Revised March 2011

Fungicides for Common PA Diseases in Conifer Nurseries

Pennsylvania Department of Agriculture, Bureau of Plant Industry

ALWAYS READ THE PRODUCT LABEL. THE LABEL IS THE LAW. CONSULT THE LABEL TO TARGET THE MOST APPROPRIATE LIFE STAGE OF THE DISEASE. For all diseases, any recommendations for control are listed near the pest name. Any available PA Dept. of Agriculture Regulatory Horticulture pest circulars are listed near the pest name, in parentheses.
(**Active Ingredient =** Bio-rational Product)

	Active Ingredients
Botrytis Blight A gray, cottony growth starts on shaded, senescent needles and in leaf litter at the base of seedlings. It spreads from needles to shoots and then into stems. As the disease advances, infected shoots become waterlogged and brown lesions develop. Once inside the main stem of seedlings, it can canker and girdle, eventually killing that tree. ***Douglas-fir, Fir, & Spruce:*** *Keep seedlings as healthy as possible. Weak and frost-damaged trees are vulnerable to infection. Avoid overcrowding so good air circulation can be maintained. Avoid overhead watering or water early in the day so the foliage has adequate drying time. Remove dead plant material as soon as possible. Apply a listed fungicide when new shoots emerge. Make additional applications as necessary, especially in years with excessive rainfall.*	▪ Chlorothalonil ▪ Dicloran ▪ Ferbam ▪ Iprodione ▪ Iprodione + Thiophanate-methyl ▪ Pentachloronitrobenzene (PCNB) ▪ **Potassium Bicarbonate** ▪ Thiophanate-methyl ▪ Triflumizole
Cedar Apple Rust (*Gymnosporangium*) (#44) ***Juniper:*** *Damage increases if infected, broadleaf trees are nearby, so avoid planting these trees nearby. Galls form on twigs and branches, decreasing a plant's value. Twig dieback occurs if disease is severe. Disease is only noticeable in the spring when galls are making bright yellow-orange spore horns. Carefully inspect plants during dormancy. Prune and destroy any gall tissue before spore horn growth.*	▪ Copper Hydroxide + Mancozeb ▪ **Copper Salts of Fatty and Rosin Acids** ▪ Ferbam ▪ Mancozeb ▪ Mancozeb + Thiophanate-methyl ▪ Thiophanate-methyl ▪ Triadimefon ▪ Triflumizole
Needlecasts (*Cyclaneusma*, *Lophodermium*, *Phaeocryptopus*, *Ploioderma*, *Rhabdocline*, *Rhizosphaera*) (#3, 4, 8, 24, 58) Because many needlecasts are similar, obtain a laboratory diagnosis before implementing control measures. Contact your regional Plant Inspector or local extension agent for more information. Needlecast fungi need plentiful moisture for infection and development. With this in mind, be sure to adequately space trees at planting and maintain good air circulation, which is done through good weed control (lowers humidity and reduces needle wetness). Only irrigate when needles will be wet for the shortest amount of time. Only plant disease-free or disease-resistant plant stock. Do not shear trees when wet. Shear healthy trees first, so spores from infected trees cannot be carried to healthy trees, sterilizing pruning tools when done. After trees are harvested and if any stumps remain, prune any branches. Remove and properly destroy severely infected trees early in a rotation so they do not serve as a disease source. ***Scotch Pine, other Pines (Cyclaneusma minus):*** *Scotch Pines are typically infected from mid-April to late-June, but possible through December. Maintain proper nutrient and water levels to keep trees healthy and vigorous. Make a total of five fungicide applications throughout the growing season (late March, early May, mid-June, mid-August, and mid-October).* ***Pine (Lophodermium seditiosum):*** *This fungus produces significant browning of Scotch pine and kills Red pine seedlings. Apply a listed fungicide three times, starting in mid-July and continuing at three-week intervals. However, during a warm, early summer start spraying in mid-June.* ***Douglas-fir (Phaeocryptopus gäumannii):*** *Apply a listed fungicide in the spring when the new shoots are ½" – 2" long. Make a second application two to three weeks later. A third application can be made if rainfall has been unusually high. It may take two years of treatment for most trees to have full, green foliage. If trees are severely infected, it may take them more than three years to return to a sellable product.* ***Pine (Ploioderma lethale):*** *This disease affects (two- or three-needled) hard pines (especially Red). Early needle drop occurs in May or June. Black structures on the dead part of the needle open, via long slits, releasing spores in May through June. Apply a listed fungicide three times, at three week intervals, starting in late May.* ***Douglas-fir (Rhabdocline pseudotsugae; Rhabdocline weirii):*** *Apply a listed fungicide as first buds break, a second spray one week later, and a third spray two weeks after the third spray. A fourth spray may be required three weeks after the third spray if cool, wet weather persists OR if Swiss Needlecast is also present.*	▪ Azoxystrobin ▪ Basic Copper Sulfate ▪ Chlorothalonil ▪ Chlorothalonil + Thiophanate-methyl ▪ Copper Hydroxide ▪ Copper Hydroxide + Mancozeb ▪ **Copper Oxychloride + Copper Hydroxide** ▪ **Copper Salts of Fatty and Rosin Acids** ▪ Ferbam ▪ Mancozeb ▪ Mancozeb + Myclobutanil ▪ Thiophanate-methyl ▪ Triadimefon

	Active Ingredients
Needlecasts (continued) ***Spruce (Rhizosphaera kalkhoffii):*** *This fungus needs at least 48 hours in order to infect new needles under moist conditions, around 76°F (longer times for cooler and warmer weather, dense foliage). Apply a listed fungicide when new shoots are ½" to 1 ½" long. Make a second fungicide application three weeks later. A third application may be needed in mid-August to early September.*	
Needle Rust (*Coleosporium & Chrysomyxa*) (#69) ***Pine (Coleosporium):*** *Mow weed-alternate hosts.* ***Spruce (Chrysomyxa):*** *Rogue infected plant material when the tree is dormant, and during the summer and fall. Destroy infected trees. Apply a listed fungicide when 10% of the tree is at bud break, making a second application one week later, and a third application three weeks after the first application.*	▪ Chlorothalonil ▪ Myclobutanil
Pine-Pine Gall Rust (*Endocronartium*) (#7) ***Pine:*** *Inspect all plants for galls and prune as necessary. Rogue when tree is dormant. Destroy infected trees. Apply a listed fungicide at bud break, making a second application two weeks later. Prune infected plant material in the summer and fall.*	▪ Mancozeb
Red Band Needle Blight (*Dothistroma*) This fungus infects and kills needles. Severely infected trees may become more susceptible to other diseases or die. The spores of this fungus can be spread throughout the growing season by the wind and rain. New needles cannot be affected until they have come completely out of their sheaths. Fruiting bodies develop in the fall and spores are released the next spring and summer. ***Pine:*** *Only plant disease-free trees. Do not shear trees when wet or else spores will be released and spread to other trees on shearing tools. Apply a listed fungicide at bud break and continue throughout the summer.*	▪ Copper Hydroxide + Mancozeb ▪ **Copper Octanoate** ▪ **Copper Salts of Fatty and Rosin Acids** ▪ Copper Sulphate Pentahydrate ▪ Pentachloronitrobenzene (PCNB)
Root Rot (*Armillaria*) (#10) This fungus kills trees by girdling them at the root collar. A tree has an increased risk of infection if it is already stressed. The tree's needles will first yellow, then turn brown. Resin will appear on the bark at the root collar, where the stem and roots meet. Black fungal strands from infected stumps grow through the soil and infect nearby conifers. **Fir & Pine:** *Healthy, vigorous trees are more resistant than weak, diseased ones. Reduce a tree's stress by treating for other diseases, insects, and environmental stresses. Remove dead trees, as well as infected, large roots and stumps.*	▪ N/A
Seedling Blight (*Diplodia, Phomopsis*) Promote tree vigor by protecting from environmental stresses, insect attacks, and injuries. Do not use fertilizers containing high amounts of nitrogen on pines. Do not plant healthy, two- or three-needled pines near older, infected trees. Treat the entire crown of the tree (especially the lower branches) with a listed fungicide at bud break and again two weeks later. Sprays are not effective at any other time.	▪ Azoxystrobin ▪ Copper Hydroxide ▪ Copper Hydroxide + Mancozeb ▪ Mancozeb ▪ Mancozeb + Myclobutanil ▪ Propiconazole ▪ Thiophanate-methyl ▪ Thiophanate-methyl + Iprodione
Seedling Root Rot (*Phytophthora*) ***Douglas-fir, Pine, & Spruce:*** *Apply a listed fungicide (drench) to the infected tree at bud break, as well as during the summer and fall. Rogue in the fall.* ***Fir:*** *Pre-plant or fumigate using a listed fungicide during dormancy. Apply a listed fungicide (drench) at bud break, as well as during the summer and fall. Rogue in the fall.*	▪ ***Bacillus subtilis* QST 713 strain** ▪ Boscalid + Pyraclostrobin ▪ Chloropicrin + Iodomethane ▪ Dimethomorph ▪ Etridiazole ▪ Fluopicolide ▪ Fosetyl-Al ▪ Hydrogen Dioxide ▪ Hydrogen Peroxide + Peroxyacetic Acid + Octanoic Acid ▪ Iodomethane + Chloropicrin ▪ Mefenoxam ▪ Metalaxyl ▪ Mono- & di-potassium Salts of Phosphorous Acid ▪ Mono- and dibasic sodium, potassium, and ammonium phosphites ▪ Mono- and di-potassium Salts of Phosphorous Acid ▪ Potassium Dihydrogen Phosphate ▪ Potassium Phosphite ▪ Propamocarb ▪ Propiconazole ▪ Pyraclostrobin ▪ Thiophanate-methyl + Etridiazole

	Active Ingredients
Tip Blight (*Diplodia*) (#26) The fungus over winters in litter, cones, pine bark, or shoots, infecting new shoots in the spring. Fungal spores spread during wet weather from spring to fall. This fungus kills current-year shoots on trees and will usually kill nursery seedlings within their first year. Older trees will die if they are infected over multiple years. Girdling cankers form when this fungus infects wounds of branches and stems. Stressed trees are more likely to be infected. Wounding from hail, shearing, and insects allow the fungus to enter. ***Arborvitae & Pine:*** *Plant disease-free plants. Avoid shearing infected trees during wet weather. Prune infected plant material when the tree is dormant or in the fall. Control insects that can weaken the tree. Apply a listed fungicide at bud break.*	▪ Azoxystrobin ▪ Chlorothalonil + Propiconazole ▪ Cooper Hydroxide + Mancozeb ▪ **Copper Salts of Fatty and Rosin Acids** ▪ Copper Sulphate Pentahydrate ▪ Iprodione + Thiophanate-methyl ▪ Mancozeb ▪ **Potassium Bicarbonate** ▪ Propiconazole ▪ Thiophanate-methyl ▪ Thiophanate-methyl + Iprodione
Twig Blight (*Kabatina, Phomopsis*) (#35, 56) ***Arborvitae:*** *Prune and destroy infected plant material when the shrub is dormant. Using a listed fungicide, begin spraying at bud break and again during the fall. Mancozeb will protect foliage on plants with Kabatina. Thiophanate-methyl should be used when new growth is present on plants with Phomopsis.* ***Douglas-fir & Juniper:*** *Prune the tree or shrub when dormant. Apply a listed fungicide at bud break and continue throughout the summer.*	▪ Azoxystrobin ▪ Basic Copper Sulfate ▪ Copper Hydroxide ▪ Copper Hydroxide + Mancozeb ▪ **Copper Oxychloride + Copper Hydroxide** ▪ **Copper Salts of Fatty and Rosin Acids** ▪ Copper Sulphate Pentahydrate ▪ Iprodione + Thiophanate-methyl ▪ Mancozeb ▪ Mancozeb + Myclobutanil ▪ Mancozeb + Thiophanate-methyl ▪ Propiconazole ▪ Thiophanate-methyl ▪ Thiophanate-methyl + Iprodione
White Pine Blister Rust (*Cronartium*) (#42 & 71) This disease causes cankers and kills branches, eventually spreading to main stems where it will kill an entire tree. For a pine to become infected, it requires the alternate host (e.g. gooseberry or currant). Once the pine is infected, the disease will progress in the tree without the presence of an alternate host. The disease is the harshest in areas of abundant cool, wet weather from August to September. ***Pine:*** *Do not plant white pines near where alternate hosts are plentiful or at the base of a slope or in a dip. Alternate hosts should be sprayed with an herbicide or removed. Rogue when the tree is dormant. Prune infected plant material during the summer and fall. Remove and destroy all trees with trunk cankers.*	▪ N/A

Fungicide & Insecticide Information

DISCLAIMER

ALWAYS READ THE PESTICIDE LABEL TO DETERMINE SPECIFIC USES AND RATES BEFORE MIXING AND APPLYING THE COMPOUND. IF ANY QUESTIONS ARISE, CONTACT THE DEALER OR MANUFACTURER. IT IS ILLEGAL TO APPLY ANY PESTICIDE IN EXCESS OF LABELED RATES. LABELED USES MAY VARY FOR EACH FORMULATION OF THE SAME CHEMICAL. PURCHASE THE FORMULATION INTENDED FOR YOUR PARTICULAR USE.

Where trade names are used, no discrimination is intended and no endorsement by the Pennsylvania Department of Agriculture is implied. There has been no attempt to rank chemicals in order of effectiveness. Every effort has been made to provide correct and up-to-date control suggestions. However, pesticide labels change constantly and human errors are possible. Controls on this sheet supersede those given on sheets from previous years.

Document Key

Active Ingredient | Chemical Class | FRAC/IRAC # | Trade Names = Bio-rational Product

R = **RESTRICTED USE PESTICIDE**

FRAC & IRAC Codes

The Fungicide Resistance Action Committee (FRAC) is a group of elected members, who are senior technical employees of R & D departments of agrochemical manufacturers. Each elected member must be experienced and influential in company fungicide resistance issues. The purpose of the FRAC is to provide fungicide resistance management guidelines to prolong effectiveness of "at risk" fungicides and to limit crop losses should resistance occur. The FRAC code uses numbers and letters to distinguish the fungicide groups according to their cross resistance behavior. For more information, please visit http://www.frac.info/frac/index.htm.

The Insecticide Resistance Action Committee (IRAC) is a group whose members are companies manufacturing insecticides and acaricides and operating in areas of crop protection, plant biotechnology, and/or public health. The mission of IRAC is to (a) aid communication and education on insecticide and acaricide resistance and (b) promote the development of resistance management strategies in crop protection and vector control to maintain efficiency and support sustainable agriculture and improved public health. The IRAC has developed a mode of action classification based upon known ways in which different products act. For more information, please visit http://www.irac-online.org.

Classification of Pesticides Listed under Each Disease

Knowledge of pesticide classification has become increasingly important in pest management programs. Using different classes of pesticides slows the development of resistance in the targeted pest, thus extending the useful life of chemicals, a worthwhile goal for all growers. It is important to rotate classes or different types of chemicals, not just brand names.

Class of Chemicals and Active Ingredients

The following table is arranged by active ingredients and linked to their respective chemical class, FRAC/IRAC codes, and all trade names currently registered in Pennsylvania. **AS ALWAYS, READ AND FOLLOW ALL LABEL INSTRUCTIONS BEFORE USING ANY PESTICIDE PRODUCT. NEVER USE ANY PESTICIDE IN A MANNER INCONSISTENT WITH THE US EPA APPROVED LABELING!**

Active Ingredient	Chemical Class	FRAC/IRAC #	Trade Names
azoxystrobin	QoI Fungicides	11	Heritage, Quadris (Syngenta Crop Protection, Inc)
Bacillus subtilis QST 713 strain	Microbials	44	Cease (BioWorks, Inc)
basic copper sulfate	Inorganic	M1	Cuprofix Ultra 40 Disperss (United Phosphorus, Inc)
boscalid + pyraclostrobin	SDHI; QoI Fungicides	7; 11	Pageant (BASF Corporation)
chloropicrin + iodomethane	Chloropicrin; Alkyl Halides	8B; 8A	RMidas 33:67 (Arysta LifeScience North America, LLC)

Active Ingredient	Chemical Class	FRAC/IRAC #	Trade Names
chlorothalonil	Chloronitriles	M5	Chlorothalonil 720, Chlorothalonil 720 SC, Chlorothalonil 82.5 WDG (Arysta LifeScience North America, LLC); Manicure 6FL, Manicure Ultra (LESCO, Inc); Ensign 720 Flowable, Ensign 82.5% T&O, Ensign 90DF, Initiate 720, Initiate DF, Initiate ZN (Loveland Products, Inc); Equus 500 ZN, Equus 720 SST, Equus DF, Quali-Pro Chlorothalonil 500 ZN, Quali-Pro Chlorothalonil 720 SFT, Quali-Pro Chlorothalonil DF (Makhteshim Agan of North America, Inc); Pegasus 6L, Pegasus DF, Pegasus DFX, Pegasus HPX (Phoenix Environmental Care, LLC); Mainsail 6.0 F, Mainsail WDG (PROKoZ, Inc); Echo 720 Ag, Echo 720 T&O, Echo 90DF, Echo Ultimate T&O, Echo Zn Ag (Sipcam Agro USA, Inc); Bravo Ultrex, Bravo Weather Stik, Chloronil 720, Countdown L&G, Daconil Ultrex, Daconil Zn, Docket DF (Syngenta Crop Protection, Inc); ArmorTech CLT 720 FL, ArmorTech CLT 825 DF (United Turf Alliance); Thalonil 6L, Thalonil 90DF (Winfield Solutions, LLC)
chlorothalonil + propiconazole	Chloronitriles; DMI Fungicides	M5; 3	Concert, Concert II (Syngenta Crop Protection, Inc)
chlorothalonil + thiophanate-methyl	Chloronitriles; MBC Fungicides	M5: 1	Spectro 90WDG (Cleary Chemical Corporation)
copper hydroxide	Inorganic	M1	KOP-Hydroxide 50W (Drexel Chemical Company); Kocide 3000 (E.I. du Pont de Nemours & Company); Kentan DF (Isagro USA, Inc); Champ Dry Prill, Champ Formula 2 Flowable, Champ WG (Nufarm Americas Inc); CuPRO 2005 T/N/O (SePRO Corporation)
copper hydroxide + mancozeb	Inorganic; Dithiocarbamates & Relatives	M1; M3	Junction (SePRO Corporation)
copper octanoate	Inorganic	M1	Cueva (Certis USA, LLC)
copper oxychloride + copper hydroxide	Inorganic	M1	Badge SC, Badge X2 (Isagro USA, Inc)
copper salts of fatty & rosin acids	Inorganic	M1	Camelot (SePRO Corporation)
copper sulphate pentahydrate	Inorganic	M1	Phyton-27, Phyton-27 New Dimension (Phyton Corporation)
dicloran	AH Fungicides	14	Botran 75-W (Gowan Company)
dimethomorph	CAA Fungicides	40	Stature SC (BASF Corporation)
etridiazole	Heteroaromatics	14	Terrazole 35WP (Chemtura Corporation); Terrazole L (OHP, Inc)
ferbam	Dithiocarbamates & Relatives	M3	Ferbam Granuflo (Taminco, Inc)
fluopicolide	Benzamides	43	Adorn (Valent USA Corporation)
fosetyl-Al	Phosphonates	33	Aliette WDG (Bayer Environmental Science); Quali-Pro Fosetyl-Al 80 WDG (Makhteshim Agan of North America, Inc); Flanker WDG (Tessenderlo Kerley, Inc)
hydrogen dioxide			ZeroTol (BioSafe Systems, LLC)
hydrogen peroxide + peroxyacetic acid + octanoic acid			Xeroton-3 (Phyton Corporation)
iodomethane + chloropicrin	Alkyl Halides; Chloropicrin	8A; 8B	[R]Midas 50:50, [R]Midas 98:2 (Arysta LifeScience North America, LLC)

Active Ingredient	Chemical Class	FRAC/IRAC #	Trade Names
iprodione	Dicarboximides	2	26GT, Chipco 26019, Chipco 26019 Flo, Chipco 26019 N/G, Iprodione Pro 2SE (Bayer Environmental Science); Quali-Pro Ipro 2SE (Makhteshim Agan of North America, Inc); ArmorTech IP 233 (Nufarm Americas Inc); OHP 26 GT-O, OHP Chipco 26019 N/G (OHP, Inc); Raven (Phoenix Environmental Care, LLC)
iprodione + thiophanate-methyl	Dicarboximides; MBC Fungicides	2; 1	26/36 (Cleary Chemical Corporation); TM + IP SPC (Nufarm Americas Inc); Dovetail (Phoenix Environmental Care, LLC); Penncozeb 4FL, Penncozeb 4FL T&O, Penncozeb 75DF, Penncozeb 75DF T&O, Penncozeb 80WP; ArmorTech TMI 2020 (United Turf Alliance)
mancozeb	Dithiocarbamates & Relatives	M3	Dithane 75DF, Dithane DF, Dithane F-45, Dithane M45, Fore 80WP Rainshield (Dow AgroSciences LLC); 4 Flowable Mancozeb, Mancozeb DG, Manicure 6FL, Manicure Ultra (LESCO, Inc); Wingman (Phoenix Environmental Care, LLC); Pentathlon DF (SePRO Corporation); Penncozeb 4FL, Penncozeb 4FL T&O, Penncozeb 75DF, Penncozeb 75DF T&O, Penncozeb 80WP (United Phosphorus, Inc)
mancozeb + myclobutanil	Dithiocarbamates & Relatives; DMI Fungicides	M3; 3	Clevis (PROKoZ, Inc)
mancozeb + thiophanate-methyl	Dithiocarbamates & Relatives; MBC Fungicides	M3; 1	Zyban WSB (Scotts-Sierra Crop Protection Company)
mefenoxam	PA Fungicides	4	Ultra Flourish (Nufarm Americas Inc); Subdue GR, Subdue MAXX, Subdue WSP (Syngenta Crop Protection, Inc)
metalaxyl	PA Fungicides	4	Vireo MEC (Phoenix Environmental Care, LLC)
mono- & di-potassium salts of phosphorous acid	Phosphonates	33	Alude (Cleary Chemical Corporation); Quanta (Helena Chemical Company); Fosphite (JH Biotech, Inc); Rampart, Rampart T&O (Loveland Products, Inc); K-PHITE 7LP T/O (Plant Food Systems Inc); Agri-Fos (Quest Products Corporation)
mono- and dibasic sodium, potassium, and ammonium phosphites	Phosphonates	33	Magellan, Phostrol (Nufarm Americas Inc)
myclobutanil	DMI Fungicides	3	Quali-Pro Myclobutanil 20 EW T&O (Makhteshim Agan of North America, Inc); Myclotect (Rainbow Treecare Scientific Advancements)
pentachloronitrobenzene (PCNB)	AH Fungicides	14	PCNB 75% Wettable Powder, Terraclor 400, Terraclor 75% WP (AMVAC Chemical Corporation)
potassium bicarbonate	Diverse	NC	MilStop (BioWorks, Inc); GreenCure (H & I Agritech, Inc); Eco-Mate Armicarb O (Helena Chemical Company)
potassium dihydrogen phosphate	Phosphonates	33	Nutrol (LidoChem, Inc)
potassium phosphite	Phosphonates	33	Helena Prophyt (Helena Chemical Company); ProPhyt, Vital (Luxembourg-Pamol, Inc); Vital (Phoenix Environmental Care, LLC)
propamocarb	Carbamates	28	Banol (Bayer Environmental Science)

Active Ingredient	Chemical Class	FRAC/IRAC #	Trade Names
propiconazole	DMI Fungicides	3	AmTide Propiconazole 41.8% EC (AmTide, LLC); Spectator T&O (LESCO, Inc); Fitness, ProCon-Z (Loveland Products, Inc); Quali-Pro Propiconazole 14.3 (Makhteshim Agan of North America, Inc); Propiconazole SPC 14.3 MEC (Nufarm Americas Inc); Kestrel, Kestrel MEX (Phoenix Environmental Care, LLC); ProPensity 1.3ME (Sipcam Agro USA, Inc); Banner MAXX, Banner MAXX II (Syngenta Crop Protection, Inc); ArmorTech PPZ 143 MC (United Turf Alliance)
pyraclostrobin	QoI Fungicides	11	Insignia, Insignia SC (BASF Corporation)
thiophanate-methyl	MBC Fungicides	1	T-Methyl 70W WSB (Arysta LifeScience North America, LLC); Quali-Pro TM 85 WDG, Thiophanate Methyl 85 WDG (Makhteshim Agan of North America, Inc); ArmorTech TM 462, T-Methyl 4.5 F, T-Methyl 70 WSB, T-Methyl SPC 4.5 F, T-Methyl SPC 50 WSB, T-Methyl SPC Granular (Nufarm Americas Inc); OHP 6672 4.5 F, OHP 6672 50 WP (OHP, Inc); T-Bird 4.5L, T-Bird 85 WDG (Phoenix Environmental Care, LLC); AllBan 50 WSB, AllBan Flo (Scotts-Sierra Crop Protection Company); Tee-Off 4.5F (Sipcam Agro USA, Inc); Topsin 4.5FL, Topsin M 70 WDG, Topsin M 70WP, Topsin M WSB (United Phosphorus, Inc)
thiophanate-methyl + etridiazole	MBC Fungicides; AH Fungicides	1; 14	Banrot 40 WP, Banrot 8G (Scotts-Sierra Crop Protection Company)
thiophanate-methyl + iprodione	MBC Fungicides; Dicarboximides	1; 2	TM+IP SPC (Nufarm Americas Inc); Dovetail (Phoenix Environmental Care, LLC); ArmorTech TMI 2020 (United Turf Alliance)
triadimefon	DMI Fungicides	3	Bayleton 50 T&O, Bayleton Flo (Bayer Environmental Science); Strike 50 WDG (OHP, Inc)
triflumizole	DMI Fungicides	3	Terraguard 50W, Terraguard SC (OHP, Inc)