

**United States Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine**

**Administrative Action to Add Twenty-one New Fungicides and
Treatments to T500 Propagative Plants
Treatment Evaluation Document (TED)**

Date: July 2018

Treatments, Pests, Commodities and Countries

New Treatment/ Revision/Deletion¹	Treatment Type	Target Pests	Commodity Applicable	Country(ies) of origin
T500	Foliar Fungicide Refer to Tables A,B,C, D, E	Refer to Table T501	<i>Acer spp.</i> , Bonsai Bromeliaceae <i>Camellia spp.</i> , Christmas trees Chrysanthemum <i>Dracaena spp.</i> , Ferns Orchidaceae Palm Propagative Plants <i>Rhododendron spp.</i> ,	All

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¹All information in Treatment Manual Chapter 2 Chemicals and Chapter 5 Treatment Schedules 300, 400, 500 and Domestic Treatments is explained in materials for PDC Pesticide Certification Training and General Use Pesticides Workshop. Anyone with a State or Federal Pesticide License is trained in pesticide application.

Objective

The PPQ pesticide coordinator requested AQI Raleigh to update the fungicide treatments in T500. Request was to replace a fungicide that was cancelled by EPA. Since PPQ's original approval of the T500 treatments, chemical companies created a large number of protective and systemic fungicides. AQI Raleigh will add all current fungicides with EPA registrations for site, commodity and dose. The old fungicide treatments did not have application instructions and other operating information for treatments. AQI Raleigh will add directions for T501 fungicide treatment selection and application. PPQ CPHST AQI Raleigh will present supporting information to justify the changes.

Overview

The current PPQ Treatment Manual T500 dip and foliar fungicidal treatments have remained unchanged in the more than 50 years since their adoption. At that time, the only fungicide treatment available was the Bordeaux mixture (copper (II) sulfate (CuSO₄) and slaked lime (Ca (OH)₂) which has copper as its active ingredient. However, this mixture only serves as a protective fungicide, i.e., it has no ability to control established fungal infections.

The only fungicide allowed for a dip application is thiophanate-methyl, a chemical for which there have been numerous reports of fungal resistance. This eliminates the use of dip treatments. The current PPQ Treatment Manual still contains dip treatments for the Bordeaux mixture and other copper-based fungicides, application methods that were not restricted at the time of approval and before the formation of the EPA. These treatments were removed from the Treatment Manual to reflect current regulations.

In order to make clear the tasks of the PPQ officer, Officer Directions for T501 fungicide treatment selection, Officer Check-off Sheet and application are in Tables A, C.

Most of the active ingredients in commercially available fungicides are registered for a foliar application to ornamentals and nursery stock (Tables B1, B2). Therefore, the T501 treatments in the Treatment Manual must be restricted to foliar application on ornamentals and nursery stock. There are multiple fungicides for each active ingredient. Table B2 has only fungicides with no REI and are available at retail outlets. One can use other fungicide formulations not in Tables B1, B2 as long as the application method, site and rate are similar to formulations for the active ingredient (a.i.) in Tables B1, B2. AQI Raleigh has furnished websites for federal and state registrations for the fungicides in Tables B 1, B 2.

No treatments will be allowed for plants with high levels of fungal infection (Bock et al. 2010) (Trigiano 2007). Plants with low levels of infection can be treated via a two-part approach: 1) mechanical removal of all obviously diseased plant parts, and; 2) treatment of plants with a mixture of three fungicides with different modes of action at the highest rates allowed. The removal of diseased plant parts will restrict the fungus to latent infections (i.e., infections in which infective fungi are present inside the plant tissues, but conditions are not favorable for the expression of symptoms). Latent and other active infections are

controlled with the use of two systemic fungicides (i.e., chemicals that can control fungi after establishment to the plant tissue) with different modes of action and one protective fungicide with multiple sites of action.

Plant groups and genera are listed alphabetically in the proposed new T501 treatments, with the fungi that can be controlled by the treatment located subordinately in the treatment by genera. This method eliminates the multiple listings of plants in the current version of the Treatment Manual. Additional species of fungi were included in the treatment table, with all fungi being matched to the EPA fungicide label.

Importer selects treatment, custom applicator, treatment location and fungicide. The officer will verify that the fungicides selected by the importer are approved and that the treatment is performed in compliance with the requirements in the PPQ Treatment Manual.

Additional documents are provided that contain instructions on performing foliar applications and tank mixes of fungicides. The treatment information was prepared to be all inclusive to reduce PPQ officer work load.

Evaluation:

Fungicides with the same modes of actions (Tables B1, B2) were evaluated for control of plant pathogenic fungi. The plant pathogen fungi controlled by each group with the same modes of actions was determined by a search in NAL Digitop (NAL). The search included the common name of fungicide, fungus and control. All the fungi controlled by each group with same mode of actions are listed in Table D. The searches are listed in Table F. Table F is a separate document and is not included in the TED. All mode of action groups of fungicides had excellent control of plant pathogenic fungi in the following phyla: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes. All fungicides listed in Tables B1, B2 have a wide range of control in all four phyla of fungi.

Plant inspection station (PIS) plant pathologists and subject matter experts edited and reviewed the proposed changes. All of their comments and suggestions were incorporated into the treatments and procedures. All of the plant pathologists at PIS's approved the treatments and support the inclusion of the treatments/procedures into the Treatment Manual.

Benefit: The new treatments make it possible to offer treatments for all propagative material with light fungal infections in Phyla Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes. This will reduce the rejection of propagative material and benefit the importers. This is a positive improvement for PPQ.

Decision: Accept addition of new formulations of fungicides, treatments for propagative plants, fungicide application instructions.

Originator: Dean Komm, PPQ-CPHST-AQI Raleigh, Program Treatment Manager

Reviewers: AQI Raleigh; Plant Inspection Stations (Plant Pathologists); Jim Smith, Risk Analyst

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Table A: Officer Directions for T501 Fungicide Treatment Selection and Application

1. Read information on fungicide applications, resistance management, tank mixing, and disease severity determination in Table C, Chemical Applications-Fungicides-Insecticides and Disinfectants, page 8.
2. Identify the propagative plant and fungus for which treatment is needed.
3. Search for the common and/or scientific name (phylum, class, order, family, or genus) of the propagative plant in the T501 section of the PPQ Treatment Manual (pages 5-6-1 to 5-6-22). If not listed in T501, there is no EPA registration. All fungicides in Treatment Manual must have an EPA registration for application type, commodity and pest.
4. Search for the phylum, class, order, family, or genus of the fungus in the pest list provided within the schedule. If the phylum, order, family or genus is not present, there is no treatment.
5. Determine the severity of the infection by examining all foliar parts of the plant. (Refer to Table C, "2. Disease Infection Severity" for a definition and image of types of infections.) Provide treatment number

- and propagative plant name for plants with light infections. Re-export or destroy plants with severe infections.
6. Provide importer and applicator with treatment recommendation, the list of approved fungicides, and instructions for fungicide application and tank mixes (Table C). The officer can obtain EPA federal and state labels and safety sheets by following the links found in the first paragraph of Table C.
 7. Contact importer to determine if they want treatment or re-export.
 8. Importer accepts or rejects treatment recommendation. If rejected, commodity will be re-exported or destroyed.
 9. If importer accepts treatment, importer is responsible for the treatment location with PPQ approval, contacting a treatment applicator, purchasing fungicides, performing the treatment, and the removal of infected plant parts. Infected plant parts must be disposed of as regulated foreign waste.
 10. The applicator is responsible for supplying the fungicides and collaborating with the importer to select the treatment location. He or she must uniformly apply the fungicide to the entire foliage and stems of plants. Bare rooted and media container plants are acceptable for treatment.
 11. The officer must be present at the time of application. He or she is responsible for verifying that the treatment schedule, application method, and fungicide doses are correct and confirming that the fungicides selected by the applicator are approved and authorized by the treatment schedule. The officer verifies that the entire plant is treated with the fungicides and the surfaces of the plants are dry prior to release.
 12. The officer is responsible for safeguarding the plants until successful completion of the treatment. Movement of the commodity to the treatment location will require a bonded carrier and the applicator needs to be under USDA compliance.
 13. Release plants when treatment is successfully completed.

Officer Example of T501 Treatment Selection and Application

1. Read information on fungicide applications, resistance management, tank mixing, and disease severity determination in Table C, Chemical Applications-Fungicides-Insecticides and Disinfectants, page .
2. Identifier determines that the leaf spot on *Dendrobium* orchids is caused by *Cercospora spp.*,
3. Identifier uses “Directions for T501 Fungicide Treatment Selection and Application”.
4. Identifier finds common and scientific name of propagative plant in Treatment Manual T501 (pages 5-6-1 to 5-6-22).
5. Identifier finds *Cercospora spp.*, or phylum in the pest section for orchid “*Dendrobium*”.
6. Identifier starts step 4 in “Directions for T500 Fungicide Treatment Selection and Application”.
7. PPQ finishes with step 12 in “Directions for T500 Fungicide Treatment Selection and Application”.

Officer Check-off Sheet for T501 Fungicide Applications

Fungicide Application	yes	no
PPQ officer observing treatment has pesticide license		
Treatment company has pesticide license		
PPQ Officer read chapters 2 and 5 on fungicides and fungicide treatments		
Applicator read chapters 2 and 5 on fungicides and fungicide treatments		
PPQ Officer completes requirements of Table A Officer directions for T501		
Disease severity has been determined		
Treatment Determined		
Importer accepts treatment. If no, re-export or destroy		
PPQ officer gives importer copies of Chapter 2 & T501 treatment		

Importer selects applicator, treatment location, fungicides, disease plant part removal,		
Importer accepts possible phytotoxicity from fungicides		
Officer and Applicator reads EPA label for each fungicide		
Applicator has followed the label		
Applicator has a compliance agreement		
Propagated plants transferred under safe guarding requirements to treatment location		
Infected plant parts are removed and destroyed		
PPQ officer verifies the fungicides from A, B and C are in Table B-1 or Table B-2 or with additional fungicides from AQI Raleigh		
PPQ officer verifies that the highest dose of fungicide allowed by label for each fungicide		
PPQ Officer determines rate per gallon by dividing rate/100 gals. by 100 or using rate/gal from the label.		
Hollow cone or disc-core type spray tips		
Pressure is between 40 and 60 psi at the spray gun.		
All individuals in treatment area used the correct PPE		
Fungicide must not touch any surfaces except ones with plastic or surfaces that can be cleaned		
All plant surfaces are covered with spray solution. All surfaces of plants are treated to run off		
Plants allowed to dry before repacking in clean cartons		
All fungicide residue has been removed and disposed according to label		
Officer verified treatment was done correctly		
Officer releases treated plants		

Table B1: Fungicides for T501 of Treatment Manual

Active Ingredient (a.i.)	Treat ment Group 1	Examples of Trade Names and EPA registration Numbers (list not all inclusive) ^{2 3 4 5}
Azoxystrobin 9.6, 18.2, 22.9%	C	Azaka® Fungicide 250 SC (67760-124); Azoxy Select™ 2 SC (89442-21); Azoxy 50 WDG (53883-343-89442); Azoxystrobin 50 WG (53883-343); Azoxystrobin 250 G/L SC (67760-124); Equation™ Fungicide 250 SC (67760-124); Endow™ (42750-261); Heritage® 50 WG (100-1093); Mika® 50 WG (100-1537); Strobe™ 2L (42750-261-53883); Strobe™ (53883-343); Willowood™ Azoxystrobin 2.08SC (87290-44); Willowood™ Azoxy 2SC (87290-44)
Azoxystrobin 30% + Benzovindiflupyr 15%	C	Mural™ (100-1479)
Azoxystrobin 18.2% + Difenoconazole 11.4%	B + C	Alibi Flora™ (100-1506);
Azoxystrobin 12.51% + Fludioxonil 12.51% + Difenoconazole 9.76%	B + C	Stadium® F (100-1453)
Azoxystrobin 13.5% + Propiconazole 11.7%	B + C	Avaris® (100-1178-5905); Azoxypop (100-1174); HM-0812 (100-1178-5905); Quilt® Fungicide (100-1178); Willowood® AzoxyProp Xtra (87290-56)
Azoxystrobin 11% + Tebuconazole 18.35%	B + C	Quali-Pro® Azoxy+Tebu™ (53883-358); Quali-Pro® Strobe™ Ultra (53883-358); Quali-Pro® Strobe™ Ultimate (53883-358); Quali-Pro® Strobe™ Ultra-Tee (53883-358); Quali-Pro® Strobe™ Ultra T (53883-358); Quali-Pro® Strobe™ T Premier (53883-358); Quali-Pro® Strobe™ Premium T (53883-358); Quali-Pro® Strobe™ T Premium (53883-358); Quali-Pro® Strobe™ T (53883-358); Quali-Pro® Strobe™ + T (53883-358); Quali-Pro® Strobe™ - T (53883-358); Quali-Pro® Strobe™ Plus (53883-358); Quali-Pro® Strobe™ + Teb (53883-358); Quali-Pro® Strobe™ + Fortified (53883-358); Quali-Pro® Strobe™ + with Boost (53883-358); Quali-Pro® Strobe™ + WG Plus (53883-358); Quali-Pro® Strobe™ TWG (53883-358); Quali-Pro® Strobe™ T (53883-358);
Chlorothalonil 12.5, 29, 40.4, 54, 75, 82.5, 90%	A	Armor Tech® CLT 720 (66222-154-73220); Armor Tech® CLT 825 (66222-149-73220); Armor Tech® CLT 825 DF (86064-1); Armor Tech® CLT 720 F (86064-2); Bravado™ (60063-9-54705); Chlorosel® Pro 720 (72159-5); Chloro Gold® T&O (60063-7-7138); Chlorostar® DF (50534-202-48234); Chlorosel® PRO DF (72159-3); Chlorostar® VI (50534-209-48234); Chlorostar® (60063-5-48234); Chlorothalonil 4 L (9779-270); Chlorothalonil 6 (34704-870); Chlorothalonil 90 DF (9779-280);

		<p>Chlorothalonil 90DF(34704-878); Chlorothalonil F 720 (100-1394); Chlorothalonil 82.5 SDG (100-1395); Chlorothalonil 825 (34704-914); Chlorothalonil 720 (66222-154-37686); Chlorothalonil 82.5 DF (89442-6); Chlorothalonil 720 Select (89442-9); Chlorothalonil 720 SC (92044-2); Chlorothalonil 82.5 WDG (92044-3); Contax® FL (60063-5-48234); Culver® T&O Fungicide (1001-85); Daconil® 720F (50534-209); Daconil® SDG (50534-202); Daconil® Ultrex Turf Care (50534-202-100); Daconil® Weather Stik F (50534-209-100); Daconil® ZN F (50534-211); Daconil® ZN (50534-211-10182); Daconil® ZN F 50534-211-100); Docket® WS (50534-209-100); Docket® DF (50534-202-100); Echo® 500 (9779-270-60063); Echo® 90 DF (9779-280-60063); Echo® 90 DF (60063-10); Echo® 720 (9779-320-60063); Echo® 720 (60063-7); Echo® 75 WDG (60063-2); Echo® 825 (60063-3); Echo® ZN (60063-4); Echo® 500 (60063-5); Echo® Lite (60063-9); Echo® Ultimate ETQ (60063-36); Echo® 6F ETQ (60063-37); Elixir® Fungicide (70506-298); Ensign® 720 F (34704-966); Equus® 720 SST (66222-154); Equus® DF (66222-149); Equus® 500 ZN (66222-150); Fruit Tree, Vegetable & Ornamental (60063-9-54705); Hi-Yield® Home & Garden Fungicide (60063-9-7401); Initiate® 720 F (34704-881); Lesco® Manicure 6 F (60063-7-10404); Mainsail® 6.0 F (72112-6); Manicure® Ultrex (50534-202-10404); Manicure® 6 F (50534-209-10404); Manicure® Ultrex T&O (50534-202-100); Manicure® T/O F (60063-7-10404); Nufarm® CTN 82.5 (228-601); Nufarm® CTN SPC 720F (228-647); Ortho® Daconil 2787 (239-2522); Pegasus® L (60063-7-81943); Pegasus® 6 L (70506-262); Pegasus® 82.5 DF (70506-271); Pegasus® DFX (70506-272); Pegasus® HPX (70506-273); Pegasus® DF (60063-3-81943); Primeraone® Chlorothalonil DF (66222-149-73220); Primeraone® Chlorothalonil 720 SFT (66222-154-73220); Quali-Pro® Chlorothalonil DF (66222-149-73220); Quali-Pro® Chlorothalonil 500 ZN (66222-150-73220); Quali-Pro® Chlorothalonil 720 SFT (66222-154-73220); Quali-Pro® Chlorothalonil 720 SFT (53883-310); Quali-Pro® Chlorothalonil DF (53883-313); Quali Pro® Chlorothalonil 500 ZN (53883-317); Riverdale Resound® 90 DF (228-393); SA-50 Liquid O&V Fungicide (829-287); Thalonil® 4 L (60063-5-14774); Terranil® 6 L (9779-320); Thalonil® 4 L (9779-270-14774); Thalonil® 90 DF (9779-280-14774); Vabro® (9779-320-33270)</p>
Chlorothalonil 38.5% + Propiconazole 2.9%	A + B	Concert® II (100-1347); Tilt® Bravo® SE (100-1192);
Chlorothalonil 50, 72% + Thiophante- methyl 16.6, 18%	A + B	Nufarm® TM + CYTTN SPC 66.6 WDG (228-638); Peregrine® (70506-254); TM + CTN E-Pro 90 WDG (228-639); Spectro® 90 WDG (1001-72)
Chlorothalonil 30.51% + Tebuconazole 8.47%	A + B	E-Scape® T&O Fungicide (60063-50); Primeraone® Platinum ChlorotEB ETQ (60063-50); E-Scape® ETQ Turf Fungicide (60063-50)
Chlorothalonil 28.7% + Iprodione 9.4% + Thiophanate methyl 9.4% + Tebuconazole 2.8%	A + B	Quali-Pro® Enclave™ 5.3 F (53883-309)
Copper Hydroxide 37.5, 53.8, 61.3, 77%	A	Blue Shield® WP (45002-7); Blue Shield® DF (45002-4); Champ® Formula 2 F (55146-64); Champ® Dry Prill (55146-57); Copper 3 F (42750-75); Cuprofix™ (70506-201); Kentan® DF (80289-2); Kocide® 2000 (91411-1)
Copper Hydroxide 23.82% + Copper Oxychloride 21.49%	A	Badge® X₂ (80289-12)
Copper Oxychloride 84.04%	A	COC WP (45002-17); COC DF (45002-17)
Cuprous oxide 50.1, 75%	A	Nordox® 75 WG (48142-4); Nordox® Super Micronized Fungicide (48142-1)
Copper Sulfate 7, 27.1, 52.25, 71.1%	A	Birch-N-Bend Garden's Bonide® Copper Spray (4-58-12911); Bonide® Copper Spray (4-58); Bordo® 13 WP (35484-2); Cuprofix® Ultra 40 (70506-201); Disperss® DF (70506-201); Cuproxat® F (35935-3); Cuproxat® F (55146-151); Millers® Micronized Copper Spray (802-12)
Copper Sulfate Pentahydrate 0.036, 12.7, 19.8, 21, 27, 21 %	A	Aquavet® Copper Sulfate Algae Control (46923-4-1281); Copper Sulfate (46923-4-72838); Copper Sulfate (46923-4-50661); GWN®-4620 Copper Fungicide (10163-316); GWN®-4611 C (10163-318); GWN®-4611-HO (10163-319); Magna-Bon Pro-Teck® (6675-4); Phyton® 27 (49538-2); Phyton® 016-B (49538-5); Pollydex® (88901-1); Pond 20 Copper Sulfate® (46923-4-87370); Simply Blue® (46923-4-82261); TMB-471D (46923-4-63269)
Cyprodini 37.5% + Fludioxonil 25%	C	Medallion® WDG (100-1434); Medallion® II (100-1357); Palladium™ (100-1328);
Fluoxastrobin 40.3%	C	Fluoxastrobin 480 SC (6633-64); Disarm® 480 SC (66330-4); Evito® 480 SC (66330-64); Armor Tech® Disarm 480 SC (6633-64)
Fludioxonil 50%	C	Medallion® Fungicide (100-769)
Fludioxonil 25% +	C	Palladium® (100-1328)

Cyprodinil 37.5%		
Fludioxonil 12.51% + Azoxystrobin 12.51% + Difenconazole 9.7%	B + C	Stadium® (100-1453)
Kresoxim-methyl 50%	C	Cygnus® Fungicide (7969-124); Cygnus® 50 WG (7969-124-538); Cygnus® 50 WG (7969-124-58185)
Myclobutanil 6, 19.7, 20, 40%	B	Armor Tech® Myclo 20 EW (42750-166-86064); Chemsico® Fungicide Concentrate M6 (9688-160); Eagle® 40 WP (62719-417); Eagle® 20 EW (62719-463); Hoist® (62719-417-72112); Myclobutanil 40 WP AG (42750-141); Myclobutanil 40 W T&O (42750-143); Myclobutanil 20 EW T&O (42750-166-74779); Myclobutanil 20 EW (74779-12); Myclotect® (42750-166-747709); Quali-Pro® Myclobutanil 20 EW T&O (66222-185); Myclo 20 EW Select (89442-15); Rally® 40 WSP (62719-410); Siskin® (70506-284); Stride® 40 WP (42750-141-71089); Systane® WSP Ornamental Fungicide (62719-432)
Mancozeb 15, 37, 75, 80%	A	Bonide® Mancozeb F with Zinc Concentrate (62719-396-4); Dithane® M-45 (829-286); Dithane® M-45 (62719-387); Dithane® F-45 (62719-396); Elixir® Fungicide (70506-298); Fore® Dithane® M-45 T&O (62719-388); Dithane® DF Rainshield® (62719-402); Fore® 80WP Rainshield (62719-388); Junction® (67690-35); Junction® WSP (67690-59); Lesco® 4F Mancozeb (62719-396-10404); Lesco® 4F Mancozeb Broad Spectrum Fungicide (62719-396-10404); Lesco® Mancozeb DG (62719-402-10404); Manzate® Pro-Stick Fungicide (70506-234); Manzate® 80WP (70506-235); Manzate® F (70506-236); Lesco® Mancozeb DG T&O Fungicide (62719-402-10404); Penncozeb® Ornamental Fungicide (70506-182); Penncozeb® 75DF (70506-185); Penncozeb® 4F (70506-194); Pentathlon® LF (67690-38); Pentathlon® DF Fungicide Dispersible Granules (67690-39); Phoenix Wingman® (70506-269); Phoenix Wingman® 4L (70506-287); Protect® DF (1001-77); Zyban® WSB WP T&O Fungicide (58185-31)
Mancozeb 60%, + Dimethomorph 9%	A + C	Acrobat® MZ WDG Fungicide (241-395); Stature® MZ Fungicide (241-411)
Mancozeb 15% + Cooper Hydroxide 6.1 %	A	Mankocide® Fungicide/Bactericide (91411-7); Mankocide® (91411-7-70051)
Propiconazole 14.3,32.4, 41.8%	B	Alamo® Fungicide (100-741); Alsac® Propiconazole 14.3 EC (64014-14); Amtide® Propiconazole 41.8% EC (38167-35); Armor Tech® PPZ 143 MC (86064-4); ATO® Propicide (42750-211-91853); Banner® Dry Maxx (100-1244); Bumper® (53883-363); Bumper® 41.8 EC (66222-42); Bumper® 41 VC (66222-241); Concert® II (100-1347); FD Propiconazole 41.8 EC (91232-2); Kestrel Mex® (70506-253); Fathom® 14.3 MEC (72112-3); Honor Guard PPZ (53883-363); Lesco® Spectator T&O Fungicide (100-617-10404); Lesco® Spectator Ultra 1.3 Fungicide (228-623-104404); Liberty® Propicon 3.6 EC (89168-14); Mpower® Propiconazole (91097-9); Nufarm® Propiconazole SPC 14.3 MEC Fungicide (228-623); Nufarm® Propiconazole SPC EC Fungicide (228-633); Omni® Brand Propiconazole 41.8% EC (38167-35-5905); PPZ 41.8 Select (89442-3); Primeraone® (228-623-88975); Propizol (7457-8); Propiconazole Fungicide (34704-879); Propiconazole 41.8% EC (42750-211); Propiconazole 14.3% ME (42750-212); Propiconazole 1.3 ME (42750-252); Propiconazole 3.6 EC (69361-40); Quali-Pro® Propiconazole 14.3 EC (53883-315); Propiconazole EC (62719-346); Rustic® (89168-14-91395); Propiconazole 14.3 Select (89442-17); Sipcam® Propiconazole 1.3 ME (60063-27); Strider® T&O Fungicide (1001-84); Tilt® EC (100-617); Topaz® (42750-211-1381); Tray Guard® (42750-211-58035); Vigil® (89168-14-89391); Willowood® Propicon 3.6 EC (87290-7); Willowood® Propicon Turf (87290-40)
Propiconazole 11.7% + Azoxystrobin 13.5%	B + C	Avaris® (100-1178-5905); Azoxyprop (100-1174); HM-0812 (100-1178-5905); Quilt Fungicide (100-1178); Willowood® AzoxyProp Xtra (87290-56)
Propiconazole 7.1% + Thiophanate methyl 23.7%	B	Protocol® (34704-1064)
Pyraclostrobin 20, 23.3%	C	Insignia® Fungicide (7969-184); Insignia® SC Fungicide (7969-290)
Pyraclostrobin 9, 12.8% + Boscalid 18, 25.2%	C	Pageant™ Fungicide (7969-251)
Tebuconazole 4.5, 21.4, 38.7%	B	Ax Tebcon® 3.6 SC Fungicide (89167-23); Embrace® 3.6 L (42750-99-1381); E-Scape® T&O Fungicide (60063-50); Granite® (89167-23-91395); Monsoon® Turf (34704-1060); Quarry® (89167-23-91395); Sipcam® Clearscape ETQ® Turf Fungicide (60063-46); Tebuconazole 4.35 SE (432-1400); Tebuconazole SC T&O Fungicide (432-1529); Tebuconazole 3.6FL (42750-99); Tebuconazole 2.9% SE (72155-14); Tebuconazole 3.6 F Fungicide (82542-27); Tebuconazole 3.6 F T&O Fungicide (82542-30); Torque® Fungicide (1001-87); Torque® DG Fungicide

		(1001-88); Vibe® (89167-23-89391); Willowood® Tebcon 3.6 SC (87290-13)
Tebuconazole 18.35% + Azoxystrobin 11%	B + C	Quali-Pro® Azoxy+Tebu™ (53883-358); Quali-Pro® Strobe™ Ultra (53883-358); Quali-Pro® Strobe™ Ultimate (53883-358); Quali-Pro® Strobe™ Ultra-Tee (53883-358); Quali-Pro® Strobe™ Ultra T (53883-358); Quali-Pro® Strobe™ T Premier (53883-358); Quali-Pro® Strobe™ Premium T (53883-358); Quali-Pro® Strobe™ T Premium (53883-358); Quali-Pro® Strobe™ T (53883-358); Quali-Pro® Strobe™ + T (53883-358); Quali-Pro® Strobe™ - T (53883-358); Quali-Pro® Strobe™ Plus (53883-358); Quali-Pro® Strobe™ + Teb (53883-358); Quali-Pro® Strobe™ + Fortified (53883-358); Quali-Pro® Strobe™ + with Boost (53883-358); Quali-Pro® Strobe™ + WG Plus (53883-358); Quali-Pro® Strobe™ TWG (53883-358); Quali-Pro® Strobe™ T (53883-358);
Tebuconazole 7.1% + Thiophanate-methyl 36.3%	B	Tachet® Fungicide (1001-90)
Tebuconazole 22.7% + Fludioxonil 11.3%	B + C	Teb 22 + Fludi 11 T&O (42750-293)
Thiophanate-methyl 19.4, 46.2, 50, 70, 85%	B	3336® F (1001-69); 3336® Plus Systemic Fungicide (1001-78); 3336® 70EG (1001-81); 3336® EG (1001-89); Acadia® 4.5 F (87373-4-91234); Akotop® 85WG (85724-1); Black Leaf® Rose & Ornamental Fungicide (1001-63-5887); Bonide® T&O Systemic Fungicide (1001-63-4); Fanate® 70 WSB (8033-119); Fanate® II 4.5 F (8033-128); Fungo® 50 WSB (58185-30); Helena® T-Methyl 4.5 L (87373-4-5905); Helena® T-Methyl 50 WSB (87373-5-5905); Green Light® Systemic Fungicide (1001-63-869); Green Thumb® Rose & Ornamental Fungicide (1001-63-12140); Hi-Yield® systemic Rose, Flower Turf & Ornamental Fungicide (1001-63-7401); Nations® AG II Thiophanate Methyl 85WDG (66222-145); Nufarm® T-methyl 4.5F Fungicide (228-652); OHP® 50WP Fungicide (59807-6); Premium Systemic Fungicide (1001-80); Rigo's® Best Rose & Ornamental Fungicide Systemic Action (1001-63-70); Quali-Pro® TM 85 WDG (48234-13-73220); Quali-Pro® TM 85 WDG (53883-321); Quali-Pro® TMI 20/20 (53883-323); Sa-50 Thopmyl (1001-63-829); SYN Pro T-Methyl 4.5 F-T&O (87373-4-91234); T-Bird® 85 WDG (70506-250); T-Bird® 4.5 L (70506-251); Tee-Off® 85 WDG (48234-13-60063); Transon® 50 WSB (72112-1); Transform® 4.5 F (72112-2); Spectro® 90 WDG (1001-72); Nufarm® Synpro T-Methyl 50 WSB (87373-5-91234); Nufarm® Systemic Ferti TM+IP G-PRO Fungicide (228-630); Systec® 1998 WDG (48234-13); Thio-M 50 WSB Fungicide (34704-932); Thiophanate-methyl 50 WSB Fungicide (1381-228); Thiophanate-methyl 85 WDG (84229-3); Thiophanate methyl 4.5 L (87373-4); Thiophanate methyl 50 W (87373-5)
Thiophanate-methyl 16.66, 18% + Chlorothalonil 50, 72%	A + B	Nufarm® TM + CTN SPC 66.6 WDG Fungicide (228-638); Primerone® TM/C 66.6 WDG (228-638); Peregrin® (70506-254); Phoenix Peregrine® (70506-254); TM + CTN E-Pro 90 WDG Fungicide (228-639); TM + CTN E-Pro 66.6 WDG Fungicide (228-638)
Thiophanate-methyl 28.5% + Flutolanil 51.42%	B + C	Systar® WDG (432-1440)
Thiophanate-methyl 15.6% + Mancozeb 64%	A + B	Duosan® WSB WP T&O Fungicide (58185-31)
Trifloxystrobin 50%	C	Compass® Fungicide (432-1371); Compass® O 50 WDG Fungicide (432-1371-59807)
Trifloxystrobin 8.33% + Triadimefon 41.67%	B + C	Armada® 50 WDG (432-1513); Armada® 50 WP (432-1412); Strike Plus® 50 WDG (412-1513-59807); Trigo™ (432-1513)
Triflumizole 42.14, 50%	B	Terraguard® 50 W (400-433); Terraguard® SC (400-521)
Triticonazole 10.5, 19.2%	B	TC-317 (499-555); Trinity® Fungicide (7969-257)

¹Fungicide Treatment Group A, B, C

²Sites vary with registration

³Always consult the label for information. There will be fungicides absent for certain locations and/or states. The large number of choices of fungicides should improve the selection of a fungicide.

⁴ No endorsement is intended of the particular items listed and no discrimination is intended toward those products or companies that may not be listed. Use other formulations as long as the application method, site and rate are similar to formulations for the a.i.

⁵ Importer needs to be aware that there is always a possibility of injury from a fungicide and is responsible for final selection for fungicide. Check label for known propagative plants that are sensitive to a fungicide.

Table B2 Fungicides for T500 of Treatment Manual, No REI⁶, not restricted, not conditional

Active Ingredient (a.i.)	Treatment Group¹	Examples of Trade Names and EPA registration Numbers(list not all inclusive)^{2 3 4 5}
Azoxystrobin 9.6, 18.2, 22.9%	C	Azoxystrobin 50 WG (53883-343); Azoxy 50 WDG

		(53883-343-89442); Strobe™ (53883-343)
Azoxystrobin 12.51% + Fludioxonil 12.51% + Difenconazole 9.76%	A + B + C	Stadium® F (100-1453)
Chlorothalonil 12.5, 29	A	Bravado™ (60063-9-54705); CPI Chlorothalonil Multipurpose Fungicide (67572-82); Echo® Home Garden Fungicide (60063-16); Echo® Lite (60063-9); Fruit Tree, Vegetable & Ornamental (60063-9-54705); Ferti-lome® Broad Spectrum Landscape & Garden Fungicide (60063-16-7401); Ferti-lome® Broad Spectrum Lawn & Garden Fungicide (60063-16-7401); Ferti-Lome® Brand Broad Spectrum Fungicide (60063-16-7401) ; Fung-onil™ (60063-9-4); Garden Tech® Daconil® Fungicide (67572-82-71004); Garden Disease Control Concentrate (239-2522); Hi-Yield® Home & Garden Fungicide (60063-9-7401); Hi-Yield® Vegetable & Flower Fungicide (6003-16-7401); Hi-Yield® Vegetable, Flower, Fruit & Ornamental Fungicide (60063-16-7401); Manicure® T/O Flowable Fungicide (60063-9-10404); Ortho® Daconil® 2787 (239-2522); Ortho® Disease B Gon Daconil® Fungicide Concentrate (239-2522); Ortho® Garden Disease Control Concentrate (239-2522); Ortho® Max® Garden Disease Control Concentrate (9239-2522); Ortho® Multi-Purpose Fungicide Daconil® 2787 Plant Disease Control (239-2522) ; Ortho® Rose Disease Control Formula II (239-2522); SA-50 Liquid O&V Fungicide (829-287); Southern AG® Liquid Ornamental and Vegetable Flowable Fungicide (829-287); Tiger Brand® Daconil® Fungicide (829-287-3342)
Copper Diammonia Diacelate Complex	A	Liqui-COP® Copper Fungicide Garden Spray (54705-7); Liqui-COP® RTS (54705-7)
Copper Octanoate 10%	A	Bonide® Liquid Copper Fungicide Concentrate (67702-2-4); Camelot® O (829-287); Camelot® O Fungicide/Bactericide (67702-2-67690); Copper Fungicide Concentrate (67702-2-4); Copper Soap RTU (67702-2-11204); Copper Soap Ready to Use All Purpose Fungicide (67702-11204); Copper Spray Concentrate (67702-2-54705); Cueva® Fungicide Concentrate ((67702-2-70051); Earth-Tone® Moss Control (67702-2-83598); Ortho® Disease B Gon Copper Fungicide Concentrate (67702-2-239); Liquid Copper Fungicide Concentrate (67702-2-4); Natural Guard Copper Soap Liquid Fungicide (67702-2-7401); NEU1140F Copper Soap (67702-2); Soap-Shield (67702-2-56872);
Copper Sulfate 7, 27.1, 52.25, 71.1%	A	Birch-N-Bend Garden's® Bonide® Copper Spray (4-58-12911); Bonide® Copper Spray (4-58); Bonide® Copper Fungicide (4-58); Lilly/Millers® Micronized Copper Spray (802-12)
Fludioxonil 12.51% + Azoxystrobin 12.51% + Difenconazole 9.7%	A + B + C	Stadium® (100-1453)
Mancozeb 15, 37, 75, 80%	A	Bonide® Mancozeb F with Zinc Concentrate (62719-396-4); Dithane® M-45 (62719-387); Dithane® F-45 (62719-396); Fore® Dithane® M-45 T&O (62719-388); Dithane® DF Rainshield® (62719-402); Double Nickel™ LC (62719-402); Fore® 80WP Rainshield (62719-388); Lesco® 4 Flowable Mancozeb (62719-396-10404); Lesco® 4 Flowable Mancozeb Broad Spectrum Fungicide (62719-396-10404); Lesco® Mancozeb DG T&O Fungicide (62719-402-10404); Mancozeb Flowable with Zinc Concentrate (62719-396-4)
Myclobutanil 6, 19.7, 20, 40%	B	Chemsico® Fungicide Concentrate M6 (9688-160); Chemsico® Fungicide M (9688-123); Ferti-lome®

		<p>F-Stop™ (7401-505); Eagle® 40WP (62719-417); Eagle® 20EW (62719-463); Hoist® (62719-417-72112); Myclobutanil 20EW T&O (42750-166); Myclobutanil 20EW (74779-12); Myclotect® (42750-166-747709); Myclo 20EW Select (89442-15); Ortho® Disease Control T & O (74779-12); Spectracide® Immunox® Multi-Purpose Fungicide (9688-123-8845); Spectracide® Pro Turf & Ornamental Fungicide Systemic Spray Concentrate (9688-123-8845); Spectracide® Immunox Multi-Purpose Fungicide Spray Concentrate for Gard (9688-123-8845); VPG™ Myclobutanil Concentrate (7401-505);</p>
Propiconazole 14.3,32.4, 41.8%	B	<p>Alamo® Fungicide (100-741); Banner® Maxx (100-741); Banner® Pro (100-741); Bonide® Infuse™ Systemic Disease Control (100-773-4); Bumper® (53883-363); Dorado® (100-741); Ferti-lome® Liquid Systemic Fungicide II (53883-184-7401); Ferti-lome® Inoculate Systemic Fungicide Concentrate (109-773-740); (100-773-4); Honor Guard® PPZ (53883-363); Infuse™ Systemic Disease Control (100-773-4); Monterey® Fungifighter (100-773-54705); PPZ 1.55 Fungicide (53883-184); Quali-Pro® Propiconazole (53883-363); Systemic Fungicide RTS (53883-184)</p>
Pyraclostrobin + Boscalid	B+C	<p>Bonide® FT09 (4-488); Bonide® fruit tree & Plant Guard Concentrate (4-488); Bonide® Fruit Tree Spray (4-488); Bonide® Fruit Tree Spray Concentrate (4-888); Fruit Tree & Plant Guard Concentrate (4-488);</p>
Tebuconazole	B	<p>Bayer® Advanced™ Disease Control for Roses, Flowers and Shrubs (92564-5); Bayer® Advanced™ Garden Disease Control for Roses, Flowers and & Shrubs Concentrate (92564-5); Bianova® Advanced™ Disease Control for Roses, Flowers & Shrubs Concentrate (92564-5); Bianova® Advanced™ Garden Disease Control for Roses, Flowers & Shrubs Concentrate (92564-5); Bioadvanced™ Disease Control for Roses, Flowers & Shrubs Concentrate (92564-5); Bioadvanced™ Science-Based Solutions Garden Disease Control for Roses, Flowers & Shrubs Concentrate (92564-5); Bioadvanced™ Science-Based Solutions Disease Control for Roses, Flowers & Shrubs Concentrate (92564-5); Fortifend® Advanced™ Disease Control for Roses, Flowers & Shrubs Concentrate (92564-5); Fortifend® Advanced™ Garden Disease Control For Roses, Flowers & Shrubs Concentrate (92564-5); Tebuconazole 1.0% (72155-61); Tebuconazole (72155-73); Tebuconazole 0.8% (72155-21); Tebuconazole 2.9% SE Concentrate Systemic Fungicide (92564-5)</p>

¹Fungicide Treatment Group A, B, C

²Sites vary with registration

³Always consult the label for information. There will be fungicides absent for certain locations and/or states. The large number of choices of fungicides should improve the selection of a fungicide.

⁴ No endorsement is intended of the particular items listed and no discrimination is intended toward those products or companies that may not be listed. Use other formulations as long as the application method, site and rate are similar to formulations for the a.i.

⁵ Importer needs to be aware that there is always a possibility of injury from a fungicide. Check label for known propagative plants that are sensitive to a fungicide.

⁶Restricted Entry Interval

Table C: Fungicides

Product label must be followed and present at the time of application. EPA registration numbers for fungicides are found in Tables B1, B2. Please note that some states may not authorize the use of the Federal EPA Registration. Refer to Table E for formulation abbreviations. Product labels and information can be accessed at the following sites.

EPA Label: <http://iaspub.epa.gov/apex/pesticides>

1. Enter EPA registration number <http://npirspublic.ceris.purdue.edu/public.html>
2. Click on “Search PPIS”
3. Enter either “EPA Registration Number”, “Product Name”, “Company Name”, or “Active Ingredient”
4. Click the search box at the bottom of the page
5. Click on EPA registration number

Product registration by state: <http://npirspublic.ceris.purdue.edu/public.html>

1. Click on “Search State Public”
2. Click on State
3. Enter either “EPA Registration Number”, “Product Name”, “Company Name”, or “Active Ingredient”
4. Click the search box at the bottom of the page
State registrations (National Pesticide Information): http://npic.orst.edu/reg/state_agencies.html
5. Click on state
6. Click on pesticide database

Safety data sheet: <http://www.ilpi.com/msds/>

Fungicides

1. Foliar Applications

The product label must be present and followed during all treatments. Fungicide treatments must be applied as foliar treatments. Various methodologies can be used. However, ensure that all foliage and stems of the plants are sprayed. One suggested method for accomplishing this is to position the plants flat on plastic sheet and treat all sides of the plants. Dispose of the excess fungicide as required by the EPA label. Ensure that all plant surfaces are dry before release. Place treated plants into disease-free cartons. Four factors are essential when applying a fungicide spray: 1) volume of spray applied, 2) type of nozzle, 3) spray pressure, and; 4) resistance management. The requirements for these factors are as follows:

- a. **Always use the highest dose of fungicide allowed by the label for each plant species and fungus.** All EPA labels list the amount of fungicide to apply in 100 gallons of water. To determine the amount per gallon, divide that dose by 100.
- b. Use hollow cone or disc-core type tips to produce small water droplets. The spray droplets must be small, and the spray tip must allow enough solution to cover the plant. Attach nozzle to any type of spray gun.
- c. Ensure that the spray pressure is between 40 and 60 psi at the spray gun. This must be verified via a pressure gauge on the sprayer.

- d. Use a tank mix of three fungicides, with one fungicide being selected from each treatment group as stated in each treatment schedule.

Tank Mixing Instructions for Agricultural Chemicals

Refer to label for instructions on tank mixing. An incompatible mix can cause equipment damage, downtime, damage to desirable plants and chemical ineffectiveness. Incompatible mixes can result from chemical or physical incompatibility. Chemical incompatibility occurs when one or more of the chemicals changes properties. Physical incompatibility may cause lumps or gels and settle out of suspension. Incompatibility may be in the form of foams, stratification in tank, color changes and bubbles. Water source may be a reason for incompatibility. Test your water source. If you are using a proven mix and have trouble with compatibility, the water source may be the problem. Well water may contain iron, calcium and magnesium and can form insoluble salts. City water is treated and the water may have a high pH. Spray tank mixes are usually stable when the water pH is below 6.0. Refer to section on bleach solutions for instructions on taking pH. A pH between 6.0 and 7.0 is usually adequate if you spray the mix immediately. If the pH is above 7.0, use acidifiers and buffers to lower pH. Always read the label to find incompatibility problems.

W-A-L-E-S Method: Always read label for tank mixing instructions. The W-A-L-E-S tank mixing order is as follows: 1). Partially fill tank with water 2). Uniformly mix each ingredient before adding the next component 3). Add first, wettable powders (WP) and water dispersible granules (WDG); mix 4) Add next, liquid flowables (FL or F) & suspensions; mix 5). Add next, emulsifiable concentrate formulations (EC); mix 6). Add next, surfactants/solutions, mix. The abbreviations for formulations are in Table (TBD). Use a clear glass or plastic quart jar to determine compatibility. This will prevent a large amount of incompatible mixture if mixed in spray tank. When it has been determined that the mixture is compatible, add chemicals to the spray tank in the correct order.

¹Fungicide Resistance Action Committee (FRAC)

²Insecticide Resistance Action Committee (IRAC)

Table E

A	Aerosol	G L	Gel	U L V	Ultra-low volume
A F	Aqueous flowable	L	Liquid	W	Wettable powder
B	Bait	L C	Liquid concentrate	W D G	Water-dispersible granules
C	Concentrate	L V	Low volatile	W P	Wettable powder
D	Dust	M	Microencapsulated	W S	Water soluble
D F	Dry flowables	P	Pellets	W S B	Water-soluble bag
E	Emulsifiable concentrate	P S	Pellets	W S C	Water-soluble concentrate
E C	Emulsifiable concentrate	R T U	Ready-to-use	W S L	Water-soluble liquid

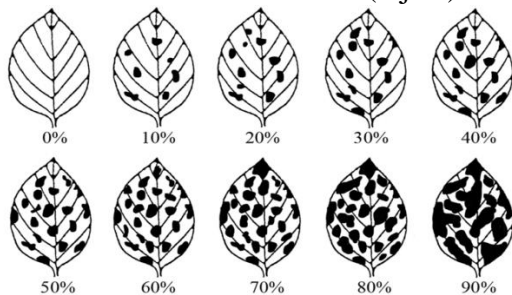
F	Flowable	S	Solution	W S P	Water-soluble powder
G	Granules	S P	Soluble powder/packet		

2. Disease Infection Severity (Bock et al. 2010) (Trigiano 2007)

- Reject treatment if more than 25% of the plants are infected.
- Reject treatment if the 25% of the infected plants have a greater than 20% surface infection. Please refer to the diagrams below for examples of surface infection rates.

Light infection- 0 to 20% (accept)

Severe infection- 30 to 90% (reject)



3. Resistance Management

Resistance to fungicides is a concern in quarantine treatments. This resistance can lead to reduced control of pest populations that have developed tolerance to the applied chemical. Since the resistance of the quarantine target pest to a chemical is unknown prior to treatment, PPQ requires the use of a tank mix of three fungicides with different modes of action. In the past, PPQ has used one fungicide for the target pest. If the target pest had resistance to the fungicide, there would be reduced control. In order to lower the risk for poor fungicide performance, tank mix fungicides of different modes of action. Fungicide treatments must include the use of two systemic and one protective fungicide.

4. Fungicide Definitions

- Contact vs systemic:** Contact fungicides (protectants) are not absorbed by the plant and stick to plant surfaces. They provide a protective barrier that prevents the fungus from entering and damaging plant tissues. Systemic fungicides are absorbed by the plant and are able to move from the site of application to other parts of the plant. (Saalau 2011)
- Preventative vs Curative:** Preventative fungicides work by preventing the fungus from getting into the plant. Curative fungicides affect the fungus after infection has started or after first symptoms are observed. (Saalau 2011)
- Mode of Action:** This refers to how the fungicide affects the fungus. Fungicides may work by damaging the cell membrane of the fungus, or by inhibiting an important process of the fungi. It is important to incorporate different modes of action by a tank mixture. (Saalau 2011)

5. Fungal Latent Infections

In a review on “Latent Infections by Fungi”, latent infections and latent infection fungi are defined. (Verhoeff 1974). Plant pathogenic fungi establish a parasitic relationship with their host plants, with a number of stages in the life cycle of the fungus. When spores land on the surface of the host, germination takes place if conditions are favorable. A spore can germinate immediately after landing or take some time before germinating. After germination has occurred, a germ tube penetrates directly into the host tissue, with or without the development of superficial mycelium preceding penetration. Infection occurs although it may not cause visible symptoms, but further growth of the infection hypha is delayed. The term latent infection is used to describe the condition of a plant that has been infected, but is not yet showing any visible symptoms or signs of the infection.

The following are examples of fungal genera that are known to cause latent infections: *Acremonium* spp., *Alternaria* spp., *Aureobasidium* spp., *Botrytis* spp., *Botryosphaeria* spp., *Cercospora* spp., *Chaetomium* spp., *Cladosporium* spp., *Colletotrichum* spp., *Cryptocline* spp., *Cryptosporiopsis* spp., *Diaporthe* spp., *Dipodia* spp., *Dothidotthia* spp., *Epicoccum* spp., *Fusarium* spp., *Fusicoccum* spp., *Geniculosporium* spp., *Gloeosporium* spp., *Guignardia* spp., *Hormonema* spp., *Leptostroma* spp., *Libertella* spp., *Neofusicoccum* spp., *Neotyphodium* spp., *Nodulisporium* spp., *Phialophora* spp., *Phoma* spp., *Phomopsis* spp., *Phyllosticta* spp., *Physalospora* spp., *Pseudofusicoccum* spp., *Rhizoctonia* spp., *Sordaria* spp., *Sphaeropsis* spp., *Sporothrix* spp., (Bacon et. al. 2000; Schulz et. al. 1993; Sinclair 1991; Slippers 2007; Stergiopoulos et.al. 2014, and Veroeff, 1972).

Systemic fungicides listed in Tables B1, B2 control all latent infections of the previous listed fungal genera.

Table D⁴: Fungicides in same mode of action groups and fungi genera with efficacy research

Anilino-pyrimidine, Cyprodinil² (methioine biosynthesis, FRAC¹ 9): Cyprodinil is applied foliar with protective and curative control of Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes. The fungal genera listed in “Pest” are controlled by cyprodinil. Fungal gerera controlled by cyprodinil are based on a NAL DigiTop³ search using the following search words: cyprodinil, fungi, plant and control. Plant pathogen fungal genera controlled by cyprodinil are from the first 200 citations from a total of 450 citations (Table F).

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Blumeria* spp., *Botrytis* spp., *Botryotinia* spp., *Botryosphaeria* spp., *Colletotrichum* spp., *Cylindrocarpon* spp., *Diaporthe* spp., *Didymella* spp., *Drechslera* spp., *Elsinoe* spp., *Erysiphe* spp., *Fusarium* spp., *Gibberella* spp., *Gnomonia* spp., *Godronia* spp., *Lasiodiplodia* spp., *Microdochium* spp., *Microsphaeropsis* spp., *Monilinia* spp., *Monographella* spp., *Mycosphaerella* spp., *Neofabraea* spp., *Oculimacula* spp., *Penicillium* spp., *Phaeosphaeria* spp., *Phialophora* spp., *Phoma* spp., *Phomopsis* spp., *Plasmopara* spp., *Podopshaera* spp., *Pseudocercospora* spp., *Pycnoporus* spp., *Ramulispora* spp., *Rhodosporidium* spp., *Rhynchosporium* spp., *Sclerotinia* spp., *Sclerotium* spp., *Stagonospora* spp., *Stemphylium* spp., *Tapesia* spp., *Venturia* spp.,

Chloronitriles (chlorothalonil²) (Mode of action: multi-site contact activity, FRAC¹ M5).

Chlorothalonil is applied foliar with protective control of Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes. Fungal genera controlled by chlorothalonil are based on a NAL DigiTop³ search using the following search words: chlorothalonil, fungi, plant and control. Plant pathogen fungal genera controlled by chlorothalonil are from the first 200 citations from a total of 2992 citations (Table F).

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Albugo* spp., *Alternaria* spp., *Anisogramma* spp., *Apostrasseria* spp., *Aspergillus* spp., *Bipolaris* spp., *Blumeria* spp., *Botryosphaeria* spp., *Cercospora* spp., *Cerosporidium* spp., *Cladosporium* spp., *Coleophoma* spp., *Colletotrichum* spp., *Corticium* spp., *Crinipellis* spp., *Didymella* spp., *Diplocarpon* spp., *Entomosporium* spp., *Erysiphe* spp., *Fusarium* spp., *Gliocladium* spp., *Glomerella* spp., *Godronia* spp., *Itersonia* spp., *Laetisaria* spp., *Magnaporthe* spp., *Mastigosporium* spp., *Microdochium* spp., *Mycosphaerella* spp., *Mucor* spp., *Penicillium* spp., *Pestalotiopsis* spp., *Phaeoisariopsis* spp., *Phomopsis* spp., *Pseudocercospora* spp., *Pseudopezia* spp., *Puccinia* spp., *Puceinia* spp., *Pyricularia* spp., *Rhabdochline* spp., *Rhizoctonia* spp., *Ravenalia* spp., *Rhynchosporium* spp., *Sclerotinia* spp., *Sclerotium* spp., *Septoria* spp., *Sphaerotheca* spp., *Stemphylium* spp., *Typhula* spp., *Ulocladium* spp., *Uredo* spp.,

Copper² (different salts) (Mode of action: multi-site) (FRAC¹ M 1) (Copper Hydroxide, Copper Oxychloride, Cuprous Oxide, Copper Sulfate, Copper Sulfate Pentahydrate). Copper² is applied foliar with protective control of Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes. Fungal genera controlled by copper are based on a NAL DigiTop³ search using the following search words: copper, fungi, plant and control. Plant pathogen fungi controlled by copper fungicides are from the first 200 citations from a total of 7658 citations (Table F).

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Alternaria* spp., *Aspergillus* spp., *Blumeria* spp., *Botrytis* spp., *Cercospora* spp., *Cerosporidium* spp., *Colletotrichum* spp., *Diaporthe* spp., *Drechslera* spp., *Drepanopeziza* spp., *Elsinoe* spp., *Erysiphe* spp., *Fusarium* spp., *Guignardia* spp., *Hemileia* spp., *Microsphaerella* spp., *Monilinia* spp., *Moniliophthora* spp., *Neofabraea* spp., *Neonectria* spp., *Penicillium* spp., *Peronospora* spp., *Phaeoramularia* spp., *Phyllosticta* spp., *Plasmopara* spp., *Pleospora* spp., *Pseudocercospora* spp., *Rhodonina* spp., *Septoria* spp., *Sphaerotheca* spp., *Spilocaea* spp., *Tilletia* spp., *Uncinula* spp., *Venturia* spp.

Dithiocarbamates (mancozeb²) (Mode of action: multi-site, FRAC¹ M3) Mancozeb is applied foliar with protective control of Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes. Fungal genera controlled by mancozeb are based on a NAL DigiTop³ search using the following search words: mancozeb, fungi, plant and control. Plant pathogen fungi controlled by mancozeb fungicides are from the first 200 citations from a total of 5536 citations (Table F).

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Alternaria* spp., *Apostrasseria* spp., *Ascochyta* spp., *Asperisporium* spp., *Bipolaris* spp., *Botrytis* spp., *Botryodiplodia* spp., *Botryosphaeria* spp., *Bremia* spp., *Cercospora* spp., *Choanephora* spp., *Coleosporium* spp., *Colletotrichum* spp., *Corynespora* spp., *Curvularia* spp., *Cylindrocladium* spp., *Didymascella* spp., *Didymella* spp., *Drechslera* spp., *Drepanopeziza* spp., *Epicoccum* spp., *Fusarium* spp., *Gloeodes* spp., *Gloeosporium* spp., *Glomerella* spp., *Gnomonia* spp., *Godronia* spp., *Guignardia* spp., *Helminthosporium* spp., *Itersonia* spp., *Microdochium* spp., *Monilinia* spp., *Mycosphaerella* spp., *Mucor* spp., *Peronospora* spp., *Pestalotia* spp., *Pestalotiopsis* spp., *Phaeoisariopsis* spp., *Phoma* spp., *Phomopsis* spp., *Phyllachora* spp., *Plasmopara* spp., *Podopshaera* spp., *Pseudocercospora* spp., *Pseudohalonectria* spp., *Pseudoperonospora* spp., *Puccinia* spp., *Pyricularia* spp., *Rhizoctonia* spp., *Sclerotium* spp., *Septoria* spp., *Sphaeropsis* spp., *Sphaerotheca* spp., *Spongospora* spp., *Stemphylium* spp., *Uromyces* spp., *Venturia* spp., *Zygothiala* spp.,

PhenylPyrroles (Fludioxonil²) (Mode of Action: MAP/histidine-kinase in osmotic signal transduction, FRAC¹12); Fludioxonil is applied foliar with protective and curative control of Ascomycetes,

Basidiomycetes, Coelomycetes and Hyphomycetes. Fungal genera controlled by fludioxonil are based on a NAL DigiTop³ search using the following search words: fludioxonil, fungi, plant and control. Plant pathogen fungi controlled by fludioxonil are from a total of 67 citations (Table F).

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Alternaria* spp., *Ascochyta* spp., *Blumeria* spp., *Botrytis* spp., *Botryotinia* spp., *Cercospora* spp., *Cladosporium* spp., *Colletotrichum* spp., *Corynespora* spp., *Cryptosporiopsis* spp., *Didymella* spp., *Erysiphe* spp., *Fusarium* spp., *Gnomonia* spp., *Leptosphaerulina* spp., *Leveillula* spp., *Microsphaerella* spp., *Monilinia* spp., *Monographella* spp., *Monosporascus* spp., *Oculimacula* spp., *Penicillium* spp., *Phakopsora* spp., *Pestalotiopsis* spp., *Phoma* spp., *Podopshaera* spp., *Puccinia* spp., *Pyrenophora* spp., *Ramularia* spp., *Rhizopus* spp., *Rhizoctonia* spp., *Rhynchosporium* spp., *Sclerotinia* spp., *Sclerotium* spp., *Seiridium* spp., *Septocytia* spp., *Septoria* spp., *Stagonosporopsis* spp., *Tilletia* spp., *Typhula* spp., *Uromyces* spp., *Ustilago* spp., *Venturia* spp., *Zymoseptoria* spp.,

Pyridine-carboxamides (Boscaid², Benzovindiflupyr (Mode of action: Succinate dehydrogenase inhibitors (SDHI), FRAC¹⁷) Succinate dehydrogenase inhibitor (SDHI) fungicides specifically inhibit fungal respiration by blocking the ubiquinone-binding sites in the mitochondrial complex II. SDHI fungicides are applied foliar with protective and curative control of Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes. Fungal genera controlled by boscaid are based on a NAL DigiTop³ search using the following search words: boscaid, fungi, plant and control. The plant pathogen fungi controlled by SDHI fungicides are from 59 citations.

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Alternaria* spp., *Ascochyta* spp., *Blumeria* spp., *Botrytis* spp., *Botryotinia* spp., *Botryosphaeria* spp., *Cercospora* spp., *Cladosporium* spp., *Colletotrichum* spp., *Corynespora* spp., *Cryptosporiopsis* spp., *Didymella* spp., *Erysiphe* spp., *Fusarium* spp., *Gnomonia* spp., *Leptosphaerulina* spp., *Leveillula* spp., *Microsphaerella* spp., *Monilinia* spp., *Monographella* spp., *Monosporascus* spp., *Oculimacula* spp., *Penicillium* spp., *Phakopsora* spp., *Pestalotiopsis* spp., *Phoma* spp., *Podopshaera* spp., *Puccinia* spp., *Pyrenophora* spp., *Ramularia* spp., *Rhizopus* spp., *Rhizoctonia* spp., *Rhynchosporium* spp., *Sclerotinia* spp., *Sclerotium* spp., *Seiridium* spp., *Septocytia* spp., *Septoria* spp., *Stagonosporopsis* spp., *Tilletia* spp., *Typhula* spp., *Uromyces* spp., *Ustilago* spp., *Venturia* spp., *Zymoseptoria* spp.,

Strobilurins² (azoxystrobin, fluoxastrobin, kresoxim-methyl, pyraoxystrobin) (Mode of action: quinone outside inhibitors (Qol), FRAC¹¹) Strobilurin fungicides are applied foliar with protective and curative control of Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes. Fungal genera controlled by strobilurins are based on a NAL DigiTop³ search using the following search words: strobilurins or common name of fungicide, fungi, plant and control. The plant pathogen fungi controlled by strobilurin fungicides are from 63 citations (Table F).

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Alternaria* spp., *Cercospora* spp., *Cladosporium* spp., *Colletotrichum* spp., *Didymella* spp., *Dothiorella* spp., *Erysiphe* spp., *Fusarium* spp., *Guignardia* spp., *Helminthosporium* spp., *Magnaporthe* spp., *Melampsora* spp., *Microdochium* spp., *Mycosphaerella* spp., *Peronosporas* spp., *Peronophthora* spp., *Phyllosticta*, *Plasmodium* spp., *Rhizoctonia* spp., *Sphaerotheca* spp., *Ustilago* spp.,

Succinate dehydrogenase inhibitors² (SDHI) (boscalid, fluopyram, flutoanil,) (Mode of Action: succinate dehydrogenase inhibitors, FRAC¹⁷) SDHI fungicides are applied foliar with protective and

curative control of Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes. Fungal genera controlled by SDHI fungicides are based on a NAL DigiTop³ search using the following search words: boscalid or flutoanil, fungi, plant, and control. The plant pathogen fungi controlled by SDHI fungicides are from the first 200 citations from a total of 59 citations (Table F).

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Alternaria* spp., *Ascochyta* spp., *Blumeria* spp., *Botrytis* spp., *Botryotinia* spp., *Botryosphaeria* spp., *Cercospora* spp., *Cladosporium* spp., *Colletotrichum* spp., *Corynespora* spp., *Cryptosporiopsis* spp., *Didymella* spp., *Erysiphe* spp., *Fusarium* spp., *Gnomonia* spp., *Leptosphaerulina* spp., *Leveillula* spp., *Microsphaerella* spp., *Monilinia* spp., *Monographella* spp., *Monosporascus* spp., *Oculimacula* spp., *Penicillium* spp., *Phakopsora* spp., *Pestalotiopsis* spp., *Podopshaera* spp., *Puccinia* spp., *Pyrenophora* spp., *Ramularia* spp., *Rhizopus* spp., *Rhizoctonia* spp., *Rhynchosporium* spp., *Sclerotinia* spp., *Sclerotium* spp., *Seiridium* spp., *Septocytia* spp., *Septoria* spp., *Stagonosporopsis* spp., *Tilletia* spp., *Typhula* spp., *Uromyces* spp., *Ustilago* spp., *Venturia* spp., *Zymoseptoria* spp.

Thiophanate-methyl² (Mode of action: methyl benzimidazole carbamates, FRAC¹) Thiophanate fungicides are applied foliar with protective and curative control of Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes. Fungal genera controlled by thiophanate- methyl are based on a NAL DigiTop³ search using the following search words: thiophanate, fungi, plant and control. The plant pathogen fungi controlled by thiophanate fungicides are from the first 200 citations from a total of 2872 citations (Table F).

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Alternaria* spp., *Ascochyta* spp., *Aspergillus* spp., *Blumeria* spp., *Botrytis* spp., *Botryodiplodia* spp., *Botryobasidium* spp., *Botryosphaeria* spp., *Calonectria* spp., *Cercospora* spp., *Cladosporium* spp., *Colletotrichum* spp., *Cryptosporiopsis* spp., *Cylindrocladium* spp., *Dactylaria* spp., *Diaporthe* spp., *Didymella* spp., *Diplodia* spp., *Diplocarpon* spp., *Euphorbia* spp., *Fusicladium* spp., *Fusarium* spp., *Glomerella* spp., *Golovinomyces* spp., *Golovinomyces* spp., *Inocutis* spp., *Lasioidiplodia* spp., *Magnaporthe* spp., *Marssonina* spp., *Monilinia* spp., *Mycosphaerella* spp., *Neofabraea* spp., *Neonectria* spp., *Ophiostoma* spp., *Pellicularia* spp., *Penicillium* spp., *Phaeosphaeria* spp., *Phaeomoniella* spp., *Phakopsora* spp., *Phomopsis* spp., *Phoma* spp., *Plasmopara* spp., *Plectosporium* spp., *Podopshaera* spp., *Pseudohalonectria* spp., *Rhizopus* spp., *Rhizoctonia* spp., *Sclerotinia* spp., *Sclerotium* spp., *Scrophularia* spp., *Sporisrium* spp., *Thielaviopsis* spp., *Urocystis* spp.

Triazoles² (difenoconazole, myclobutanil, propiconazole, tebuconazole, triadimefon, triticonazole, triflumizole) (Mode of action: demethylation inhibitors; FRAC 3¹); Triazoles are broad-spectrum protective systemic fungicides including fungi in the following classes. Triazoles have protective and curative control of Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes. Fungal genera controlled by triazoles are based on a NAL DigiTop³ search using the following search words: triazoles or fungicide common name, fungi, plant and control. The plant pathogen fungi controlled by triazole fungicides are from the first 200 citations from a total of 810 citations (Table F).

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Agaricus* spp., *Alternaria* spp., *Apiosporina* spp., *Aristastoma* spp., *Arthrinium* spp., *Antrodia* spp., *Ascochyta* spp., *Aspergillus* spp., *Asperisporium* spp., *Beauvaria* spp., *Bipolaris* spp., *Blumeria* spp., *Boronia* spp.,

Botrytis spp., *Botryodiplodia* spp., *Cainia* spp., *Ceratocystis* spp., *Cercospora* spp., *Cerosporidium* spp., *Cladosporium* spp., *Claviceps* spp., *Colletotrichum* spp., *Corynespora* spp., *Crinipellis* spp., *Cryptococcus* spp., *Cytospora* spp., *Deightonielle* spp., *Didymella* spp., *Diplocarpon* spp., *Dothiorella* spp., *Drechslera* spp., *Erysiphe* spp., *Exobasidium* spp., *Fulvia* spp., *Fusarium* spp., *Gaeumannomyces* spp., *Gibberella* spp., *Glomerella* spp., *Guignardia* spp., *Helminthosporium* spp., *Hemileia* spp., *Lecanicillium* spp., *Lentinula* spp., *Leptosphaeria* spp., *Leveillula* spp., *Macrosporium* spp., *Melampsora* spp., *Microdochium* spp., *Microsphaerella* spp., *Monilinia* spp., *Moniliophthora* spp., *Ochrobactrum* spp., *Oculimacula* spp., *Pellicularia* spp., *Phaeosphaeria* spp., *Phakopsora* spp., *Phloeospora* spp., *Phomopsis* spp., *Phaeoisariopsis* spp., *Phaeoramularia* spp., *Phymatotrichopsis* spp., *Podosphaera* spp., *Pleospora* spp., *Pleiochaeta* spp., *Podopshaera* spp., *Pseudocercospora* spp., *Puccinia* spp., *Pyrenophora* spp., *Pyrenopeziza* spp., *Quambalaria* spp., *Ramularia* spp., *Rhizopus* spp., *Rhizoctonia* spp., *Rhynchosporium* spp., *Rigidoporus* spp., *Sclerotinia* spp., *Sclerotium* spp., *Septoria* spp., *Sphaerotheca* spp., *Stagonospora* spp., *Stemphylium* spp., *Tapesia* spp., *Uncinula* spp., *Uromyces* spp., *Ustilago* spp., *Venturia* spp.

¹FRAC (Fungicide Resistance Action Committee) mode of action codes

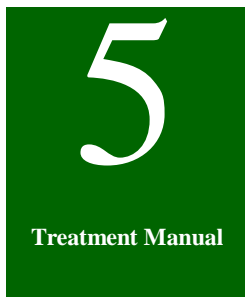
(<http://www.frac.info/docs/default-source/publications/frac-code-list/frac-code-list-2016.pdf?sfvrsn=2>)

²Table B: Fungicides for T501

³National Agriculture Library (NAL) DigiTop (<https://digitopdb.nal.usda.gov/>)

⁴ Refer to Table E: for citations

Table: T501- Contents



Treatment Schedules

T500 - Schedules for Plant Pests or Pathogens

Contents

The following Schedules are listed by plant pest or pathogen

General Schedules

T501—Treatments for Plant Pathogen Fungi on Propagated Plants

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes:

Acer: 5-6-3 (page 1, pages for draft T501))

Azalea: 5-6-3 (page 1)

Azaleodendron: 5-6-3 (page 1)

Bonsai: 5-6-4 (page 2)

Bromeliads: 5-6-6 (page 4)

Camellia: 5-6-6 (page 4)

Christmas Trees: 5-6-7 (page 5)

Chrysanthemum: 5-6-8 (page 6)

Dracaena: 5-6-8 (page 6)

Ferns: 5-6-9 (page 7)

Gentian: 5-6-10 (page 8)

Orchids: 5-6-11 (page 9)

Palm: 5-6-12 (page 10)

Propagative Plants (Angiosperm, Gymnosperm, Greenhouse Plants, Herbaceous Plants,
Ornamental Plants, Plants with Seeds, Woody Plants: 5-6-13 (page 11)

Rhododendron: 5-6-14 (page 12)

T502—Pest: Potato cyst nematode 5-6-4

T503—Pest: Diseases listed in 7CFR 319.24: Downy Mildews and
Physoderma diseases of Maize 5-6-5

T504—Pest: Flag smut 5-6-5

T506—Pest: Potato cyst nematode 5-6-7

T510—Pest: Various corn-related diseases 5-6-9

T511—T511—Precautionary treatment for Citrus Canker (*Xanthomonas*
axonopodis) 5-6-10

T512—(Deleted) 5-6-11

T514—**Pest: *Xanthomonas albilineans* and *X. vasculorum* 5-6-11**

T515—Pest: Various sugarcane-related diseases 5-6-12

T516 (Deleted) 5-6-12)

TT517 (Deleted) 5-6-12)

T518—Pest: Various rice-related diseases 5-6-12

T519—Pest: Various rice-related diseases 5-6-13

T520—**Pest: *Verticillium albo-atrum* 5-6-14**

T521—**Pest: Various Plant Pathogenic Fungi and Bacteria 5-6-14**

Treatment Schedules T500 - Schedules for Plant Pests or Pathogens

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Hot Water Treatments

T551—**Pest: *Globodera rostochiensis*, *G. pallida* 5-6-15**

T552—**Pest: Bulb nematodes: *Ditylenchus dipsaci*, *D. destructor* 5-6-15**

T553—Pest: Root-knot nematodes (*Meloidogyne* spp.,) 5-6-16)

Pest: Lesion nematodes (*Pratylenchus* spp.,) 5-6-16

Pest: Golden nematodes (*Globodera rostochiensis* and *G. pallida*)

5-6-16

Pest: Foliar nematodes (*Aphelenchoides fragariae*) 5-6-16

Pest: Cyst nematodes (*Heterodera humuli*) 5-6-16

T554—Pest: Bulb nematodes—*Ditylenchus dipsaci* and *D. destructor*
5-6-16

T555—Pest: Bulb nematodes—*Ditylenchus dipsaci* 5-6-17

T556—Pest: Root-knot nematodes (*Meloidogyne* spp.,) 5-6-17

T557—Pest: *Meloidogyne* spp., and *Pratylenchus* spp., 5-6-17

T558—Pest: *Pratylenchus* spp., (surface diseases) 5-6-17

T559—Pest: White tip nematode (*Aphelenchoides besseyi*) 5-6-18

T560—Pest: *Meloidogyne* spp., 5-6-18.

T561—Treatment for Infestations of *Cercospora mamaonis* and *Phomopsis*
carica-papayae on Papayas 5-6-18

T562—(deleted) 5-6-19

T563—(deleted) 5-6-19

T564—Pest: Foliar nematodes (*Aphelenchoides fragariae*) 5-6-21

T565—**Pest: *Ditylenchus destructor* 5-6-19**

Pest: *Ditylenchus dipsaci* 5-6-20i

Pest: *Aphelenchoides subtenuis*, *Ditylenchus destructor* 5-6-19

Pest: *Globodera rostochiensis*, *G. pallida* 5-6-20

T566—Pest: Precautionary treatment for corn-related diseases 5-6-20

Pest: *Aphelenchoides fragariae* 5-6-20

T567—Pest: Bulb nematodes (*Ditylenchus dipsaci*) 5-6-20

T568—Pest: Foliar nematodes (*Aphelenchoides fragariae*) 5-6-21

T569—Pest: Foliar nematodes (*Aphelenchoides fragariae*) 5-6-21

T570—Pest: *Pratylenchus* spp., 5-6-21.

Pest: *Aphelenchoides fragariae* spp., 5-6-21

Table: T501—Treatments for Plant Pathogen Fungi on Propagated Plants

Acer (*Acer* spp.)

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Actinopelte* spp., *Aleurodiscus* spp., *Altenaria* spp., *Camarosporium* spp., *Cercospora* spp., *Cercosporella* spp., *Ciborinia* spp., *Colletotrichum* spp., *Coniothyrium* spp., *Cristulariella* spp., *Cytospora* spp., *Diaporthe* spp., *Didymosporina* spp., *Discula* spp., *Eutypella* spp., *Fusarium* spp., *Gloeosporium* spp., *Hymenochaete* spp., *Hypoxylon* spp., *Illosporium* spp., *Laestadia* spp., *Leptothyrella* spp., *Pezizella* spp., *Phyllosticta* spp., *Macrophoma* spp., *Microsphaera* spp., *Monochaetia* spp., *Nectria* spp., *Phomopsis* spp., *Phyllactinia* spp., *Physalospora* spp., *Piggotia* spp., *Rhizoctonia* spp., *Rhytisma* spp., *Sawadaea* spp., *Schizoxylon* spp., *Septobasidium* spp., *Septoria* spp., *Sphaeropsis* spp., *Strumella* spp., *Stegosporium* spp., *Stibella* spp., *Taphrina* spp., *Thelephora* spp., *Uncinula* spp., *Venturia* spp.

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in “Table C Chemicals”. Follow the instructions for “light” or “heavy infection” listed below. Refer to “Table C Chemicals” for instructions on performing fungicide treatments and “Tables B1, B2, for treatment fungicides.

Light infection: Remove infected plant parts. Mix pesticides according to treatment instructions below. Apply fungicides at the highest rate permitted by the EPA label for the plant species, application site, and fungus to be treated. Spray all plant surfaces of the infected species with fungicide. Allow plants to dry thoroughly before release. Follow all product label instructions.

Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 “Fungicide Group” (i.e., Group A+ Group B+ Group C) outlined in “Tables (B1, B2) Fungicides for T500 of Treatment Manual.” **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label.

Always refer to the manufacturer's label for plants, application and fungus sites.

¹No endorsement is intended of the particular items listed and no discrimination is intended toward those products or companies that may not be listed.

²Fungicide formulations of an a.i. not found in Table B can be used as long as the application method, site, and rate are listed on the label.

Azalea, Azaleodendron (Rhododendron spp.)

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Briosia* spp., *Botrytis* spp., *Cercospora* spp., *Chrysomyxa* spp., *Colletotrichum* spp., *Cylindrocladium* spp., *Erysiphe* spp., *Exobasidium* spp., *Glomerella* spp., *Oidium* spp., *Pestalotiopsis* spp., *Phyllactinia* spp., *Phyllosticta* spp., *Septoria* spp.

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in "Table C Chemicals". Follow the instructions for "light" or "heavy infection" listed below. Refer to "Table C Chemicals" for instructions on performing fungicide treatments and "Tables B1, B2, for treatment fungicides.

Light infection: Remove infected plant parts. Mix pesticides according to treatment instructions below. Apply fungicides at the highest rate permitted by the EPA label for the plant species, application site, and fungus to be treated. Spray all plant surfaces of the infected species with fungicide. Allow plants to dry thoroughly before release. Follow all product label instructions.

Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 "Fungicide Group" (i.e., Group A+ Group B+ Group C) outlined in "Tables (B1, B2) Fungicides for T500 of Treatment Manual." **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label.

Always refer to the manufacturer's label for plants, application and fungus sites.

¹No endorsement is intended of the particular items listed and no discrimination is intended toward those products or companies that may not be listed.

²Fungicide formulations of an a.i. not found in Table B can be used as long as the application method, site, and rate are listed on the label.

Bonsai (Broadleaf Evergreens; Deciduous Tree Species; Conifers and Pines; For Example: *Abies* spp., *Acer* spp., *Adenium* spp., *Alnus* spp., *Amelanchier* spp., *Ampelopsis* spp., *Aralia* spp., *Arbutus* spp., *Berberis* spp., *Betula* spp., *Bougainvillea* spp., *Buxus* spp., *Camellia* spp., (see *Camellia*), *Carmona* spp., *Carpinus* spp., *Cedrus* spp., *Chaenomeles* spp., *Chamaecyparis* spp., *Cissus* spp., *Citrus* spp., *Cornus* spp., *Cotinus* spp., *Cotoneaster* spp., *Crassula* spp., *Crataegus* spp., *Cryptomeria* spp., *Cupressus* spp., *Cydonia* spp., *Dasiphora* spp., *Elaeagnus* spp., *Enkianthus* spp., *Fagus* spp., *Ficus* spp., *Fortunella* spp., *Fraxinus* spp., *Gardenia* spp., *Ginkgo* spp., *Gledista* spp., *Grevillea* spp., *Hedera* spp., *Hibiscus* spp., *Jacaranda* spp., *Jasminum* spp., *Juniperus* spp., *Lagerstroemia* spp., *Lantana* spp., *Larix* spp., *Ligustrum* spp., *Liquidambar* spp., *Lonicera* spp., *Maclura* spp., *Malpighis* spp., *Magnolia* spp., *Malus* spp.,

Mangifera spp., *Metasequoia* spp., *Murraya* spp., *Myrciaria* spp., *Murraya* spp., *Myrciaria* spp., *Myrtus* spp., *Nandina* spp., *Nashia* spp., *Neea* spp., *Nothofagus* spp., *Olea* spp., *Parthenocissus* spp., *Phyllostachys* spp., *Picea* spp., *Pieris* spp., *Pinus* spp., *Pittosporum* spp., *Podocarpus* spp., *Polyscias* spp., *Portulacaria* spp., *Prunus* spp., *Pseudosasa* spp., *Punica* spp., *Pyracantha* spp., *Quercus* spp., *Rhaphiolepis* spp., *Rhododendron* spp., (see *Rhododendron*), *Robinia* spp., *Sageretia* spp., *Sasa* spp., *Schefflera* spp., *Serissa* spp., *Sorbus* spp., *Syzygium* spp., *Tamarix* spp., *Taxodium distichum* spp., *Taxus* spp., *Thymus* spp., *Tsuga* spp., *Ulmus* spp., *Wisteria* spp., *Zelkova* spp., *Zanthoxylum* spp.,

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Aecidium* spp., *Alternaria* spp., *Annellophora* spp., *Aristastoma* spp., *Ascochyta* spp., *Aspergillus* spp., *Bifusella* spp., *Bipolaris* spp., *Botrytis* spp., *Botryotinia* spp., *Botryodiplodia* spp., *Botryosphaeria* spp., *Briosia* spp., *Brobdingnagia* spp., *Calonectria* spp., *Camarotella* spp., *Canavirgella* spp., *Capnodium* spp., *Ceratocystis* spp., *Cercospora* spp., *Chrysomyxa* spp., *Ciborinia* spp., *Colletotrichum* spp., *Cercospora* spp., *Chaetodiplodia* spp., *Cladosporium* spp., *Coccolicola* spp., *Coccostromopsis* spp., *Coleosporium* spp., *Coniothyrium* spp., *Corynespora* spp., *Curvularia* spp., *Cyclaneusma* spp., *Cylindrocladium* spp., *Didymella* spp., *Diplodia* spp., *Dothistroma* spp., *Echinodes* spp., *Endocronartium* spp., *Epicoccum* spp., *Erysiphe* spp., *Exobasidium* spp., *Exserohilum* spp., *Fulvia* spp., *Fusarium* spp., *Ganoderma* spp., *Gliocladium* spp., *Gloeodes* spp., *Gloeosporium* spp., *Glomerella* spp., *Graphiola* spp., *Guignardia* spp., *Helminthosporium* spp., *Hemileia* spp., *Isariopsis* spp., *Isthmiella* spp., *Leptosphaeria* spp., *Lasiodiplodia* spp., *Leptothyrium* spp., *Lirula* spp., *Itersonilia* spp., *Lophodermium* spp., *Macrophoma* spp., *Malthomyces* spp., *Melampsora* spp., *Microsphaeropsis* spp., *Microthyriella* spp., *Mycosphaerella* spp., *Mycosphaerella* spp., *Oidium* spp., *Opiodothella* spp., *Oxodeora* spp., *Pseudocercospora* spp., *Pestalotiopsis* spp., *Pestalotia* spp., *Phaeochoraceae* spp., *Phaeocryptopus* spp., *Phaeoseptoria* spp., *Phaeotrichoconis* spp., *Phakospora* spp., *Phoma* spp., *Phomopsis* spp., *Phraeocryptopus* spp., *Phyllachora* spp., *Phyllactinia* spp., *Phyllostictina* spp., *Phyllosticta* spp., *Pyrenochaeta* spp., *Puccinia* spp., *Pucciniastrum* spp., *Rhabodocline* spp., *Rhizoctonia* spp., *Rhizosphaera* spp., *Robillarda* spp., *Schizothyrium* spp., *Serenomyces* spp., *Septoria* spp., *Sirococcus* spp., *Stigmina* spp., *Sphenospora* spp., *Sphaerodothis* spp., *Stemphylium* spp., *Stagonospora* spp., *Thielaviopsis* spp., *Toxosporium* spp., *Uredinopsis* spp., *Uredo* spp.

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in “Table C Chemicals”. Follow the instructions for “light” or “heavy infection” listed below. Refer to “Table C Chemicals” for instructions on performing fungicide treatments and “Tables B1, B2, for treatment fungicides.

Light infection: Remove infected plant parts. Mix pesticides according to treatment instructions below. Apply fungicides at the highest rate permitted by the EPA label for the plant species, application site, and fungus to be treated. Spray all plant surfaces of the infected species with fungicide. Allow plants to dry thoroughly before release. Follow all product label instructions.

Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 “Fungicide Group” (i.e., Group A+ Group B+ Group C) outlined in “Tables (B1, B2) Fungicides for T500 of Treatment Manual.” **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the

propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label.
Always refer to the manufacturer's label for plants, application and fungus sites.

¹No endorsement is intended of the particular items listed and no discrimination is intended toward those products or companies that may not be listed.

²Fungicide formulations of an a.i. not found in Table B can be used as long as the application method, site, and rate are listed on the label.

Bromeliads (Bromeliaceae)

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Cladosporium* spp., *Coleophoma* spp., *Colletotrichum* spp., *Colpoma* spp., *Coniothyrium* spp., *Cytospora* spp., *Diplodia* spp., *Dothiorella* spp., *Drechslera* spp., *Echidnodes* spp., *Exserohilum* spp., *Fusicoccum* spp., *Gloeosporium* spp., *Helminthosporium* spp., *Ravenelis* spp., *Rhizoctonia* spp., *Periconia* spp., *Pestalotiopsis* spp., *Phaeoseptoria* spp., *Phoma* spp., *Phomopsis* spp., *Phyllosticta* spp., *Puccinia* spp., *Sphaerodothis* spp., *Sphaeropsis* spp., *Uredo* spp., (when destined to Florida, refuse entry)

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in "Table C Chemicals". Follow the instructions for "light" or "heavy infection" listed below. Refer to "Table C Chemicals" for instructions on performing fungicide treatments and "Tables B1, B2, for treatment fungicides.

Light infection: Remove infected plant parts. Mix pesticides according to treatment instructions below. Apply fungicides at the highest rate permitted by the EPA label for the plant species, application site, and fungus to be treated. Spray all plant surfaces of the infected species with fungicide. Allow plants to dry thoroughly before release. Follow all product label instructions.

Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 "Fungicide Group" (i.e., Group A+ Group B+ Group C) outlined in "Tables (B1, B2) Fungicides for T500 of Treatment Manual." **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label.
Always refer to the manufacturer's label for plants, application and fungus sites.

¹No endorsement is intended of the particular items listed and no discrimination is intended toward those products or companies that may not be listed.

²Fungicide formulations of an a.i. not found in Table B can be used as long as the application method, site, and rate are listed on the label.

Manual

Camellia (Camellia spp.)

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Ciborinia* spp., *Cylindrosporium* spp., *Exobasidium* spp., *Glomerella* spp., *Pestalotia* spp., *Phomopsis* spp., *Phyllosticta* spp.

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in “Table C Chemicals”. Follow the instructions for “light” or “heavy infection” listed below. Refer to “Table C Chemicals” for instructions on performing fungicide treatments and “Tables B1, B2, for treatment fungicides.

Light infection: Remove infected plant parts. Mix pesticides according to treatment instructions below. Apply fungicides at the highest rate permitted by the EPA label for the plant species, application site, and fungus to be treated. Spray all plant surfaces of the infected species with fungicide. Allow plants to dry thoroughly before release. Follow all product label instructions.

Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 “Fungicide Group” (i.e., Group A+ Group B+ Group C) outlined in “Tables (B1, B2) Fungicides for T500 of Treatment Manual.” **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label. Always refer to the manufacturer’s label for plants, application and fungus sites.

¹No endorsement is intended of the particular items listed and no discrimination is intended toward those products or companies that may not be listed.

²Fungicide formulations of an a.i. not found in Table B can be used as long as the application method, site, and rate are listed on the label.

Christmas trees (Araucariaceae, Cephalotaxaceae, Cupressaceae, Pinaceae, Podocarpaceae, Sciadopityaceae, Taxaceae; For Example: *Abies* spp., *Cupressa* spp., *Juniperus* spp., *Pinus* spp., *Picea* spp., *Pseudotsuga* spp., etc.)

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Bifusella* spp., *Canavirgella* spp., *Chrysomyxa* spp., *Coleosporium* spp., *Cyclaneusma* spp., *Diplodia* spp., *Dothistroma* spp., *Endocronartium* spp., *Isthmiella* spp., *Lirula* spp., *Lophodermium* spp., *Melampsora* spp., *Melampsorella* spp., *Milesina* spp., *Mycosphaerella* spp., *Phaeocryptopus* spp., *Phoma* spp., *Phomopsis* spp., *Phraeocryptopus* spp., *Phyllosticta* spp., *Pucciniastrum* spp., *Rhabdocline* spp., *Rhizosphaera* spp., *Sirococcus* spp., *Stigmina* spp., *Toxosporium* spp., *Uredinopsis* spp.

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in “Table C Chemicals”. Follow the instructions for “light” or “heavy infection” listed below. Refer to “Table C Chemicals” for instructions on performing fungicide treatments and “Tables B1, B2, for treatment fungicides.

Light infection: Remove infected plant parts. Mix pesticides according to treatment instructions below. Apply fungicides at the highest rate permitted by the EPA label for the plant species, application site, and fungus to be treated. Spray all plant surfaces of the infected species with fungicide. Allow plants to dry thoroughly before release. Follow all product label instructions.

Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 “Fungicide Group” (i.e., Group A+ Group B+ Group C) outlined in “Tables (B1, B2) Fungicides for T500 of Treatment Manual.” **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label.
Always refer to the manufacturer’s label for plants, application and fungus sites.

¹No endorsement is intended of the particular items listed and no discrimination is intended toward those products or companies that may not be listed.

²Fungicide formulations of an a.i. not found in Table B can be used as long as the application method, site, and rate are listed on the label.

Chrysanthemum (*Argyranthemum* spp., *Chrysanthemum* spp., *Glebionis* spp., *Leucanthemopsis* spp., *Leucanthemum* spp., *Rhodanthemum* spp., *Tanacetum* spp., etc.)

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Alternaria* spp., *Ascochyta* spp., *Botrytis* spp., *Didymella* spp., *Itersonilia* spp., *Oidium* spp., *Phoma* spp., *Puccinia* spp., *Septoria* spp., *Stagonosporiopsis* spp., *Stemphylium* spp.,

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in “Table C Chemicals”. Follow the instructions for “light” or “heavy infection” listed below. Refer to “Table C Chemicals” for instructions on performing fungicide treatments and “Tables B1, B2, for treatment fungicides.

Light infection: Remove infected plant parts. Mix pesticides according to treatment instructions below. Apply fungicides at the highest rate permitted by the EPA label for the plant species, application site, and fungus to be treated. Spray all plant surfaces of the infected species with fungicide. Allow plants to dry thoroughly before release. Follow all product label instructions.

Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 “Fungicide Group” (i.e., Group A+ Group B+ Group C) outlined in “Tables (B1, B2) Fungicides for T500 of Treatment Manual.” **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label.
Always refer to the manufacturer’s label for plants, application and fungus sites.

¹No endorsement is intended of the particular items listed and no discrimination is intended toward those products or companies that may not be listed.

²Fungicide formulations of an a.i. not found in Table B can be used as long as the application method, site, and rate are listed on the label.

Dracaena (*Dracaena* spp.)

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Alternaria* spp., *Aspergillus* spp., *Boytryosphaeria* spp., *Botrytis* spp., *Cercospora* spp., *Cladosporium* spp., *Colletotrichum* spp., *Coniothyrium* spp., *Curvularia* spp., *Epicoccum* spp., *Fusarium* spp., *Glomerella* spp., *Helminthosporium* spp., *Leptosphaeria* spp., *Mycosphaerella* spp., *Pestalotiopsis* spp., *Phoma* spp., *Phyllosticta* spp., *Pyrenochaeta* spp., *Thielaviopsis* spp.,

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in “Table C Chemicals”. Follow the instructions for “light” or “heavy infection” listed below. Refer to “Table C Chemicals” for instructions on performing fungicide treatments and “Tables B1, B2, for treatment fungicides.

Light infection: Remove infected plant parts. Mix pesticides according to treatment instructions below. Apply fungicides at the highest rate permitted by the EPA label for the plant species, application site, and fungus to be treated. Spray all plant surfaces of the infected species with fungicide. Allow plants to dry thoroughly before release. Follow all product label instructions.

Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 “Fungicide Group” (i.e., Group A+ Group B+ Group C) outlined in “Tables (B1, B2) Fungicides for T500 of Treatment Manual.” **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label. Always refer to the manufacturer’s label for plants, application and fungus sites.

¹No endorsement is intended of the particular items listed and no discrimination is intended toward those products or companies that may not be listed.
²Fungicide formulations of an a.i. not found in Table B can be used as long as the application method, site, and rate are listed on the label.

Ferns (Equisetopsida, Marattiopida, Polypodiopsida, Psilotopsida; For Example: *Adiantum* spp., *Asplenium* spp., *Athyrium* spp., *Camptosorus* spp., *Cibotium* spp., *Cryptogramma* spp., *Cyrtomium* spp., *Cystopteris* spp., *Cycad* spp., *Dryopteris* spp., *Lygodium* spp., *Nephrolepis* spp., *Onoclea* spp., *Ophioglossum* spp., *Osmunda* spp., *Pellaea* spp., *Polypodium* spp., *Poystichum* spp., *Pteridium* spp., *Pteris* spp., *Pteretis* spp., *Rumohra* spp., *Salvinia* spp., *Woodsia* spp., *Woodwardia* spp.)

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Alternaria* spp., *Ascacirtyne* spp., *Ascochyta* spp., *Athella* spp., *Bipolaris* spp., *Botrytis* spp., *Botryobasidium* spp., *Bourdodia* spp., *Calonectria* spp., *Catacauma* spp., *Ceratobasidium* spp., *Cercospora* spp., *Colletotrichum* spp., *Cryptomycina* spp., *Curvularia* spp., *Cylindrocladium* spp., *Desmella* spp., *Drechslera* spp., *Fusarium* spp., *Glomerella* spp., *Gloeosporium* spp., *Herpobasidium* spp., *Hobsonia* spp., *Hyalopsora* spp., *Hymenochaete* spp., *Inocycius* spp., *Lachnella* spp., *Lycogala* spp., *Milesia* spp., *Mycosphaerella* spp., *Nephrolepis* spp., *Pellicularia* spp., *Pseudocercospora* spp., *Pestalotia* spp., *Phoma* spp., *Phyllachora* spp., *Phyllosticta* spp., *Pleospora* spp., *Polystichum* spp., *Puccini* spp., *Rhizoctonia* spp., *Septoria* spp., *Simplicillium* spp., *Stemphylium* spp., *Taphrina* spp., *Trabutiella* spp., *Uromyces* spp., *Uredo* spp., *Uredinopsis* spp., *Vararia* spp.

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in “Table C Chemicals”. Follow the instructions for “light” or “heavy infection” listed below. Refer to “Table C Chemicals” for instructions on performing fungicide treatments and “Tables B1, B2, for treatment fungicides.

Light infection: Remove infected plant parts. Mix pesticides according to treatment instructions below. Apply fungicides at the highest rate permitted by the EPA label for the plant species, application site, and fungus to be treated. Spray all plant surfaces of the infected species with fungicide. Allow plants to dry thoroughly before release. Follow all product label instructions.

Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 “Fungicide Group” (i.e., Group A+ Group B+ Group C) outlined in “Tables (B1, B2) Fungicides for T500 of Treatment Manual.” **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label. Always refer to the manufacturer’s label for plants, application and fungus sites.

¹No endorsement is intended of the particular items listed and no discrimination is intended toward those products or companies that may not be listed.

²Fungicide formulations of an a.i. not found in Table B can be used as long as the application method, site, and rate are listed on the label.

Orchids (to Florida)

Pest: Rusts

Treatment: **For rust-infected shipments to Florida:** Refuse entry to all infected plants and all other plants of the same species or variety in the shipment. Treat other orchid species in the shipment (which may have become contaminated) with fungicide spray. Follow label directions. Dry quickly and thoroughly before release. Repackage treated orchids in clean shipping containers. For rusts on orchids to States other than Florida, follow procedures under “Orchids”.

Orchids (Orchidaceae); For Example:, *Aerides* spp., *Ascocenda* spp., *Bulbophyllum* spp., *Cattleya* spp., *Dendrobium* spp., *Eria* spp., *Elleanthus* spp., *Encyclia* spp., *Epidendrum* spp., *Ixora* spp., *Liparis* spp., *Masdevallia* spp., *Orchis* spp., *Phalaenopsis* spp., *Rhynchostylis* spp., *Vanda* spp. hybrids and cultivars etc.

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Aecidium* spp., *Ascochyta* spp., *Alternaria* spp., *Botrytis* spp., *Botryotinia* spp., *Cercospora* spp., *Colletotrichum* spp., *Capnodium* spp., *Cercospora* spp., *Chaetodiplodia* spp., *Coleosporium* spp., *Coniothyrium* spp., *Corynespora* spp., *Curvularia* spp., *Didymella* spp., *Diplodia* spp., *Fulvia* spp., *Gloeodes* spp.,

Gloeosporium spp., *Glomerella* spp., *Hemileia* spp., *Lasiodiplodia* spp., *Leptosphaeria* spp., *Leptothyrium* spp., *Microthyriella* spp., *Microsphaeropsis* spp., *Mycosphaerella* spp., *Opiodothella* spp., *Passalora* spp., *Phaeoseptoria* spp., *Phyllosticta* spp., *Phoma* spp., *Phomopsis* spp., *Puccinia* spp., *Pucciniastrum* spp., *Uromyces* spp., *Septoria* spp., *Sphaerodothis* spp., *Sphenospora* spp., *Schizothyrium* spp., *Uredo* spp., *Uromyces* spp.

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in “Table C Chemicals”. Follow the instructions for “light” or “heavy infection” listed below. Refer to “Table C Chemicals” for instructions on performing fungicide treatments and “Tables B1, B2, for treatment fungicides.

Light infection: Remove infected plant parts. Mix pesticides according to treatment instructions below. Apply fungicides at the highest rate permitted by the EPA label for the plant species, application site, and fungus to be treated. Spray all plant surfaces of the infected species with fungicide. Allow plants to dry thoroughly before release. Follow all product label instructions.

Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 “Fungicide Group” (i.e., Group A+ Group B+ Group C) outlined in “Tables (B1, B2) Fungicides for T500 of Treatment Manual.” **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label. Always refer to the manufacturer’s label for plants, application and fungus sites.

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Do we need the following treatment? How are the seeds treated?

d) (Small lots for propagation but not for food, feed, or oil purposes)

ous corn-related diseases

Treatment:T510-2 Treat seeds with a dry application of Mancozeb in combination with Captan. Disinfect bags by: 1) Dry heat at 212

°F for 1 hour. Treat small bales only; or 2) Steam at 10 pounds pressure at 40 °F for 20 minutes.

Palm (Arecaceae, Arecoideae, Calamoideae, Ceroxyloideae, Coryphoideae, Nypoideae, Palmae; For Example: *Archontophoenix* spp., *Areca* spp., *Bactris* spp., *Beccariophoenix* spp., *Bismarckia* spp., *Borassus* spp., *Calamus* spp., *Cocos* spp., *Copernicia* spp., *Corypha* spp., *Elaeis* spp., *Euterpe* spp., *Hyphaene* spp., *Jubaea* spp., *Latania* spp., *Livistona* spp., *Mauritia* spp., *Metroxylon* spp., *Nypa* spp., *Parajubaea* spp., *Phoenix* spp., *Raphia* spp., *Roystonea* spp., *Sabal* spp., *Syagrus* spp., *Trachycarpus* spp., *Veitchia* spp., *Washingtonia* spp., etc.)

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Annellophora* spp., *Ascochyta* spp., *Bipolaris* spp., *Botrytis* spp., *Botryosphaeria* spp., *Brobdingnagia* spp., *Calonectria* spp.,

Camarotella spp., *Ceratocystis* spp., *Cercospora* spp., *Cocoicola* spp., *Coccostromopsis* spp., *Colletotrichum* spp., *Cylindrocladium* spp., *Exserohilum* spp., *Ganoderma* spp., *Gliocladium* spp., *Glomerella* spp., *Graphiola* spp., *Macrophoma* spp., *Malthomyces* spp., *Mycosphaerella* spp., *Ophiodothella* spp., *Oxodeora* spp., *Pestalotiopsis* spp., *Phaeochoraceae* spp., *Phaeotrichoconis* spp., *Phomopsis* spp., *Phyllosticta* spp., *Phyllachora* spp., *Pseudocercospora* spp., *Serenomyces* spp., *Sphaerodothis* spp., *Stigmina* spp.,

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in “Table C Chemicals”. Follow the instructions for “light” or “heavy infection” listed below. Refer to “Table C Chemicals” for instructions on performing fungicide treatments and “Tables B1, B2, for treatment fungicides.

Light infection: Remove infected plant parts. Mix pesticides according to treatment instructions below. Apply fungicides at the highest rate permitted by the EPA label for the plant species, application site, and fungus to be treated. Spray all plant surfaces of the infected species with fungicide. Allow plants to dry thoroughly before release. Follow all product label instructions.

Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 “Fungicide Group” (i.e., Group A+ Group B+ Group C) outlined in “Tables (B1, B2) Fungicides for T500 of Treatment Manual.” **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label. Always refer to the manufacturer’s label for plants, application and fungus sites.

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Manual

Propagative Plants (Angiosperm, Gymnosperm, Greenhouse Plants, Herbaceous Plants, Ornamental Plants, Plants with Seeds, Woody Plants; For example: *Adenium* spp., *Aesculus* spp., *Agave* spp., *Aglaonema* spp., *Aloe* spp., *Amelanchier* spp., *Amsonia* spp., *Ampelopsis* spp., *Annona* spp., *Aralia* spp., *Arecaceae* spp., *Artocarpus* spp., *Aspidistra* spp., *Beaucarnea* spp., *Bougainvillea* spp., *Brahea* spp., *Brassaia* spp., *Calibanus* spp., *Campsis* spp., *Canna* spp., *Carmichaelis* spp., *Carpinus* spp., *Catasetum* spp., *Catopsis* spp., *Charmaedorea* spp., *Chrysalidocarpus* spp., *Citrus* spp., *Codiaeum* spp., *Cordyline* spp., *Daphne* spp., *Dasylyrion* spp., *Dendranthema* spp., *Deutzia* spp., *Dieffenbachia* spp., *Echinopsis* spp., *Eichhornia* spp., *Encyclia* spp., *Epidendrum* spp., *Ferocatus* spp., *Ficus* spp., *Forsythia* spp., *Galphimia* spp., *Gentiana* spp., *Ginkgo* spp., *Heliconia* spp., *Hesperaloe* spp., *Hippeastrum* spp., *Ionopsis* spp., *Ixora* spp., *Kerria* spp., *Laelia* spp., *Lirope* spp., *Lockhartia* spp., *Lycopodium* spp., *Malus* spp., *Masdevallia* spp., *Monstera* spp., *Mormodes* spp., *Musa* spp., *Ochna* spp., *Olea* spp., *Oncidium* spp., *Opuntia* spp., *Ornithocephalus* spp., *Pachycereus* spp., *Paeonia* spp., *Pennisetum* spp., *Pleurothallis* spp., *Plumeria* spp., *Podocarpus* spp., *Polyscias* spp.,

***Quercus* spp., *Schefflera* spp., *Schomburgkia* spp., *Scindapsus* spp., *Selaginella* spp.,
Sobaria spp., *Spiraea* spp., *Strelitzia* spp., *Symphoricarpos* spp., *Tillandsia* spp.,
Vriesea spp., *Wisteria* spp., *Xanthostemon* spp., *Yucca* spp., *Zelkova* spp.**

Pest: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Accidium* spp.,
Acremonium spp., *Aecidium* spp., *Aleurodiscus* spp., *Alysidium* spp., *Ampelomyces* spp., *Annellophora*
spp., *Antennularia* spp., *Anthostomella* spp., *Apiosporina* spp., *Ascochyta* spp., *Aristastoma* spp.,
Arthrinium spp., *Ascochyta* spp., *Aspergillus* spp., *Asternia* spp., *Bartheletia* spp., *Bifusella* spp.,
Bipolaris spp., *Biscogniauxia* spp., *Botrytis* spp., *Botryotinia* spp., *Botryodiplodia* spp., *Botryosphaeria*
spp., *Briosia* spp., *Brobdingnagia* spp., *Cainia* spp., *Calonectria* spp., *Camarotella* spp., *Cameraria* spp.,
Canavirgella spp., *Capnodium* spp., *Ceratocystis* spp., *Cercospora* spp., *Cercoseptoria* spp., *Ciborinia*
spp., *Ceratobasidium* spp., *Cerosporidium* spp., *Chaetodiplodia* spp., *Chrysomyxa* spp., *Cladosporium*
spp., *Clasterosporium* spp., *Coccomyces* spp., *Cocoicola* spp., *Coccostromopsis* spp., *Cochliobolus* spp.,
Coleosporium spp., *Colletotrichum* spp., *Coniothyrium* spp., *Corynespora* spp., *Corticium* spp., *Coryneum*
spp., *Cristulariella* spp., *Cryptostictis* spp., *Curvularia* spp., *Cycloclonium* spp., *Cyclaneusma* spp.,
Cylindrocladium spp., *Cylindrosporium* spp., *Dichomera* spp., *Dictyoportha* spp., *Didymella* spp.,
Didymosphaeria spp., *Diploida* spp., *Discochora* spp., *Discula* spp., *Dothistroma* spp., *Dothidotthia*
spp., *Dothiorella* spp., *Drechslera* spp., *Echinodes* spp., *Elsinoe* spp., *Endocronartium* spp., *Epicoccum*
spp., *Erysiphe* spp., *Eutypella* spp., *Exobasidium* spp., *Exserohilum* spp., *Fabraea* spp., *Fulvia* spp.,
Fusicladium spp., *Fusicoccum* spp., *Fusarium* spp., *Ganoderma* spp., *Gibberella* spp., *Gliocladium* spp.,
Gloeodes spp., *Gloniopsis* spp., *Gloeosporium* spp., *Glomerella* spp., *Glomerularia* spp., *Golovinomyce*
spp., *Graphiola* spp., *Griphosphaerioma* spp., *Guignardia* spp., *Gymnosporangium* spp.,
Helminthosporium spp., *Hemileia* spp., *Hendersonia* spp., *Hendersonula* spp., *Hymenoscyphus* spp.,
Illosporium spp., *Inocybe* spp., *Isariopsis* spp., *Isthmiella* spp., *Kellermania* spp., *Lasiodiplodia* spp.,
Leptodothiorella spp., *Leptosphaeria* spp., *Leptothyrium* spp., *Linochora* spp., *Lirula* spp., *Itersonia*
spp., *Lophodermium* spp., *Macrophoma* spp., *Macrosporium* spp., *Malthomyces* spp., *Melampsora* spp.,
Melanconium spp., *Meliola* spp., *Microthyriella* spp., *Microsphaeropsis* spp., *Microsphaera* spp.,
Microsphaerella spp., *Monilinia* spp., *Monochaetia* spp., *Monodictys* spp., *Mycocentrospora* spp.,
Mycosphaerella spp., *Microsphaera* spp., *Mutinus* spp., *Myrothecium* spp., *Nectria* spp., *Neofabraea* spp.,
Nigrospora spp., *Nummularia* spp., *Ochropsora* spp., *Oidium* spp., *Opiodothella* spp., *Oxodeora* spp.,
Passalora spp., *Pellicularia* spp., *Periconia* spp., *Pestalotiopsis* spp., *Pestalozziella* spp., *Pezizella* spp.,
Phaeoseptoria spp., *Phaeosphaeria* spp., *Phomatospora* spp., *Physalospora* spp., *Phyllactinia* spp.,
Phyllachora spp., *Phyllosticta* spp., *Phyllactinia* spp., *Phyllosticta* spp., *Pseudocercospora* spp.,
Pestalotiopsis spp., *Pestalotia* spp., *Pezicula* spp., *Phaeochoraceae* spp., *Phaeocryptopus* spp.,
Phaeoramularia spp., *Phaeosphaeria* spp., *Phaeotrichoconis* spp., *Phyllosticta* spp., *Phloeospora* spp.,
Phlyctaena spp., *Phoma* spp., *Phomopsis* spp., *Phraeocryptopus* spp., *Phyllachora* spp., *Physopella* spp.,
Placoasterella spp., *Plasmopara* spp., *Placoasterella* spp., *Pleospora* spp., *Pleurocytospora* spp.,
Pleurophoma spp., *Podosphaera* spp., *Pleospora* spp., *Pleosporella* spp., *Pseudocercospora* spp.,
Pseudohalonectria spp., *Pseudospiropes* spp., *Puccinia* spp., *Pucciniastrum* spp., *Pyrenochaeta* spp.,
Pyriculariopsis spp., *Ramichloridium* spp., *Ramularia* spp., *Rhabdocline* spp., *Rhizoctonia* spp.,
Rhizosphaera spp., *Robillarda* spp., *Schizothyrium* spp., *Sclerotinia* spp., *Sclerostagonospora* spp.,
Sebacina spp., *Serenomyces* spp., *Septobasidium* spp., *Septoria* spp., *Sirococcus* spp., *Sphaceloma* spp.,
Sphaerognomonia spp., *Sphaerotheca* spp., *Sphenospora* spp., *Sphaerodopsis* spp., *Spilocaea* spp.,
Stagonospora spp., *Stemphylium* spp., *Stigmia* spp., *Taphrina* spp., *Thielaviopsis* spp., *Thyronectria* spp.,
Toxosporium spp., *Trichometasphaeria* spp., *Uncinula* spp., *Ulocladium* spp., *Uredo* spp., *Uredinopsis*
spp., *Ustilina* spp.,

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in “Table C Chemicals”. Follow the instructions for “light” or “heavy infection” listed below. Refer to “Table C Chemicals” for instructions on performing fungicide treatments and “Tables B1, B2, for treatment fungicides.

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Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 “Fungicide Group” (i.e., Group A+ Group B+ Group C) outlined in “Tables (B1, B2) Fungicides for T500 of Treatment Manual.” **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

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Rhododendron (*Rhododendron* spp.)

Pests: Ascomycetes, Basidiomycetes, Coelomycetes and Hyphomycetes: For Example: *Briosia* spp., *Botrytis* spp., *Cercospora* spp., *Chrysomyxa* spp., *Colletotrichum* spp., *Cylindrocladium* spp., *Erysiphe* spp., *Exobasidium* spp., *Glomerella* spp., *Oidium* spp., *Pestalotiopsis* spp., *Phyllactinia* spp., *Phyllosticta* spp., *Septoria* spp.

Treatment (# TBD): Determine the severity of the fungal infection according to the criteria outlined in “Table C Chemicals”. Follow the instructions for “light” or “heavy infection” listed below. Refer to “Table C Chemicals” for instructions on performing fungicide treatments and “Tables B1, B2, for treatment fungicides.

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Heavy infection: Refuse entry

Treatment¹: Use a three-way tank-mix and select fungicide active ingredients from Table B1 or B2 “Fungicide Group” (i.e., Group A+ Group B+ Group C) outlined in “Tables (B1, B2) Fungicides for T500 of Treatment Manual.” **For Example:** Group A (Chlorothalonil) + Group B (Tebuconazole) + Group C (Azoxystrobin). Please refer to the EPA label for information on the fungicide sensitivity of the

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propagative plant species to be treated. With knowledge of plant sensitivity to fungicides, the importer, applicator and PPQ representative may select one fungicide from each group A, B and C. The importer has final authority in selecting the fungicides on the list.

Apply fungicides at the highest rate on EPA label for the plant, application site and fungus on the label.
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