

Turfgrass Disease Profiles

Dollar Spot

Richard Latin, Professor of Plant Pathology

Dollar spot is caused by a fungal pathogen (*Sclerotinia homoeocarpa*) that blights leaf tissues but does not affect turfgrass roots or crowns. The disease is a common concern on golf course turf, especially creeping bentgrass and annual bluegrass greens, tees, and fairways, where it can result in poor turf quality and appearance.

Dollar spot is rare on sports turf and professional landscapes. Outbreaks may occur in residential lawn turf and can reduce the lawn's aesthetic quality and contribute to an overall decline in turf vigor. However, severe dollar spot in residential lawn turf usually is a sign of neglect and poor turf maintenance.

Dollar spot is one of the most readily identifiable diseases on golf course turf. Characteristic symptoms on creeping bentgrass include small (up to 1 inch in diameter), round, tan-colored spots (Figure 1). The spots often occur in clusters and can cause considerable damage to playing surfaces if not appropriately managed (Figure 2). Figure 3 shows a research site where various treatments were applied to control dollar spot (green rectangles). The brown turf surrounding the treated areas shows severe dollar spot damage.

In the early morning hours after a long dew period, the dollar spot pathogen will produce an abundance of mycelia on affected plant parts (Figures 4, 5). Characteristic symptoms on individual plants include distinct lesions on leaf blades (Figure 6) with straw-colored centers and red-brown margins. Leaf spot symptoms are more readily observed on taller mown turf species such as Kentucky bluegrass and perennial ryegrass.

The dollar spot pathogen survives in the turf environment as mycelium in infested turf debris. The pathogen becomes active with



Figure 1



Figure 2



Figure 3



- Gray Snow Mold
- Pink Snow Mold
- Leaf Spot/Melting Out
- Red Thread
- Dollar Spot**
- Brown Patch
- Gray Leaf Spot
- Anthracoze
- Pythium Blight
- Leaf Rust
- Powdery Mildew
- Slime Mold
- Fairy Ring
- Take All Patch
- Summer Patch
- Necrotic Ring Spot
- Rhizoctonia Large Patch

rising temperatures in the spring. Mycelial growth and infection occur during extended dew periods (longer than 8 hours) over a broad range of temperatures (55°-80°F). The severity of dollar spot development is increased significantly in nitrogen-deficient turf stands. Turf suffering from poor nutrition also is slow to recover from disease damage.

The pathogen produces no spores; spread occurs through radial growth from individual infection centers and by the movement of infected and infested leaf blades, usually through turf maintenance operations such as mowing and core aeration.

Disease Control Options

Resistance to Disease

All modern creeping bentgrass cultivars are susceptible to dollar spot, but there are significant differences in their susceptibility. Based on cultivar evaluations published by the National Turfgrass Evaluation Program and by reports in *Biological and Cultural Tests for Control of Plant Diseases*, cultivars may be categorized into three susceptibility groups. In the most susceptible group are cultivars such as Crenshaw® and Backspin®. Among the least susceptible are L93®, Penncross®, Pennlinks®, Penn A1®, and Providence®. The middle susceptibility category includes Penn G2®, Penn G6®, and Penn A4®. More complete listings of creeping bentgrass cultivars are available on the NTEP Web site: www.ntep.org.

Cultural Control Options

Because dollar spot is more severe on nitrogen-deficient turf, an adequate nitrogen fertility program will significantly contribute to disease control. Adequate N nutrition will produce plants that are less prone to disease. The result will be a delay in disease outbreaks in the spring, reduced severity of outbreaks, improved fungicide performance, and more rapid turf recovery.

Proper irrigation scheduling also may contribute to dollar spot control. Since the duration of the dew period is proportional to the extent of infection, any irrigation practice that prolongs the dew period will contribute to



Figure 4



Figure 5



Figure 6

serious disease outbreaks. Nighttime and early morning irrigation are preferred. Irrigation during the late afternoon and early evening hours should be avoided.

Biological Control

There are a number of biological control applications that reportedly contribute to reducing dollar spot severity. Some professional turf managers have had success with various biological control applications while others have experienced disappointment.

The mixed results should not be unexpected because the microbiology of the turfgrass environment is extremely complex. It is likely that all factors contributing to turfgrass growth and development influence the efficacy of biological control applications. Consequently, the extent to which biological applications contribute to disease control may be determined only after on-site experimentation by individual turf managers.

Fungicide Application

Various fungicides registered for use on turfgrass perform well against dollar spot on well-managed turf. Repeated applications are almost always required on stands of creeping bentgrass and annual bluegrass. The contact fungicides usually require applications at 7-14 day intervals. Local penetrant (local systemic) fungicides and acropetal penetrant (systemic) fungicides may be effective for 14-21 and 14-28 days, respectively, depending on the application rate, disease pressure, and overall vigor of the turf. Table 1 provides a list of common fungicides for dollar spot control.

Regardless of the dollar spot control product used, fungicide performance will improve when combined with turf management practices that reduce disease pressure. Also, repeated use of a single acropetal penetrant fungicide will select naturally occurring strains resistant to the fungicide. Note: common turf fungicides such as Heritage®, Compass®, ProStar®, Subdue®, and Banol® are not effective against dollar spot.



Figure 7

Dollar Spot Control for Residential Lawns

Extensive dollar spot development in residential lawns signals problems in general turf maintenance (Figure 7). Nitrogen deficiency is the most important maintenance factor influencing the development of dollar spot and other diseases. Lawns with serious dollar spot outbreaks are nitrogen deficient. Following a simple year-round program for nitrogen fertility can help prevent the disease. If unexpected outbreaks occur in summer, the disease will be suppressed by applying approximately 0.5 lb. actual N per 1,000 square feet per month. Regular mowing to a height of 2-3 inches will hasten turf recovery. Specific recommendations for residential lawn fertilizing are provided in Purdue Extension publication AY-22, *Fertilizing Established Lawns*, available from the Purdue Turfgrass Management Program Web site: www.agry.purdue.edu/turf/publicat.htm.

Fungicide application is rarely necessary for dollar spot control in residential lawns. If a homeowner thinks that control with fungicides is absolutely essential, then a professional custom applicator service should be hired for the application.

Table 1. Selected fungicides registered for use on creeping bentgrass against dollar spot.

Fungicide/Example Trade Name	Application rate/M	Application interval (days)	Fungicide type
propiconazole/Banner Maxx 1.3MEC®	0.5-1 fl. oz.	14-28	acropetal penetrant (systemic)
triadimefon/Bayleton 50W®	0.5-1 oz.	14-28	acropetal penetrant (systemic)
myclobutanil/Eagle 40WSP®	0.5-1.2 oz.	14-28	acropetal penetrant (systemic)
thiophanate-methyl/Cleary's 3336F®	2-4 fl. oz.	14-21	acropetal penetrant (systemic)
boscalid/Emerald 70W®	0.13-0.18 oz.	14-28	acropetal penetrant (systemic)
iprodione/Chipco 26GT®	3-4 fl. oz.	14-21	local penetrant (local systemic)
vinclozolin/Curalan 50EG®	1 oz.	14-28	local penetrant (local systemic)
chlorothalonil/Daconil Ultrex 82.5 WDG®	1.8-3.3 oz.	7-14	contact

