



Botany and



**Plant
Pathology**

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Anthracnose

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Anthrachnose is caused by *Colletotrichum cereale*, a fungal pathogen that survives and thrives on dead and decaying organic matter. Although anthracnose may occur occasionally in turf maintained for athletic fields, professional landscapes, and residential lawns, it is primarily found on intensively managed annual bluegrass and (sometimes) creeping bentgrass on golf courses.

The anthracnose pathogen can cause two kinds of infections: a foliar blight (during stressful summer conditions) and a basal stem rot (during cool, wet periods in spring). It is not clear how the foliar blight and basal stem rot diseases are related.

This publication describes the symptoms of the two kinds of anthracnose infection, and provides nonchemical and chemical management options.

Foliar Blight Anthracnose

A variety of summer stresses predispose turfgrass plants to the foliar blight phase of anthracnose. These stresses include heat, drought, nitrogen deficiency, close mowing, and compaction. Stressed turf dies and senesces prematurely, which limits the potential for turf recovery. There also is evidence that pre-emergence herbicides also stress plants, which predisposes them to anthracnose infection.

The anthracnose fungus readily colonizes dead leaf blades under stressful conditions. When conditions are especially favorable, anthracnose infects green leaf tissues and possibly crown tissues, resulting in serious damage to the turf stand. Foliar blight anthracnose spreads largely by rain-splashed spores. Infection does not result in any visible surface mycelium.

From a distance, anthracnose-infected turf tends to have a yellow-orange cast and appears to lack its usual vigor. Affected areas are not well defined, although they may occur in clusters (Figure 1). Infected leaves may have irregularly shaped tan leaf lesions. Anthracnose lesions on green leaf tissues indicate aggressive pathogen activity (Figure 2). Typically, infected leaves turn yellow and decay from the tips downward.

The pathogen also produces spores on infected leaves within specialized structures called acervuli. The acervuli contain dark, bristle-like features called setae that are diagnostic signs of the disease (Figure 3). Setae are easily visible with a 10x hand lens.



Figure 1.



Figure 2.



Figure 3.

Basal Rot Anthracnose

Basal rot anthracnose is often favored by low mowing heights and deficient nitrogen levels. It is almost exclusively a disease on putting greens. It seems that annual bluegrass is most vulnerable to basal rot infection during cool, wet spring conditions; however, one may not observe extensive symptoms and turf damage until plants experience summer stress.

Basal infection causes rapid chlorosis and the decline of individual plants. Leaves turn yellow-orange, usually beginning at the leaf tips. Infected crown tissues have dark, necrotic infection structures from which the disease takes its name (Figure 4.)

Nonchemical Management Options

The incidence and severity of anthracnose outbreaks are much greater on annual bluegrass than creeping bentgrass. There appears to be no host resistance among creeping bentgrass cultivars, although it is likely that cultivars with improved tolerance to summer stresses will suffer less anthracnose damage.

Avoiding and/or relieving plant stress in the spring and summer will help limit the damage associated with anthracnose. Syringing and timely irrigation will help relieve heat and drought stress. Also, redirecting traffic may reduce wear and tear stress, and perhaps relieve some of the effects of compaction.

Spoon-feeding small amounts of nitrogen fertilizer (0.1-0.2 lb. N per 1,000 square feet) during the summer will help relieve nutritional stress during periods of slow growth. Raising the cut height also will reduce exposure to anthracnose infection and hasten recovery from damage. Lightweight rolling has been shown to limit mowing stress while maintaining fast and smooth putting surfaces.

Finally, agronomic practices that generally promote healthy turf development (such as aeration and topdressing at appropriate times in fall and spring) will help turf tolerate extended periods of summer stress.

Control With Fungicides

Anthracnose development can be limited by applying effective fungicides at appropriate times. Contact fungicides that inhibit spore germination will limit the extent of severe outbreaks, especially during hot, rainy periods.

Contact fungicides that are registered for anthracnose control include chlorothalonil products (Daconil® and others). Some fungicides within DMI, QoI, and SDHI classes are effective against anthracnose. Managers should implement a sound preventative fungicide program on putting greens with a history of anthracnose.



Figure 4.

Avoid multiple successive applications of site-specific compounds within a single fungicide class, because anthracnose pathogen populations can rapidly develop fungicide resistance. Resistance to thiophanate-methyl, DMI compounds or QoI fungicides is not uncommon. Tank mixing site-specific fungicides with multisite compounds like chlorothalonil will reduce the risk of fungicide resistance. Implementing the nonchemical, cultural control options mentioned above also will limit disease pressure and the risk of fungicide-insensitive pathogen populations.

Find Out More

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