WISCONSIN STUDIES ON POA ANNUA FAIRWAY SUMMER DECLINE

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Poa annua fairways can be precarious during hot summer months. While no superintendent plants it, Poa annua fits an ecological niche that heavy use, fairway irrigation, and close mowing creates and so it comes in. Then when the weather becomes hot and unbearable in July or August, it sometimes goes out again! Much discussion has centered around this feature. Why does it go out? Obviously the high temperatures are involved, and some say that's the only cause. Others indicate it is a pathogen, such as Colletotrichum graminicola (Anthracnose), which attacks the turf during high temperature. Pythium attacks the crop on some courses, "wet wilt" sometimes occur. Ataenuis spretulus has caused some damage, and nematodes have also been implicated on occasion.

For the past two seasons, we have examined a particular syndrome of Poa annua decline in the Madison area, which we believe is also occurring on a number of other courses throughout the state. The disease is characterized first by a general loss of roots, which is only noted upon careful examination and is associated with above normal rainfall and warm summer temperatures. Pockets of turf then assume a slightly chlorotic pattern, due primarily to the yellowing of older leaves. At this time new root growth is absent, and root tips are black or dark brown. The crown of plants usually remains white and sound. A few days later irregular patches suddenly die, turning dark brown, or reddish in color.

The only fungus we have succeeded in isolating consistently from the tissue is Curvularia spp. However, pathogenicity tests reveal it to be only a very weak organism.

On some occasions the Anthracnose organism is present. On many other occasions it has not been observed microscopically. The fungus is not easy to isolate in the laboratory. Thus, it is possible that it may escape detection on occasions. That is, it's possible the fungus could be present but not sporulating, and we missed isolating it, too.

We have recently completed a pathogenicity test using a culture isolated from the Blackhawk Country Club fairway last summer. When we inoculated six week-old seeded Poa annua with a culture of the Anthracnose organism for 48 hours at high temperature and humidity, the inoculated tissue turned quite chlorotic - but then grew out of it. When we repeated the cycle, the chlorosis returned and then patches of turf died. On a few dead leaves, the Anthracnose fungus fruiting structures were observed. Attempts to isolate the fungus and complete "Koch's Postulates" are underway. Our trial was limited with only three flats of inoculated versus non-inoculated turf. (Poa annua seed is very scarce!). However, those observations impressed us with the belief that C. graminicola can be pathogenic to Poa annua under the right environmental circumsannces.

The type of summer decline we are describing responds to certain fungicide treatments. On the Blackhawk course turf strips treated with an experimehtal fungicide (CGA 64251) were green and healthy appearing. At Maple Bluff the year previously, Bayleton and CGA 64251 provided excellent control, and Tersan 1991 at high rates did well. Daconil, Acti-dione TGF and Chipco 26019 were better than checks, but gave inadequate control. All these were applied when symptoms started appearing. These and other fungicides may be helpful on a preventative schedule to keep the problem out of greens, where they are applied routinely.

Based on our experiences to date, we suspect the following to be occurring:

(1). Roots are reduced during mid-summer for environmental and/or nematode population pressures. Root loss is independent of Anthracnose, but areas with reduced roots will be damaged more readily by a foliage or stem disease, such as Anthracnose.

(2). During seasons of repeated sequences of high and temperature, Poa annua can be damaged by C. graminicola, the Anthracnose - inciting organism. It's detection cannot be made with certainty by examining for the fungal fruiting structures.

(3). Other factors, including those mentioned earlier, contribute to loss of Poa annua during summer months.