

## BROWN PATCH AND OTHER *RHIZOCTONIA* DISEASES OF TURFGRASSES



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Brown patch caused by *Rhizoctonia solani* is the most widespread of all turf diseases occurring throughout the world and attacking all known turfgrasses. The disease appears as blight in circular patches ranging in size from a few inches to several feet. Infected leaves appear water soaked and dark, eventually drying and turning brown. Brown to black sclerotia are sometimes found beneath the leaf sheath or on the crowns. When humidity is high, a dark-purplish to grayish brown border (“smoke ring”) may appear at the margins of affected turf, especially on close-cut turf. If conditions remain conducive to disease, large areas may rapidly become infected. Leaves in blighted area are usually killed, however a return to cooler weather or fungicide applications enable regrowth from surviving crowns, stolons, or rhizomes.



*R. zae* and *R. oryzae* cause leaf and sheath spot of bentgrass, centipedegrass, and St. Augustinegrass. Symptoms vary with turfgrass species and cultivar, the *Rhizoctonia* species or strain, soil conditions, and the environmental conditions. yellow patch (cool-season brown patch) caused by *R. cerealis* affects mostly cool season grasses and causes yellow rings, arcs, or patches on closely mowed grasses. The main hosts are bentgrasses, bluegrasses, and ryegrasses, but the disease has been reported on bermudagrasses and *Zoysia* species. Numerous rings may be interloped or uniformly distributed. The pathogen is mostly a foliar blighter, but under conducive conditions, it can invade the crown and cause plant death. yellow patch is favored by extended periods of overcast, rainy, cool weather, poorly drained soil or thatch, and poor air circulation.

*R. solani* and other *Rhizoctonia* species are natural inhabitants of the soil. *R. solani* becomes active when soil temperatures reach into the 60s, but does not parasitize the grass until air temperatures rise into the mid-80s with high humidity and nighttime temperatures in the 70s. When the grass plant suffers heat stress and high temperature growth cessation, disease development progresses rapidly. Dense, highly fertilized, and frequently watered turf is most susceptible to infection. *R. cerealis* infection process is similar, but with lower temperature requirements (50-65° F).

### Management:

- *R. cerealis* often requires no fungicide applications, but grass recovers with warmer temperatures and sunny weather.
- Avoid excessive nitrogen applications. Slow release forms of nitrogen are beneficial.
- Improve subsurface and surface drainage.
- Reduce leaf wetness by manual removal of dew.
- Improve air circulation and light penetration by pruning trees and shrubs.
- Mechanically remove thatch if it accumulates to more than one half inch.

- Resistant cultivars.
- Use weather-based forecasting models for predicting brown patch outbreaks to time fungicide applications.

***Chemical recommendations:***

**azoxystrobin (Heritage):** 0.2 to 0.4 oz/1000 sq ft (REI 4 h). Apply when conditions are favorable for disease. Do not make more than one application before alternating with a fungicide with a different mode of action. Do not rotate with trifloxystrobin (Compass) or pyraclostrobin (Insignia).

**chlorothalonil (Daconil, Manicure, Echo 720):** 2 to 3.6 fl oz/1000sq ft (REI 12 h). Begin applications when conditions favor disease development and repeat as long as these conditions persist. Under severe conditions use the highest rate and shortest interval. Contact/protectant.

**flutolanil (ProStar 70 WP):** 1.5 to 3 oz/1000 sq ft (REI 12 h). Preventive or curative.

**maneb plus zinc (Manex):** 4.8 oz/1000 sq ft (REI 24 h): Contact/protectant fungicide.

**polyoxin D zinc (Affirm):** 0.9 oz/1000 sq ft (REI 4 h). Repeat treatment on a 7-14 day schedule where environmental conditions are conducive to development of diseases. Use a shorter interval when symptoms are present. For best results, apply after mowing.

**pyraclostrobin (Insignia):** 0.5 to 0.9 oz/1000 sq ft (REI 4 h). Apply when conditions are favorable for disease. Do not make more than one application before alternating with a fungicide with a different mode of action. Do not rotate with trifloxystrobin (Compass) or azoxystrobin (Heritage).

**trifloxystrobin (Compass):** 0.1 to 0.25 oz/1000sq ft (REI 12 h). Apply when conditions are favorable for disease. Do not make more than one application before alternating with a fungicide with a different mode of action. Do not rotate with azoxystrobin (Heritage) or pyraclostrobin (Insignia).

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