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Rhizoctonia Brown Patch-Turf Tips
Michigan State University Extension Service
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Turf Tips for the homeowner

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Rhizoctonia Brown Patch

T. K. Danneberger, J. M. Vargas, Jr., D. L. Roberts, K. J. Kelly

Rhizoctonia brown patch, caused by *Rhizoctonia solani* Kuhn, attacks all turfgrass species in Michigan. It is most severe on perennial ryegrasses and creeping bentgrass in the southern coastal areas of Michigan, and can be a problem on Kentucky bluegrass lawns (Fig. 1). The brown patch fungus lives in the soil and competes well with other saprophytic microorganisms (organisms that live on decayed organic matter). *R. solani* is found in most soils and can survive for years without a suitable host.

Symptoms

Brown patch occurs as circular brown patches ranging from a few inches to several feet in diameter. Infected leaves first appear water soaked and dark, but eventually dry, and turn dark brown. Brown to black sclerotia (survival structures) are sometimes found beneath the leaf sheath or on the stolons. When the disease develops under conditions of high humidity, a "smoke ring" often develops along the outer edges of the diseased area (Fig. 2). Under conditions of low humidity, the smoke ring is usually absent. Brown patch has a "slimy" appearance when it occurs on perennial ryegrass.

Disease Cycle

R. solani survives the winter months in plant debris as mycelium and sclerotia. The fungus begins to grow as temperatures rise into the

Figure 1. Brown, water-soaked areas will appear on infected turf once temperatures reach the necessary level.

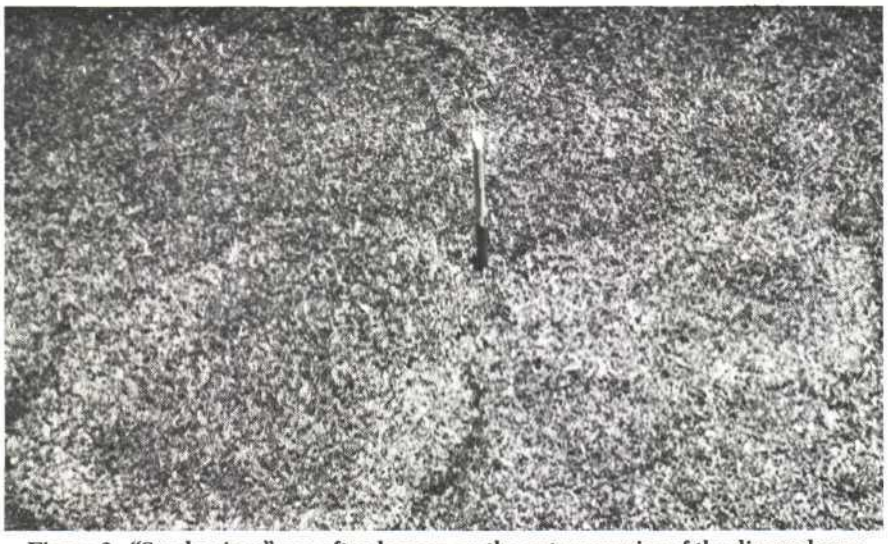

Figure 2. "Smoke rings" can often be seen on the outer margins of the diseased area when high humidity is present during disease development.

60's. When day temperatures reach the middle 70's, it enters the leaf tissue through wounds (mowing) and stomates (leaf pores). Symptoms usually do not appear at this stage because the plant is actively growing, and this keeps *R solani* from causing serious damage. High humidity, daytime temperatures in the mid 80's and nighttime air temperatures above 70 degrees F. put the grass plant under stress, and results in the appearance of symptoms. Under proper weather conditions, infected plants previously showing no symptoms, will exhibit them almost immediately.

Cultural Management

High nitrogen levels increase the severity of *Rhizoctonia* brown patch. Therefore, fertilize with no more than ½ pound actual nitrogen per 1000 square feet per month as hot humid weather approaches. Phosphorus and potassium should be maintained at normal levels and the pH should be neutral. Removing dew early in the morning will help reduce the severity of the disease.

Table 1. Recommended fungicides for the management of Rhizoctonia brown patch.

Common Name	Trade Name	Manufacturer
Chlorothalonil	Daconil 2787	Diamond Shamrock
	Proturf 10 IV	
Cycloheximide + PCNB	Actidione RZ	Upjohn
Cycloheximide + Thiram	Acti-dione-Thiram	Upjohn
Anilizine	Dyrene	Mobay
	Dymec 50	PBI-Gordon
	Proturf	O. M. Scott
	Fungicide III	
	Ortho Dyrene Lawn Disease Control	Chevron
Iprodione	Chipco 26019	Rhone-Poulenc
Mancozeb	Fore	Rohm & Haas
	Formec	PBI-Gordon
Pentachloronitro-benzene (PCNB)	Lawn Disease Preventer	O. M. Scott
	Proturf FII	O. M. Scott
	Turfcide	Olin
Thiophanate + Thiram	Bromosan	W. A. Cleary
Thiram	Spotrete	W. A. Cleary
	Tersan 75	duPont
	Thiramid	Mallinckrodt

Chemical Management

Several fungicides are available for management of brown patch. Refer to Table 1 for the list of these chemicals and their manufacturers. Brown patch infection begins to take place long before symptoms are evident, so the best use of these fungicides is as a preventive. Fungicides should be applied when average daytime temperatures begin reaching the 80's. NOTE: Always use pesticides carefully. Follow label directions and avoid misuse. Any use of a pesticide inconsistent with the label is illegal.

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