



## Brown Patch on Turfgrass *Rhizoctonia* spp.

### Introduction

*Rhizoctonia* species cause the disease of turfgrass known as Brown Patch. Kentucky bluegrass (*Poa pratensis*) and fine fescues (*Festuca* sp.) may be attacked, but Bentgrasses (*Agrostis* sp.), Ryegrasses (*Lolium* sp.), annual bluegrass (*Poa annua*) and tall fescues (*Festuca arundinacea*) are most susceptible. *Rhizoctonia solani* is usually the causal agent of infections occurring in June throughout early July. *Rhizoctonia zae* takes *R. solani*'s place as the heat of summer arrives.

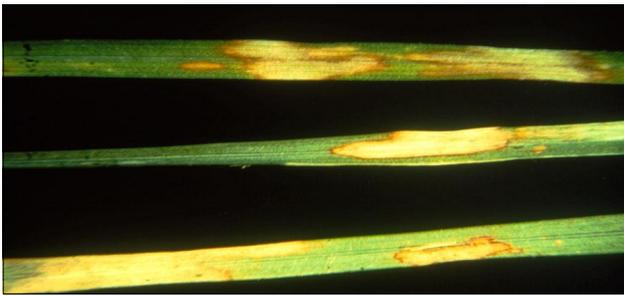


Figure 1: Leaf Lesions caused by *Rhizoctonia* sp. (By Dr. Eric B. Nelson, Cornell University)



Figure 2: Microscopic view of *Rhizoctonia* sp. Mycelium. (By Dr. Eric B. Nelson, Cornell University)

### Symptoms

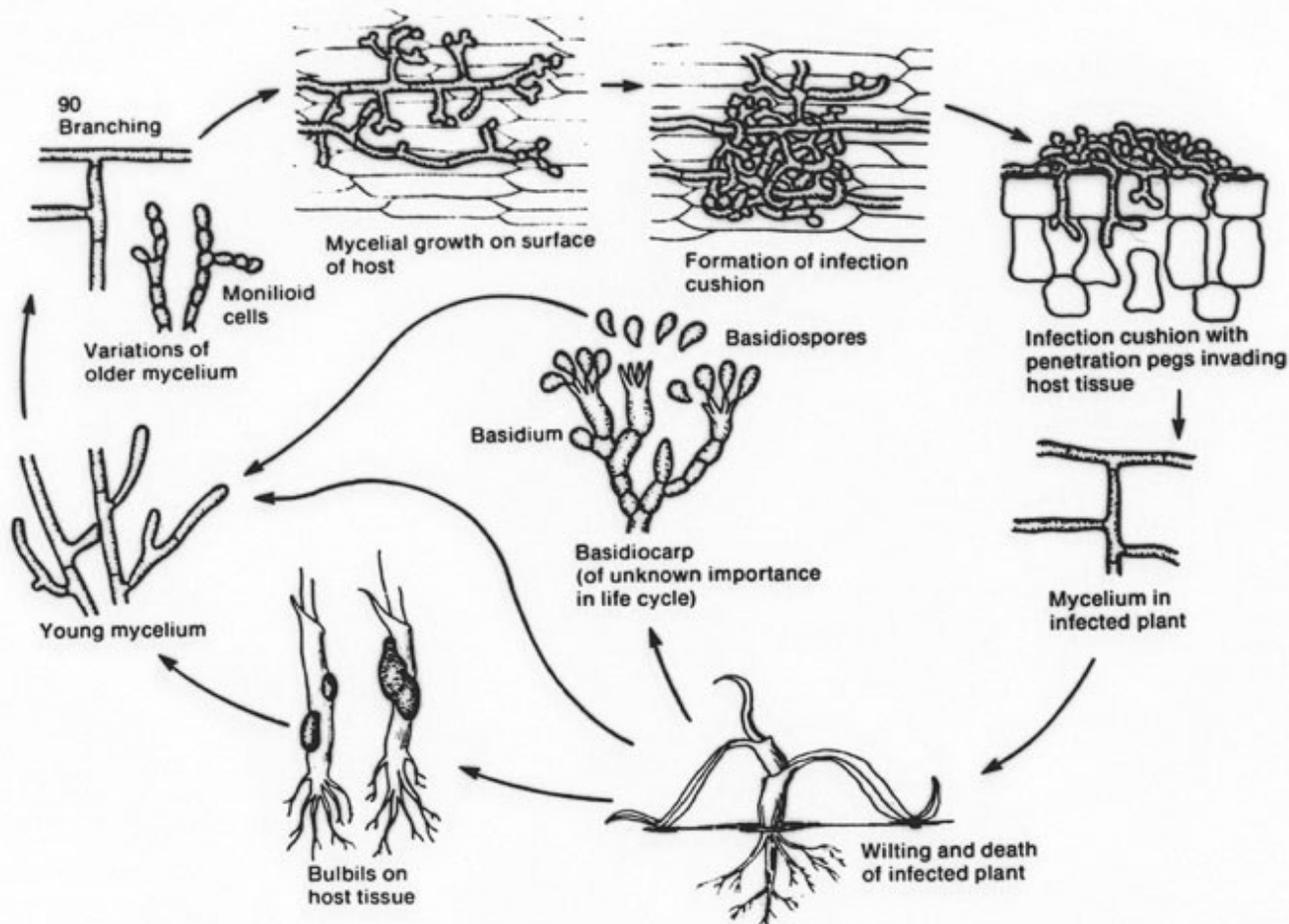
The pattern of symptoms depends largely on cool vs. warm season grasses, mowing practices, and moisture levels. On cool season grasses the symptoms produced by a *Rhizoctonia* sp. infection may vary depending on the maintenance practices. Under close mowing conditions, cool season grasses that are kept very wet produce small to 50 cm blighted patches that appear quickly during optimum conditions. The patches may contain the diagnostic feature of a purplish-gray border that is referred to as a "smoke-ring." The smoke-ring is commonly missing from the symptomatic region but, if present, is most often observed during hot, humid weather and is most easily seen when a dew is present. Cool season grasses that are cut higher produce small light brown patches up to 15 cm in diameter that may or may not contain that diagnostic smoke-ring symptom. Cool season grasses that are cut high and kept dry may produce patches up to 30 cm in diameter. These patches may produce a symptomatic patch known as a "frog-eye." Frog-eye patches have apparently healthy green grass surrounded by a ring of necrotic grass that appears very flat and sunken into the ground.

Individual leaf lesions may be small, round to irregularly shaped, and tan in color with a distinctive dark brown margin (Figure 1). As the fungus grows, the hyphae produce a characteristic branching pattern of 90° angles that are easily recognized microscopically. The width of the hypha decreases at the junction of a branch giving it a pinched appearance (Figure 2).

### Helping You Put Knowledge to Work

### Disease Cycle

*Rhizoctonia* spp. produce structures referred to as "bulbils" to survive unfavorable conditions such as freezing temperatures or drought. The optimum temperature range for germination of the fungus is from 21°C to 32°C (70°F to 90°F). The pathogen mainly infects leaves and sheaths of the turfgrass plant.



### Management Strategies

Cultural control recommendations include reducing thatch, removing dew from the leaf blades and providing good drainage conditions. Additionally, fertilizer applications should be monitored to ensure nitrogen levels are adequate but not excessive. Excessive nitrogen can increase disease occurrence and severity. Availability of resistant cultivars varies with locations.

Brown patch can be controlled with fungicides containing thiophanate-methyl and/or chlorothalonil but as temperature exceed 32°C (90°F), they become ineffective against *Rhizoctonia zeae*. Other fungicides containing mancozeb, myclobutanil, propiconazole, quintozone, thiram, or triadimefon may also be used by homeowners in New York State. Be certain any formulation(s) of pesticide(s) you purchase are registered for the intended use, and follow the label instructions. The label also contains information on how to apply the fungicide as well as any precautions.

Additional pesticides are available for commercial turf applications. Commercial applications should refer to the appropriate pest management guidelines or contact their local Cooperative Extension Office for more information on currently registered products.

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Source: <http://plantclinic.cornell.edu/factsheets/brownpatch.pdf>