Rhizoctonia and Waitea diseases

Rhizoctonia solani (brown patch)

R. cerealis (yellow patch)

R. zeae and *R. oryzae* (sheath spot)

Waitea circinata var. *circinata* (brown ring patch)

DAMAGE CAUSED

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

PREDICTING DISEASE

Threat temperatures:

- Brown patch (*Rhizoctonia solani*): 60F
- Yellow patch (*Rhizoctonia cerealis*) 55F
- Sheath spot (*Rhizoctonia oryzae* and *R. zeae*) 65F (insensitive to thiophanate methyl)
- Brown ring patch (*Waitea circinata* var *circinata*) 60F (insensitive to thiophanate methyl)

CONDUCIVE ENVIRONMENTAL CONDITIONS

- High relative humidity or leaf wetness
- Low light levels
- High soil nitrogen levels

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

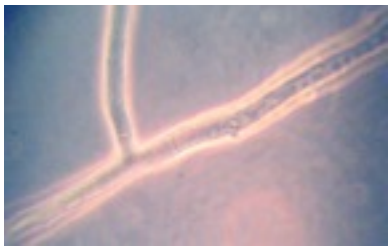
Brown patch on bermuda

Brown patch on kikuyugrass

Waitea on Poa annua

Waitea mycelium on rye overseeded bermudagrass

Micrograph of Rhizoctonia hypha



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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

Always consult the most recent version of all product labels before use.

TYPE	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)	
Chemical	**Preventive**: If there is a history of Rhizoctonia disease, preventive application may be needed when threat temperatures are reached **Curative**: Apply as soon as any chlorotic rings appear. Treat all areas with a history of disease.	Refer to Vincelli, Clarke and Munshaw, "Chemical Control of Turfgrass Diseases" for information on products and resistance management rotations