

Problem: Anthracnose of Turf - *Colletotrichum cereale*



Host Plants: Primarily creeping bentgrass and annual bluegrass but may infect Kentucky bluegrass and tall fescue

Description: Anthracnose is a common disease of creeping bentgrass and annual bluegrass on golf course putting greens in Kansas. The disease is usually associated with turf suffering from heat injury in midsummer, but it can also develop in spring and fall. Anthracnose commonly occurs in conjunction with other diseases such as summer patch, Rhizoctonia brown patch and Pythium blight and is often a component in the so-called "bentgrass decline" complex.

Extensive damage may occur on bentgrass/annual bluegrass putting greens affected with anthracnose, and recovery from damage may be slow. Anthracnose may develop throughout the growing season, although it is more common in midsummer when cool-season turf is experiencing heat or drought stress. From a distance, affected bentgrass and/or annual bluegrass appears unthrifty and has a yellow or bronze cast. Affected turf wilts rapidly during midday and requires frequent irrigation. Anthracnose may initially be more severe on annual bluegrass. This results in a patchy appearance to the putting surface, as the bentgrass remains relatively unscathed while the annual bluegrass is killed. However, anthracnose may severely damage bentgrass greens with little or no annual bluegrass.

Individual plants affected with anthracnose first turn yellow and then die. Distinct leaf spots are not commonly formed by the anthracnose fungus. Instead, individual leaf blades fade from dark green to light green and then to yellow. There is no distinct region between healthy and diseased tissue as commonly observed with other leaf spotting fungi. The anthracnose fungus produces conspicuous black fruiting structures called acervuli on the leaves. The acervuli are abundant on dead tissue but may also form on green, apparently healthy leaves. The black hairy or spiny fruiting bodies are easily visible with a 10X hand lens.

The most severe damage occurs when the anthracnose fungus infects and colonizes the lower crown of the turfgrass plant. This is sometimes referred to as basal crown rot. Plants with crown rot are killed, resulting in a thinning of the turfgrass stand. Acervuli and small, black resting structures called sclerotia form on the decaying crown. The scattered structures are visible with a hand lens and appear as small pepper-like dots.

Anthracnose most often develops during the warm, humid weather of summer. Some pathologists consider the anthracnose fungus to be a weak pathogen at best, requiring substantial injury to the turfgrass plant for invasion. The presence of anthracnose often signifies significant injury to turf from environmental, chemical, or other pathological causes.

Recommendations: Several cultural practices will help suppress anthracnose development. On greens with a history of the disease, consider a rigorous aerification program. Deep tine or core aerify in the fall. During the summer "open" the greens periodically by spiking, slitting, or hydro-jecting. Maintain a balanced fertilization program. Do not starve the turf during the summer months. Very light fertilizations with a balanced fertilizer during the summer may help the turf withstand stresses and recover quickly from anthracnose damage. Low, frequent mowings enhance disease development. Consider raising mowing heights during periods of extreme turfgrass stress. Areas prone to localized dry spots are more susceptible to anthracnose damage. Follow a rigorous program to reduce damage from localized dry spots. Do not topdress during periods of turfgrass stress and anthracnose development. Topdressing damages plants and predisposes them to infection.

Several fungicides are labeled for anthracnose control. All products work best when applied on a preventive or early curative schedule. Applications after development of severe damage to putting greens are not very effective. Furthermore, some strains of *C. cereale* may be insensitive (resistant) to benzimidazole (thiophanate methyl) and QoI (azoxystrobin, trifloxystrobin) fungicides. Preventive applications of reduced rate tank mixes of a DMI fungicide (e.g. triadimefon, propiconazole) and chlorothalonil at two-week intervals have provided good control of anthracnose in studies conducted in Kentucky. During an anthracnose outbreak, avoid excessive fungicide applications. Superintendents may try multiple products at frequent intervals in the hopes of reversing damage from anthracnose. In most cases, these attempts fail. The most rapid improvement from anthracnose damage occurs following significant (cooler) weather changes.

References:

1. [Anthracnose of Bentgrass and Annual Bluegrass Putting Greens](#), K-State Research and Extension, Plant Pathology. Disease Factsheet EP-147

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