

Bipolaris Leaf Spot and Melting Out of Bermudagrass and Other Warm-Season Turfgrasses

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Introduction

In Arkansas, leaf spot and melting out disease attack the warm-season grasses bermudagrass, zoysiagrass and centipedegrass. In addition to *Bipolaris*, other fungi, including *Curvularia*, *Drechslera* and *Exserohilum* spp., have also been associated with causing leaf spot and melting out. In the literature, these fungal microorganisms have been previously referred to as *Helminthosporium* spp. and can cause other leaf, crown and root diseases.

Bipolaris cynodontis is one of the most common fungi responsible for leaf spot diseases in warm-season turfgrasses. Generally speaking, leaf and crown diseases are often associated with turf that is weak or slow to grow due to weather extremes or improper management practices such as low levels of nitrogen or potassium, herbicide injury, drought and compacted soil conditions.

Leaf spots caused by *Bipolaris* can be commonly found in taller-cut bermudagrasses, such as those maintained for pastures; however, it is usually of minor importance. *Bipolaris* leaf spot typically occurs as temperatures warm in the spring. The severity of the diseases increases with humidity and temperature.

As temperatures rise into the 80s, leaf spots begin to expand to girdle stems and leaves, leading to the melting out stage of the disease. Low mowing heights and excess nitrogen

favor disease intensity. Applications of more than one pound of nitrogen per 1,000 square feet in the spring can cause the development of lush, succulent plant growth, thus predisposing grass to infection.

The fungus typically survives as dormant mycelium in the thatch layer during unfavorable environmental conditions. Primary spread of the disease is by infected leaf clippings; however, spores, which are produced by the fungus, can also serve to disseminate the disease by wind, splashing water and machinery.

Symptoms

Initially, leaf spots are the first symptom in disease development. Leaf spots begin as small oval, brown or black specks. Black, irregular-shaped leaf spots are especially obvious on close-cut lawn grasses such as those on golf course greens (Figure 1).



Figure 1. *Bipolaris* leaf spot on close-maintained bermudagrass.
(Courtesy: A. Windham)

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Figure 2. Tan leaf spots of *Bipolaris* on bermuda pasturegrass.
(Courtesy: S. Vann)

As spots enlarge, they often develop a tan center with a black or dark brown border (Figure 2). This particular symptom is common on taller-cut lawn grasses.

If left uncontrolled, leaf spot symptoms can progress to the melting out stage of the disease. Leaf spots expand and cause a basal decline that results in a dieback of the upper portions of individual plants. Infected lower leaves become blighted and shriveled.

As symptoms spread, large, irregular tan areas of blighted turf cause thinning of the stand (Figure 3). During extended wet periods, sporulation of the fungus within the leaf spots may give leaf tissue a dark brown to black color.



Figure 3. Initial melting out symptoms on bermudagrass.
(Courtesy: S. Vann)

Management

Reducing stress is important for disease management. Growers should avoid drought conditions and low levels of nitrogen and potassium.

Turf should be irrigated deeply and as infrequently as possible to avoid shallow roots and subsequent drought conditions. Avoid late evening irrigations to reduce the time the grass is wet. Since thatch buildup in bermudagrass and other warm-season grasses can play a pivotal role in disease severity and incidence, growers should monitor the level of thatch and consider reducing it by methods such as core aeration or vertical cutting. Excessive rates of water-soluble forms of nitrogen applied in the spring can contribute to disease severity. For more information about fertilization, see *Fertilizing Your Lawn*, FSA2114.

Growers should routinely monitor soil nutrient levels by having a soil test performed. Turf managers and homeowners should also avoid herbicide applications and excessive traffic during disease periods. Mowing heights may be raised temporarily to reduce stress. Fungicides having the active ingredients of azoxystrobin, myclobutanil or thiophanate-methyl are most effective when applied during the early stages of disease development as soon as leaf spots become visible.

Fungicides are expensive and can have variable results if not applied at the most appropriate times. Application timing is crucial for good fungicide performance. Sprays should be applied at the first sign of the leaf spot phase or as a preventative when weather conditions are favorable for disease activity. Fungicide applications made during the melting out phase may be marginally effective due to increased disease pressure. Homeowners should consult a lawn care professional regarding fungicide application for leaf spot and melting out management.

Additional Information

An effective disease management program begins with an accurate diagnosis. A laboratory exam in conjunction with background information about the affected turf may be required for an accurate diagnosis. For other turf related publications, contact your local county Extension office.

Additional fact sheets are available at <http://www.uaex.uada.edu>.

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