

DISEASE CONTROL

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Diseases are primary limiting factors to the successful culture of cool and warm season turfgrasses in South Carolina. The wide range of microclimates in the state allow culture of a wide variety of turfgrasses, but frequently the humid conditions and temperature extremes promote many diseases. Fortunately, grasses receiving proper cultural practices including proper irrigation, mowing, and fertilizing are less likely to develop diseases and are not as likely to be seriously damaged if a disease occurs. By enhancing plant vigor, diseases will be minimized and the need for the use of costly fungicides will be reduced. If used, alternate between classes of fungicides to prevent development of fungicide-resistant pathogens. NOTE: Products containing chlorothalonil, iprodione and vinclozolin are not labeled for use on home lawns and products containing thiophanate methyl are limited in their use on home lawns.

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
Algae (various species; primarily blue-green algae or cyanobacteria) All grasses Most prevalent on putting greens & other turf mowed excessively low.	Turf areas in partially shaded, damp locations become weak and begin to thin. Traffic and close-mowing enhance potential for algae development. Long-term overcast, rainy weather periods encourage algae on putting greens. These algae are commonly green or brown in color and can be sheet-like, leaf-like, or cushion-like in appearance. Due to their high water content, algae are often quite slippery. Algae growth may become so prolific that they cover turf plants and inhibit water penetration. Improve air circulation and light exposure. Improve drainage and reduce irrigation frequency and amount. Reduce freely available nitrogen at site. On putting greens, verticut lightly, aerify, and/or topdress to disrupt and dry algal mats. Best curative results are with 5 gal water per 1,000 sq.ft. applied for 3 consecutive weeks when air temps. are at least 85 F.	Daconil Action	chlorothalonil + acylbenzolar-S-methyl 6.112 F	2-5.4	7-14
		Daconil Weather Stik	chlorothalonil 6F	2-3.6	7-14 preventive
				4-5.5	14 curative
		Daconil Zn	chlorothalonil 4.16 F	3-6	7-14 preventive
				6-11	7-14 curative
		Daconil Ultrex, Chlorothalonil DF	chlorothalonil 82.5% WDG, DF	1.8-3.2 3.6-5	7-14 preventive 14 curative
		Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	10-14
		Spectro 90	chlorothalonil + thiophanate methyl 90WDG	2-5.76	7-14
		Disarm C	chlorothalonil + fluoxastrobin 4.25 SC	3-5.4	7-14
		Reserve	chlorothalonil + triticonazole 4.8SC	3.2-5.4	14-28
		Secure	fluazinam 4.17 SC	0.5	14
		Xzemplar	fluxapyroxad 2.47SC	0.21-0.26	14-28
		Fore, Dithane, Pentathlon, others	mancozeb 80WP	6.0	7-14
		Protect DF, others	mancozeb 75DF	6.0	7
		Fore F, others	mancozeb 4LF	9.6	7-14
Junction	mancozeb + copper hydroxide 60DF	4-8	7-14		
Kocide	copper hydroxide 53.8%	16 oz in 5 gal water	variable		
Maneb plus Zinc	maneb (37%)+ zinc F	9.6	7-14		
<p><i>note:</i> chlorothalonil formulations have maximum use rates in effect that depends on site - see current labels for details. <i>note:</i> Fore mancozeb formulations now have restrictions on use rates and maximum seasonal rates – see current label for details. <i>note:</i> fungicides are most effective when used preventative. Fungicides containing copper hydroxide may be phytotoxic; read label carefully and use precautions.</p>					
Anthraxnose leaf blight and Anthracnose basal	The causal fungus can infect leaves, sheaths, and tillers. In creeping bentgrass and <i>Poa annua</i> ,	Heritage	azoxystrobin 50WDG	0.2-0.4	14-28
		Heritage TL	azoxystrobin 0.8TL	1-2	14-28
		Heritage G	azoxystrobin 0.31G	2-4 lb	14-28

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
rot <i>(Colletotrichum cereale)</i> Anthracnose leaf blight and Anthracnose basal rot <i>(Colletotrichum cereale)</i> Creeping bentgrass and Annual Bluegrass primarily	<p>stolons and crowns also may be rotted (anthracnose basal rot). Leaf infection appears as reddish-brown to brown lesions that are often surrounded by a yellow halo.</p> <p>Lesion size may span the blade width and often one lesion will cause complete yellowing of a blade. Tiller infection results in stem girdling and the subsequent appearance of small, yellow patches of turf. The causal fungus can sometimes be observed with a hand lens. It will appear as dark, cushion-like reproductive structures (acervuli) with black spines (setae) extending from the margin of the cushion. Plants with anthracnose basal rot may have deep-seated infections that are not readily diagnosed with only a hand lens.</p> <p>Avoid stressed turf caused by consistent low mowing and rolling of greens, other pests, fertility imbalances, or moisture extremes. Thatch removal will be helpful. In bentgrass greens, manage localized dry spots to prevent anthracnose basal rot from developing.</p>	Briskway	azoxystrobin + difenoconazole 1.67 SC	0.3-0.725	14
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3.0	14-28
		Headway G	azoxystrobin + propiconazole 1.06G	2-2.5 lb	14
		Daconil Action	chlorothalonil + acylbenzolar-S-methyl 6.112 F	3-5.4	7-14
		Daconil Zn	chlorothalonil 4.16F	4.3-5.1	7-14 pre-disease
				>5.1-7.9	14 post-disease
		Daconil WeatherStik, Chlorothalonil 720 SFT, others	chlorothalonil 6 F	3-3.6	7-14 pre-disease
				>3.6-5.5	14 pre-disease
		Daconil Ultrex, Chlorothalonil DF	chlorothalonil 82.5% WDG, DF	2.7-3.2	7-14 pre-disease
				>3.2-5	14 post-disease
		Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	7-21
		Disarm C	chlorothalonil + fluoxastrobin 4.25SC	3-6	14-28
			chlorothalonil + potassium phosphite 5.27 SC	8	14
		Headway	chlorothalonil + propiconazole 4.3 SC	4.5-8.5	14
		Instrata	chlorothalonil + propiconazole + fludioxonil 3.6 SC	2.75-6	14-28
		Enclave	chlorothalonil + iprodione + thiophanate methyl + tebuconazole 5.3 SC	3-6	14-21
		Consys	chlorothalonil + thiophanate methyl 67WDG	2-8	7-14
		Spectro 90	chlorothalonil + thiophanate methyl 90WDG	3.72-5.76	7-14
		Rubigan AS	fenarimol AS	1.75-3.5	30
		Secure	fluazinam 4.17 SC	0.5	14
		Medallion	fludioxonil 50WP	0.25-0.5	14
		Medallion	fludioxonil 1.04 SC	1-2	14
		Disarm	fluoxastrobin 4SC	0.18-0.36	14-28
		Disarm G	fluoxastrobin 0.25G	2.3-4.6 lb	14-28
		Systar	flutolanil + thiophanate methyl 80WDG	2-3	14-30
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28
		26/36	iprodione + thiophanate methyl 3.8F	2-4	14-21
		Interface	iprodione + trifloxystrobin 2.27 SC	5-7	14-21
		Duosan	mancozeb + thiophanate methyl	3	5-14
		Tourney	metconazole 50WDG	0.28-0.37	14-21
		Eagle	myclobutanil 20 EW	1.2	14-21
		Affirm	polyoxin 11.3% WDG	0.88	7-14
		Endorse	polyoxin 2.5WP	4	7-14
Banner Maxx, Propiconazole 14.3, others	propiconazole 1.3 ME	1-2	14-28		
Insignia	pyraclostrobin 20 WDG	0.5-0.9	14-28		

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)		
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28		
		Honor Intrinsic	pyraclostrobin + boscalid 28G	0.55-1.11	14-28		
		Pillar G	pyraclostrobin + triticonazole 0.81 G	3.0 lb	14-28		
		3336	thiophanate methyl 50WSB	1-2	10-14		
		3336F	thiophanate methyl 46%F	1-2	10-14		
		3336	thiophanate-methyl 41%F	2-8 fl	7-14		
		3336	thiophanate methyl 50WP	2-8	7-14		
		Bayleton	triadimefon 50 WSP, 41.7 Flo	1.0	30		
		Compass	trifloxystrobin 50WDG	0.15-0.25	14-21		
		Armada	trifloxystrobin + triadimefon 50WP	0.6-1.2	14-28		
		Tartan	trifloxystrobin + triadimefon 2SC	1-2	14-28		
		Trinity	triticonazole 1.7SC	0.5-1	14-28		
		Triton	triticonazole 70WDG	0.15-0.225	14-28		
		Triton Flo	triticonazole 3F	0.41-1.1	14-28		
Brown Ring Patch (<i>Rhizoctonia circinata</i> var. <i>circinata</i>)	Affecting <i>Poa annua</i> or <i>Poa trivialis</i> overseedings during late spring/ early fall mild weather conditions. Symptoms resemble Yellow Patch, but the causal agent is more closely related to <i>R. zea</i> and <i>R. oryzae</i> than to <i>R. cerealis</i> . Yellow patches or rings of affected turf occur and may be somewhat depressed at the margins. Infections occur on leaf sheaths in the crown region, with no leaf lesions.	Heritage	azoxystrobin 50% WG	0.2-0.4	14-28		
		Heritage TL	azoxystrobin 0.8TL	1-2	14-28		
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.3-0.725	14-28		
		Heritage G	azoxystrobin 0.31 G	2-4 lb	14-28		
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3.0	14-28		
		Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	14-21		
		Reserve	chlorothalonil + triticonazole 4.8SC	3.2-5.4	14-28		
		Secure	fluzazinam 4.17 SC	0.5	14		
		Medallion	fludioxonil 50% WP	0.25-0.5	7-14		
		Medallion	fludioxonil 1.04 SC	1-2	14		
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28		
		Tourney	metconazole 50WDG	0.37	14-21		
		Affirm	polyoxin 11.3% WDG	0.88 oz	7-14		
		Endorse	polyoxin 2.5WP	4	7-14		
				Insignia Intrinsic	pyraclostrobin 2.08SC	0.4-0.7	14-28
				Honor Intrinsic	pyraclostrobin + boscalid 28WDG	1.11	14-28
				Pillar G	pyraclostrobin + triticonazole 0.81 G	3.0 lb	28
				Torque	tebuconazole 3.6F	0.6	28
				Trinity	triticonazole 1.7SC	1-2	14-28
				Triton Flo	triticonazole 3F	0.5-1.1	14-28
Brown Patch, Rhizoctonia Blight (<i>Rhizoctonia solani</i>) bluegrass creeping bentgrass fescues ryegrass	Grass is killed in circular to irregular areas that may expand to several feet in diameter. In close-cut cool season grasses, a darkened "smoke ring" border may be apparent. Brown patch in cool season grasses occurs during humid weather at >75°F. High N,	Heritage	azoxystrobin 50% WG	0.2-0.4	14-28		
		Heritage TL	azoxystrobin 0.8 TL	1-2	14-28		
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.3-0.725	14-28		
		Heritage G	azoxystrobin 0.31G	2-4 lb	14-28		
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3.0	14-28		
		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-28		
		Terraneb 65WP	chloroneb 65WP	3-4	7-10		

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
Brown Patch, Rhizoctonia Blight (<i>Rhizoctonia solani</i>)	thatch buildup, and excessive moisture favor disease.	Terraneb SP	chloroneb 2.9F	5-7	7-10
		Daconil Action	chlorothalonil + acylbenzolar-S-methyl 6.112 F	2-5.4	7-14
	Maintain adequate fertility. Avoid excess fast-release nitrogen. Irrigate deeply. Reduce thatch	Daconil Weather Stik, Chlorothalonil 720 SFT, others	chlorothalonil 6F	2-3.6	7-14 pre-disease
		Daconil Zn, Chlorothalonil 500 Zn, others	chlorothalonil 4.17F	4-5.5	14 post-disease
	<i>note:</i> chlorothalonil formulations have new maximum use rates that depend on site - see new labels for details	Daconil Ultrex, Chlorothalonil DF	chlorothalonil 82.5% WG,DF	2.9-5.1	7-14 pre-disease
		Renown	chlorothalonil + azoxystrobin 5.16SC	5.8-7.9	14 post-disease
	<i>note:</i> Fungicides containing copper hydroxide may be phytotoxic; read label carefully & use precautions.	Disarm C	chlorothalonil + fenarimol F	1.8-3.2	7-14 pre-disease
		Vitalonil	chlorothalonil + potassium phosphite 5.27SC	3.6-5	14 post-disease
		Concert	chlorothalonil + propiconazole 4.3SC	2.5-4.5	14-21
		Consyst	chlorothalonil + thiophanate methyl 67WDG	3-6	7-10
		Spectro 90	chlorothalonil + thiophanate methyl 90WDG	1.5-5.9	14-28
		Reserve	chlorothalonil + triticonazole 4.8SC	5.75-8	7-14
		Enclave	chlorothalonil + iprodione + thiophanate methyl + tebuconazole 5.3 SC	3-8.5	7-28
		Rubigan AS	fenarimol 11.6% AS	2-8	7-14
		Secure	fluazinam 4.17 SC	3.72-5.76	7-14
		Medallion	fludioxonil 50% WP	3.2-5.4	21-28
		Medallion	fludioxonil 1.04 SC	3-6	14-21
		Disarm	fluoxastrobin 4SC	1.5	7-14
		Disarm G	fluoxastrobin 0.25G	0.5	14
		Prostar	flutolanil 70% WP, WDG	0.25-0.5	7-14
		Systar	flutolanil + thiophanate methyl	1-2	14
		Xzemplar	fluxapyroxad 2.47 SC	0.09-0.36	14-28
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	1.2-4.6lb	14-28
		Chipco 26019	iprodione 50% WP	1.5-3	14-21
		Chipco 26GT, Iprodione Pro, others	iprodione 2SC	2-3	14-21
		26/36	iprodione + thiophanate methyl 3.8F	0.21-0.28	14-21
		Interface	iprodione + trifloxystrobin 2.27 SC	0.34-0.47	14-28
		Fore, Dithane, Pentathlon, others	mancozeb 80% WP	1.5-2	14-28
		Protect DF, others	mancozeb 75% DF	3-4	14-28
		Junction	mancozeb + copper hydroxide 60DF	2-4	14-21
		Maneb plus Zinc	maneb (37%)+ zinc F	2-6	14-28
		Tourney	metconazole 50WDG	4	7-14
	Eagle, Myclobutanil 20EW	myclobutanil 20 EW	4	7-14	
	Affirm	polyoxin 11.3% WDG	2-4	7	
	Endorse	polyoxin 2.5WP	4.8	7-14	
	Banner Maxx, Propiconazole 14.3, others	propiconazole 1.3ME	0.28-0.37	14-21	

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
		Insignia	pyraclostrobin 20 WDG	0.5-0.9	14-28
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28G	0.55-1.1	14-28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14-28
		Torque	tebuconazole 3.6F	0.6	28
		3336	thiophanate methyl 50WSB	2	5-14
		3336F	thiophanate methyl 46%F	1-2	5-14
		3336	thiophanate methyl 50%WP	2-4	7-14
		3336F	thiophanate methyl 41%F	2-4	7-14
		Spotrete	thiram 4F	3.75-7.5	3-10
		Bayleton	triadimefon 50%WSP, 4.15F	0.5-1.0	15-30
		Compass	trifloxystrobin 50%WDG	0.1-0.25	14-21
		Tartan	trifloxystrobin + triadimefon 2SC	1-2	14-28
		Armada	trifloxystrobin + triadimefon 50WP	0.6-1.2	14-28
		Triton	triticonazole 70WDG	0.15-0.3	14-28
		Triton Flo	triticonazole 3F	0.41-1.1	14-28
		Trinity	triticonazole 1.7SC	0.75-2.0	14-28
		Curalan	vinclozolin 50 WG or DF	1.0	14-28
<i>note:</i> Fore mancozeb formulations now have restrictions on use rates and maximum seasonal rates – see current label for details.					
Cercospora Leaf Spot (<i>Cercospora fusimaculans</i>)	Brown to purple leaf spots in patches 2-3" in diameter. In high disease severity, entire leaves will yellow, wither and die. Warm, humid weather favors disease incidence. Confused with gray leaf spot. N may reduce disease. Water deeply only when needed in mornings. 'Bitter-blue' selections are more resistant.		None available. Fungicides used to control other leaf spot diseases will provide suppression.		
St. Augustinegrass					
Copper Spot (<i>Gloeocercospora sorghi</i>) Creeping bentgrass	Small bronze patches about the size of dollar spot occur in humid but mild temperatures. A minor disease in SC, nevertheless it does occasionally occur. Manage moisture so that leaf wetness periods are limited. Limit soluble N fertilization.	Daconil Ultrex	chlorothalonil 82.5 WDG	3.2	7-10
		Daconil Action	chlorothalonil + acylbenzolar-s-methyl 6.112 F	4-5.4	14
		Chlorothalonil DF	chlorothalonil 82.5 DF	3.2	7-10
		Daconil WeatherStik, Chlorothalonil 720 SFT, others	chlorothalonil 6F	3.7-5	14
		Daconil Zn, Chlorothalonil 500 Zn, others	chlorothalonil + Zn 4.16F	4-5.5;6-8	14
		Renown	chlorothalonil + azoxystrobin 5.16SC	5.9	7-14
		Disarm C	chlorothalonil + fluoxastrobin 4.25SC	2.5	14
		Concert	chlorothalonil + propiconazole 4.3SC	5.5-8.5	14
		Consys	chlorothalonil + thiophanate methyl 67WDG	3-8	14
		Spectro 90	chlorothalonil + thiophanate methyl 90WDG	3-5.76	7-14
		Rubigan AS	fenarimol 1AS	0.75-1.5	14
		Systar	flutolanil + thiophanate methyl 80WDG	2-3	10-28
		26/36	iprodione + thiophanate methyl 3.8F	2-4	14-21

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
		Protect DF	mancozeb 75DF	4-8	14-21
		Fore, Dithane, others	mancozeb 80WP	4-8	10
		Fore F, others	mancozeb 4LF	7-10	7-14
		Junction	mancozeb + copper hydroxide 60DF	2-4	7-14
		Tourney	metconazole 50WDG	0.28-0.37	7-14
		Eagle	myclobutanil 20EW	1.2	14-21
		Torque	tebuconazole 3.6F	0.6	28
		3336, TM 4.5F, others	thiophanate methyl 50WP, 4F, 4.5F	2-4	14
		3336 plus	thiophanate methyl 2F	2-4	14
		TM 85WDG	thiophanate methyl 85WDG	0.67-1.3	14
		3336G	thiophanate methyl 2G	1.5-6 lb	14
		Spotrete	thiram 4F	3.75-7.5	14
		Bayleton	triadimefon 50WSP, 4.15 F	0.5-1	3-10
<i>note:</i> Fore mancozeb formulations now have restrictions on use rates and maximum seasonal rates – see current label for details.					
Curvularia Blight (<i>Curvularia</i> spp.)	Usually associated with stressed plants from heat, excess moisture, drought, compaction, or other causes. Alleviate stress conditions that may occur.	3336F	thiophanate methyl 41%F	4-8	7-14
		3336 WP	thiophanate methyl 50WP	4-8	7-14
Bermudagrass		26/36	iprodione + trifloxystrobin 2.27 SC	5-7	14
Dead Spot (<i>Ophiosphaerella agrostis</i>) Creeping bentgrass, rarely <i>Poa trivialis</i> and bermudagrass greens	Small red or bronze spots develop during late spring or early fall that resemble ball marks. Spots die in the center and become tan, with black pepper-like pseudothecia fruiting bodies developing. May be mistaken for dollar spot initially. Generally a problem on young stands of bentgrass (1-4 yrs age). Fertilize with ammonium sulfate to suppress the disease.	Headway	azoxystrobin + propiconazole 1.4ME	1.5-3	14
		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-28
		Emerald	boscalid 70WG	0.13-0.18	14-28
		Spectro 90	chlorothalonil + thiophanate methyl 90WDG	3.72-5.76	7-14
		Medallion	fludioxonil 50% WP	0.3-0.5	14
		Medallion	fludioxonil 1.04 SC	1.15-2	14
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28
		Insignia	pyraclostrobin 20 WDG	0.5-0.9	14-28
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28WG	0.55-1.1	14-28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14-28
		3336 F, 3336 plus	thiophanate methyl 4F, 2F	4-6	14
		3336	thiophanate methyl 50WP	4-6	14
		3336G	thiophanate methyl 2G	6-9 lb	14
Dollar Spot (<i>Sclerotinia homoeocarpa</i>) bahagrass bermudagrass centipedegrass creeping bentgrass ryegrass rough bluegrass	On fine textured grasses, spots appear 1-2" in diameter. On tall or coarse grasses, patches may reach 5 or more inches in diameter. Often, straw-colored lesions move in from leaf margins or occur as distinct bands across the leaf. Most active during 60-80°F in spring and fall. Moisture from fog, dew, or irrigation initiates disease.	Headway	azoxystrobin (5.73%) + propiconazole 1.4ME	0.75-3.0	7-28
		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-28
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.3-0.725	14-21
		Emerald	boscalid 70WDG	0.13-0.18	14-28
		Daconil Action	chlorothalonil + acylbenzolar-s-methyl 6.112F	1-5.4	7-14
		Daconil WeatherStik, Chlorothalonil 720 SFT, others	chlorothalonil 6F	1-2	7-10 pre-disease
				2-3.6	7-21 pre-disease
				4-5.5	14 post-disease

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
St. Augustinegrass tall fescue zoysiagrasses	Low soil moisture, thatch, low N and K favor disease. Avoid N deficiency. Reduce leaf wetness periods by altering irrigation timing. Avoid thatch buildup. Wipe heavy dew off in mornings. <i>note:</i> chlorothalonil formulations have maximum use rates in effect that depends on site . <i>note:</i> Fungicides containing copper hydroxide may be phytotoxic; read label carefully and use precautions.	Daconil Zn, Chlorothalonil 500 Zn, others	chlorothalonil 4.16F	1.4-2.9	7-10 pre-disease
				2.9-5.1	7-21 pre-disease
				5.8-7.9	14 post-disease
		Chlorothalonil DF	chlorothalonil 82.5% DF	0.9-1.8	7-10 pre-disease
				1.8-3.2	7-21 pre-disease
				3.6-5	14 post-disease
		Daconil Ultrex	chlorothalonil 82.5 WDG	1.8-3.2	7-10
		Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	7-14
		Disarm C	chlorothalonil + fluoxastrobin 4.25SC	3-5.9	14-21
		Vitalonil	chlorothalonil + potassium phosphite 5.27 SC	2.8-5.75	7-10
		Concert	chlorothalonil + propiconazole 4.3SC	1.5-3	7-10 pre-disease
				3-5.5	14-21 pre-disease
				5.5-8.5	14-28 post-disease
		Consyst	chlorothalonil + thiophanate methyl 67WDG	2-8	7-21
		Spectro 90	chlorothalonil + thiophanate methyl 90WDG	2-5.76	7-21
		Reserve	chlorothalonil + triticonazole 4.8SC	3.2-4.5	14-28
		Enclave	chlorothalonil + iprodione + thiophanate methyl +tebuconazole 5.3 SC	3-8	14-28
		Rubigan AS	fenarimol 1AS	0.75-1.5	10-28
		Secure	fluazinam 4.17 SC	0.5	14
		DisArm	fluoxastrobin 4SC	0.18-0.36	14-21
		Disarm G	fluoxastrobin 0.25G	2.3-4.6 lb	14-21
		Systar	flutolanil + thiophanate methyl 80WDG	2-3	14-30
		Xzemplar	fluxapyroxad 2.47 SC	0.16-0.26	14-28
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28
		Chipco 26GT, Iprodione Pro, others	iprodione 2F, 2SC	2-4	14-28
		26/36	iprodione + thiophanate methyl 3.8F	1-4	14-21
		Interface	iprodione + trifloxystrobin 2.27 SC	2-6	14-28
		Protect DF	mancozeb 75DF	6-8	7-14
		Fore, Dithane, Pentathlon, others	mancozeb 80WP	6-8	7-14
		Fore Flo	mancozeb 4LF	10-14	7-14
		Junction	mancozeb + copper hydroxide 60DF	2-4	7-14
		Maneb plus Zinc	maneb (37%)+ zinc F	9.6-12.8	7-14
		Tourney	metconazole 50WDG	0.18-0.37	14-21
Eagle	myclobutanil 20 EW	1.2	14-28		
Banner Maxx	propiconazole 1.3ME	0.5-2	7-28		
Insignia	pyraclostrobin 20WDG	0.9	14 (suppression)		
Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28(suppression)		
Honor Intrinsic	pyraclostrobin + boscalid 28WG	0.83-1.1	14-21		
Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14-28		
Torque	tebuconazole 3.6F	0.6	28		
3336 WP	thiophanate methyl 50WP	2-4	14		

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
		3336 F, 3336 plus	thiophanate methyl 4F,2F	2-4	14-28
		TM 85WDG	thiophanate methyl 85WDG	0.67-1.3	14
		3336G	thiophanate methyl 2G	1.5-6 lb	14
		Spotrete	thiram 75WDG	2.5-5	7-10
		Bayleton	triadimefon 50WSP, 4.15F	0.25-1	14-30
		Tartan	trifloxystrobin + triadimefon 2SC	1-2	14-28
		Armada	trifloxystrobin + triadimefon 50WP	0.6-1.2	14-28
		Trinity	triticonazole 1.7SC	1-2	14-28
		Triton Flo	triticonazole 3F	0.28-1.1	14-28
		Triton	triticonazole 70WDG	0.15-0.3	14-28
		Curalan	vinclozolin 50WP or DF	1.0	21-28

note: Fore mancozeb formulations now have restrictions on use rates and maximum seasonal rates – see current label for details.

Fairy Ring (<i>Agrocybe</i> , <i>Chlorophyllum</i> , <i>Lycoperdon</i> , <i>Marasmius</i> , <i>Tricholoma</i> spp., + other mushroom fungi). All grasses	Irregularly sized circular to semi-circular bands of lush green turf become apparent. Turf within circular area may decline, turn brown and thin. Toxins may be involved, but hydrophobic soil is a major problem. Mushrooms may be associated with the rings. Rings may persist for years. Difficult to control. Plugging or aerating to allow more water and fertilizer to reach the roots may help. Some surfactants have helped water penetration.	Heritage	azoxystrobin 50WDG	0.4	28
		Heritage TL	azoxystrobin 0.8 TL	2	28
		Heritage G	azoxystrobin 0.31G	2-4 lb	14-28
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.5-0.725	14-28
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3.0	14-28
		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-28
		Disarm C	chlorothalonil + fluoxastrobin 4.25SC	4.5-5.9	21-28
		Disarm	fluoxastrobin 4SC	0.28-0.36	21-28
		Disarm G	fluoxastrobin 0.25G	2.3-4.6 lb	28
		Prostar	flutolanil 70WP, 70 WDG	2.2-4.5	21-30
		Systar	flutolanil + thiophanate methyl 80WDG	3-6.12	21-28
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.47	28
		Tourney	metconazole 50WDG	0.37	21
		Affirm	polyoxin 11.3%WDG	0.88	7
		Endorse	polyoxin 2.5WP	4	7
		Insignia	pyraclostrobin 20WDG	0.9	28
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28WG	1.1	28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14-28
		Torque	tebuconazole 3.6 F	0.6	28
Bayleton	triadimefon 50DF,4.15F	1-2	14-21		
Tartan (Zee SC)	triadimefon + trifloxystrobin	2.0	28		
Microdochium Patch and Pink Snow Mold (<i>Microdochium nivale</i>)	Fusarium Patch: Begins in late fall and early winter in wet, humid weather as small, water-soaked spots of 2 inches up to 8 inches in diameter. Patches may appear wet or slimy. Gray to pinkish colored	Heritage	azoxystrobin 50WDG	0.2-0.4	14-28
		Heritage TL	azoxystrobin 0.8 TL	1-2	14-28
		Heritage G	azoxystrobin 0.31G	2-4 lb	14-28
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.5-0.725	14-28
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3.0	10-28
		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-28

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
Cool season grasses are mostly affected, including bentgrass bluegrasses ryegrasses, and fescues	<p>mycelium may be noticeable in patches. Snow is not required for development of Fusarium Patch. The disease may kill grasses in these patches; frequently mis-diagnosed as cool weather Pythium.</p> <p>Pink Snow Mold: Same causal agent as Fusarium Patch, but the disease occurs under snow cover. Preventive fungicide applications must be made prior to persistent snow cover.</p> <p>Avoid excess nitrogen fertilization, irrigate infrequently but thoroughly, avoiding light frequent irrigations. Protect newly seeded areas that are highly susceptible. Reduce shade and increase air movement around greens.</p> <p>note: chlorothalonil formulations have new maximum use rates in effect that depends on site.</p> <p>note: Fungicides containing copper hydroxide may be phytotoxic; read label carefully and use precautions.</p>	Renown	chlorothalonil + azoxystrobin 5.17SC	2.5-4.5	14-21
		Disarm C	chlorothalonil + fluoxastrobin 4.25SC	3-5.9	28
		Concert	chlorothalonil + propiconazole 4.3SC	3-8.5	7-21
		Instrata	chlorothalonil + propiconazole + fludioxanil 3.6SC	2.75-6	10-14
		Consyst	chlorothalonil + thiophanate methyl 67WDG	6-8	Single application
		Spectro 90	chlorothalonil + thiophanate methyl 90WDG	3.72-5.76	14
		Reserve	chlorothalonil + triticonazole 4.8SC	3.2-5.4	10-28
		Enclave	chlorothalonil + iprodione + thiophanate methyl +tebuconazole 5.3 SC	7-8	28
		Daconil Action	chlorothalonil + acylbenzolar-s-methyl 6.112F	5.4	21-28
		Daconil WeatherStik, Chlorothalonil 720 SFT, others	chlorothalonil 6F	2.12-5.5	7-14
		Daconil Zn, Chorothalonil 500 Zn, others	chlorothalonil 4.17F	3-7.9	7-14
		Daconil Ultrex	chlorothalonil 82.5% WDG	1.8-5	7-14
		Chlorothalonil DF	chlorothalonil 82.5 DF	1.8-3.2	7-10
		Rubigan AS	fenarimol 1AS	4-8	1-2 applications
		Secure	fluazinam 4.17 SC	0.5	14
		Medallion	fludioxonil 50% WP	0.25-0.5	14
		Medallion	fludioxonil 1.04 SC	1-2	14
		Disarm	fluoxastrobin 4SC	0.18-0.36	14-28
		Disarm G	fluoxastrobin 0.25G	2.3-4.6 lb	14-28
		Systar	flutolanil + thiophanate methyl 80WDG	2-3	14-21
		Xzemplar	fluxapyroxad 2.47 SC	0.26	14-28
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28
		Chipco 26GT, iprodione pro, Ipro 2SE, others	iprodione 2F, 2SC	4-8	1-2 applications
		26/36	iprodione + thiophanate methyl 3.8F	1-4	14-21
		Interface	iprodione + trifloxystrobin 2.27 SC	5-7	14-21
		Protect DF	mancozeb 75DF	6-8	2-6 wk
		Fore, Dithane, Pentathlon, others	mancozeb 80WP	6-8	14-42
		Fore Flo	mancozeb 4LF	10-14	14-42
		Junction	mancozeb + copper hydroxide 60DF	2-4	14-42
		Tourney	metconazole 50WDG	0.37-0.44	Late fall
		Eagle	myclobutanil 20 EW	1.2-2.4	Fall/winter
		Maneb + zinc	maneb (37%)+ zinc F	9.6-12.8	14-42
		Junction	mancozeb (15%) + copper hydroxide(46%)	4-8	7-14
Affirm	polyoxin 11.3% WDG	0.88	7-14		
Endorse	polyoxin 2.5WP	4	7-14		
Banner Maxx, others	propiconazole 1ME	2-4	Single application		
Insignia	pyraclostrobin 20WDG	0.5-0.9	14-28		
Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28		
Honor Intrinsic	pyraclostrobin + boscalid 28WG	0.55-1.1	14-28		

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	28
		Torque	tebuconazole 3.6F	0.6	28
		Spotrete F	thiram 4F	3-12	Fall and spring
		Spotrete 75WDG	thiram 75WDG	3-8	Fall and spring
		3336, 3336 plus	thiophanate methyl 4F, 2F, 50WP	2-4	14
		TM 85WDG	thiophanate methyl 85WDG	0.67-1.3	14
		Bayleton	triadimefon 50WSP,4.15F	1-2	60-90
		Compass	trifloxystrobin 50WG	0.2-0.25	10-21
		Tartan	trifloxystrobin+ triadimefon 2SC	2	fall/ early spring
		Armada	trifloxystrobin + triadimefon 50WP	1.2	fall/ early spring
		Trinity	triticonazole 1.7SC	0.5-2	14-28
		Triton	triticonazole 70WDG	0.15-0.3	Late fall
		Triton Flo	triticonazole 3F	0.28-1.1	10-14
		Curalan	vinclozalin 50EG	1	10-21
<i>note:</i> Fore mancozeb formulations now have restrictions on use rates and maximum seasonal rates – see current label for details.					
Gray Leaf Spot (<i>Pyricularia grisea</i>)	Small brown to ash-colored leaf spots with purple to brown margins. Lesions become covered with the gray, velvety, fungal mycelium of <i>Pyricularia grisea</i> . In severe cases leaves appear scorched. Prevalent during rainy, summer months. Mainly on St. Augustinegrass, but recently epidemics have occurred on tall fescue and perennial ryegrass. Avoid excess N. Irrigate deeply in early morning. Reduce traffic. Mostly a problem on newly planted St. Augustinegrass, especially in shade, or atrazine-treated St. Augustinegrass. <i>note:</i> chlorothalonil formulations have new maximum use rates in effect that depends on site.	Heritage	azoxystrobin 50WG ; no more than 2 sequential treatments	0.2-0.4	14-28
bahiagrass		Heritage TL	azoxystrobin 0.8 TL	1-2	14-28
bermudagrass		Heritage G	azoxystrobin 0.31G	2-4 lb	14-28
centipedegrass		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.5-0.725	14-21
ryegrass		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3.0	14-28
St. Augustinegrass		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-28
tall fescue		Daconil Action	chlorothalonil + acylbenzolar-s-methyl	2-5.4	7-14
		Daconil WeatherStik, Chlorothalonil 720 SFT, others	chlorothalonil 6F	2-3.6	7-10 pre-disease
				4-5.5	14 post-disease
		Daconil Zn, Chlorothalonil 500 Zn, others	chlorothalonil 4.16%F	3-5.1	7-10 pre-disease
				6-8	14 post-disease
		Daconil Ultrex	chlorothalonil 82.5% WDG	1.8-3.2	7-10 pre-disease
				3.6-5	14 post-disease
		Chlorothalonil DF	chlorothalonil 82.5 DF	1.8-3.2	7-10
		Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	10-14
		TwoSome Flowable Fungicide	chlorothalonil + fenarimol	3	7-10
		Disarm C	chlorothalonil + fluoxastrobin 4.25 SC	3-5.9	14-28
		Vitalonil	chlorothalonil + potassium phosphite 5.27 SC	5.75	7-10
		Concert	chlorothalonil + propiconazole 4.3SC	3-8.5	7-21
		Instrata	chlorothalonil + propiconazole + fludioxanil 3.6SC	2.75-6	10-14
	Consyst	chlorothalonil + thiophanate methyl 67WDG	2-8	7-14	
	Spectro 90	chlorothalonil + thiophanate methyl 90WDG	3.72-5.76	7-14	
	Enclave	chlorothalonil + iprodione + thiophanate methyl +tebuconazole 5.3 SC	3-8	14-28	
	Medallion	fludioxanil 50WP	0.25-0.50	14	

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
		Medallion	fludioxonil 1.04 SC	1-2	14
		Disarm	fluoxastrobin 4SC	0.18-.36	14-28
		Disarm G	fluoxastrobin 0.25G	2.3-4.6 lb	14-28
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28
		Fore, Dithane, Pentathlon, others	mancozeb 80WP	8	14
		Protect DF, others	mancozeb 75DF	6.4-12.8	7-14
		Fore Flo, others	mancozeb 4LF	9-14	5
		Duosan	mancozeb + thiophanate methyl	3-9	7-14
		Tourney	metconazole 50WG	0.37	14
		Eagle	myclobutanil 20EW	1.2-2.4	14
		Affirm	polyoxin 11.3% WDG	0.88	7-14
		Endorse	polyoxin 2.5WP	4	7-14
		Banner Maxx, others	propiconazole 1.3ME	1-2	14
		Insignia	pyraclostrobin 20WDG	0.5-0.9	14-28
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28WG	0.55-1.1	14-28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14-28
		Torque	tebuconazole 3.6F	0.6	28
		3336	thiophanate methyl 50WP, 4F	4-6	10-14
		3336 plus	thiophanate methyl 2F	4-8	14-28
		TM 85WDG	thiophanate methyl 85WDG	2.35-3.53	14
		Bayleton	triadimefon 50WSP, 4.15 Flo	0.5-1	14
		Compass	trifloxystrobin 50WDG	0.15-0.25	14-21
		Tartan	trifloxystrobin + triadimefon 2SC	1-2	14-28
		Armada	trifloxystrobin + triadimefon 50WP	0.6-1.2	14-28

note: Fore mancozeb formulations now have restrictions on use rates and maximum seasonal rates – see current label for details.

"Helmintho- sporium" Leaf Spot/ Melting Out (<i>Bipolaris</i> , <i>Drechslera</i> spp.) bahiagrass bermudagrass bluegrass creeping bentgrass ryegrass St. Augustinegrass zoysiagrassescho	Symptoms include leaf spotting and 'melting-out' phases. Leaves have circular to elongated, purplish or brown spots with straw-colored centers on older lesions. Numerous lesions cause leaves to turn reddish-brown, then yellow, and die. Sheath and crown rot may be present. Ryegrass, bluegrasses (<i>Poa pratensis</i> and <i>P. trivialis</i>) and bermudagrass are most susceptible. Most prevalent when temperatures range from 68-95°F during mild periods of spring and fall. Maintain a balanced fertility. Irrigate deeply in the mornings. Raise mower height during disease outbreaks. Reduce thatch.	Heritage	azoxystrobin 50WDG	0.2-0.4	14-21
		Heritage TL	azoxystrobin 0.8 TL	1-2	14-21
		Heritage G	azoxystrobin 0.31G	2-4lb	14-21
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.5-0.725	14-21
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3.0	14-21
		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-21
		Daconil Action	chlorothalonil + acylbenzolar-s-methyl 6.112F	2-5.4	7-14
		Daconil WeatherStik, Chlorothalonil 720 SFT, others	chlorothalonil 6F	2	7-10 pre-disease
				2-3.6	7-21 post-disease
				4-5.5	14 post-disease
		Daconil Zn, Chlorothalonil 500 Zn, others	chlorothalonil 4.16F	2.9	7-10 pre-disease
				2.9-5.1	7-21 post-disease
				5.8-7.9	14 post-disease
Daconil Ultrex	chlorothalonil 82.5% WDG	1.8-3.2	7-21		
		3.2-5	14-21		
Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	14-21		

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
	<p><i>note:</i> chlorothalonil formulations have new maximum use rates in effect that depends on site.</p> <p><i>note:</i> Fungicides containing copper hydroxide may be phytotoxic; read label carefully and use precautions.</p>	Disarm C	chlorothalonil + fluoxastrobin 4.25SC	3-5.9	14-21
		Vitalonil	chlorothalonil + potassium phosphite 5.27SC	5.75	7-10
		Concert	chlorothalonil + propiconazole 4.25SC	3-8.5	7-21
		Instrata	chlorothalonil + propiconazole + fludioxonil 3.6SC	2.75-6	10-21
		Consys	chlorothalonil + thiophanate methyl 67WDG	2-8	7-21
		Spectro 90	chlorothalonil + thiophanate methyl 90WDG	3.72-5.76	14
		Reserve	chlorothalonil + triticonazole 4.8SC	3.2-4.5	14-28
		Medallion	fludioxonil 50% WP	0.25-0.5	14-21
		Medallion	fludioxonil 1.04 SC	1-2	14
		Disarm	fluoxastrobin 4SC	0.18-.36	14-21
		Disarm G	fluoxastrobin 0.25 G	2.3-4.6 lb	14-21
		Systar	flutolanil + thiophanate methyl 80WDG	2-3	14-28
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28
		Chipco 26GT, iprodione pro, others	iprodione 2F, 2SC	3-4	14-28
		26/36	iprodione + thiophanate methyl 3.8F	1-4	14-21
		Interface	iprodione + trifloxystrobin 2.27 SC	2-6	14-28
		Duosan	mancozeb + thiophanate methyl	3	5-14
		Fore, Dithane, Pentathlon, others	mancozeb 80WP	4	7-14
		Protect DF, others	mancozeb 75DF	4	7-14
		Fore Flo, others	mancozeb 4LF	5-14	7-14
		Junction	mancozeb + copper hydroxide 60DF	2-4	7-14
		Maneb plus Zinc	maneb (37%)+ zinc F	4.8-6.4	7-14
		Eagle	myclobutanil 20 EW	1.2	14
		Affirm	polyoxin 11.3% WDG	0.88	7-14
		Endorse	polyoxin 2.5WP	4	7-14
		Banner Maxx, others	propiconazole 1.3ME	1-2	14
		Insignia	pyraclostrobin 20WDG	0.5-0.9	14-28
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28WG	0.55-1.1	14-28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14-28
		3336	thiophanate methyl 50WP, 4F	4-6	7-14
		3336 plus	thiophanate methyl 2F	4-8	7-14
		3336G	thiophanate methyl 2G	6-9lb	14
		Spotrete	thiram 4F	3.75-7.5	3-10
	Compass	trifloxystrobin 50WDG	0.1-0.25	14-28	
	Tartan	trifloxystrobin + triadimefon 2SC	1-2	14-28	
	Armada	trifloxystrobin + triadimefon 50WP	0.6-1.2	14-28	
	Triton	triticonazole 70WDG	0.15-3.0	14-28	
	Triticonazole	triticonazole 1.7SC	0.5-2.0	14-28	
	Curalan	vinclozolin 50WP or DF	1-2	12-28	

note: Fore mancozeb formulations now have restrictions on use rates and maximum seasonal rates – see current label for details.

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
Large Patch (brown patch in warm season grasses; Zoysia patch , large patch of zoysia) (<i>Rhizoctonia solani</i> AG 2, 2 LP) zoysiagrass bermudagrass St. Augustinegrass Centipedegrass Seashore Paspalum	With Large Patch disease of warm season grasses, leaf fascicles pull easily from plant due to rot at leaf base. Initial infections are in the fall, but symptoms are usually most apparent in the spring as grasses emerge from winter dormancy.	Heritage	azoxystrobin 50WDG	0.4	14-28 (1, 2 or 3 applications in fall)
		Heritage TL	azoxystrobin 0.8TL	1-2	14-28
		Heritage G	azoxystrobin 0.31G	2-4lb	14-28
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.3-0.725	14-28
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3.0	14-28
		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-28
		Terraneb 65WP	chloroneb 65 WP	5	21-28
		Terraneb SP	chloroneb 2.9F	9	21-28
		Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	14-21
		Disarm C	chlorothalonil + fluoxastrobin 4.25SC	3-5.9	14-28
		Consys	chlorothalonil + thiophanate methyl 67WDG	2-8	7-14
		Reserve	chlorothalonil + triticonazole 4.8SC	3.2-5.4	14-28
		Secure	fluazinam 4.17 SC	0.5	14
		Disarm	fluoxastrobin 4SC	0.367	28
		Disarm G	fluoxastrobin 0.25G	2.3-4.6lb	14-28
	Prostar	flutolanil 70WP, 70 WDG	2.2	30	
	Xzemplar	fluxapyroxad 2.47 SC	0.21-0.26	14-28	
	Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28	
	Chipco 26GT, iprodione pro, others	iprodione 2F, 2SC	4	14-21	
	26/36	iprodione + thiophanate methyl 3.8F	2-4	14-21	
	Interface	iprodione + trifloxystrobin 2.27 SC	4	14-21	
	Tourney	metconazole 50WG	0.37	14	
	Eagle	myclobutanil 20 EW	2.4	Apply in fall before dormancy, repeat 28 days	
	Affirm	polyoxin D 11.3% WDG	0.88	7-14	
	Endorse	polyoxin D 2.5WP	4	7-14	
	Banner Maxx, others	propiconazole 1.3ME	3-4	1 application in early fall, prior to symptoms	
	Insignia	pyraclostrobin 20WG	0.5-0.9	14-28	
	Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28	
	Honor Intrinsic	pyraclostrobin + boscalid 28WG	1.1	14-28	
	Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14-28	
	Torque	tebuconazole 3.6F	0.6	28	
	3336, others	thiophanate methyl 4F, 50WP	2-4	7 to 14	
	3336 plus	thiophanate methyl 2F	2-4	7-14	
Systar	thiophanate methyl +flutolanil 80WDG	2-3	14-21		
Trinity	triticonazole 1.7SC	1-2	14-28		
Triton	triticonazole 70WDG	0.15-0.3	14-28		
Triton Flo	triticonazole 3SC	0.55-1.1	14-28		
Pink Patch (<i>Limonomyces</i>)	Mats of mycelium that aggregate in clusters occur on leaves during	Heritage	azoxystrobin 50WDG	0.2-0.4	14-28
		Heritage TL	azoxystrobin 0.8TL	1-2.	14-28

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
<i>roseipellis</i> Cool season grasses, but occasionally on warm season such as centipedegrass or bermudagrass	cool, humid weather. Patches of affected turf range in size up to 6-8 inches diameter and has a pink color. Not severely damaging to turf, but the disease is unsightly. The causal agent is a basidiomycete with clamp connections visible on hyphae when viewed microscopically. Judiciously increase nitrogen fertility. Irrigate infrequently but thoroughly to prevent drought stress.	Heritage G	azoxystrobin 0.31G	2-4lb	14-28
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.5-0.725	14-28
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3	14-28
		Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	14-21
		Disarm C	chlorothalonil + fluoxastrobin 4.3SC	3-5.9	14-28
		Concert	chlorothalonil + propiconazole 4.3SC	4.5-8.5	14-28
		Reserve	chlorothalonil + triticonazole 4.8SC	3.2-4.5	14-28
		Secure	fluazinam 4.17 SC	0.5	14
		Disarm	fluoxastrobin 4SC	0.18-0.36	14-28
		Disarm G	fluoxastrobin 0.25G	2.3-4.6 lb	14-28
		Prostar	flutolanil 70WP, 70WDG	1.5	21-28
		Systar	flutolanil + thiophanate methyl 80WDG	2	21-28
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28
		Interface	iprodione + trifloxystrobin 2.27 SC	4	14
		Banner Maxx, others	propiconazole 1.3ME	1-2	14-28
		Insignia	pyraclostrobin 20WG	0.5-0.9	14-28
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28WG	0.55-1.1	14-28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14-28
		Torque	tebuconazole 3.6F	0.6	28
		Compass	trifloxystrobin 50WDG	0.1-0.25	14-21
		Tartan	trifloxystrobin + triadimefon 2SC	1-2	14-28
		Armada	trifloxystrobin + triadimefon 50WP	0.6-1.2	14-28
		Trinity	triticonazole 1.7 SC	1-2	14-28
		Curalan	vinclozolin 50EG	1	14-28
		Powdery Mildew (<i>Blumeria graminis</i>) Most grasses; Kentucky bluegrass especially susceptible.	White, powdery like growth on the upper and lower leaf surfaces of grasses. The disease is most common in excessively shaded areas with high humidities. Improve sunlight penetration and air movement or landscape the area with non-turfgrass plants that are shade tolerant.	Heritage	azoxystrobin 50WDG
Heritage TL	azoxystrobin 0.8TL			1-2.	14-28
Heritage G	azoxystrobin 0.31G			2-4lb	14-28
Briskway	azoxystrobin + difenoconazole 1.67 SC			0.5-0.725	14-28
Headway	azoxystrobin + propiconazole 1.4ME			1.5-3	14-28
Headway G	azoxystrobin + propiconazole 1.06G			2-4 lb	14-28
Renown	chlorothalonil + azoxystrobin 5.16SC			2.5-4.5	14-21
Disarm C	chlorothalonil + fluoxastrobin 4.3SC			3-5.9	14-28
Concert	chlorothalonil + propiconazole 4.3SC			4.5-8.5	14-28
Consyst	chlorothalonil + thiophanate methyl 67WDG			2-8	7-21
Spectro 90	chlorothalonil + thiophanate methyl 90WDG			3.72-5.76	14
Rubigan AS	fenarimol AS			2-4	Single application
Disarm	fluoxastrobin 4SC			0.18-0.36	14-28
Disarm G	fluoxastrobin 0.25G			2.3-4.6 lb	14-28
Lexicon	fluxapyroxad + pyraclostrobin 4.17SC			0.34-0.47	14-28
Junction	mancozeb + copper hydroxide 60DF			2-4	7-14
Eagle	myclobutanil 20 EW			1.2	14-28
Banner Maxx, others	propiconazole 1ME			1-2	14-28
Insignia	pyraclostrobin 20WG			0.5-0.9	14-28

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
Pythium Blight (<i>Pythium</i> spp.) All grasses	Grass dies in spots or streaks. Initially, the affected grass has a dark color and a greasy appearance, particularly in spots. Spots may develop a copper color and eventually a bleached, straw color as affected tissues die and dry. After prolonged moist or foggy periods, the cottony mycelium may be seen on the turf (note: this symptom is NOT always evident). <i>Pythium</i> can be spread by foot traffic or mowers passing over infected grasses. Occurs during warm, humid, foggy weather in poorly drained soils. Ryegrass, rough bluegrass, and bentgrass used for overseeding are most susceptible. Improve aeration and drainage. Avoid frequent, shallow irrigation. Reduce mowings and minimize equipment or foot traffic across infected turf. Wash equipment that passes from infected to non-infected grass areas.	Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28WG	0.55-1.1	14-28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14-28
		Bayleton	triadimefon 50WP, 4.15 Flo	0.5-1	15-30
		Heritage	azoxystrobin 50WG; no more than 2 sequential sprays	0.4	10-14
		Heritage TL	azoxystrobin 0.8TL; no more than 2 sequential sprays	1-2.	10-14
		Heritage G	azoxystrobin 0.31G	2-4 lb	10-14
		Headway	azoxystrobin + propiconazole 1.4ME	3	10-14
		Headway G	azoxystrobin + propiconazole 1.06G	2-2.5 lb	14
		Terraneb 65SP	chloroneb 65 SP	4	5-7
		Terraneb F	chloroneb 2.9F	7	5-7
		Disarm C	chlorothalonil + fluoxastrobin 4.25 SC	3-5-9	7-14
		Vitalonil	chlorothalonil + potassium phosphite 5.27 SC	5	7-14
		Segway	cyazofamid 3.3SC	0.45-0.9	14-21
		Koban	ethazole 30WP	2-4.5	10
		Terrazole	ethazole 35WP	2-4	10-14
		Disarm	fluoxastrobin 4SC	0.18-0.36	7-14
		Disarm G	fluoxastrobin 0.25G	2.3-4.6 lb	14
		Stellar	fluopicolide + propamocarb 5.7SC	1.2	14
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.47	14
		Signature, Prodigy, Fosetyl Al 80WDG	fosetyl Al 80WDG	4-8	14-21
		Protect DF	mancozeb 75DF	8	5-10
		Fore F	mancozeb 4LF	14	5
		Junction	mancozeb + copper hydroxide 60DF	2-4	5
		Maneb plus Zinc	maneb (37%)+ zinc F	12.8	5
		Subdue Maxx	mefanoxam 2ME	0.5-1	10-21
		Subdue WSP	mefanoxam 43WSP	0.28-0.56	10-21
		Subdue G	mefanoxam 1G	12.5-25 lb	10-14
		Subdue	metalaxyl 2MEC	1-2	10-21
Biophos	phosphorous acid salts 4.52	8-16	14-21		
Alude	phosphorous acid salts 5.17F	5-10	7-14		
Appear	potassium phosphite 4.1 lb/gal	3-6	7-14		
Banol	propamocarb 6S	1.3-4	7-21		
Insignia	pyraclostrobin 20 WDG	0.9	14-28		
Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28		
Honor Intrinsic	pyraclostrobin + boscalid 28WG	1.1	10-14		
Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14		

Note: Fungicides containing copper hydroxide may be phytotoxic; read label carefully & use precautions. *To minimize the potential for resistance, alternate between classes of fungicides.*

Note: Fore mancozeb formulations now have restrictions on use rates and maximum seasonal rates – see current label for details.

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
Pythium Root Rot /Pythium Root Dysfunction (<i>Pythium arrhenomanes</i> , <i>P. aristosporum</i> , <i>P. volutum</i> .) Creeping bentgrass primarily	Roots are off color, tan or light brown, water-soaked appearance with few or no feeder roots present. Sometimes, new roots may be initiated from crown regions as older roots become diseased. Root rot is favored in poorly drained or continuously wet soils but can occur in sand-based rootzones with excellent drainage. Areas will appear chlorotic and be less vigorous in growth, but usually do not die. Can occur year around, especially on over-irrigated sites. Avoid overwatering. Aerate compacted and poorly drained soils. Foliar fertilizer treatments may be useful.	Heritage	azoxystrobin 50WG; no more than 2 sequential sprays	0.4	10-14
		Heritage TL	azoxystrobin 0.8TL; no more than 2 sequential sprays	2	10-14
		Heritage G	azoxystrobin 0.31G	2-4 lb	10-14
		Headway	azoxystrobin + propiconazole 1.4ME	3	10-14
		Headway G	azoxystrobin + propiconazole 1.06G	2-2.5 lb	14
		Terraneb 65SP	chloroneb 65SP	2-5	7-14
		Disarm C	chlorothalonil + fluoxastrobin 4.25SC	3-5.9	7-10
		Segway	cyazofamid 3.33SC	0.45-0.9	14-21
		Koban	ethazole 30WP	2-5	7-14
		Terrazole	ethazole 35WP	2-4	10-14
		Disarm	fluoxastrobin 4SC	0.18-.36	7-10
		Disarm G	fluoxastrobin 0.25G	2.3-4.6lb	14
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.47	14-28
		Signature, Prodigy, Fosetyl Al 80WDG	fosetyl Al 80WG	4-8	14-21
		Appear	potassium phosphite 4.1 lb/gal	6-8	7-14
		Banol	propamocarb 6S	1.3-4	7-21
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.7	14-28
		Insignia	pyraclostrobin 20WG	0.9	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28WG	1.1	14-28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14
<i>Note: Water into the root-zone., except fosetyl Al formulations. To minimize the potential for resistance, alternate between classes of fungicides.</i>					
Rapid Blight (<i>Labyrinthula terrestris</i>)	Patches from a few inches up to a foot in diameter occur most commonly in salinity-stressed cool season grasses. Affected turf can be chlorotic and water-soaked. Individual leaves appear blotchy. The organism does not form a mycelium. Manage salinity by core aerification, gypsum applications and leaching regime.	Interface	iprodione + trifloxystrobin 2.27 SC	2-6	14-28
		Fore	mancozeb 80WP	8	14
		Protect	mancozeb 75WP	8	14
		Insignia	pyraclostrobin 20 WDG	0.5-0.9	14-28
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28G	0.55-1.1	14-28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14-28
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14
		Compass	trifloxystrobin 50 WDG	0.15-.25	14-21
		Tartan	trifloxystrobin + triadimefon 50WP	0.6-1.2	14-28
		<i>note: Fore mancozeb formulations now have restrictions on use rates and maximum seasonal rates – see current label for details.</i>			
Red Thread (<i>Laetisaria fuciformis</i>) fescues and ryegrasses	In winter and early spring, leaf tips appear shriveled and ragged, occurring in patches up to 6 inches in diameter. Red to orange-colored fungal “threads” appear to grow from affected leaf tips. Turf appears as if it has been cut with a	Heritage	azoxystrobin 50WDG	0.2-0.4	14-28
		Heritage TL	azoxystrobin 0.8TL	1-2	14-28
		Heritage G	azoxystrobin 0.31G	2-4lb	14-28
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.5-0.725	14-28
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3	14-28
		Daconil Action	chlorothalonil + acylbenzolar-s-methyl 6.112 F	2-5.4	7-14

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
<p>dull rotary mower. The disease is favored by cloudy, cold, humid weather.</p> <p>Maintain adequate fertility, and avoid transient drought conditions. Mow frequently at the correct cutting height.</p> <p><i>Note:</i> chlorothalonil formulations have new maximum use rates in effect that depends on site - see new labels for details.</p> <p><i>Note:</i> Fungicides containing copper hydroxide may be phytotoxic; read label carefully and use precautions.</p>	<p>Daconil Weather Stik, Chlorothalonil 720 SFT, others</p> <p>Daconil Zn, Chlorothalonil 500 Zn, others</p> <p>Daconil Ultrex, Chlorothalonil DF</p> <p>Renown</p> <p>Disarm C</p> <p>Vitalonil</p> <p>Concert</p> <p>Instrata</p> <p>Consys</p> <p>Spectro 90</p> <p>Reserve</p> <p>Rubigan AS</p> <p>Secure</p> <p>Disarm</p> <p>Disarm G</p> <p>Prostar</p> <p>Systar</p> <p>Lexicon</p> <p>Chipco 26GT, iprodione pro, others</p> <p>26/36</p> <p>Interface</p> <p>Fore</p> <p>Protect</p> <p>Fore F</p> <p>Junction</p> <p>Maneb plus Zinc</p> <p>Tourney</p> <p>Eagle</p> <p>Affirm</p> <p>Endorse</p> <p>Banner Maxx</p> <p>Insignia</p> <p>Insignia Intrinsic</p> <p>Honor Intrinsic</p> <p>Pillar G</p>	<p>chlorothalonil 6F</p> <p>chlorothalonil 4.16F</p> <p>chlorothalonil 82.5%WDG, DF</p> <p>chlorothalonil + azoxystrobin 5.16SC</p> <p>chlorothalonil + fluoxastrobin 4.25SC</p> <p>chlorothalonil + potassium phosphite 5.27SC</p> <p>chlorothalonil + propiconazole 4.3SC</p> <p>chlorothalonil + propiconazole + fludioxanil 3.5SC</p> <p>chlorothalonil + thiophanate methyl 67WG</p> <p>chlorothalonil + thiophanate methyl 90WG</p> <p>chlorothalonil + triticonazole 4.8SC</p> <p>fenarimol 1AS</p> <p>fluazinam 4.17 SC</p> <p>fluoxastrobin 4SC</p> <p>fluoxastrobin 0.25G</p> <p>flutolanil 70WP, 70WDG</p> <p>flutolanil + thiophanate methyl 80WG</p> <p>fluxapyroxad + pyraclostrobin 4.17SC</p> <p>iprodione 2F, 2SC</p> <p>iprodione + thiophanate methyl 3.8F</p> <p>iprodione + trifloxystrobin 2.27 SC</p> <p>mancozeb 80WP</p> <p>mancozeb 75DF</p> <p>mancozeb 4LF</p> <p>mancozeb + copper hydroxide 60DF</p> <p>maneb (37%)+ zinc F</p> <p>metconazole 50WDG</p> <p>myclobutanil 20 EW</p> <p>polyoxin 11.3%WDG</p> <p>polyoxin 2.5WP</p> <p>propiconazole 1.3ME</p> <p>pyraclostrobin 20WDG</p> <p>pyraclostrobin 2.08 SC</p> <p>pyraclostrobin + boscalid 28WG</p> <p>pyraclostrobin + triticonazole 0.81G</p>	2-3.6	7-10 pre-disease	
			>3.6-5.5	14 post-disease	
			5.5	14 post-disease	
			2.9-5.1	7-10 pre-disease	
			>5.1-7.9	14 post-disease	
			7.9	14 post-disease	
			1.8-3.2	7-10 pre-disease	
			>3.2-5	14 post-disease	
			5	14 post-disease	
			2.5-4.5	14-21	
			3-5.9	14-28	
			5.75	7-10	
			3-5.9	14-28	
			2.75-6	14-21	
			3-8	7-21	
			3.72-5.76	14	
			3.2-4.5	14-28	
			8	30	
			0.5	14	
			0.18-.36	14-28	
			2.3-4.6 lb	14-28	
			1.5	21-28	
			2-3	14-21	
			0.34-0.47	14-28	
			4	14	
			2-4	14-21	
			4	14	
			4-8	7-14	
			4-8	7-14	
			7-14	7-14	
			2-4	7-14	
			6.4-12.8	7-14	
			0.37	14-21	
1.2	14-21				
0.88	7-14				
4	7-14				
2	14-21				
0.5-0.9	14-28				
0.4-0.7	14-28				
0.55-1.1	14-28				
3.0 lb	14-28				

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
		Torque	tebuconazole 3.6F	0.6	28
		3336 WSP	thiophanate methyl 50WSP	2-4	14
		3336F	thiophanate methyl 4F	2-4	14
		TM 85WDG	thiophanate methyl 85WG	0.67-1.3	14
		Spotrete	thiram 4F	3.75-7.5	3-10
		Bayleton	triadimefon 50WSP, 4.17 Flo	0.5-1	15-30
		Compass	trifloxystrobin 50WDG	0.1-0.25	14-21
		Tartan	trifloxystrobin + triadimefon 2SC	1-2	14-28
		Armada	trifloxystrobin + triadimefon 50WP	0.6-1.2	14-28
		Trinity	triticonazole 1.7SC	0.5-1	14-28
		Triton	triticonazole 70WDG	0.15-0.3	14-28
		Curalan	vinclozolin 50EG	1	14-28
<i>note:</i> Fore mancozeb formulations now have restrictions on use rates and maximum seasonal rates – see current label for details.					
Rust <i>(Puccinia and Uromyces spp.)</i> bermudagrass ryegrass, St. Augustinegrass tall fescue zoysiagrasses	Small yellow to orange or reddish-brown pustules on the leaves. Heavily infected area appears thin and chlorotic. Ryegrass and zoysiagrasses are most susceptible. Plant resistant or tolerant varieties. Maintain growth by fertilizing and irrigating adequately. Mow frequently and remove clippings. Humid weather following a drought period favors epidemics. <i>note:</i> chlorothalonil formulations have new maximum use rates in effect that depends on site - see new labels for details.	Heritage	azoxystrobin 50WDG	0.2-0.4	14-28
		Heritage TL	azoxystrobin 0.8TL	1-2	14-28
		Heritage G	azoxystrobin 0.31G	2-4lb	14-28
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.5-0.725	14-28
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3.0	14-28
		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-28
		Daconil Weather Stik, Chlorothalonil 720 SFT, others	chlorothalonil 6F	4-5.5	14 pre-disease
				5.5	14 post-disease
		Daconil Zn, Chlorothalonil 500 Zn, others	chlorothalonil 4.16 F	5.8-7.9	14 pre-disease
				7.9	14 post-disease
		Daconil Ultrex	chlorothalonil 82.5% WDG	3.6-5	14 pre-disease
				5	14 post-disease
		Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	14-21
		Disarm C	chlorothalonil + fluoxastrobin 4.25SC	3-5.9	14-28
		Concert	chlorothalonil + propiconazole 4.3SC	3-8.5	7-28
		Instrata	chlorothalonil + propiconazole + fludioxanil 3.6SC	2.75-6	14-28
		Consyst	chlorothalonil + thiophanate methyl 67WG	3-8	7-14
		Spectro 90	chlorothalonil + thiophanate methyl 90WG	3.72-5.76	14
		Reserve	chlorothalonil + triticonazole 4.8SC	3.2-4.5	14-28
		Secure	fluazinam 4.17 SC	0.5	14
		Disarm	fluoxastrobin 4SC	0.18-0.36	14-28
		Disarm G	fluoxastrobin 0.25G	2.3-4.6lb	14-28
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28
		Interface	iprodione + trifloxystrobin 2.27 SC	2-6	14-28
		Protect DF	mancozeb 75DF	4	7-14
		Fore, others	mancozeb 80WP	4	7-14
		Fore F, others	mancozeb 4LF	5-7	7-10
Junction	mancozeb + copper hydroxide 60DF	2-4	7-14		
Maneb plus Zinc	maneb (37%)+ zinc F	1.76	7-14		

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
		Tourney	metconazole 50WDG	0.37	14-21
		Eagle	myclobutanil 20 EW	1.2	14-28
		Banner Maxx, others	propiconazole 1.3ME	1-2	14-28
		Insignia	pyraclostrobin 20 WDG	0.5-0.9	14-28
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28WG	0.55-1.1	14-28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	14-28
		Torque	tebuconazole 3.6F	0.6	28
		3336 plus	thiophanate methyl 2F	4-8	14-28
		3336	thiophanate methyl 50WP, 4F	4-6	14
		TM 85WDG	thiophanate methyl 85WG	2.35-3.53	14
		Spotrete	thiram 4F	3.75-7.5	3-10
		Bayleton	triadimefon 50WSP, 4.17 Flo	0.5-1	15-30
		Compass	trifloxystrobin 50WDG	0.1-0.25	14-21
		Tartan	trifloxystrobin + triadimefon 2SC	1-2	14-28
		Armada	trifloxystrobin + triadimefon 50WP	0.6-1.2	14-28
		Trinity	triticonazole 1.7SC	0.5-1	14-28
		Triton	triticonazole 70WG	0.15-0.225	14-28
		Triton Flo	triticonazole 3SC	0.28-0.55	14-28
<i>note:</i> Fore mancozeb formulations now have restrictions on use rates and maximum seasonal rates – see current label for details.					
Southern Blight (<i>Sclerotium rolfsii</i>) Creeping bentgrass, bluegrasses, fescues, and ryegrasses	Yellow, circular or crescent shaped patches up to 1 ft in diameter, sometimes with “frog-eye” symptoms or less affected grass in the center of patches. Affected turf is a reddish-brown or bronze coloration, turning brown as it dies. Off-white or tan fungi sclerotia may be visible in the mat or thatch with a hand lens. Avoid drought conditions preceding hot, humid or wet weather; improve poorly drained soils and improve aeration to roots and crowns.	Heritage	azoxystrobin 50WDG	0.2-0.4	14-28
		Heritage TL	azoxystrobin 0.8TL	1-2	14-28
		Heritage G	azoxystrobin 0.31G	2-4lb	14-28
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.5-0.725	14-28
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3	14-28
		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-28
		Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	14-21
		Terraneb SP	chloroneb 65SP	4	5-7
		Disarm	fluoxastrobin 4SC	0.18-.36	14-28
		Disarm G	fluoxastrobin 0.25G	2.3-4.6lb	14-28
		Prostar	flutolanil 70WP, 70WDG	1.5	21-28
		Systar	flutolanil + thiophanate methyl 80WG	2	21-28
		Bayleton	triadimefon 50WSP, 4.15 Flo	0.5-2	14-28
		Tartan	trifloxystrobin + triadimefon 2SC	1-2	14
		Armada	trifloxystrobin + triadimefon 50WP	0.6-1.2	14
Slime Mold (<i>Physarum</i> sp., and <i>Fuligo</i> sp.) All grasses	Bluish-gray encrustations on leaf blades. In spring and summer during heavy rain, prominent white or yellow slimy masses may develop. Slime molds are not parasites of turf. Brush off or wash off mold with a strong stream of water. Mow.	Fore, others	mancozeb 80WP	4-8	7-14
		Protect	mancozeb 75DF	4-8	7-14
		Fore F, others	mancozeb 37%F	6.4-12.8	7-14

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)		
Spring Dead Spot - (<i>Ophiosphaerella korrae</i> , <i>Ophiosphaerella narmari</i> , or <i>Ophiosphaerella herpotricha</i>) bermudagrass, especially sterile hybrids	First appears as circular dead areas 6 inches up to 2 feet in diameter in the spring when the rest of the turf area turns green with new growth. Normally bermudagrass does not invade the dead areas as the growing season progresses nor do the dead areas increase in size until the next spring. <i>note:</i> scout and map diseased spots in spring, treat with fungicides in late summer through early fall. In established bermudagrass, thorough cultivation of dead areas may provide temporary recovery. Manage thatch by cultural methods, and avoid excess, unbalanced N fertilization in late summer or early fall.	Heritage	azoxystrobin 50WDG	0.4	Fall, 1 or 2 applications 1 month prior to dormancy, reapply 14-28 days later.		
		Heritage TL	azoxystrobin 0.8TL	2	Fall, 1 or 2 applications 1 month prior to dormancy, reapply 14-28 days later.		
		Headway	azoxystrobin + propiconazole 1.4ME	3	14-28		
		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-28		
		Enclave	chlorothalonil + iprodione + thiophanate methyl +tebuconazole 5.3 SC	3-8	14-28		
		Rubigan AS	fenarimol 1AS	6 4	1 application 2 applications 14-30 days apart		
		Disarm	fluoxastrobin 4SC	0.36	14-28 fall		
		Disarm G	fluoxastrobin 0.25G	2.3-4.6 lb	14-28 fall		
		Eagle, Myclobutanil 20EW	myclobutanil 20 EW	2.4	Fall, 28 days		
		Banner Maxx, Propiconazole 14.3, others	propiconazole 1.3ME	4	1-3 applications, 30 day interval		
		Torque	tebuconazole 3.6F	0.6	28		
		3336	thiophanate methyl 4F, 50WP	4-8	Apply in fall before dormancy/reapply in spring when soil temperatures reach 55-60F.		
		Stripe Smut (<i>Ustilago striiformis</i>)	Tall fescue and Kentucky Bluegrass stands may become clumpy in appearance. Individual leaves appear shredded, with black linear streaks evident in the shredded leaves.	Headway	chlorothalonil + propiconazole 4.3SC	4.5-8.5	Fall or spring
				Enclave	chlorothalonil + iprodione + thiophanate methyl +tebuconazole 5.3 SC	3-8	14-28
Eagle	myclobutanil 20 EW			1.2	14		
Banner Maxx, Propiconazole 14.3, others	propiconazole 1.3ME			1-2	Fall or Spring.		
Torque	tebuconazole 3.6F			0.6	28		
3336	thiophanate methyl 50WSB, 4F			4-8	14		
TM 85WDG	thiophanate methyl 85WG			3-3.53	14-21		
3336G	thiophanate methyl 2G			6-9lb	14		
Bayleton	triadimefon 50WSP			1	See label		
Tartan	trifloxystrobin + triadimefon 2SC			1	3 apps per season/ see label		
Armada	trifloxystrobin + triadimefon 50WP			0.6	See label		
Bermudagrass Decline	Disorder first appears as chlorotic patches 8-24" in diameter, usually	Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	spring/fall see label		
		Insignia	pyraclostrobin 20WG	0.9	spring/fall see label		

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
<i>Gaeumannomyces graminis</i> var. <i>graminis</i> Bermudagrass Take-all Root Rot (same pathogen as above) St. Augustinegrass	in late summer during prolonged cloudy weather. Without control, patches will expand. Grass thins and develops bare areas. Green shoots next to chlorotic ones are common. Plants in the affected areas have poor root system, no rhizomes and very few stolons. Usually observed first on outside edge of golf course putting greens. Associated with consistent, low mowing heights. Raise cutting height to increase photosynthetic area. Do not scalp St. Augustinegrass when mowed. Increased fertility may help by encouraging rapid cover of affected areas. Topdress golf course greens frequently. Alleviate all stresses on the grass.	Insignia Intrinsic	pyraclostrobin 2.08SC	0.7	spring/fall see label
		Honor Intrinsic	pyraclostrobin + boscalid 28WDG	1.1	spring/fall see label
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	28
		Torque	tebuconazole 3.6F	0.6	28
		3336F	thiophanate methyl 41%F	4-8	7-14 in mid-July
		3336WP	thiophanate methyl 50WP	4-8	7-14 in mid-July
		Bayleton	triadimefon 50WSP, 4.17 Flo	1-2	21-28 Irrigate thoroughly after fungicide application to move into the root zone.
		Take-all Patch (<i>Gaeumannomyces graminis</i> var. <i>avenae</i>) This is a disease primarily of creeping bentgrass. Disease appears in spring or summer as patches of discolored turf which may or may not exhibit a “frog-eye” symptom; more common on fairways than greens. In severe cases, nonsusceptible ryegrass or bluegrasses may colonize the center of patches, giving the “frog-eye” symptom. Roots and crowns are rotted and symptoms may become more severe as heat and water stresses become greater. More common on newly constructed sand-based greens, fumigated greens, and/or soils with pH levels > 6.0. Utilized acidifying fertilizers, such as ammonium sulfate or ammonium chloride, but at rates of N agronomically acceptable for bentgrass growth. Apply Mn at rates recommended by soil tests. Improve root health by aeration and other accepted cultural	Heritage	azoxystrobin 50%WG	0.4
Heritage TL	azoxystrobin 0.8TL		2.	2 applications, 28 days apart in spring & fall.	
Heritage G	azoxystrobin 0.31G		2-4lb	28	
Briskway	azoxystrobin + difenoconazole 1.67 SC		0.5-0.725	28	
Headway	azoxystrobin + propiconazole 1.4ME		3	14-28	
Headway G	azoxystrobin + propiconazole 1.06G		3.5-4 lb	28	
Disarm C	chlorothalonil + fluoxastrobin 4.25SC		5.9	28	
Reserve	chlorothalonil + triticonazole 4.8SC		3.2-5.4	14-28	
Rubigan AS	fenarimol 1AS		4-8	1-2 applications 30 day apart in fall.	
Disarm	fluoxastrobin 4SC		0.36	28 fall and spring	
Disarm G	fluoxastrobin 0.25G		2.3-4.6lb	28	
Lexicon	fluxapyroxad + pyraclostrobin 4.17SC		0.47	28	
Tourney	metconazole 50WDG		0.37	1-2 apps/ fall	
Eagle	myclobutanil 20EW		2.4	Fall/spring 28 day	
Banner Maxx, Propiconazole 14.3, others	propiconazole 1.3ME		2-4	Up to 2 applications in spring & fall.	

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
	practices.	Insignia	pyraclostrobin 20WDG	0.9	2 applications, 28 days apart in spring & fall
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.7	28
		Honor Intrinsic	pyraclostrobin + boscalid 28WG	1.1	28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	28
		Torque	tebuconazole 3.6F	0.6	28
		3336	thiophanate methyl 50WP, 4F	4-6	When disease symptoms appear, 7-14 day interval.
		3336 plus	thiophanate methyl 2F	4-8	14-28
		3336G	thiophanate methyl 2G	6-9lb	14
		Bayleton	triadimefon 50% WSP, 4.17 Flo	1-2	Early fall & early spring.
		Trinity	triticonazole 1.7SC	1.0-2.0	14-28 (fall and spring)
		Triton	tritiiconazole 70WG	0.15-0.3	14-28
		Triton Flo	triticonazole 3SC	0.55-1.1	14-28
Rhizoctonia Leaf and Sheath Spot (<i>R. zeae</i> and <i>R. oryzae</i>)	Occurs during summer months when weather is hot and humid. In cool season grasses, symptoms can closely mimic brown patch, caused by <i>R. solani</i> . In bermudagrass, the most commonly observed symptoms are necrotic rings or partial rings that vary from a few inches to a few feet in diameter. Spots may be observed on leaves at edge of rings. Dry soil may be present under ring. If rings are associated with very dry soil, see section on Localized Dry Spots.	Heritage	azoxystrobin 50WDG	0.4	14-28
		Heritage TL	azoxystrobin 0.8ME	2	14-28
		Heritage G	azoxystrobin 0.31G	2-4lb	14-28
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.5-0.725	14-28
		Headway	azoxystrobin + propiconazole 1.4ME	1.5-3	14-28
bermudagrass centipedegrass creeping bentgrass St. Augustinegrass tall fescue		Daconil Weather Stik	chlorothalonil 6F	2-3.6 4-5.5	7-14 pre-disease. 14 post-disease.
		Daconil Zn	chlorothalonil 4F	2.9-5.1 5.8-7.9	7-14 pre-disease.
		Daconil Ultrex	chlorothalonil 82.5% WG	5.8-7.9 1.8-3.2 3.6-5	14 post-disease. 7-14 pre-disease. 14 post-disease
		Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	14-21
		Vitalonil	chlorothalonil + potassium phosphite 5.27SC	5.75-8	7-14
		Instrata	chlorothalonil + propiconazole + fludioxanil 3.59SC	2.75-6	14-21
		Spectro 90	chlorothalonil + thiophanate methyl 9090WG	3-5.76	14-21
		Medallion	fludioxonil 50% WP	0.25-0.5	14-21
		Prostar	flutolanil 70WG	2.2-4.5	14-21
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28
		Insignia	pyraclostrobin 20WG	0.5-0.9	14-28

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
		Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28WG	1.1	14-28
		Pillar G	pyraclostrobin + triticonazole 0.81G	3.0 lb	28
		<i>note:</i> chlorothalonil formulations have new maximum use rates in effect that depends on site - see new labels for details. Some other active ingredients may be useful for control but are not specifically labeled for this disease – thiophanate methyl and other fungicides in the benzimidazole class are ineffective.			
Yellow Patch (Cool weather brown patch) (<i>Rhizoctonia cerealis</i>) bentgrass, rough bluegrass, perennial ryegrass, zoysiagrass	Common in cold weather under prolonged cloudy conditions on bentgrass greens or overseeded bermudagrass greens. Yellow to orange irregular rings, with few leafspots in cool season grasses. Also in zoysia in early fall, causing leafspot symptoms in a ring-shaped pattern. Improve drainage, manage thatch accumulations	Heritage	azoxystrobin 50WG	0.4	28
		Heritage TL	azoxystrobin 0.8TL	2	28
		Heritage G	azoxystrobin 0.31G	2-4lb	14-28
		Briskway	azoxystrobin + difenoconazole 1.67 SC	0.5-0.725	14-28
		Headway	azoxystrobin + propiconazole 1.4ME	3.0	28
		Headway G	azoxystrobin + propiconazole 1.06G	2-4 lb	14-28
		Renown	chlorothalonil + azoxystrobin 5.16SC	2.5-4.5	14-28
		Disarm C	chlorothalonil + fluoxastrobin 4.25SC	3-5.9	14-28
		Instrata	chlorothalonil + propiconazole + fludioxonil 3.6SC	8-11	late fall
		Reserve	chlorothalonil + triticonazole 4.8SC	3.2-5.4	21-28
		Medallion	fludioxonil 50%WP	0.5	late fall.
		Medallion	fludioxonil 1.04SC	2	Spring/Fall
		Disarm	fluoxastrobin 4SC	0.36	28
		Disarm G	fluoxastrobin 0.25G	2.3-4.6 lb	14-28
		Prostar	flutolanil 70WP, 70WDG	1.5	30 days
		Systar	flutolanil + thiophanate methyl 80WG	1.5	21-28
		Tourney	metconazole 50WDG	0.37-0.44	Late fall
		Affirm	polyoxin 11.3%WDG	0.88	Late fall
		Endorse	polyoxin 2.5WP	4	7-14
		Banner Maxx, Propiconazole 14.3, others	propiconazole 1.3ME	3-4	Late fall
Torque	tebuconazole 3.6F	0.6	28		
3336	thiophanate methy 4F, 50WP	4-8	Late fall		
3336G	thiophanate methyl 2G	6-9 lb	Late fall		
Triton Flo	triticonazole 3F	0.55-1.1	21-28		
Trinity	triticonazole 1.75SC	1-2	21-28		
Yellow Tuft (downy mildew) (<i>Sclerophthora macrospora</i>) Creeping bentgrass, St. Augustinegrass	In creeping bentgrass, the disease is usually associated with compacted, overly wet areas. In cool season grasses, individual plants will be yellow in color, with excessive proliferation of shoots, giving a “bunchy” appearance. In St. Augustinegrass, linear, gray raised pustules can be seen in the	Signature	fosetyl Al 80WDG	4-8	14-21
		Lexicon	fluxapyroxad + pyraclostrobin 4.17SC	0.34-0.47	14-28
		Subdue Maxx, Mefanoxam 2AQ	mefenoxam 2ME	0.5-1	10-21
		Subdue G	mefenoxam 1G	12.5-25lb	10-14
		Subdue	metalaxyl 2MEC	1-2	10-21
		Insignia	pyraclostrobin 20WG	0.5-0.9	14-28

Disease & Affected Grasses	Symptoms & Cultural Controls	Trade Name	Fungicides ¹	Rate (oz/1000 ft ²)	Application Interval (Days)
	leaves, and leaves will shred longitudinally. Improve drainage, sunlight penetration; relieve compaction; provide good growing conditions.	Insignia Intrinsic	pyraclostrobin 2.08 SC	0.4-0.7	14-28
		Honor Intrinsic	pyraclostrobin + boscalid 28G	0.55-1.1	14-28
		Pillar G	pyraclostrobin + triticonazole	3.0 lb	14-28

¹Presence of a fungicide in this list does not constitute a recommendation. Trade names are used with the understanding no endorsement is intended nor is criticism implied of similar products not mentioned. All chemicals should be used in accordance with the manufacturer's instructions. Do not add adjuvants, surfactants, etc. to fungicides unless specified by the label. Check labels carefully to determine usage on residential, or commercial turf areas and other restrictions.

Trade Names for Common Turf Fungicides

Common Name	Trade Name Examples
azoxystrobin	Heritage, Heritage TL, Heritage G
azoxystrobin + chlorothalonil	Renown
azoxystrobin + propiconazole	Headway, Headway G
boscalid	Emerald
boscalid + chlorothalonil	Encartis
chloroneb	Terraneb SP, Terremec SP
chlorothalonil	Daconil formulations, Chlorothalonil WG, Chlorothalonil 720 SFT, Manicure, Thalonil, Concorde, Echo, others
chlorothalonil + acylbenzolar -s-methyl	Daconil Action
chlorothalonil + iprodione + thiophante methyl + tebuconazole	Enclave
cyazofamid	Segway
ethazole	Koban, Terrazole
fenarimol	Rubigan, Patchwork
fenarimol + chlorothalonil	Twosome Flowable Fungicide
fluazinam	Secure
fludioxonil	Medallion
fluoxastrobin	Disarm
fluoxastrobin + chlorothalonil	Disarm C
flutolanil	Prostar
flutolanil + thiophanate methyl	SysStar
fosetyl Al	Aliette, Aliette Signature, Chipco Signature, Prodigy, Fosetyl Al 80WDG
fluopicolide + propamocarb	Stellar
fluxapyroxad	Xzemplar
fluxapyroxad + pyraclostrobin	Lexicon Intrinisci 4.2SC
iprodione	Chipco 26GT Flo, Iprodione Pro, Ipro 2SE, others
maneb	Manex, Maneb + zinc, Dithane M-22 Special, plus others
maneb (37%)+ zinc F	Pentathlon F
mancozeb	Fore, Dithane T&O, Tersan LSR, Manzate 200 Flowable, Protect T/O, Pentathlon DF, + others
mefenoxam	Subdue Maxx, Mefanoxam AQ, others
metalaxyl	Subdue 2E, Pythium Control, Apron ⁴
metconazole	Tourney
myclobutanil	Eagle, Systhane WSP, Myclobutanil 20EQ T&O
Penthiopyrad	Velista 50WDG
polyoxin D	Affirm WDG, Endorse WP
propiconazole ⁵	Banner MAXX, Alamo, Propiconazole 14.3
phosphorous acid salts	Alude, Appear, Magellan, Biophos, Resyst, Vital
propamocarb	Banol
pyraclostrobin	Insignia, Insignia Intrinsic
pyraclostrobin + boscalid	Honor, Honor Intrinsic
pyraclostrobin + triticonazole	Pillar G, Pillar G Intrinsic
tebuconazole	Torque
thiophanate methyl	Cleary 3336, Fungo, SysTec 1998, Cavalier, Scotts Systemic Fungicide, TM 4.5F, TM 85WDG
thiophanate + chloroneb	Scotts Fungicide IV
thiophanate + chlorothalonil	ConSyst, Spectro 90, TM/C
thiophanate + iprodione	Scotts Fluid Fungicide, 26/36

thiophanate + maneb (mancozeb)	Duosan
thiophanate + thiram	Bromosan
thiram	Spotrete 75, Spotrete-F, Thiramad, plus others
triadimefon	Bayleton, Scotts Proturf Fungicide 7, Accost 1G, Granular Turf Fungicide, Strike 25WP
triadimefon + metalaxyl	Scotts Fluid Fungicide II
triadimefon + thiram	Scotts Fluid Fungicide III
trifloxystrobin	Compass
trifloxystrobin + triadimefon	Tartan 2.4SC, Armada 50WP
triticonazole	Trinity, Triton Flo, Triton 70WDG
vinclozolin	Curalan

Currently Available Pre-packaged Turf Fungicide Combination Products

Active ingredient -1	FRAC Code*	Active ingredient -2	FRAC Code*	Active ingredient - 3	FRAC Code*	Some Common Trade Name (s)
azoxystrobin	11	propiconazole	3	-		Headway
azoxystrobin	11	chlorothalonil	M5	-		Renown
azoxystrobin	11	difenoconazole	3			Briskway
Boscalid	7	Chlorothalonil	M5			Encartis
boscalid	7	pyraclostrobin	11	-		Honor, Honor Intrinsic
chloroneb	14	thiophanate-methyl	1	-		Proturf Fungicide IX
chlorothalonil	M5	acylbenzolar-s-methyl	P1			Daconil Action
chlorothalonil	M5	potassium phosphite	33	-		Vitalonil
chlorothalonil	M5	propamocarb hydrochloride	28			Lesco Par Systemic Fungicide
chlorothalonil	M5	propiconazole	3	-		Concert
chlorothalonil	M5	propiconazole	3	fludioxonil	12	Instrata
chlorothalonil	M5	thiophanate-methyl	1	-		Broadside, ConSyst, Peregrine, Spectro, Tee-1-Up, TM/C
chlorothalonil	M5	fluoxastrobin	11	-		Disarm C
chlorothalonil	M5	triticonazole	3	-		Reserve
copper hydroxide	M1	mancozeb	M3	-		Junction
flutolanil	7	thiophanate-methyl	1	-		SysStar
fluopicolide	43	propamocarb hydrochloride	28	-		Stellar
fluxapyroxad	7	pyraclostrobin	11	-		Lexicon
iprodione	2	thiophanate-methyl	1	-		26/36, Dovetail, Fluid Fungicide, Proturf Fluid Fungicide, Twosome
iprodione	2	trifloxystrobin	11	-		Interface

Active ingredient -1	FRAC Code*	Active ingredient -2	FRAC Code*	Active ingredient - 3	FRAC Code*	Some Common Trade Name (s)
mancozeb	M3	myclobutanil	3	-		MANhandle
mancozeb	M3	thiophanate-methyl	1	-		Duosan
metalaxyl	4	triadimefon	3	-		Proturf Fluid Fungicide II
myclobutanil	3	fluoxastrobin	11	-		Disarm M
pyraclostrobin	11	triticonazole	3	-		Pillar
thiram	M3	triadimefon	3	-		Proturf Fluid Fungicide III
thiophanate-methyl	1	thiram	M3	-		Bromosan
triadimefon	3	trifloxystrobin	11	-		Armada, Tartan

*FRAC code: M = multi-site mode of action (MOA); same numbers = fungicides with same MOA.

Turfgrass fungicides classified by chemical fungicide group.

Chemical Group (activity)	Common Name	Trade Name Examples
Acetanilide (Phenylamide) (Upward Mobile; Curative and Protective)	Metalaxyl	Subdue, Apron (seed treatment only)
	Mefanoxam	Subdue Maxx
Aromatic Hydrocarbons (Contact; Protective)	Chloroneb	Terraneb, Teremec
	Ethazole (Etridiazole)	Koban, Terrazole
	PCNB (Quintozene)	Terraclor, PCNB, Engage, Revere, Penstar, Turfcide
Benzimidazoles (Upward Mobile; Curative and Protective)	Thiophanate Methyl	Fungo 50, Fungo Flo, Cleary 3336, Systec 1998
Benzonitrile (Contact; Protective)	Chlorothalonil	Daconil Ultrex
Carbamates (Upward Mobile; Curative and Protective)	Propamocarb Hydrochloride	Banol
	Difenoconazole	Component in Briskway
Demethylation Inhibitors (DMI) (Upward Mobile; Curative and Protective)	Fenarimol	Rubigan
	Myclobutanil	Eagle WSP
	Propiconazole	Banner
	Triadimefon	Bayleton, Scotts Proturf Fungicide 7
	Metconazole	Tourney
	Tebuconazole	Torque
Dicarboximides (Local-penetrant; Protective)	Iprodione	Chipco 26019, Chipco 26GT
	Vinclozolin	Vorlan, Curalan, Touche
Dithiocarbamates (Contact; Protective)	Mancozeb	Fore, Tersan LSR, Dithane M-45, Manzate 200FL, Protect
	Maneb	Manex, security Maneb Spray, Dithane -22 Special
	Thiram	Spotrete 75, Spotrete-F, Thiramad
Phosphonates (Systemic; Curative and Protective)	Fosetyl-Al	Aliette, Chipco Signature, Prodigy
	phosphorous acid salts	Alude, Magellan, Biophos, Resyst, Vital
SDHI (succinate dehydrogenase inhibitors) (Upward mobile, Curative and Protective)	Flutolanil	Prostar, Systar
	Boscalid	Emerald, Honor
	Fluxapyroxad	Xzemplar, Lexicon
Strobilurines (Qoi) (Upward mobile, Curative and Protective-azoxystrobin) (local penetrant or mesostemic, curative and protective – trifloxystrobin)	Azoxystrobin	Heritage
	Trifloxystrobin	Compass
	Pyraclostrobin	Insignia
	Fluoxastobin	DisArm