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G85-742 Dollar Spot Disease of Turfgrass

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Dollar Spot Disease of Turfgrass

This NebGuide describes the symptoms and disease cycle of dollar spot, and provides recommendations for controlling this turfgrass disease.

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Dollar spot of turfgrass is one of the most persistent diseases on golf courses in North America. All commonly grown turfgrasses in Nebraska may be attacked, but differences in susceptibility exist within cultivars of the various turf species. Presence of dollar spot in a well-managed lawn affects its aesthetic appearance and value, but usually does not threaten its survival. Lawns recover from dollar spot injury when conditions are favorable for vigorous, healthy growth.

Traditionally, *Sclerotinia homeocarpa* F. T. Bennett was the name given the fungus that causes dollar spot. More recently, there has been a name change and the dollar spot fungi in the United States are considered species of the genera *Lanzia* and *Moellerodiscus*.

Symptoms

Dollar spot symptoms vary depending primarily on turfgrass species, mowing height and nutrition level. Overall appearance of dollar spot on closely mowed bentgrass golf greens differs from that observed on taller Kentucky bluegrass, fine fescue and perennial ryegrass turfs.

Under close mowing, symptoms appear as small, round, bleached-out or straw-colored spots ranging in size from a quarter up to a silver dollar (*Figure 1*). Each spot seldom exceeds 2 inches in diameter. If fungicides are not applied and the environment is favorable, the spots become so numerous they merge into larger, irregular, sunken patches.

Lawns maintained at taller heights of 1 to 3 inches exhibit dollar spot symptoms of a mottled, straw-

colored pattern made up of 4- to 6-inch patches of blighted turf (*Figure 2*). Affected areas may merge and become quite large as the disease becomes more active.

Regardless of mowing height or turf species, dollar spot is more severe when turfs are maintained at less than optimum nutrition levels.

On residential lawns or public parks, dollar spot symptoms may resemble those produced by melting out disease, insects, or drought. Fortunately, the characteristic lesion (*Figure 3*) produced on the leaf blades makes field diagnosis much earlier.

Individual grass blades develop a lesion that is first chlorotic (yellow), then water-soaked, and finally a bleached-out or light tan color. The lesion may be up to an inch in length, usually spans the width of the blade, and is characteristically bounded on either side by reddish brown bands. On coarser grasses the lesions tend to occur along the edges of the leaf, and may be confused with those of brown patch. With brown patch, however, the lesion is usually more ragged and the border is darker.

Young dollar spot lesions are circular, tan spots with a reddish-tan border. These resemble lesions of Bipolaris (Helminthosporium) leaf spot; however, when dollar spot is active, several of the grass blades in the surrounding plants should show the typical hour glass dollar spot lesion. Individual grass blades may have single or multiple lesions, or be entirely blighted.

When dew is present on grass blades in the morning and dollar spot is active, a grayish white, cobwebby growth of fungal mycelium can be seen (*Figure 4*). This mycelium can be distinguished from a cobweb because it is three dimensional, whereas a cobweb is on a single plane.

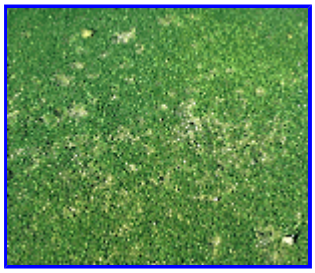

Figure 1. Dollar-sized spots of dollar spot on a bentgrass golf green.

Figure 2. Patches of blighted Kentucky bluegrass on a residential lawn.

Figure 3. Dollar spot leaf lesions. (Photo: Bobby Joyner, ChemLawn Corp.

Figure 4. Cobwebby mycelial growth of the dollar spot pathogen.

Disease Cycle

The dollar spot fungi survive unfavorable periods as dormant mycelia in infected plant tissues and black stromata on foliage surfaces. A stroma consists of a dense mass of mycelium with a specialized outer coat. In spring or early summer when temperatures reach 50 to 60°F, the mycelia or stromata begin to grow. The many variants of the dollar spot fungi are capable of growing and infecting plants over a wide range of temperatures.

The dollar spot fungi are spread with the transport of infected sod or clippings and by mowers and other maintenance equipment. People, animals, water or wind also may spread the pathogens.

The fungi enter plants through cut leaf tips and stomates when the aerial mycelium comes in contact with a moist leaf surface. These fungi are not able to infect roots or rhizomes, but some strains have been shown to produce a toxin in the foliage that is translocated to the roots. This toxin causes a stunting, thickening, browning and necrosis (death) of the roots. These root systems are unable to take up adequate amounts of nutrients and moisture to support plant growth.

Factors Favoring Dollar Spot

The presence of dollar spot often signals a nutritionally deficient turf. Warm, damp nights that result in prolonged high humidity in the turfgrass canopy are optimal conditions for fungal growth and host infection.

Since different variants of the fungi are active under different conditions, the disease can appear anytime from late spring through late autumn. Dollar spot usually causes the most injury between 70 and 80°F in dry soils where thatch is heavy and soil nitrogen and potassium levels are low.

Prescription for Healthy Turf

- Use a blend of improved cultivars from *Table I*.
- Maintain adequate nitrogen and potassium fertility during the growing season.
- Water when turfs show signs of wilting, and avoid late afternoon and evening watering that increases the leaf wetness period.
- Hose down the turf lightly with water in the morning to minimize the duration and extent of dew formed, or manually remove dew by dragging a hose across the lawn.
- Prune landscape plantings to allow better air movement and increased light penetration through the shrub and tree canopies.
- Keep mowing and other activities to a minimum until the dew has dried.
- Use a preventative fungicide program on turfs of high economic and aesthetic value, and on areas where dollar spot has occurred before.
- If desired apply a fungicide (*Table II*) at first appearance of dollar spot if not on a preventative program.

Table I. A recommended list of improved Kentucky bluegrass, perennial ryegrass, and fine fescue cultivars.*

Kentucky Bluegrass Cultivars			
Adephi	Cheri	Gnome	Nassau
America	Classic	Haga	Parade
Aspen	Columbia	Huntsville	Ram I
Baron	Coventry	Julia	Rugby
Bensun	Dawn	Liberty	Sydsport
Birka	Destiny	Majestic	Touchdown
Bristol	Eclipse	Merit	True Blue
Bronco	Freedom	Midnight	Trenton
Challenger	Georgetown	Monopoly	Vantage
Chateau	Glade	Mystic	Victa
Perennial Ryegrass Cultivars			
All Star	Dasher	Jazz	Pennfine
Barwry	Dasher II	Loretta	Prelude
Belle	Delary	Manhattan II	Regency
Birdie II	Derby	NK-200	Regal
Blazer	Diplomat	Omega II	Repell
Blazer II	Elka	Ovation	Rodeo
Citation II	Fiesta	Palmer	Tara
Commander	Fiesta II	Patriot	Vintage 2DF
Cowboy	Gator	Pennant	Yorktown II

Fine Fescue Cultivars	
Aurora (Hard)	Reliant (Hard)
Banner (Chewings)	Ruby (Creeping)
Bighorn	Scaldis (Hard)
Biljart	Shadow (Chewings)
Dawson (Creeping)	Spartan (Hard)
Jamestown (Chewings)	Victory (Chewings)
Koket (Chewings	Waldina (Hard)
***Many of these cultivars are moderately resistant or tolerant to dollar spot.**	

The cultivars listed in Table I and the fungicides in Table II represent the best information available. No criticism is intended of cultivars or fungicides not listed, nor endorsement given to those that are, by the University of Nebraska. Always read and apply fungicides as directed on the label.

Table II. Fungicides for the management of dollar spot. Always apply chemicals in accordance with the manufacturer's directions on the label.	
Common Name	**Some Trade Names**
Anilazine	Dyrene
Benomyl	Benomyl, Tersan 1991
Chlorothalonil	Daconil 2787
	Liquid Lawn Disease Control
	Broad Spectrum Liquid Fungicide
Iprodione*	Chipco 26019
Propiconazole*	Banner
Quintozene (PCNB)	Lawn Disease Preventer
Thiophanate-ethyl + thiram*	Bromosan
Thiophanate-methyl*	Fungo 50
	ProTurf Systemic Fungicide
Thiophanate-methyl + mancozeb*	Duosan
Triadimefon*	Bayleton
	ProTurf Fungicide 7
Vinciozolin*	Vorlan
***Generally available only to the commercial turf industry.**	

The list of fungicides in *Table II* does not include all that are registered for control of leaf spot and melting out, but are those most readily available to homeowners. The list given herein is supplied with the understanding that there is no guarantee of effectiveness by the University of Nebraska, nor discrimination intended for any products not listed, and no endorsement for those listed. Those fungicides listed should be available to homeowners.

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