

DEAD SPOT DISEASE OF CREEPING BENTGRASS



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Dead spot is primarily a disease of young creeping bentgrass. It is caused by the fungus *Ophiosphaerella agrostis*, which was first found in 1998 at a Maryland golf course. The fungus also infects hybrid bermudagrass putting greens in the southern United States.

Dead spot disease has been observed in the Mid-Atlantic, Northeast and Mid-Western U.S., and may occur in other regions. The disease appears to be 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 grown in native soils.

On creeping bentgrass grown in the Mid-Atlantic region, the disease may become active in May, and is generally most severe between June and August. The disease, 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 develops first 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 or other turfgrass diseases such as dollar spot, *Microdochium* patch (snow mold), or copper spot. The spots may also resemble damage caused by cutworms.

Although the individual 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 in Maryland.



Small, discrete dead spots with reddish-brown edges and bleached centers are typical.



KEY POINTS

Dead spot disease primarily occurs on 1-2 year old creeping bentgrass putting greens.

The disease has not been observed in bentgrass fairways or native soil greens.

Fertility management and fungicides can reduce severity and improve recovery

CAUSAL AGENT

As the disease progresses, tissue in the center of spots is killed and fruiting structures (pseudothecia) often are found embedded in dead or dying leaves and stolons. Pseudothecia are black with a prominent beak and can be seen easily with the aid of a hand lens. The spores released by the pseudothecia can penetrate and infect plant cells.

When the spores mature they may be forcefully discharged and dispersed by wind currents, or ooze out of pseudothecia in the presence of water. Spore germination may occur in as little as 2 hours; the presence of sunlight and bentgrass tissue enhances their germination.

After penetrating leaf surfaces, the fungus kills the plant as it grows down through sheaths, 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.

CULTURAL MANAGEMENT

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 such as topdressing. 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.

FUNGICIDE MANAGEMENT

Several fungicides have been shown to reduce dead spot severity including chlorothalonil (Daconil Ultrex™, Echo™, Concorde™, Manicure™, others), thiophanate methyl (CL3336™, T-Storm™), boscalid (Emerald™), fludioxonil (Medallion™), and pyraclostrobin (Insignia™; currently not available). In addition to these fungicides, propiconazole (Banner MAXX™) and fenarimol (Rubigan™) 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, they should be applied curatively on a 7-10 day interval until symptoms disappear. To increase the growth rate of bentgrass into diseased spots, fungicides may be tank-mixed with small amounts of fertilizer (0.10 to 0.125 lb N/1000 ft²).

For information about fungicide application rates and timing, please refer to TT-38: Maryland Turfgrass Disease Control Recommendations, available at www.mdturfCouncil.org.



Fungal fruiting structures (pseudothecia) can be seen on dead or dying bentgrass.

