Disease Notes from Summer '87

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The prolonged heat and humidity we struggled through from late May until mid-August caused serious disease control problems on Chicago area golf courses (along with the rest of the upper midwest and northeast). Pythium blight, brown patch, dollar spot and **Poa** decline were frequently encountered and caused large-scale losses in some cases. Pythium blight occurred on golf courses where it had never before been observed, including along the north shore and into Wisconsin. Pythium outbreaks were observed that looked more like rampant dollar spot, with large areas affected. Severe dollar spot epidemics occurred that looked more like a Pythium attack. **Poa annua** held up pretty well for the most part, until the last week of July and first week of August. By then, the accumulated heat stress began to take its toll.

Pythium blight was especially severe on fairways, where we generally find less intensive (if any) preventative fungicide programs. Low-end application rates and longer intervals were often utilized because of the expense involved in spraying 20-30 acres of fairways. I received several inquiries regarding possible resistance of **Pythium** species to fungicides (esp. Subdue), since preventative applications at recommended rates were providing little or no residual control (2-4 days or less). However, fungicide failures were more likely due to the exceptionally high disease pressure that occurred, in combination with low fungicide rates and longer spray intervals. One ounce of Subdue will not protect plants for 7-10 days under the conditions that prevailed this summer, nor will 2 oz. last 14-21 days. Reportedly, Banol and Tersan SP treatments experienced similar difficulties. In some cases, 4 or 5 days of disease suppression was the maximum observed. Pythium outbreaks that were not controlled by systemic preventative treatments usually required curative "spot sprays" with contact fungicides such as Koban. Some Pythium control failures were also related to heavy rainfalls (3+") after fungicide application. In such cases, the excessive water probably acted to dilute or wash away applied materials, as well as provided an environment highly conducive to disease development.

In order to avoid disease control problems resulting from fungicide resistance or loss of residual efficacy, superintendents must become more flexible in their disease management programs. For example, one should alternate Subdue treatments with another fungicide such as Banol or Alliette as an insurance policy for controlling Pythium. These products all have different modes of action, so alternate treatments should reduce the possibility of resistance. Secondly, application rates and intervals must be adjusted accordingly when Pythium conducive environments persist for long periods of time. Also, contact fungicides should be kept on hand for spot spraying localized outbreaks when they occur.

Rhizoctonia brown patch was also a frequent problem this summer, but was generally less damaging than Pythium. I received several reports of brown patch control failures, usually involving Bayleton or Rubigan. Bayleton is known to provide only marginal control of brown patch in some areas, whereas Rubigan is generally regarded as effective. I was unable to con-

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firm that Rhizotonia was definitely involved, but the symptoms were described as "classical brown patch". As with Pythium, unfavorable weather conditions and high disease pressure, combined with low application rates reduced the residual efficacy of these products.

Many highly effective fungicides are available for preventative and curative control of brown patch, including both contact and systemic products. If a systemic sterol inhibiting fungicide such as Bayleton or Rubigan provides inadequate control, switch to a product with a different mode of action (e.g. benzimidazoles, PCNB, iprodione). Dependence on a single fungicide for long term, broad spectrum disease control is a risky business in difficult years like 1987.

What about Anthracnose?

In the last two years, I have often been asked if anthracnose is really a disease — i.e. is the fungus a primary pathogen or a secondary invader? My answer has always been a qualified "yes, it is a pathogen, but..." The fungus, **Colletotrichum graminicola,** is a facultative parasite that normally colonizes weakened or heat stressed **Poa annua**, and sometimes bentgrass. However, in 1987 I found anthracnose causing serious problems on otherwise healthy **Poa annua** at putting green height, beginning in mid-April and continuing through August. In fact, I received more calls regarding diagnosis and control of anthracnose than for any other disease in 1987.

Two or three different types of disease scenarios appear to be associated with anthracnose on golf turf. A common occurrence around Chicagoland is leaf infections on stressed **Poa annua** in mid summer. Leaves of stressed plants turn shades of yellow to orange, and **C. graminicola** fruiting structures (acervuli) can be found on senescent leaves and sheaths. In this case the fungus is probably operating in a opportunistic, secondary mode. It is difficult to say how important the fungal infection is in contributing to the death of weakened plants.

A more serious situation develops when **C. graminicola** invades the stem base of **Poa**, just above the crown, and attacks juvenile and mature tissues, instead of senescent cells. Infected plants show similar leaf discoloration as before, but few, if any, leaf lesions and acervuli develop. This type of infection readily kills entire shoots of **Poa** and seems to be less related to high temperature or other stresses, although inadequate N and P fertility are contributing factors. Disease occurs in small, irregular spots (½ - 2" in diam.), which coalesce and turn dark orange to brown in terminal stages. Since the pathogen is primarily internal in the culm or crown area, field diagnosis is difficult (if not impossible) with a low magnification hand lens or field microscope.

Control of anthracnose on **Poa** proved difficult, at best, in 1987. Contact fungicides such as Daconil 2787 and the systemic Bayleton (2 oz. rate) are among the products normally recommended for control of the leaf lesion phase. However, these products provided no relief from the stem base/flower leaf sheath infection that was frequently encountered in the summer of '87. The best control of this more serious type of anthracnose was gained by applying 2 oz. of a benzimidazole type systemic fungicide such as Tersan 1991 (benomyl), Fungo 50 (thiophanate methyl), and Cleary's 3336 (thiophanate ethyl). In addition, light to moderate fertilizer applications (.1-.2 lb. soluble N) appeared to promote recovery.

Typically, anthracnose is restricted to **Poa annua**. Any bentgrass or other species in the stand will be unaffected, which gives us a clue as to the causes of the disease. However, in some cases, bentgrass is preferentially attacked by **C. graminicola**, leaving healthy **Poa** behind. This may actually be a different strain or biotype of **C. graminicola**, one that is pathogenic to bentgrass, but not **Poa.** Anthracnose on bent most frequently occurs in late summer or early fall, when cool, moist conditions prevail. It doesn't appear to be a serious problem at this time.

1988 Pesticide Training and Certification Clinics

March 8 — Glencoe — Chicago Botanic Garden, Lake-Cook Rd., east of I-94, 8:00 a.m., $5.00 registration. Pre-registration required, call (312) 991-1160.

March 15 — Joliet — Holiday Inn, Larkin Ave. & I-80. 8:00 a.m., $5.00 registration. Pre-registration required, call (815) 727-9296.

March 29 — Crystal Lake — Hob Nob II Restaurant, Junc. Rt. 14 & 31, 8:00 a.m., $5.00 registration. Pre-registration required, call (815) 338-3737.

April 13 — Rockford — Clock Tower Hotel, I-90 & Bus. 20, 8:00 a.m., $10.00 registration.

April 13 — Wheaton — DuPage Co. Fairgrounds, Manchester Rd., 8:00 a.m., $5.00 registration.

April 19 — Glencoe — Chicago Botanic Garden, Lake-Cook Rd., east of I-94, 8:00 a.m. $5.00 registration.

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June 2 — Wheaton — Dupage Co. Fairgrounds, Manchester Rd., 8:00 a.m. - noon. All Tests Available.

March 9 — Glencoe — Chicago Botanic Garden, Lake-Cook Rd. east of I-94, 8:00 a.m., $5.00 registration. Pre-registration required, call (312) 991-1160.

March 16 — Joliet — Holiday Inn, Larkin Ave. & I-80, 8:00 a.m., $5.00 registration. Pre-registration required, call (815) 727-9296.

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April 20 — Glencoe — Chicago Botanic Garden, Lake-Cook Rd. east of I-94, 8:00 a.m., $5.00 registration.

One-day Urban Clinics in northeastern Illinois (Glencoe, Joliet, St. Charles) are preceeded, on the day before by a General Standards Clinic listed above.