

Turfgrass Disease Profiles

Brown Patch

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Brown patch is caused by a fungal pathogen (*Rhizoctonia solani*) that affects all cool season turfgrass species. It is a foliar disease that does not affect crowns or roots. Moderate to severe outbreaks on high-maintenance creeping bentgrass and annual bluegrass can result in thin, poor quality turf that may be predisposed to algae and moss infestation.

Even mild brown patch outbreaks can spoil the appearance of golf greens and tees. Taller mown turfgrasses for athletic fields and professional landscapes (especially tall fescue and perennial ryegrass) also may sustain damage from brown patch infection.

Disease Characteristics and Symptom Expression

Under favorable environmental conditions brown patch symptoms may develop overnight. On creeping bentgrass and annual bluegrass greens and tees, brown patch development results in circular olive green stains, ranging from 4 to 12 inches in diameter (Figures 1 and 2). Leaf blades within the patch turn brown after infection, while a gray-white band is normally evident at the perimeter of active patches (Figure 3).

The band (often called a smoke ring) is caused by advancing mycelium and water-soaked infected leaves. Smoke rings may occur on taller mown turf, but are much less evident. Figure 4 shows advancing mycelium surrounding brown patch on perennial ryegrass. Individual lesions on leaf blades with brown margins occur on all affected grass species but are most evident on tall fescue (Figure 5).

Brown patch is a summer disease. The pathogen becomes active during hot, humid periods when dew periods exceed 10 hours and nighttime temperatures remain above 65° F. Also, outbreaks will be more severe when nitrogen fertility is excessive during disease-favorable weather.



Figure 1



Figure 2



Figure 3



- Gray Snow Mold
- Pink Snow Mold
- Leaf Spot/Melting Out
- Red Thread
- Dollar Spot
- Brown Patch**
- Gray Leaf Spot
- Anthracnose
- Pythium Blight
- Leaf Rust
- Powdery Mildew
- Slime Mold
- Fairy Ring
- Take All Patch
- Summer Patch
- Necrotic Ring Spot
- Rhizoctonia Large Patch
- Yellow Patch

The brown patch pathogen produces no spores. Therefore, the disease spreads by radial expansion of mycelium over leaf blades and by mechanical maintenance practices. The fungus survives in thatch and turf debris between active periods.

Disease Control Resistance to Disease

Varieties of various turfgrass species with different degrees of susceptibility to brown patch infection are listed at the National Turfgrass Evaluation Program Web site: www.ntep.org. It is important to note that under favorable environmental conditions all varieties will sustain some brown patch damage if they are not protected with fungicides. Most lists ranking brown patch resistance/susceptibility vary widely, and real differences often are not apparent. Perhaps the best way to identify varieties with desired resistance levels is to observe their growth and response to disease pressure at university field days.

Cultural Practices that Suppress Disease

Attention to cultural practices, such as avoiding excess nitrogen during the summer, can contribute to reducing disease pressure and help improve fungicide performance on intensively managed turf. Improving air circulation and scheduling irrigation to avoid long dew periods also help suppress brown patch outbreaks.

Chemical Control Options

Numerous effective fungicides are registered for brown patch control. When selecting a fungicide, be aware of other turf disease threats and apply fungicides for these threats at the same time to minimize costs and other potential disease problems.

For example, the QoI (strobilurin) products (Compass®, Disarm®, Heritage®, Insignia®) are extremely effective



Figure 4



Figure 5

against brown patch, but are not effective against dollar spot. If they are applied alone when dollar spot is active, the dollar spot problem could become overwhelming and very costly to control. Several QoI fungicides are prepackaged with DMI fungicides to address the dollar spot threat and broaden the spectrum of control from a single product.

For more information on dollar spot, see Purdue Extension publication BP-105-W, *Turfgrass Disease Profiles: Dollar Spot*, www.extension.purdue.edu/extmedia/BP/BP-105-W.pdf.

These represent simple examples concerning brown patch; however, similar issues may be raised with other diseases. The point is: before applying a fungicide, it is important to first evaluate turf conditions, understand the current and potential disease threats, and examine the entire activity spectrum of the fungicides under consideration.

Residential Lawn Help

Brown patch can cause serious damage to tall fescue and perennial ryegrass residential lawns under certain conditions. The disease will result in thin, poor-quality turf as the fungus consumes leaves and tillers. Because brown patch does not affect crowns and roots, damaged turf areas should recover upon the return of weather favorable to turf growth, especially if turf is not further damaged by traffic and/or other stresses.

Avoid summer fertilization and early evening irrigation to help limit brown patch development. Fungicides are available but should not be necessary for residential lawns. If a homeowner decides to pursue the chemical control option, then a professional lawn care service should be contracted for the application.

