Turfgrass Diseases You May Not Have Seen Yet

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Since the report of the first turfgrass disease in 1912, new diseases have developed every so often. In the early '80s we first heard of bacterial wilt caused by a bacterium called *Zanthomonas campestris* and necrotic ring spot was identified and lead to further understanding that "fusarium blight syndrome" was really two different diseases, summer patch and necrotic ring spot. At this year's Turfgrass Disease Seminar, sponsored by Rhone-Poulenc, two diseases were discussed by Dr. Peter Landschoot (Pennsylvania State University) that may be in our futures.

Gray Leaf Spot

It is likely that you have heard of gray leaf spot, caused by the fungus *Pyricularia grisea.* It is not really a new disease of turf, previously known as a pathogen to St. Augustine grass, but it has developed in a new epidemic that is spreading across the country. This recent epidemic was first noted in 1991 with spread of the disease through Maryland, Pennsylvania, Virginia and Kentucky by 1995. The disease has further spread through Ohio, Oklahoma, Kansas and Iowa as of 1998. Since the first report of this most recent epidemic, the disease has spread in a westerly and northern direction. It is likely that the disease will spread into southern Minnesota, but it is still uncertain how far north this disease will spread.

So what is gray leaf spot? It primarily infects St. Augustine grass and perennial ryegrass, but also may infect tall fescue. The greatest concern of this disease is that it can be as destructive as pythium blight, with collapse of large areas of turf within 3 to 5 days. The disease occurs from late July through the first hard frost of fall. Disease first appears in heat sinks, compacted areas and in the roughs. Following loss of turf, these areas are difficult to reseed and germinating plants are highly susceptible to damping off symptoms.

What sort of things should you look for? The first obvious symptoms of infection will be general willing of the turf. Wilting will occur despite the adequate moisture availability. Within 24 hours leaf blighting develops accompanied by collapse of the plant. Individual plants will initially appear water-soaked followed by tip dieback. These leaves will exhibit a curved or fish hook appearance. This is most obvious in the youngest leaves. Lesions, varying in color from grey to brown, may develop along the margins of infected leaves. Abundant teardrop-shaped spores develop on both sides of infected leaves.

What can be done to manage this disease if it occurs? As with Pythium blight, there is little time for action before significant damage occurs. Once the plants develop the curved or fish-hook appearance, fungicide applications will not save the plants. Recommended curative treatments include Heritage (0.2 oz), Cleary's 3336 (6 oz), Lynx/Thalonil (0.28 oz/1.7 oz) or Banner/Thalonil (1 oz/1.7 oz). While these treatments provided the best protection, they did not provide complete management. However, their effectiveness is recognized when contrasted to near 100% turf loss in untreated plots within five weeks time.

What can be done to prevent gray leaf spot? Cultural practices to limit gray leaf spot include not using plant growth regulators, avoidance of night irrigation, removal of clippings. Reducing turf height prior to disease development is recommended. However, once blighting is evident the cutting height should be raised. Preventative fungicide treaments beginning in mid July with Cleary's 3336 (6 oz), Heritage (0.2 oz) alternated every two weeks with Daconil (3.8 oz), Compass (0.1 oz), Banner (1 oz), Bayleton (1 oz), or Lynx (0.28 oz) are effective in protecting perennial ryegrass from gray leaf spot.

While gray leaf spot is raising concern among many, if you do not have perennial ryegrass you don't have to worry. Even if you have perennial ryegrass, there has not yet been a confirmed report of gray leaf spot in Minnesota. Until then, it is best just to keep an eye open for what may be a problem.

Fall Dead Spot

The other disease discussed has not formally received a name, however *"Ophiosphaerella* dead spot" and "fall dead spot" have been proposed. The causal agent is a fungus identified as *Ophiosphearella agrostis.* As the name of the fungus implies, it is a pathogen of creeping bentgrass. Symptoms start out as patches similar in size to those of dollar spot which develop in late August and early September, becoming irregularly shaped and 3-4 inches in diameter. These patches start out dark brown in color, then becoming tan with pinkish. Whereas dollar spots are generally superficial, patches caused by this disease form crater-like pits in the turf reaching down to the soil. These crater pits appear to develop in the same spot year after year.

Predisposing factors include extended warm dry periods with temperatures of 75-85° F as well as young greens that are lean on nitrogen. Fungicide applications of Chipco 26 or Cleary's 3336 in conjunction with Daconil or Fore are effective for managing the disease. Whereas this disease is not as devastating as gray leaf spot, the production of crater-like pits on a creeping bentgrass putting green can prove disruptive to play. This disease has been identified from Pennsylvania to the Chicago area of Illinois and it is not unlikely that it will reach Minnesota.

New diseases develop for a number of reasons including the introduction of exotic pathogens from overseas and changes in turfgrass management practices. The information provided is intended to help keep you informed of new developments in turfgrass pathology, and enable you to keep an eye open for new diseases that you may encounter.