

# Turfgrass Disease Profiles

By **RICHARD LATIN**  
 Professor of Plant Pathology  
 Purdue University

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

Figure 1



Figure 2

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 degrees Fahrenheit. Also, outbreaks will be more severe when nitrogen fertility is excessive during disease-favorable weather.

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 website: [www.ntep.org](http://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.



Figure 3



Figure 4

## 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.



Figure 5

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### Chemical Control Options

Numerous effective fungicides are registered for brown patch control. They include Chipco 26GT<sup>®</sup>, Cleary 3336<sup>®</sup>, Curalan<sup>®</sup>, Daconil Ultrex<sup>®</sup>, DMI fungicides (Banner Maxx<sup>®</sup>, Bayleton<sup>®</sup>, Eagle<sup>®</sup>), Prostar<sup>®</sup>, and the strobilurin fungicides (Compass<sup>®</sup>, Heritage<sup>®</sup>, and Insignia<sup>®</sup>).

When selecting a fungicide, be aware of other turf disease threats so fungicide costs can be optimized and other disease problems can be avoided. For example, strobilurin fungicides (such as Heritage 50WDG<sup>®</sup>, Compass 50WP<sup>®</sup> and Insignia 20WG<sup>®</sup>) are the most effective against brown patch. However, if strobilurins are applied alone when dollar spot is active, the dollar spot problem could become overwhelming and very costly to control. Prostar 70W<sup>®</sup> is effective against brown patch but not dollar spot. Also, it has been reported that applying Prostar<sup>®</sup> can exacerbate a gray leaf spot problem on perennial ryegrass because it does not affect the gray leaf spot pathogen. For more on dollar spot, see Purdue Extension publication BP-105-W ([www.ces.purdue.edu/extmedia/BP/BP-105-W.pdf](http://www.ces.purdue.edu/extmedia/BP/BP-105-W.pdf)); for more on gray leaf spot, see BP-107-W ([www.ces.purdue.edu/extmedia/BP/BP-107-W.pdf](http://www.ces.purdue.edu/extmedia/BP/BP-107-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.

(Editor's Note: This article was reprinted with permission from Purdue University and Dr. Richard Latin.)



**MIKE REDMOND**, Reinders, Inc., pictured on the right accepts 2nd place honors for his team at the MGCSA Scholarship Scramble from MGCSA Board member Jack MacKenzie, CGCS, North Oaks Golf Club. Jack served as master of ceremonies for the event at Dellwood Hills Golf Club.

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