

Handle the worst warm-season diseases

Serious fungal diseases are hard to control. Follow these steps to keep turf plants healthy

By ED A. BROWN, Ph.D.

Injury to warm-season turf by disease fungi can be significant, depending on the susceptibility of the grasses. The impact of the disease depends on the cultivars you grow and the environmental conditions.

First, consider disease control *before* you establish the turf. Select cultivars that are adapted for your area. Keep in mind that there are differences in disease susceptibility between different cultivars and even between varieties of the same cultivar.

The five following fungal diseases are serious problems for warm-season turf and are hard to control for some turf types.

1. Brown patch

Brown patch, caused by the fungus *Rhizoctonia solani*, attacks all major warm-season grasses in the South and is the most common disease fungus of turfgrass. St. Augustinegrass and zoysiagrass are the most susceptible, partly due to the way the grasses are managed, making this disease more difficult to control.

Even the slightly more resistant centipedegrass and bermudagrass are frequently damaged by this fungus disease, although they recover better.

Brown patch develops with:

- ▶ favorable environmental conditions which can occur from late April through October,
- ▶ heavy nitrogen applications,
- ▶ high moisture content in the turf and soil,
- ▶ favorable combination of temperature, 80° to 85°F (but infection may occur at 73°F).

The fungus remains active until the air temperature reaches 90°F. Since air temperatures usually drop below 90°F for much of any 24-hour period, the fungus may continue to be active all summer, awaiting only a more favorable combination of temperature, nitrogen applications and water to cause visible symptoms.

Brown patch symptoms

This fungus kills the grass in a circular pattern a few inches to several feet in diameter. Affected areas in bermudagrass, centipedegrass and ryegrass are brownish in color and straw-colored in St. Augustinegrass. In the early morning, during hot, humid weather, you may see smoky gray to black, wilted, webbed grass around the brownish, diseased area.

A limited attack may kill only the blades and the turf will recover in two or three weeks. However, if the temperature, nitrogen levels and water applications combine favorably for disease development, the attack may kill the affected areas of all the grasses except bermudagrass, which usually recovers through new growth of

Bermudagrass with brown patch. Note the reddish brown discolored margin around the diseased area.

◀ **brown patch**



the underground rhizomes.

Occasionally, the fungus may thin a large area of turf and eventually kill it without the circular pattern being evident. This type of symptom occurs primarily under shady, moist conditions.

Control brown patch

► Don't apply excessive nitrogen — use only enough to maintain a reasonably green, attractive turf.

► Water only when the soil is dry, then soak the soil to a depth of 5 to 7 inches. Water in the early morning to allow the foliage to dry as quickly as possible.

► Begin fungicide applications as soon as you observe the disease. A preventive spray schedule is usually not recommended for lawn grass disease control in home grounds because of the expense. Only two or three applications are necessary for effective control, if you monitor the turf closely and make applications as soon as you notice the disease.

2. Dollar spot

The fungus that causes dollar spot, *Sclerotinia homeocarpa*, can attack a large number of grasses. However, it is serious only on bermudagrass and zoysiagrass in the south. Soil moisture, nitrogen levels and temperature determine the severity of dollar spot.

This disease develops with:

► turfgrass growing under dry soil moisture conditions, which is more susceptible than when adequate soil moisture is provided,

► low nitrogen,

► sufficient surface moisture for disease, provided by dew, fog or watering,



Dollar spot causes small circular (1 to 3 inches) straw-colored areas which may coalesce, causing large irregular diseased areas.

dollar spot

► mild weather (60° to 80°F) during spring and fall.

However, dollar spot can

occur throughout the summer.

Ideal conditions for dollar spot development would be bermudagrass growing under low nitrogen levels with low soil moisture, a temperature of 60° to 80°F and early morning fog or dew.

Dollar spot is characterized by circular areas only a few inches in diameter. Where infection is severe, spots may run together, causing large, irregular patterns covering several square yards. Infected areas take on a straw color.

Controlling dollar spot

► Add nitrogen but be aware that high nitrogen tends to favor the development of brown patch. Use discretion in applying nitrogen.

► Soil moisture should be adequate enough for good growth of the turf as an aid in reducing disease severity; however, water only in the early morning so the foliage can dry quickly.

► If soil moisture and nitrogen levels are adequate, two or three fungicide applications at recommended intervals should be sufficient to control dollar spot.

3. Pythium blight (Cottony Blight)

Pythium blight is becoming more wide-

spread in the South, and this may be attributed to increased watering practices. There are several *Pythium* species which can cause disease on turf. Susceptible grasses include bermudagrass and zoysiagrass, but the most affected turf types are the overseeded cool-season grasses, which can cause a problem for golf courses and athletic turf areas.

This disease develops with:

► an abundance of moisture,
► warm temperatures — the disease is negligible below 68°F, but increases with rising temperatures; maximum damage occurs at 90° to 95°F,

► fall and warm winter days on cool-season overseeded grasses. Pythium blight is usually halted by cooler temperatures.

Pythium blight occurs in small, irregular spots which may enlarge and appear dark and water soaked in the early stages. If it is active, there may be a white, cottony growth in the affected spots. The grass in affected spots dies rapidly, collapses and appears matted.

Managing Pythium blight

► Use treated seed.
► Delay overseeding until the onset of cool weather or as late as possible. Water as little as possible during periods favoring disease activity.

4. Gray leaf spot

St. Augustinegrass is susceptible to the fungus *Pyricularia grisea*, a serious problem that has recently become the focus of concern for many turf managers.

Conditions favoring gray leaf spot include:

► high humidity, warm temperatures and high nitrogen rates,

► semi-shade, when frequent showers occur or where frequent irrigation produces high relative humidity,

► higher amounts of nitrogen.

Gray leaf spot causes round to oblong,

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gray leaf spot ▶

Gray leaf spot on St. Augustine-grass can cause significant damage and turf decline.

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straw-colored leaf blades with purple to brown margins. Severely affected leaf blades wither and turn brown. Death of the turf slows lawn recovery from this disease.

Controlling gray leaf spot

- ▶ Use nitrogen as sparingly as possible to give the desired turf appearance.
- ▶ Water in the morning. Water as infrequently as possible and then water thoroughly.
- ▶ If disease appears, use one of the fungicides recommended by your local cooperative extension service.

5. Spring dead spot

Spring dead spot (SDS), *Leptosphaeria korrae*, is a serious disease of bermudagrass in the northern range of the southern United States, as it kills the entire turf plant. It occurs more often than in the past due to the increase in overmanaged bermudagrass, a result of increasing turf quality expectations.

Once established on a site, the disease will occur year after year. It occurs in bermudagrass growing areas where freezing temperatures are typical. It has not been observed in Florida or the southernmost regions of Georgia.

Spring dead spot develops with:

- ▶ high nitrogen applications and potassium deficiency,
- ▶ heavy thatch, which encourages shallow

root development and weakens turf, allowing winter injury.

Spring dead spot appears as circular dead areas ranging from 6 inches to several feet in diameter. While the damage actually occurs in the fall, the symptoms are not apparent until the early spring, when the bermudagrass starts to come out of dormancy and add green growth.

Initial symptoms are a bleached color in greening bermuda turf. These areas may remain brown throughout the summer and may reoccur for several years in succession. The turf may cover these bare areas during the summer but the roots will not peg into the soil.

These weak areas

Spring dead spot causes bleached white circular patches 6 to 18 inches in diameter.

◀ spring dead spot



also allow weeds to establish and further complicate recovery by competition during reestablishment.

Spring dead spot control

▶ Remove thatch as needed to help prevent the buildup of disease-causing fungi. But avoid heavy thatch removal in early summer since stolons growing over affected areas may be removed.

- ▶ Avoid excessive nitrogen.
- ▶ Promote management practices to encourage slow, even growth to improve winter hardiness.
- ▶ If the other management practices are not corrected, they can affect the results of fungicide treatments.

▶ Aerifying and irrigation may help in reestablishment; follow soil test recommendations and do not overfertilize.

▶ There are specific fungicides that are labeled for control of spring dead spot.

Other diseases that are a problem on warm-season turf include rust and Helminthosporium disease. They do not kill the plants but are common enough to cause management headaches. Remember, disease may still become a problem, even under the best management conditions. Fungicides should only be used along with good management practices to help encourage healthy growth.

—The author is Extension Plant Pathologist at The University of Georgia, Athens, GA.