3 week intervals until control is reached. Consult with Farm Advisor or crop expert to determine disease severity. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Root Dip	2 quarts/100 gallon of water, 2/3 fluid ounces/gallon of water. (5 liters/1000 liters of water)	Apply as pre-plant dip to the roots for 15-30 minutes. Plant within 24 hours after dipping.
	Irrigation	Overhead: 2-4 quarts in at least 100 gallons of water. (7-9 liters in at least 1000 liters of water) Drip: 2-3 quarts in at least 100 gallons of water. (5-7 liters in at least 1000 liters of water)	Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Trunk Injection	3 teaspoons / linear yard of canopy width or 2 inch of trunk diameter at breast height (DBH) (15 milliliter/linear meter of canopy width or 5 centimeters DBH.) Inject directly in to tree.	Apply according to injection equipment instructions. Adjust rate based on injection equipment suggestions for specific applications. Repeat 2- 4 times a year until control is reached.

Disease	Application Method	Rate	Application Program
Downy Mildew Powdery Mildew	Foliar or	1 to 3 quarts in a minimum of 100 gallons of water/acre. (5 to 7 liters in a minimum of 1000 liters of water/hectare)	Apply at 2-3 week intervals. Follow <b>Disease Prevention</b> <b>Program</b> or <b>Disease Control</b> <b>Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Aerial Application	1 to 3 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters/hectare)	

**Vegetables Crop Grouping Including Miscellaneous Food Crops**: (Leafy, Root and Tuber) Amaranth (Chinese spinach, tampala, etc.) Arracacha, Arugula, Arrowroot, Artichoke (all types), Asparagus, Beet (all types), Burdock, Canna, Cardoon, Carrot, Cassava, Celeriac, Celery, Chayote, Chervil (turnip-rooted), Chicory, Chilies, Chrysanthemum (edible), Chufa, Cinchoca, Coconut, Coffee, Corn (all types), Cress (all types), Dandelion, Dasheen, Dock, Eggplant, Endive, Fennel, Garlic, Ginger, Ginseng, Horseradish, Leren, Lettuce (all types), Okra, Onion, Orach, Parsley, Parsnip, Peppers (all types), Pineapple, Purslane, Potato (all types), Radicchio, Radish (all types), Rhubarb, Rutabaga, Salisify (all types), Skirret, Spinach (all types), Sugarbeet, Sugarcane, Sweet Potato, Swiss chard, Tanier, Tobacco, Tomato, Turmeric, Turnip, Yam (all types).

Make applications prior to disease development in conjunction with good cultural management practices. Use the higher rate when disease pressure is severe. Use rates and frequency are designed to prevent plant injury. If more frequent applications are necessary for disease control, consult a crop expert and follow their recommendations. Do not exceed the highest rate per application. Do not apply at less than 3 day intervals. Do not apply to plants that are dormant or heat or moisture stressed. To avoid undesirable copper phytotoxicity, do not apply TOPAZ<sup>®</sup> foliarly to plants treated with copper based compounds at less than 20 day intervals unless instructed to do so by your consultant. Allow foliage to completely dry after application. Do not apply when conditions favor wet tissue for prolonged periods (>4 hours).

Disease	Application Method	Rate	Application Program
Phytophthora Pythium Fusarium Rhizoctonia	Foliar or	<ol> <li>to 4 quarts in a minimum of 20 gallons of water/acre.</li> <li>to 7 liters in minimum of 100 liters of water/hectare)</li> </ol>	Disease Prevention Program*: Apply lower rate at 2-4 week intervals after plants become established. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Aerial Application	<ol> <li>to 4 quarts in a minimum of 10 gallons of water/acre.</li> <li>to 7 liters in a minimum of 75 liters of water/hectare)</li> </ol>	Disease Control Program: Apply higher rate at 2-3 week intervals until control is reached. Consult with Farm Advisor or crop expert to determine disease severity. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.

Disease	Application Method	Rate	Application Program
Phytophthora	Root Dip	2 quarts/100 gallon of	Apply as pre-plant dip
Pythium		water, 2/3 fluid	immediately prior to planting.
Fusarium		ounces/gallon of	(100 gallons is intended to
Rhizoctonia		water.	treat the number of slips
(Cont'd)		(5 liters/1000 liters of	required to plant one acre).
		water)	
	Irrigation	Overhead: 2-4 quarts in at least 100 gallons of water. (7-9 liters in at least 1000 liters of water) Drip: 2-3 quarts in at least 100 gallons of water. (5-7 liters in at least 1000 liters of water)	Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
Downy Mildew Powdery Mildew	Foliar or	1 to 4 quarts in a minimum of 20 gallons of water/acre. (5 to 7 liters in minimum of 100 liters of water/hectare)	Apply at 2-3 week intervals. Follow <b>Disease Prevention</b> <b>Program</b> or <b>Disease Control</b> <b>Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Aerial Application	1 to 4 quarts in a minimum of 10 gallons of water/acre. (5 to 7 liters in a minimum of 75 liters of water/hectare)	
Pink Rot	Foliar or	3 to 5 quarts in a	Apply at 2-3 week intervals.
(Phytophthora	Aerial Application	minimum of 20 gallons	Follow Disease Prevention
erythroseptica)		of water/acre.	Program or Disease Control
Late Blight		(5 to 7 liters in minimum	Program as stated above. Do
(Phytophthora infestans)		of 100 liters of water/hectare) *Note: 1 gallon container will not be sufficient for treating pink rot and late blight at the highest given application rate. An additional 1 gallon container or a larger container size will be necessary to achieve the maximum treatment rate.	not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
Post-harvest	Spray, rinse or	Dilute TOPAZ <sup>®</sup> at 1:20	Inject concentrate in to water
treatment of	injected into	ratio with application	used in humidification or
potatoes for:	humidification	water. 6.4-12.8 fluid	process water used for post-
Late Blight	water prior to or	ounces/0.5 gallon of	harvest storage, rinses and
(Phytophthora	during storage.	water/ton of tubers.	associated tanks, flumes and lines.
<i>infestans)</i>		(95-190 milliliter/liter of	แบร.
Pink Rot		water)	
(Phytophthora			
erytrhoseptica)	L	t if you are uncure these of	

#### ORNAMENTALS

TOPAZ<sup>®</sup> fungicide is used for control of Pythium, Downy Mildew, Powdery Mildew, Phytophthora and various other diseases of ORNAMENTALS in commercial nurseries and greenhouses, golf courses, parks and commercial landscapes. TOPAZ<sup>®</sup> may be applied to all ornamental and landscape plants including (but not limited to): Aglaonema, Aphelandra, Arborvitae, Ash, Azaleas, Bougainvilleas, Boxwood, Bushes, *Cattleya skinneri*, Cedars, Ceanothus, Cotoneaster, Cissus, Diffenbachia, Dogwood, Ferns, Ficus, Flowering Trees, Hibiscus, Hard Wood Trees, Holly, Home Lawns, Juniper, Magnolia Trees, Maple, Pines, Oaks, Palms, Peperomia, Photinia, Pittosporum, Philodendron, Pieris, Pothos, Red woods, Rhododendron, Roses, Schefflera, Sedum, Sempervivum, Shrubs, Spathiphyllum, Sycamore, Taxus media, Zygocactus.

Apply TOPAZ<sup>®</sup> prior to disease development in conjunction with good cultural practices. Use the higher rate when disease pressure is severe. Use rates and frequency are designed to prevent plant injury. If more frequent applications are necessary for disease control, consult a crop expert and follow their recommendations. Do not exceed the highest rate per application. Do not apply at less than 3 day intervals. Do not apply to plants that are dormant or under heat or moisture stress. To avoid undesirable copper phytotoxicity, do not apply TOPAZ<sup>®</sup> foliarly to plants treated with copper based compounds at less than 20 day intervals unless instructed to do so by your consultant. Allow foliage to completely dry after application. Do not apply when conditions favor wet tissue for prolonged periods (>4 hours).

Disease	Application Method	Rate	Application Program
Phytophthora Fusarium Pythium Rhizoctonia Fire Blight ( <i>Erwinia amylovora</i> ) Bacterial Blight (Xanthomonas campestris) Geranium Wilt ( <i>Ralstonia spp.</i> )	Foliar Spray	1 to 2 quarts/100 gallons of water or 1/3 fluid ounce to 2/3 fluid ounce per gallon of water. (2.5 to 5 liters/1000 liters of water)	Disease Prevention Program*: Apply lower rate at 2-4 week intervals after plants become established. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days. Disease Control Program: Apply higher rate at 2-3 week intervals until control is reached. Consult with Farm Advisor or crop expert to determine disease severity. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Soil Drench	12-24 fluid ounce/100 gallon of water or 1/8 to ¼ fluid ounce per gallon of water (1 to 2 liters/1000 liters of water)	Apply 1-2 pts. of diluted solution per sq. foot. Adjust volume as needed to thoroughly wet media. Apply at 2-3 week intervals and repeat as needed. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.

Disease	Application Method	Rate	Application Program
Phytophthora Fusarium Pythium Rhizoctonia Fire Blight ( <i>Erwinia amylovora</i> ) Bacterial Blight (Xanthomonas campestris) Geranium Wilt ( <i>Ralstonia spp.</i> ) (Cont'd)	Soil Incorporation	1 to 2 pints/cubic yard of soil mix (300- 600 milliliters/cubic meter)	Mix 1 to 2 pints of Topaz <sup>®</sup> with enough water to wet one cubic yard of soil; mix immediately before potting. If conditions are favorable for disease development, make additional applications as a foliar spray or soil drench.
	Irrigation	Overhead: 1-2 quarts/100 gallons of water. (2.5 – 5 liters/1000 liters of water) Drip: 1-2 quarts/100 gallons of water. (2.5 – 5 liters/1000 liters of water)	Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Trunk Injection	3 teaspoons/linear yard of canopy width or 2 inch of trunk diameter at breast height (DBH) (15 milliliters/linear meter of canopy width or 5 centimeters DBH.) Inject directly in to tree.	Apply according to injection equipment instructions. Adjust rate based on injection equipment suggestions for specific applications. Repeat 2-4 times a year until control is reached.
	Root Dip	2 quarts/100 gallons of water or 2/3 fluid ounce/gallon of water. (5 liters/1000 liters of water)	Dip transplants into diluted solution of Topaz <sup>®</sup> . Thoroughly wet plant root mass immediately before transplanting. Keep roots submerged for 1 to 2 minutes.
Downy Mildew Powdery Mildew	Foliar Spray	1 to 2 quarts/100 gallons of water or 1/3 fluid ounce to 2/3 fluid ounce/gallon of water (2.5 to 5 liters/1000 liters of water)	Apply diluted solution to thoroughly wet foliage. Apply at 2-3 week intervals and repeat as needed. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.

#### **BEDDING PLANTS**

TOPAZ<sup>®</sup> fungicide is used for control of Downy Mildew, Powdery Mildew, Pythium, Phytophthora and various other diseases of bedding plants grown in commercial nurseries and greenhouses, golf courses, parks and commercial landscapes. Apply TOPAZ<sup>®</sup> to all bedding plants including: Ageratum, Algerian Ivy, Alyssum, Anthurium, Artemisia, Aster, Baby's Breath, Begonia, Caladium, Carnation, Chrysanthemum, Coleus, Columbine, Daisy, Delphinium, Easter Lily, English Ivy, Foxglove, Gaillardia, Geranium, Gloxinia, Impatiens, Marigold, Pansy, Petunia, Phlox, Pinks, Poinsettia, Primrose, Prostrate Rosemary, Salvia, Snapdragon, Verbena, Vinca, Zinnia, etc.

Make applications prior to disease development in conjunction with good cultural management practices. Use the higher rate when disease pressure is severe. Use rates and frequency are designed to prevent plant injury. If more frequent applications are necessary for disease control, consult a crop expert and follow their recommendations. Do not exceed the highest rate per application. Do not apply at less than 3 day intervals. Do not apply to plants that are dormant or heat or moisture stressed. To avoid undesirable copper phytotoxicity, do not apply TOPAZ<sup>®</sup> foliarly to plants treated with copper based compounds at less than 20 day intervals unless instructed to do so by your consultant. Allow foliage to completely dry after application. Do not apply when conditions favor wet tissue for prolonged periods (>4 hours).

Disease	Application Method	Rate	Application Program
Phytophthora	Foliar Spray	1 to 2 quarts/100	Disease Prevention
Pythium		gallons water or 1/3	Program*:
Fusarium		fluid ounce to 2/3	Apply lower rate at 2-4
Rhizoctonia		fluid ounce/gallon	week intervals after plants
Fire Blight		(2.5 to 5 liters/1000	become established. Do
(Erwinia		liters water)	not apply TOPAZ <sup>®</sup> at
amylovora)			intervals less than 3 days.
			Disease Control
			Program:
			Apply higher rate at 2-3 week intervals until control
			is reached. Consult with
			Farm Advisor or crop
			expert to determine
			disease severity. Do not
			apply TOPAZ <sup>®</sup> at intervals
			less than 3 days.
			Apply diluted solution to
			thoroughly wet foliage.
			Apply at 2-3 week intervals
			and repeat as needed. Do
			not apply TOPAZ <sup>®</sup> at
			intervals less than 3 days.
	Root Dip	2 quarts/100 gallons	Dip transplants into diluted
		of water or 2/3 fluid	solution of Topaz <sup>®</sup> .
		ounce/gallon of	Thoroughly wet plant root
		water. (5 liters/1000	mass immediately before
		liters of water)	transplanting. Keep roots
			submerged for 1 to 2
			minutes.

Disease	Application Method	Rate	Application Program
Phytophthora Pythium Fusarium Rhizoctonia Fire Blight ( <i>Erwinia</i> <i>amylovora</i> )	Soil Drench	12 to 24 fluid ounce/100 gallon of water or 1/8 to ¼ fluid ounce per gallon of water (1 to 2 liters/1000 liters of water)	Apply 1-2 pts. of diluted solution per sq. foot. Adjust volume as needed to thoroughly wet media. Apply at 2-3 week intervals and repeat as needed. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
(Cont'd)	Irrigation	Overhead: 1-2 quarts/100 gallons of water. (2.5 – 5 liters/1000 liters of water) Drip: 1-2 quarts/100 gallons of water. (2.5 – 5 liters/1000 liters of water)	Apply with normal irrigation schedule. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
Downy Mildew Powdery Mildew	Foliar Spray	1 to 2 quarts/100 gallons water (1/3 fluid ounce to 2/3 fluid ounce/gallon of water) (2.5 to 5 liters/1000 liters of water)	Apply diluted solution to thoroughly wet foliage. Apply at 2-3 week intervals and repeat as needed. Do not apply more than 6 times per crop cycle or year. Follow <b>Disease</b> <b>Prevention Program</b> or <b>Disease Control Program</b> as stated above. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.

## CONIFERS AND TREES IN COMMERCIAL NURSERIES, PLANTATIONS AND FORESTS, LANDSCAPES AND PARKS

## (INCLUDING CHRISTMAS TREES, OAKS and PINES)

TOPAZ<sup>®</sup> applied in conjunction with good cultural management practices will control Phytophthora root rot of conifers including (but not limited to): Douglas Fir, spruce and pines also other Phytophthora disease of Oaks (Sudden Oak Death) and forest trees. Use the higher rates when disease pressure is severe. Do not apply to trees that are under heat or moisture stress.

Disease	Application Method	Rate	Application Program
Phytophthora	Foliar Spray	1 to 2 quarts/100 gallon of water /acre (2.5 to 5 liters/1000 liters water/hectare) or 1/3 fluid ounce to 2/3 fluid ounce/ gallon of water. Apply diluted solution to thoroughly wet foliage. Apply at 2-3 week intervals and repeat as needed.	Disease Prevention Program*: Apply lower rate at 2-4 week intervals after plants become established. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days. Disease Control Program: Apply higher rate at 2-3 week intervals until control is reached. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Soil Drench	12 to 24 fluid ounce/100 gallons of water or 1/8 to 1/4 fluid ounce/gallon of water (1 to 2 liters/1000 liters of water)	Apply 1-2 pts. of diluted solution per sq. foot. Adjust volume as needed to thoroughly wet media. Apply at 2-3 week intervals and repeat as needed. Do not apply TOPAZ <sup>®</sup> at intervals less than 3 days.
	Trunk Injection	3 teaspoons/linear yard of canopy width or 2 inch of trunk diameter at breast height (DBH) (15 milliliters /linear meter of canopy width or 5 centimeters DBH.) Inject directly in to tree.	Apply according to injection equipment instructions. Adjust rate based on injection equipment suggestions for specific applications
(Phytophthora)	Root Dip	2 quarts/100 gallons of water (2/3 fluid ounce/gallon of water) 5 liters/1000 liters water	Apply as a pre-plant dip to the roots for 15-30 minutes. Plant within 24 hours after dipping.

Do not graze livestock in treated conifer nurseries and/or plantations. Do not feed forage to livestock from treated nurseries and/or plantations.

#### TURF (INCLUDES RESIDENTIAL AND COMMERCIAL LAWN APPLICATIONS BY COMMERCIAL APPLICATORS)

TOPAZ<sup>®</sup> is a systemic fungicide, which is used for the control of Pythium blight, Summer Complex (Bermuda and others), Dollar Spot, Grey Leaf Spot, Brown Patch, Anthracnose and damping-off diseases to turf grasses on sod farms and lawns, commercial turf production, golf courses (including trees and greens), parks and commercial landscapes. Begin preventative applications when conditions first favor disease and repeat at recommended intervals. Use higher rates under severe disease conditions.

Disease	Application Method	Rate	Application Program
Pythium (Yellow Turf) Rhizoctonia Sclerotinia Helminthosporium Alternaria Anthracnose (Colletotrichum graminicola)	Foliar Spray	2-3 fluid ounces/1,000 square feet. (50-90 milliliters/100 square meters) or	Apply amount in minimum of 2 gal. of water per 1,000 sq. ft. Apply at 10 to 21 day intervals as needed. Do not mow or irrigate treated areas until sprays have completely dried.
		1 to 3 quarts/100 gallons of water/acre. (5 to 7 liters/1000 liters of water/hectare)	For sod farms and large areas: Apply diluted solution to thoroughly wet foliage. Apply at 2-3 week intervals and repeat as needed.
	Irrigation	Overhead: 2-3 quarts/acre. (5 – 7 liters/hectare) in at least 100 gallons of water (1000 liters) of water.	Apply with normal irrigation schedule. Apply at 10 to 21 day intervals and repeat as needed.

\*Do not graze animals on treated turf. Do not feed clippings from treated turf to livestock and poultry.

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