IDENTIFICATION AND MANAGEMENT OF BROWN PATCH DISEASE

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Turfgrass Technical Update
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Brown patch or Rhizoctonia blight is a common summertime disease of cool-season turfgrasses, which is caused by the fungus *Rhizoctonia solani*. The pathogen attacks nearly all grasses used as turf, but is most damaging to tall fescue, perennial ryegrass, and creeping bentgrass. Kentucky and annual bluegrass, zoysiagrass and other species are occasionally injured by *R. solani*. In zoysiagrass, brown patch (also known as large patch) is an autumn disease and is uncommon in Maryland lawns.

Another species of the fungus, *Rhizoctonia zeae*, is a more potent agent of brown patch that primarily attacks perennial ryegrass and creeping bentgrass grown on golf courses.

Brown patch disease in tall fescue

SYMPTOMS

Brown patch symptoms vary according to species. On closely mown turf such as bentgrass, blighted patches often are circular and range from 3" to 36" or more in diameter. During early morning when there is dew, the outer edge of the patch may develop a 1" to 2" wide smoke ring. The smoke ring has a blue-gray or black color and is caused by fungal mycelium in the process of infecting leaves. Smoke rings are not always present, and patches may be irregular rather than circular. Similarly, circular patches of brown turf and smoke rings can be seen in tall fescue lawns and roughs.

***R. solani* lesions on tall fescue leaves.**

Inspection of leaf blades reveals that the fungus often causes leaf tips to die back, which gives affected turf its brown color. In tall fescue, perennial ryegrass, and Kentucky bluegrass, affected areas may be irregular in shape, and smoke rings may not be present. *R. solani* produces variously-shaped lesions on tall fescue leaves. Initially, lesions may be small and oval shaped before they elongate and girdle or extend down most of the leaf surface. The lesions are distinctively tan or chocolate brown in color, and are bordered by narrow, dark-brown bands of tissue. In perennial ryegrass and Kentucky bluegrass smaller leaf lesions are produced and tip die-back commonly occurs. During early morning hours, when the disease is active, the grayish cobweb-like mycelium of *R. solani* may be observed on leaves in the presence of dew.

KEY POINTS

Brown patch is a summer disease that is most severe in tall fescue, perennial ryegrass, and bentgrass.

Brown patch is most likely to occur when night temperature is above 68°F, with rainfall or high humidity for more than 8 hours.

Cultural measures and fungicides can be used to manage the disease.

It can be difficult for homeowners to manage brown patch effectively with fungicides.

PREDISPOSING CONDITIONS

Daytime temperatures above 85°F and high humidity are conditions that favor brown patch development in cool-season grasses. A minimum daily temperature above 63°F with rain or relative humidity above 95% for more than 8 hours is required. When dew is slight or absent (low humidity), or when the evening temperature is cool (below 60°F), brown patch severity is reduced. Evening thunderstorms from June through September with night air temperature above 68°F often lead to severe blighting.

The application of nitrogen fertilizer in late spring or summer (especially water soluble fertilizers made with urea, ammonium, or nitrate), can increase brown patch severity. Evening watering or showers promote disease injury.

CULTURAL AND CHEMICAL CONTROL

Home lawns or athletic fields composed of tall fescue or perennial ryegrass turf are likely to be injured by brown patch during June, July and August in most years. Young tall fescue or perennial ryegrass stands (especially during the first year of growth) are particularly susceptible to severe brown patch injury.

Generally, *R. solani* blights leaves and sheaths, but does not kill crowns or roots. Lawns, golf course roughs, and athletic fields that are properly fertilized, irrigated and maintained at the recommended mowing height usually recover from brown patch in September.

Initiating nitrogen fertilizer applications in mid-September and ensuring that blighted stands are not subjected to severe drought stress that cause turf to become dormant will help to promote more rapid turf recovery. Turfs that have been severely thinned-out due to a combination of heat and drought stress or disease and insect pests, may need to be over-seeded in September

Use certified seed of regional adapted cultivars as recommended in TT 77 “Recommended Turfgrass Cultivars For Maryland”. Fall fertilization (i.e., 75 to 100% of the total amount of annual nitrogen applied between September and mid-November), irrigating early in the day, and mowing turf to avoid a very high canopy are cultural practices that help alleviate brown patch. Use of slow release nitrogen sources such as methylene urea, sulfur coated urea, poly-coated urea and natural organics in the fall and spring also help to further reduce the severity of brown patch in the summer. On golf course fairways it helps to collect clippings and mow early in the morning to speed drying of the foliage.

Younger stands, as well as mature turf, during extended periods of high nighttime temperature and humidity, may require fungicide treatment. Fungicide treatment may be needed two to three times on tall fescue lawns in summer to protect turf from extensive blighting during high disease pressure periods (i.e., hot, humid, plentiful moisture).

Perennial ryegrass should not be used as a lawn grass in Maryland because it is very susceptible to brown patch and numerous other diseases. Fungicides only should be applied by an experienced applicator. Homeowners typically do not have the proper equipment to apply most fungicides, and many of the more effective materials are not available for purchase by homeowners.

On intensively managed golf course putting greens, tees and fairways, fungicides are frequently applied on 10 to 14 day intervals during peak disease pressure periods from mid-June to early September. Some effective fungicides for brown patch control are as follows: Chipco 26GT, 3336, Compass, Curalan, Daconil, (and other chlorothalonil products), Disarm, Eagle, Endorse (aka Affirm), Fore, Heritage, Insignia, and ProStar, Granular forms of Heritage are effective and easier to apply than sprayable fungicides.

Most fungicides may be expected to provide about 10 to 14 days of brown patch control during periods of high disease pressure. Compass, Disarm, Heritage, Insignia and ProStar, however, may be expected to provide brown patch control for 21 days or longer. Heritage, Compass, and ProStar can promote dollar spot and should be used in tank-mix combinations with another fungicide whenever dollar spot is active or is a known chronic problem. Another option is the granular form of Headway (Banner MAXX + Heritage), which will control both brown patch and dollar spot.

For any fungicide or combination of materials to provide their maximum benefit, they should be applied at the onset of disease symptoms and prior to any significant turfgrass blighting. Remember, a shift in weather to cool nighttime temperatures or very dry soil and atmospheric conditions, will greatly reduce disease activity, and will help to reduce the frequency of fungicide application.

See TT-32 "Diagnosing Common Lawn and Athletic Field Diseases" and TT-38 "Maryland Turfgrass Disease Control Recommendations" for more information about brown patch and its control.

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