



DOLLAR SPOT OF TURFGRASSES

Dollar spot of turfgrasses is believed to be caused by species of the fungi *Lanzia* and *Moellerodiscus* (formerly known as *Sclerotinia homoeocarpa*). It has been reported in most areas of the United States. During warm moist weather in the northern part of this country dollar spot is a serious disease of creeping bentgrass, Kentucky bluegrass, annual bluegrass, and fine-leaf fescues. All lawn and fine turfgrasses grown in the Midwest may be attacked. Perennial ryegrass and tall fescue are potential hosts with Bermudagrass and zoysiagrasses the most severely affected southern turfgrasses. The disease occurs during warm (60° to 85°F or 15° to 39°C), humid weather, particularly in turf deficient in nitrogen. Drought stress increases the severity of disease, although leaf wetness within the canopy is also required.



Figure 1. *Sclerotinia* dollar spot lesions on Kentucky bluegrass.

Symptoms

The disease appears as round, brown spots (about the size of a silver dollar) in closely cut bentgrass and bermudagrass putting greens. As the disease develops, the spots change from brown to the color of straw and become somewhat sunken: hence, the descriptive term "dollar spot." On coarse, taller, lawntype grasses (for example, bluegrasses, fescues, and ryegrasses) the spots may reach four to eight inches in diameter. Dollar spot is distinguished from most turfgrass diseases by the characteristic girdling lesions on the leaf blades of live plants at the margin of the affected areas. The lesions may be up to an inch long, often at or near the leaf tip. They are bleached white to light tan with a dark brown, reddish brown, or purplish border (Figure 1). The lesions usually extend across the blades of Kentucky bluegrass and fine-leaf fescues. On coarser grasses, such as tall fescue, the lesions tend to occur along the margins of the leaves.

Under close mowing (as on putting or bowling greens), the diseased spots rarely enlarge beyond 2 ½ inches in diameter. If fungicides are not applied, the spots may become so numerous that they emerge and produce large, irregular, sunken areas of straw-colored dead turf (Figure 2). When dew is present on

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the blades of grass on overcast days or early in the morning and the dollar-spot fungi are active, mycelia (a white cobwebby or cottony growth) of the causal fungi may be seen on the diseased turf (Figure 3). Guttation fluid (dew) increases the process of infection. Some mycelia may persist under the leaf sheaths, but most disappear as they are dried by the wind and sun. The mycelia of the dollar spot fungi are often confused with spider webs. Spider webs, however, are in a single plane, whereas dollar spot is three dimensional. When turf is maintained at a higher cut of 1 to 2 1/2 inches, the diseased areas are noticeably more irregular in outline and larger, with some spots four to eight inches in diameter. The spots may coalesce to give diseased turf a drought-stricken appearance.



Figure 2. Dollar spot on bentgrass.

The rhizomes, stolons, and roots are not invaded by the dollar spot fungi, however, a fungus-produced toxin affects the uptake of water and nutrients and causes the roots to thicken, stop growing, and turn brown. The replacement roots soon are similarly affected. This is why dollar spot is most severe in dry soils deficient in nitrogen.

Disease Cycle

Dollar spot fungi survive unfavorable growing periods as black, paper-thin flakes (stromata) on foliage surfaces and in soil, and as dormant mycelia in living or dead turfgrass tissues. In spring or early summer, when the temperature reaches 50° to 60°F (10° to 15°C), the mycelia and stromata resume mycelial growth. The fungi enter plants through cut leaf tips and natural openings (stomates) when plant surfaces are wet. Maximum disease development usually occurs between 70° and 80°F (21° to 26°C) in dry soils where there is a buildup of thatch and soil nitrogen and where potassium levels are low. Infected tissue first appears water-soaked and dark, becoming light tan when dry. If the nights are cool and dry soon after infection has occurred, or if cultural and chemical control measures are applied promptly, damage is

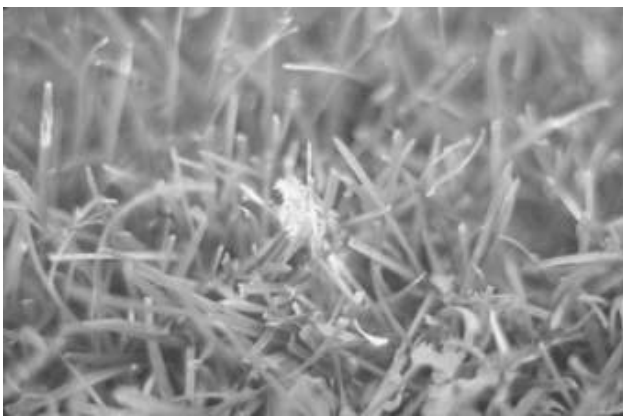


Figure 3. *Sclerotinia* fruiting on Kentucky bluegrass.

limited to the leaf blades, and disease turf usually recovers quickly—especially if it is growing rapidly. If nights are warm and damp, if heavy dews persist after infection, and if fungicides are not applied, the dollar-spot fungi rapidly kill plant tissues, and diseased areas may require weeks or months to recover. When turfgrasses are maintained with adequate nitrogen, potash, and water, less dollar spot occurs, and recovery is more rapid. The fungi spread to new areas mostly through transport of infected sod or clippings by waterland wind or on shoes, hoses, mowers, other turf equipment, golf carts, and animals.

Control

1. **Maintain adequate to moderate fertility** based on soil tests and the recommended fertilization program for your area and the grass or grasses being grown.
2. **Thorough irrigation in the early morning is recommended** as it removes exudate and dew which may be necessary for fungal growth. Not watering during the day will allow a 'leaf drying' period to curtail fungal activity. Maintain sharp mower blades and mow when leaves are dry.
3. **Prune or remove nearby dense trees and shrubs** to reduce shade and enhance the movement of air over the turf.
4. When establishing a new turfgrass area, **provide for adequate surface drainage** by grading for a slope of two to four percent and filling in depressions to achieve a smooth, uniform surface.
5. Recent tests show that Kentucky bluegrass varieties most resistant to dollar spot are 'Moonlight', 'Sidekick', 'Award', 'Misty', 'America', 'Ascot', 'Odyssey', 'Total Eclipse', 'Quantum Leap', 'SR 2100', and 'Abbey.'

Most perennial ryegrasses have some level of resistance to dollar spot. At the top of the list in recent tests are 'Catalina', 'Edge', 'Laredo', and 'Sunshine.' Others deserving mention are 'Caddieshack', 'Cutter', 'Manhattan 3', 'Pennfine', and 'SR 4200.'

Creeping bentgrass varieties most resistant to dollar spot are: 'L-93', 'Pennlinks', 'Seaside', 'Penn A4', and 'Penn G2.'

6. **Mow at the maximum mower height** (1 ½ to 3 inches for upright, lawn-type grasses; 1/2 inch or less for bentgrasses and bermudagrass).
7. **On golf greens, remove guttation water (dew) in early morning** by dragging a hose or long bamboo pole over the wet grass or by hosing the turfgrass down lightly with water.
8. **With proper cultural controls, fungicide application should be unnecessary.** However, if problems have been evident in the past, begin applying a protective fungicide when air temperatures reach 65° to 70°F. Apply at frequent intervals according to the label for the specific fungicide used, particularly during moist weather in the spring, summer, and fall. Many broad spectrum fungicides are ineffective because of the development of resistance by the causal fungi.