DISEASE REFERENCE

Rhizoctonia complex: brown patch, yellow patch, sheath spot and brown ring patch

Rhizoctonia solani (brown patch), *R. cerealis* (yellow patch), *R. zeae* and *R. oryzae* (sheath spot) or *Waitea circinata* var. *circinata* (brown ring patch).

DAMAGE CAUSED

Symptoms of damage:

Chlorotic (yellow) or necrotic (dying) rings or solid patches of various sizes.

Sometimes green rings form after fungicide application

Plants attacked:

All turf types and cultural conditions.

Pests/conditions that cause similar damage

Fairy ring

Pythium blight

Geographic distribution:

Worldwide

PREDICTING DISEASE

Threat temperatures:

Dependent upon species:

Brown patch (*Rhizoctonia solani*) average air temperature 70 – 90 F (21 – 32 C)

Yellow patch (*Rhizoctonia cerealis*) average air temperature 50 – 65 F (10 – 18 C)

Sheath spot (*Rhizoctonia oryzae* and *R. zeae*) average air temperature 80 – 97 F (27 – 36 C) insensitive to thiophanate methyl

Brown ring patch (*Waitea circinata* var *circinata*) average air temperature 77 – 86 F (25 – 30 C) insensitive to thiophanate methyl

Conducive environmental conditions:

High relative humidity or leaf wetness

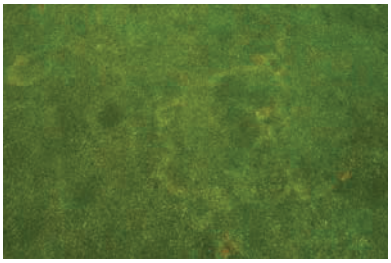
Low light levels

High soil nitrogen levels

Brown patch on bermuda

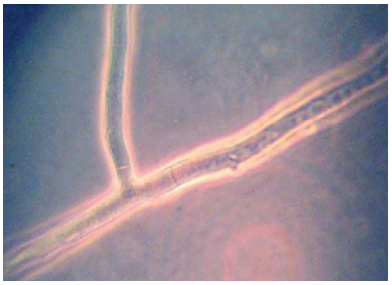
Brown patch on kikuyugrass

Waitea on Poa annua



Waitea mycelium on rye overseeded bermudagrass

Micrograph of Rhizoctonia hypha



DISEASE REFERENCE

MONITORING TECHNIQUES:

Monitor air temperatures and begin scouting for early signs of damage when threat temperatures (see above) are reached

Focus scouting efforts on areas with a known history of disease.

THRESHOLDS:

In most cases, curative application of effective fungicides at the first signs of disease will provide good control.

If there is a history of Rhizoctonia disease, preventive application of fungicides may be needed to prevent serious damage and to reduce fungicide inputs. If the disease becomes established, multiple fungicide applications will be needed.

MANAGEMENT STRATEGIES:

The products below have demonstrated good activity in research field trials on Rhizoctonia diseases. Follow resistance management guidelines by rotating products as outlined in IPM Template Reference "Fungicide Resistance Management Groups." Always consult the most recent version of all product labels before use.

TYPE OF CONTROL	PRACTICE	
Cultural	• Adequate nitrogen (0.1 – 0.2 lb nitrogen / 1000 ft^2 / wk [0.5 – 1.0 g nitrogen/ m^2 / wk] during season), but do not exceed 20 ppm total nitrogen in soil • Maintain soil salinity below 3.0 dS/m for cool season turf • Avoid excessive irrigation and leaf wetness during warm conditions.	
Biological	polyoxin D zinc (Endorse)[1]	
Chemical Curative: Apply as soon as any chlorotic rings appear. Treat all areas with a history of disease. **Chemical Preventive**: If there is a history of Rhizoctonia disease, preventive application may be needed when threat temperatures are reached	**Active Ingredient (Product)**	**Signal word**
	azoxystrobin (Heritage)[2]	Caution
	chlorothalonil (Daconil Weatherstik)	Caution
	flutolanil (Prostar 70WP)	Caution
	fludioxonil (Medallion)[2]	Caution
	iprodione (Chipco 26019)	Caution
	polyoxin D zinc (Endorse)[1]	Caution
	propiconazole (Banner Maxx)	Warning
	pyraclostrobin (Insignia)	Caution
	trifloxystrobin (Compass)[2]	Caution

[1] Designated as a biopesticide by the U.S. Environmental Protection Agency

[2] Designated "reduced risk" by the U.S. Environmental Protection Agency