

Summer Patch on Turfgrass

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Turfgrass patch diseases such as summer patch, take-all patch, and spring dead spot are difficult to diagnose and manage. They are caused by a group of fungi known collectively as the ectotrophic root-infecting or ERI fungi. The ERI fungi produce darkly pigmented runner hyphae along the surface of and ultimately inside the vascular tissue of roots. They typically colonize roots, crowns, and stolons during environmental periods favorable for turfgrass growth resulting in compromised root function during periods of stress. The characteristic patch or ring spot symptoms associated with these diseases are typically not observed until the turfgrass is stressed by a change in environmental conditions or as a result of cultural management practices (Figure 1). At least six different patch diseases of turfgrass are recognized and include the following: necrotic ring spot caused by *Leptosphaeria korrae* (recently renamed *Ophiosphaerella korrae*); summer patch caused by *Magnaporthe poae*; spring dead spot of Bermudagrass caused by *Leptosphaeria narmari*; Bermudagrass decline caused by *Gaeumannomyces graminis* var. *graminis*; bentgrass dead spot caused by *Ophiosphaerella agrostis*; and take-all patch.



Figure 1. Active summer patch on a mixed creeping bentgrass/*Poa annua* putting green.

Figure 2. Summer patch on a mixed Kentucky bluegrass/*Poa annua* rough.

Causal Organism

Summer patch is caused by *Magnaporthe poae*. The disease is most often associated with Kentucky bluegrass (*Poa pratensis*; Figure 2), annual bluegrass (*P. annua*) and various turf-type fine fescues (*Festuca* species). The disease was first described in 1984 by Smiley and Craven-Fowler. Landschoot and Jackson identified the summer patch pathogen as *M. poae* in 1987.

Symptoms

Symptoms of summer patch are most prevalent during prolonged hot (65–85°F), humid, or wet weather on stressed turfgrass grown in poorly drained soils. Overhead irrigation also tends to increase disease pressure. Soil pH does not appear to influence summer patch the way it does take-all patch. Colonization of the host begins when soil temperatures reach 65–70°F but symptoms don't generally appear until later in the season when temperatures peak (85–95°F). Optimal temperature for growth of *M. poae* in the laboratory is reported as 82–87°F.

Summer patch can be easily confused with other diseases caused by ERI fungi. On high cut turfgrass such as in roughs and clubhouse surrounds, the disease shows up as irregular patches, rings, and crescents. The disease, even to a trained eye, appears very similar to necrotic ring spot. Patches are typically about 1 inch in diameter but often coalesce. On lower cut turfgrass, such as that found on golf course putting greens, the patches and rings are better defined. Yellowing and decline is often restricted to the *P. annua* in mixed bentgrass/*P. annua* swards (Figure 3). The roots, crowns, and stolons of heavily infected turfgrass are often severely darkened due to the presence of a large amount of ectotrophic runner hyphae—a key diagnostic sign of this and other diseases caused by ERI fungi (Figure 4). The only sure way to know which disease one is dealing with is to have it analyzed by a turfgrass disease specialist or clinician.



Figure 3. Active summer patch on a mixed creeping bentgrass/*Poa annua* putting green. Note that only the *P. annua* is affected.

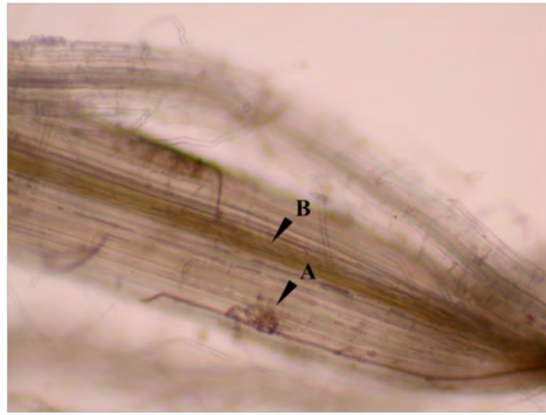


Figure 4. Ectotrophic runner hyphae (A) and vascular discoloration (B) in a root caused by *Magnaporthe poae*.

Management

1. **Genetic Host Resistance.** The use of genetically resistant turfgrass is limited to newly established or renovated turfgrass areas or in situations where overseeding is used. Many of the newly released Kentucky bluegrass varieties offer resistance to summer patch. Information regarding disease resistance can be obtained by contacting local turfgrass seed distributors, Extension specialists, and the National Turfgrass Evaluation Program at: www.ntep.org.
2. **Cultural Practices.** Management practices that promote adequate drainage, reduce soil compaction, and promote healthy root growth along with a balanced fertility program are key to avoiding summer patch. The use of quick release N fertilizers and frequent light irrigation cycles should give way to the use of slow-release N fertilizers and deep, penetrating irrigation. Although often recommended but difficult to implement, avoid mowing turfgrass below recommended heights.
3. **Fungicides.** Timely preventive fungicide applications may be considered. The key to managing ERI diseases with fungicides is to use them in a **preventive** strategy. Many fungicides are labeled for use on summer patch. Timing of the first application is recommended when soil temperature (at 2–3 inches) reaches 65°F for 3 consecutive days. In mid-Ohio this is often in mid-May. Spray volumes of 4 to 5 gallons per 1,000 ft² are typically recommended. Additional fungicide applications may be required or recommended during periods of pathogen favorable environmental conditions. Cultural practices aimed at reducing turfgrass stress and promoting healthy root development, along with the judicious use of preventive fungicide applications, is often the long-term management strategy that leads to the successful management of this difficult to control and challenging turfgrass disease. Please refer to OSU Extension Bulletin L-187, *Management of Turfgrass Pests*, for the most current

recommendations for the management of summer patch on turfgrass. This publication can be obtained from your local OSU Extension office; from OSU Extension's eStore at estore.osu-extension.org; or the OSU Extension Publications Office, The Ohio State University, 216 Kottman Hall, 2021 Coffey Road, Columbus, Ohio 43210-1044; phone (614) 292-1607.

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