

# 2003 Illinois Pathology Report: Anthracnose Basal Rot Strikes Bentgrass, and Other News

*Anthracnose symptoms on a putting green.*

*In general, the 2003 growing season was good for turf in northern and central Illinois—an outcome that was much appreciated after the problems of last winter and early spring. Extremely cold temperatures with no snow cover last winter caused some turf loss due to desiccation. Then spring was also abnormally cool and dry, which delayed recovery of some winter-damaged turfs well into the golf season.*

*The '03 season wasn't without a few disease and insect problems, but the spectrum of diseases this year, owing to the cooler-than-normal conditions.*

Summer, however, continued the trend of average to below-average temperatures for the most part. After the dry spring, many areas recorded above-average rainfall. For example, at Golf House we had only 11 days over 90° for the entire season (as opposed to more than 30 last year), and received in excess of 12 inches of rain in July.

The '03 season wasn't without a few disease and insect problems, but the spectrum of diseases was a little different this year, owing to the cooler-than-normal conditions. The cool, dry conditions of early spring were very good for reducing the severity of take-all of bentgrass, summer patch and necrotic ring spot on *Poa* species. Dollar spot was slow to get started in June, but increased to moderate-to-severe levels by the end of August. Leaf spots and cool temperature Rhizoctonias were frequently observed, and cool and wet conditions that prevailed in some areas favored diseases like yellow tuft a lot more than Pythium blight or large brown patch. In central Illinois, summer temperatures and humidity were higher than in the north. This resulted in early leaf blights, brown patch, rust and dollar spot. However, the severity of these diseases was generally moderate.

## **Anthracnose Rears Its Ugly Head**

Not surprisingly, anthracnose was one of our most troublesome diseases in 2003. The leaf blight and basal rot phases were common on *Poa annua* all season, and we observed an increase in anthracnose on creeping bentgrass—primarily on Pennncross and Pennlinks, although there is no known resistance in

*(continued on page 16)*

newer varieties. Anthracnose on bent can be as damaging as basal rot on *Poa* spp., since it most commonly occurs as a root, crown and stolon rot instead of a leaf blight (see Photo 1).

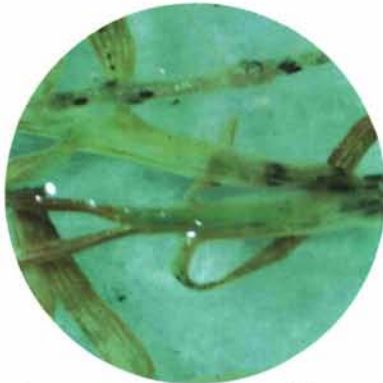


Photo 1: A macro view of fungus infection on bentgrass shoots.

The typical anthracnose symptom pattern on bentgrass is different than on *Poa*, however, usually occurring as a diffuse, thinning, reddish-brown patch of turf 6-10 inches in diameter (see Photo 2). Basal rot on *Poa* usually appears as small, scat-



Photo 2: Bacterial wilt on a green.

tered, bright yellow to reddish-brown 'flecks' or 'freckled' spots grouped in a larger patchy area. Bentgrass anthracnose can easily be confused with some leaf spots, localized dry spot or other environmental stresses that cause diffuse patches.

The soil-borne fungus that causes anthracnose, *Colletotrichum graminicola*, is favored by extended periods of leaf wetness, moist thatch layers and cool-to-moderate temperatures. Bentgrass anthracnose usually

appears in late spring or again in late summer to early fall, but this year we observed activity all season because of the moderate temperatures. Low nitrogen fertility or other deficiencies or imbalances that reduce plant growth rates also may increase the severity of anthracnose, as might environmental and management stresses. The latter factors include heat, drought, wear (e.g., mowing, foot traffic), vertical grooming and other abrasions (e.g., from sand topdressing)—all of which cause wounding of plant tissues and provide infection sites for *C. graminicola*.

As with basal rot on *Poa annua*, anthracnose on bentgrass is difficult to control with fungicides, especially once the infection has become chronic. Systemic fungicides are the best bet for curative or long-term preventive control, and candidates in the DMI (sterol inhibitor), QoI (strobilurins) and benzimidazole (thiophanates) classes all have activity on anthracnose. Tank mixes with

benomyl or thiophanates, these products may have limited utility for controlling anthracnose.

### Other Developments

Nematode infestation of turfgrass is always a concern, although most healthy turf swards can support a significant nematode population if the host plants are not placed under extremely stressful conditions. Putting greens, of course, often feature turf under stressful conditions and are most likely to exhibit nematode feeding injury. In Illinois, we can add a new type of nematode to our list of plant pathogens. We have identified cyst nematode (*Heterodera* spp.) injury on greens for the first time. This nematode causes swelling of roots similar to root-knot nematodes, which limits root uptake and results in plants that are generally weakened and easily drought-stressed. In severe infestations, affected areas go off-color and eventually thin out. Stay tuned for more information on this, as we are working with University of Illinois nematologist, Professor Terry Niblack, to identify the problem worm and parameters for infestation.

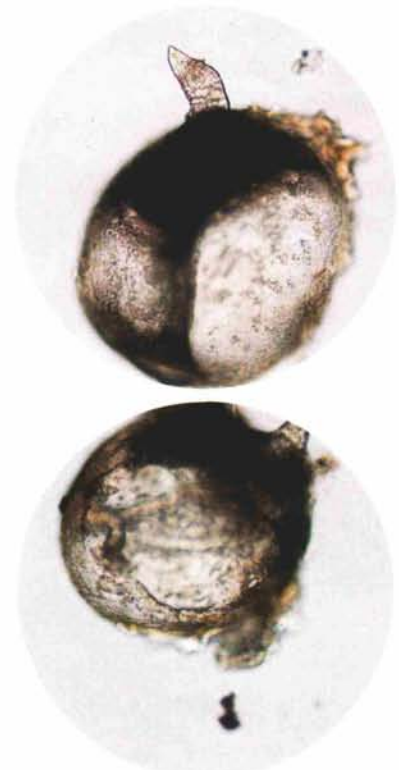



Photo 3: A *Heterodera* female nematode.

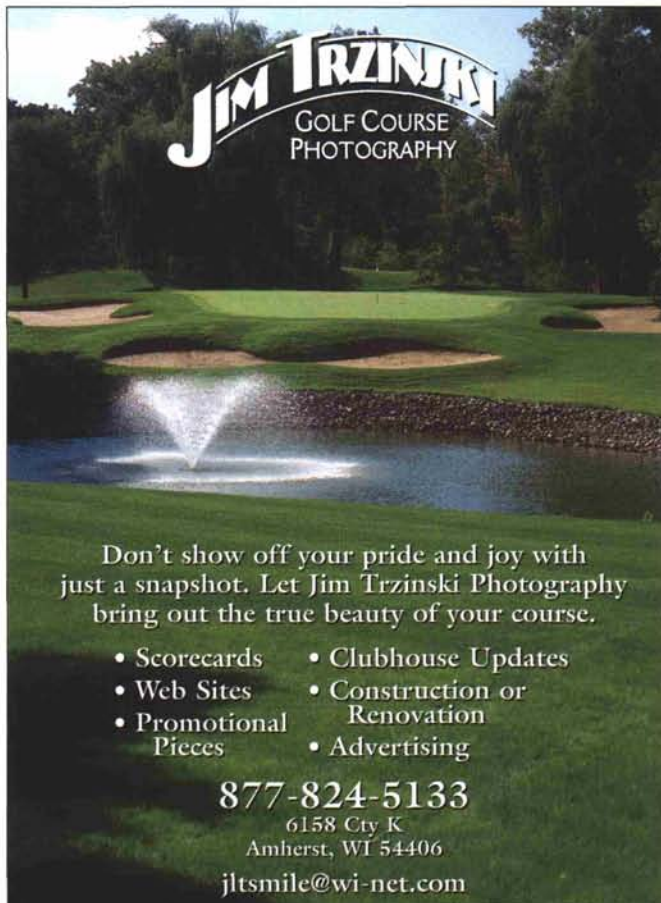
chlorothalonil, polyoxin D (Endorse) or fosetyl aluminum (Aliette) have shown preventive activity in a few season-long trials. A growing concern is development of reduced sensitivity of *Colletotrichum* to QoI fungicides; several instances of field resistance to Heritage have occurred around the U.S. after repeated use for anthracnose and other summer diseases. Also, occurrence of resistance to the benzimidazole class appears to be fairly common in Illinois. If your course has a history of previous use of

Over the last couple of years, a lot of news has been emerging from the Northeast and Mid-Atlantic States about bacterial wilt on *Poa annua* putting greens, and we have now confirmed one case in northern Illinois. Symptoms include a light green to yellow color of infected shoots, which may wilt under stress. Also, infected plants may turn reddish brown and die in scattered, dime-size spots (similar to early symptoms of C-15 decline on bentgrass). The presence of xylem colonizing bacteria was confirmed in our lab (“bacterial streaming”) and isolates were sent off to Dr. Nathaniel Mitkowski at the University of Rhode Island for identification (probably a *Xanthomonas campestris* type, but different than the C-15 bacterium).

Finally, a new disease of growing importance is “rapid blight,” which has now been identified in 11 states, mostly in the Southwest and Southeast. This disease is very interesting to turf pathologists for several

reasons, mostly because we are dealing with an entirely new type of pathogen. Formerly thought to be caused by a chytridiomycete, rapid blight is actually caused by a type of marine slime mold in the genus *Labyrinthula*. Infection by this new pathogen was previously found only in saltwater (marine) systems, causing a condition called “wasting” on eelgrass, but now has found its way onto land. Rapid blight mainly affects *Poa annua*, *Poa trivialis* and perennial ryegrass on established or overseeded putting greens that are irrigated with salt-contaminated water (e.g., treated or reclaimed wastewater). The symptoms resemble Pythium blight or Pythium root rot, and can be quite severe when seedlings are attacked on overseeded Bermudagrass. In controlled studies, the organism has also been able to infect salt-stressed bentgrasses, so it could become significant locally for those folks who are irrigating with low-quality or reclaimed water. BOLO (be on the lookout) for rapid blight! 

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