

Bentgrass dead spot

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INTRODUCTION

Dead spot is primarily a disease of young creeping bentgrass that is caused by the fungus *Ophiosphaerella agrostis*. The pathogen was first found on a Maryland golf course in 1998. *O. agrostis* also infects hybrid bermudagrass putting greens in the southern U.S.

The disease has been mostly observed in the Mid-Atlantic, Northeast and Mid-West regions of the US. The disease is restricted to newly constructed sand-based greens and tees or similar areas renovated with methyl bromide. Dead spot has not been found on golf course fairways or turf growing in native soils.

Dead spot is most severe during the heat of the summer (June to August). The disease, however, may remain active as late as December in some years.



SYMPTOMS

Dead spot most commonly appears in bentgrass putting greens within 1 to 2 years after seeding. The disease often first develops on mounds and ridges and on south facing slopes of greens located in open and exposed conditions. Initially, the disease appears as small, dime-sized spots that have a reddish-brown or bronze color. Diseased spots will continue to increase up to 3 to 4 inches in diameter. Unlike dollar spot, dead spot patches do not coalesce in large numbers.

During early stages of disease development, dead spot may resemble old ballmark damage on greens or other turfgrass diseases such as *Microdochium* patch, dollar spot, or copper spot. In addition, spots may resemble damage caused by cutworms. Although spots remain relatively small, recovery of diseased turf is slow as bentgrass stolon growth into dead spots appears to be inhibited. Full recovery of severely damaged greens may not occur until bentgrass resumes growth in the spring. Dead spot activity is slowed by the first hard frost, but active



disease symptoms have been observed as late as December.

CAUSAL AGENT

As the disease progresses, tissue in the center of spots is killed and fruiting structures (pseudothecia) often are found embedded in necrotic leaves and stolons. Pseudothecia are black and flask-shaped with a prominent beak and can be seen easily with the aid of a hand lens. Each pseudothecium contains numerous spores (ascospores) that are capable of directly penetrating plant cells.

When ascospores mature, they are either forcefully discharged and dispersed by wind currents or ooze out of pseudothecia in the presence of water. Ascospore germination may occur in as little as 2 hours and light and bentgrass tissue enhances their germination. Germinated spores can directly penetrate leaf surfaces, and the fungus kills the plant as it moves down to sheaths and eventually stolons and roots.

By the time disease symptoms appear, additional pseudothecia already may be present. This cycle continues until temperatures decrease in late September or early October. The pathogen survives in or on infected stolons, roots and crowns during the winter months. Disease severity in the second year, however, general is minimal.

MANAGEMENT

Cultural. Ammonium sulfate helps to reduce dead spot severity, especially when applied prior to the onset of disease symptoms. Due to the acidifying nature of this fertilizer, it is important to have your soil tested during the initial stages of establishment.

When the disease is active, spoon-feed (0.125 lb N/1000ft² with ammonium sulfate) weekly and avoid abrasive cultural practices. Long periods of leaf wetness may provide extended conditions suitable for



ascospore germination and penetration. Practices that reduce leaf wetness duration, therefore, may help to reduce new infections.

Chemical. Several fungicides have been shown to reduce dead spot severity including chlorothalonil, thiophanate methyl, pyraclostrobin, boscalid, and fludioxonil.

In addition to the aforementioned fungicides, propiconazole and fenarimol may reduce disease incidence when applied preventively. Prior to active disease symptoms, the aforementioned fungicides may be applied preventively every 14 to 21 days. However, when disease symptoms are present these fungicides should be applied curatively on a 7-10 day interval until symptoms disappear.

Fungicides should be tank-mixed with small amounts of fertilizer (0.10 to 0.125 lb N/1000 ft²) to increase the rate of recovery of bentgrass into disease spots.