Brown Patch: A Chronic Disease Problem for Mid-Atlantic Superintendents

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Brown patch is caused by the fungus *Rhizoctonia solani* and it is a common summertime disease of turfgrasses. The pathogen attacks nearly all grasses used as turf, but is most damaging to tall fescue, perennial ryegrass, creeping bentgrass and annual bluegrass. Kentucky bluegrass, zoysiagrass and other species are only occasionally injured by *R. solani*. *Rhizoctonia zeae* may also cause brown patch, but it has been observed on only one Maryland golf course to date, and only in perennial ryegrass fairways.

Symptoms

The symptoms of the disease vary according to host species. On closely mown turf such as bentgrass, affected patches are roughly circular and range from three inches to three feet or greater in diameter. The outer edge of the patch may develop a one-to-two inch wide smoke ring. The smoke ring is blue-gray in color and is caused by mycelium in the active process of infecting leaves. smoke rings are not always present and patches may have an irregular rather than circular shape. Close inspection of leaf blades reveals that the fungus primarily causes a dieback from the tip down, which gives affected turf its brown color. In tall fescue and perennial ryegrass turfs, affected areas are frequently irregularly shaped and smoke rings are only occasionally present. *R. solani* produces distinctive and often greatly elongated lesions on tall fescue leaves. The lesions are a light, chocolate brown color, and are bordered by narrow, dark brown bands of tissue. In perennial ryegrass, smaller leaf lesions are produced and tip dieback commonly occurs. During early morning hours, when the disease is active, the cobweb-like mycelium may be observed on leaves in the presence of water or heavy dew. Perennial ryegrass affected with *R. zeae* turns yellow in circular patches prior to dying. Numerous orange-colored *R. zeae* sclerotia can be found among dead leaves in the thatch. Sclerotia of *R. solani* are brown to black and are not nearly as abundantly produced as those of *R. zeae*.

Predisposing conditions

Environmental conditions that favor disease development are day temperatures above 85F and high relative humidity. A night temperature above 68F is perhaps the most critical environmental requirement for disease development. although textbooks underscore the importance of high surface moisture in disease severity, the disease can be very damaging to wilted tall fescue and perennial ryegrass if the relative humidity is high. Late spring and summer application of fertilizers, in particular water soluble nitrogen fertilizers, may increase disease injury from brown patch. Frequent evening or night-time watering or showers will greatly increase disease injury. Avoiding nitrogen applications when the disease is active and irrigating early in the day are the only cultural practices that may help alleviate brown patch. shifts in weather that result in cool night-time temperatures will result in a marked reduction in brown patch severity. Once disease progress is stopped by cool temperatures it often takes seven to 10 days for brown patch to become destructive again when high temperature stress resumes.

Available fungicides

On golf course putting greens, tees and fairways, fungicides frequently are applied on 10- to 14-day intervals during peak disease pressure periods from late June to early September. In 1990, brown patch was active as late as mid-October. Some effective fungicides for brown patch control are as follows: Banner, Chipco 26019, Cleary 3336, Daconil 2787, Dyrene, Fore, Manzate 200, ProStar, Sentinal, and Tersan 1991. For these fungicides to provide their maximum benefit, they should be applied at the onset of disease symptoms and prior to extensive turfgrass injury. Remember, a shift in weather to cool night-time temperatures will greatly reduce disease activity, and will help to reduce the frequency of fungicide application.

Common Sense vs. Nonsense

It's unwise to pay too much, but it's worse to pay too little. When you pay too much, you lose a little money—that is all. When you pay too little, you sometimes lose everything, because the thing you bought was incapable of doing the thing it was bought to do. The common law of business balance prohibits paying a little and getting a lot—it can't be done. If you deal with the lowest bidder, it is well to add something for the risk you run, and if you do that you will have enough to pay for something better.

John Ruskin (1819-1900)