

in warm-season turfgrass

The common southern turfgrass diseases have distinctive symptoms, and are easy to predict based on temperature and moisture conditions. Reduce traffic, watering and thatch, and use appropriate control products for a combined defensive strategy.

by GARY W. SIMONE, PH. D.,
University of Florida

The fall overseeding period on bermudagrass in golf courses and other recreational sites has had an increasing incidence of *Leptosphaerulina* blight.

This disease has been a minor leaf blight affecting such cool season grasses as annual and perennial ryegrass, annual bluegrass, creeping bentgrass, fine leaf fescues, and Kentucky bluegrass. The causal

fungus, *Leptosphaerulina australis*, has commonly invaded senescent or stressed leaf tissue in the past. Recent years have seen an increased incidence of this disease on rye/bentgrass overseeds and not necessarily on old or stressed tissue.

Leptosphaerulina blight begins on leaf tips, producing a yellowing that pro-

gresses down toward the sheath. Affected tissue develops a reddish-brown color prior to the necrosis and shriveling of affected leaves. The fungus does not appear to invade the crown nor roots of the overseed. Affected turf areas have a patchy appearance, exhibiting a reddish color similar to that caused by cold wet soils and restricted phosphorus

uptake. Close examination with a hand lens will reveal the brown-to-black, embedded sexual reproductive structures in shriveled leaf tips. The fungus has been known to invade bermudagrass in the absence of an overseeded species. *Leptosphaerulina* likely survives as mycelia in thatch and in the sexual bodies (perithecia) in either debris or soil. Recent dramatic shifts in rainfall due to El Niño may have much to do with incidence of *Leptosphaerulina* in overseeded grasses and in bermuda.

St. Augustinegrass is still suffering from the widespread incidence of take all root rot caused by *Gauromannomyces graminis* var. *graminis*. However, an increasing number of summer decline samples from urban lawn sites are not associated with take all root rot disease. Samples processed in the Florida Extension Plant Disease Clinic are revealing the presence of *Rhizoctonia zaeae* – a causal fungus of leaf and sheath spot on bermudagrass. This disease is similar in appearance to take all disease on St. Augustinegrass but with less root destruction. Turf professionals comfortable with visual identification of take all patch by appearance and timing, are encouraged to take an occasional sample and forward to a diagnostic clinic for verification. Turf sites invaded by *Rhizoctonia zaeae* are treatable situations.

Some Familiar Foes

Algae – These are not truly pathogenic on turf but have an adverse impact on turf quality due to competition. The blue-green algae are the primary culprits, invading partially shady sites with high moisture and a freely available nitrogen source. Algal growth produces a slippery condition on the turf and may become so dense that it can prevent irrigation from reaching the root zone. Improving soil drainage and air circulation coupled with verticutting areas with algal mats will aid in management.

Anthracnose – Incidence has been low on centipede grass due to the mild winter conditions throughout much of the Southeast. Areas with disease are correlated to either poor fertility conditions or nematode populations. Minimizing stress conditions greatly reduces anthracnose development.



Bermudagrass with decline symptoms

(PHOTO COURTESY T. FREEMAN)

Bermudagrass decline – Pursue lab diagnosis to verify decline and separate this disease from similar appearing localized dry spots (fairy rings) and Rhizoctonia leaf and sheath spot disease. Raise mowing height by 50% to increase photosynthetic area and top dress greens frequently. Fungicide use is primarily preventative.

Brown Patch – This spring/fall disease is most aggressive between 75-85°F. Disease is favored by thatch, excessive soil moisture and readily soluble nitrogen sources. De-thatch severely affected areas, apply slow release N sources and water deeply but infrequently.

Cottony Blight – Excessive rainfall in the fall through spring period (1997-98) has resulted in a



higher incidence of cottony blight in overseeded situations. Many greens and tees developed patches or streaks of greasy-green invaded turf as the fungus

St. Augustinegrass with take all root rot disease.

FUNGICIDE MANAGEMENT FOR WARM-SEASON TURFGRASSES

Disease	Common Fungicides	Comments
Algae	Chlorothalonil, mancozeb, maneb	Reduce watering and verticut algal mats
Anthracnose	Chlorothalonil, cyproconazole, propiconazole, triadimefon	Minimize thatch
Bermudagrass decline	Azoxystrobin, fenarimol, myclobutanil, propiconazole, thiophanate methyl, triadimefon	Preventative use and azoxystrobin has curative potential for golf course and sod farms
Brown patch	Azoxystrobin, chloroneb, chlorothalonil, cyproconazole, fenarimol, flutolanil, iprodione, maneb, mancozeb, myclobutanil, PCNB, propiconazole, thiophanate methyl, thiram, triadimefon	Mow into infested sites last and collect clippings to minimize mower spread
Cottony blight	Chloroneb, etridiazole, fosetyl aluminum, mancozeb, mefanoxam, propamocarb	Minimize traffic and irrigation on infested sites
Dollar spot	Chlorothalonil, cyproconazole, fenarimol, iprodione, mancozeb, maneb, myclobutanil, PCNB, propiconazole, thiophanate methyl, thiram, triadimefon	Minimize thatch and achieve a balanced fertility for long-term control
Fairy ring	Flutolanil	Some success with puffball caused rings from shallow depths
Gray leaf spot	Chlorothalonil, propiconazole	Repeated applications during rainy period needed
Helminthosporium spots	Chlorothalonil, iprodione, mancozeb, maneb, myclobutanil, PCNB, propiconazole, vinclozolin	Minimize thatch
Leptosphaerulina blight	Chlorothalonil, iprodione, vinclozolin	
Pythium root rot	Chloroneb, etridiazole, fosetyl aluminum, mefanoxam, propamocarb	Avoid excessive irrigation; Foliar fertilization may help
Rhizoctonia leaf and sheath spot	Chlorothalonil, flutolanil, iprodione, mancozeb, PCNB, thiram	Can be confused with decline and fairy ring or take all root rot
Rust	Cyproconazole, mancozeb, maneb, propiconazole, triadimefon	Usually not needed for control
Take all root rot	Fenarimol, myclobutanil, propiconazole, thiophanate methyl, triadimefon	Preventative use only

moved readily with surface water or traffic movement. Improve air circulation and drainage and restrict traffic across infested sites.

Dollar Spot – Although considered a disease of cool to warm weather (60-80°F), heat-tolerant strains of the fungal pathogens do exist along the Gulf coast areas, which allows a long period of disease incidence. Low fertility sites receiving excessive irrigation or under high moisture weather periods are prime sites for disease development. Achieve balanced fertility and minimize thatch for long-term suppression.

Fairy Ring – These diseases are caused by the higher fungi (puffballs and mushrooms) and vary in their effects upon turf from grass stimulation to grass death. Many species of fungi are involved including highly poisonous types like *Chlorophyllum molybdites*. Use of flutolanil for fairy ring suppression has been variable in performance. The species of fungus involved and the depth of the fungus colony in the soil may be two reasons for fungicide performance variation. Fairy ring on bermudagrass can be confused with decline and/or *Rhizoctonia* leaf and sheath spot. A clinical



Fairy ring on bermudagrass (*Chlorophyllum molybdites*)

diagnosis can be very helpful here.

Gray leaf spot – This common spot on St. Augustinegrass is most damaging during the hot, rainy summer period. Sites poorly adapted to turfgrass often serve to over season the fungus. Shady urban lawn sites with persistent leaf spot problems should be redesigned and converted to shade-tolerant ground covers, bedding plants, or woody ornamentals. Affected lawns should be deeply watered in early morning hours. Avoid use of readily soluble N sources.

Helminthosporium blights – Primarily damaging in spring and fall on ryegrass and bermuda and is favored by thatchy sites with low fertility and frequent irrigation.

This disease can be mistaken for gray leaf spot on St. Augustine in late summer and early fall. Improve site fertility, reduce thatch, and irrigate for longer periods with less frequency.

Pythium root rot – Occurs on all grasses and is caused by a group of related fungal species spanning a

wide temperature range. Feeder root destruction occurs in sites with poor drainage or excessive irrigation causing turf yellowing and death with a characteristic bleached straw color. Improve soil drainage and restrict supplemental irrigation. Foliar fertilization may aid in recovery of slight to moderately damaged areas.

Rhizoctonia leaf and sheath spot – A summer disease of bermuda only, until recent isolations from St. Augustinegrass. The disease can appear as a small ring, arc or patch

making diagnosis difficult due to similarity of symptoms with fairy ring and decline diseases. Lab diagnosis is important in this situation.

Rust – Disease develops in the cooler periods, especially in partially shaded turf sites. Affected turf is thin and chlorotic with obvious yellow to orange-red blisters on leaf surfaces. Collect infected clippings during mowing. Fungicides are infrequently used.

Take all root rot (patch) – Stress-related disease on urban St. Augustine-, centipede-, bahia-, and zoysiagrasses. Develops in mid to late spring and continues through summer into early fall. Affected turf yellows, followed by a thinning to death. Feeder root systems are greatly reduced. Fungal pathogen invades following stresses from disease, insects, nematodes, cultural, or environmental factors.

The fungus cannot be reliably eradicated from the site, nor is pathogen-free sod available in the southeast U.S. **LM**

The author is an extension plant pathologist and professor at the University of Florida, Gainesville.



Abbreviated root system of St. Augustinegrass due to take all root rot.