

For warm-season disease control: know your turf!

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PHOTOS COURTESY DR. MARTIN

Dollar spot can be severe on nitrogen-deficient or drought-stressed turf.

Diseases can seriously limit the successful culture of warm-season turfgrasses. Fungi are most of the living causal agents of disease in warm-season grasses, but nematodes are a problem, too, particularly in sandy soils. Successfully managing diseases in warm-season grasses depends on knowing the requirements of the particular grass in question, the biology of the pathogens, and good turf horticultural practices. Pesticide applications can be a valuable component in an overall integrated pest management system, but they must be used responsibly.

Brown patch

A major disease of cool-season grasses, brown patch also commonly attacks warm-season grasses, including bermudagrass, St. Augustinegrass, centipedegrass and zoysiagrass. The primary causal agent is *Rhizoctonia solani*, but the strain which causes the disease differs from those encountered as

pathogens of cool-season grasses.

Brown patch symptoms appear in the spring, as the turfgrass is breaking dormancy, or in the fall, as the turfgrass approaches dormancy. Individual disease patches may be 20 or more feet in diameter. Shoots along the outer border of patches usually are yellow due to rotted leaf sheaths near the soil surface.

Dollar spot

This disease occurs on all of the warm-season turfgrasses, but gets severe in bermudagrass and zoysiagrass. Best conditions for dollar spot are warm, humid weather. Dollar spot can be more severe on nitrogen-deficient turf or turf that has become drought stressed before rain or high humidities occur.

Symptoms differ depending on the grass's height of cut. On turf cut low, patches of about one to two inches in diameter develop. On higher-cut turf,

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patches may exceed five inches in diameter. Characteristic leaf lesions are a bleached tan with distinct reddish brown or purplish margins. Leaves may become girdled. In early morning, it is not uncommon to see a gray mycelial growth.

Spring dead spot

Spring dead spot of bermudagrass occurs in transition zone areas of the U.S. It is common in the Piedmont and mountain areas of the Carolinas and Georgia, but rare in the coastal regions. Hybrid bermudagrasses are particularly susceptible, but common types may also be afflicted. Several fungi are possible causal agents of this disease. All are relatively slow-growing, root-colonizing fungi.

Brown patch symptoms—shown here in bermudagrass—appear in the spring.



Symptoms include dead circular areas of turf, two or three feet in diameter, found in spring as bermudagrass breaks dormancy. Patches of diseased turf may

persist for several years. Older patches develop a "frog-eye" symptom with healthy grass in the center, and patches that look like donuts.

Generally, spring dead spot develops in turf that is three to six years old. Excessive thatch, late-summer nitrogen applications, and low temperatures in winter predispose turf to spring dead spot.

Gray leaf spot

Gray leaf spot is caused by *Pyricularia grisea*, a very common disease of St. Augustinegrass occurring in hot humid weather. It is more severe in newly-established turf, in shady locations with poor air movement.

Infections occur on leaves and stolons, first as small brown spots with a distinct brown color, to a purple border around the infected tissue. Lesions may become very numerous and expand to completely consume leaves and girdle stolons. Severe infections may leave turf with a scorched appearance. The disease is sometimes called "blast" due to this symptom.

Leaf spot

Bipolaris sorokiniana causes leaf, crown and root diseases of bermudagrass and zoysiagrass during warm, wet weather in mid-summer. The diseases start as leaf spots, and may progress to crown and root rots. *Exserohilum rostrata* has been reported to cause a leaf spot of St. Augustinegrass and bermudagrass. However, these diseases are rarely severe where these grasses are

CONTROL PRODUCTS FOR WARM-SEASON TURF DISEASES

Brown patch	Eagle WSP; Daconil 2787F; Daconil 90WDG; Daconil Ultrex; Prostar 50 WP; Bayleton 25 WP; Banner 14.3EC; Rubigan AS; Chipco 26019 50WP; Chipco 26019 23.3%F; Fore 37%F; Fore 80WP; Terraclor 75 WP; Turfside 10G; Curalan 41.3% F; Curalan DF; Cleary's 3336 50WP; Cleary's 3336 46%F; Sentinel 40WG
Dollar spot	Eagle WSP; Daconil 2787 F; Daconil 90WDG; Daconil Ultrex; Banner 14.3 EC; Bayleton 25WP; Curalan 50WP; Curalan DF; Rubigan AS; Chipco 26019 50WP; Chipco 26109; 23.3%F; Fore 80WP; Cleary's 3336 50WP; Cleary's 3336 46%F; Vorlan DF; Vorlan Flo; Sentinel 40WG
Spring dead spot	Rubigan AS; Eagle WSP
Gray leaf spot	Daconil 2787F; Daconil 90WDG; Daconil Ultrex; Banner 14.3%EC; Sentinel 40WG
Leaf spot	Daconil 2787F; Daconil 90WDG; Daconil Ultrex; Chipco 26019 50WP; Chipco 26019 23.3%F; Banner 14.3%EC; Curalan 50WP; Curalan Flo; Vorlan DF; Vorlan Flo; Fore 37%F; Fore 80WP; Eagle WSP
Pythium diseases	Aliette 80WP; Koban 30WP; Subdue 2E; Subdue 2G; Banol 6E
Fairy rings	Prostar 50WP
Nematodes	Mocap 10G; Nema-cur 10G; Nema-cur 3E

Note: each product has specific use rates and intervals. Read labels and follow specifications as listed on label.

CULTURAL CONTROL TIPS FOR WARM-SEASON TURF DISEASES

cultured in open, sunny locations, with good soil drainage. If they occur, it may be a sign of other stresses to the turf that can be managed culturally.

On bermudagrass or zoysiagrass, small dark brown lesions appear on leaf blades and sheaths and may expand to larger, irregular, straw-colored lesions. Stolons and roots may develop a dark, or dry rot. The turf may gradually brown and thin, over a period of weeks or months.

Pythium diseases

More of a problem in cool-season grasses, some Pythium species cause general decline by infection of roots.

St. Augustinegrass is susceptible during prolonged warm, wet periods. Poor surface and subsurface drainage favors pythium fungi, and encourages algae in areas where disease has weakened the grass.

Fairy ring

This disease is caused by several species of mushroom-forming fungi. Symptoms appear as rings or arcs of green, stimulated turf which may be accompanied by declining grass and mushroom formation. Problems develop when mushroom mycelia accumulate in the soil and dry it out. Fairy rings may persist and increase in diameter over years. The fungi may colonize old roots, stumps, or thatch, or may be mycorrhizal on living trees. Newly-constructed putting greens may develop infestations after only a few months or years.

Nematodes

Turf that is heavily infested with damaging nematode species appears unthrifty; weeds invade weak or dead areas. Infested areas tend to wilt prematurely, even when adequate soil moisture is available. In most cases, nematodes occur in very sandy soils.

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Brown patch

1. good soil drainage
2. deep but infrequent irrigation
3. minimal nitrogen fertilization as nitrogen increases susceptibility, particularly if unbalanced with other nutrients or if excessive during susceptible periods (approaching dormancy or spring green-up).

Note: Several fungicides are labeled and provide good control when applied on a preventive fall schedule when symptoms first appear.

Dollar spot

1. balanced fertility
2. early morning irrigation when needed to limit high humidity
3. regular mowing at correct height

Note: Several fungicides control dollar spot, but are generally unnecessary in lawns. Do not rely solely on sterol biosynthesis inhibitors (cyproconazole; propiconazole; triadimefon; myclobutanil) or benzimidazole fungicides (thiophate methyl) as resistance can develop.

Spring dead spot

1. maintain a balanced fertility program
2. manage thatch properly
3. avoid high rates of late summer nitrogen applications

Note: Some control has been obtained with certain fungicides.

Gray leaf spot

1. improve air movement and light penetration
2. irrigate only as needed during early morning hours to promote maximum drying during the day
3. avoid high nitrogen fertilization during periods favorable for disease development

Note: Labeled fungicides may be needed on new turf (sodded or sprigged) or if sites are especially conducive to disease.

Leaf spot

1. avoid high nitrogen fertilization
2. avoid watering practices that provide long periods of wet or humid conditions
3. provide good soil drainage, air movement and sunlight
4. mow frequently at proper heights to reduce the leaf spot phases of these diseases

Pythium

1. keep soil properly drained
2. provide adequate light and air circulation

Fairy rings

1. till and fumigate for limited control
2. saturate the soil for several hours and over several days for limited control

Note: It is probably futile to attempt to control rings occurring around trees. In this case, consider landscaping the areas with non-turfgrass plants. Prostar fungicide has been helpful in suppressing fairy rings in putting greens.

Nematodes

1. irrigate more frequently to compensate for damaged root systems.
2. nematicides provide temporary suppression

Note: Beneficial nematodes, sesame extracts and other means have been tried, but success has been limited.