Reinders

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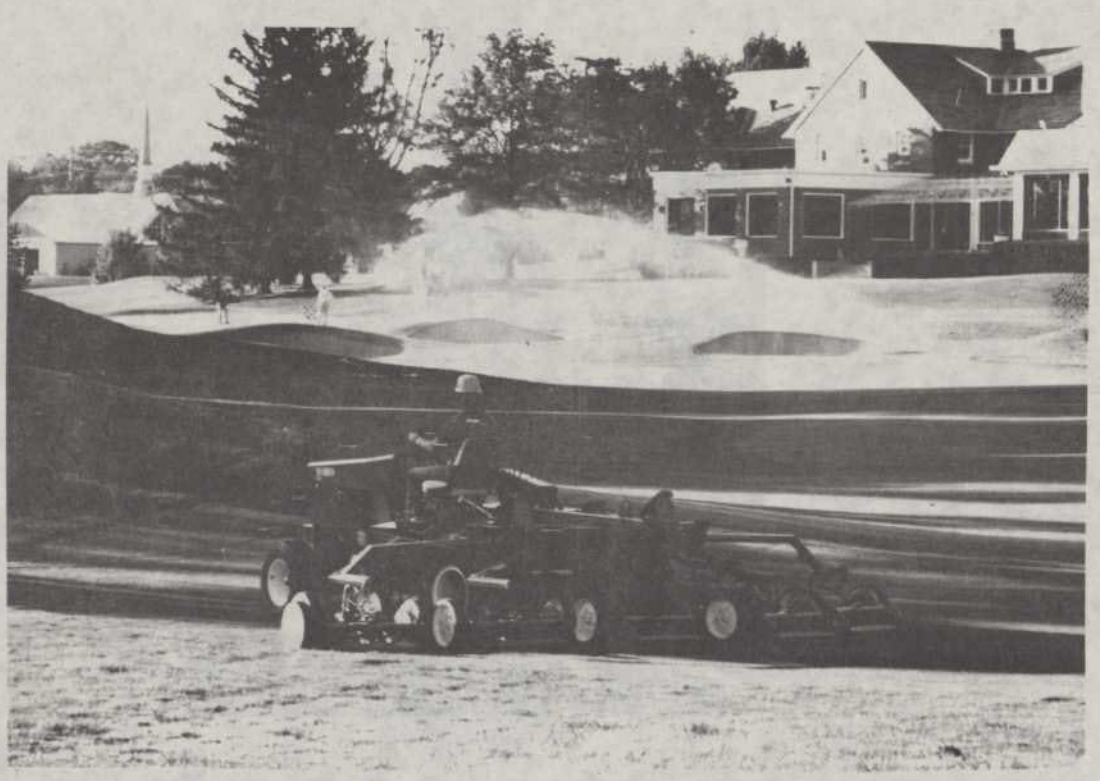

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WISCONSIN STUDIES ON POA ANNUA FAIRWAY SUMMER DECLINE

Gayle L. Worf
Mary Francis Heimann, O. S. F.

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.

THE C-15 PROBLEM

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C-15 or "Toronto" creeping bentgrass has developed 2 disease problems over the past several years. One has been stripe smut, caused by Ustilago striiforums, and the other, with an unknown cause, has become known as the C-15 problem.

The stripe smut problem slowly thins the "Toronto" turf. The disease is recognized in the spring and fall of the season by the dark black stripes of fungu spores running parallel up the leaf blades. It is often difficult to see stripe smut symptoms on closely mowed bentgrass.

The C-15 problem is more striking and an entire green may be lost in a few days. The greens are severly thinned and clumpy in appearance as individual plants are killed. This disease is only a problem on "Toronto" bentgrass cut at green height of 1/4" or less. The problem has not been observed on the "Toronto" growing in the fringes or approaches of the green at 1/2" or more. The disease starts in the cool weather of the spring and appears to recover with the arrival of the warm weather of the summer and then begins to decline again in the latter part of the summer and continues on into the cool weather of fall.

Several things have been associated with the C-15 problem including high populations of nematodes, especially Tylenchorhynchus dubius the smut nematode, and Cricinomoides spp, the ring nematodes. However, where nematicides were used to control these nematodes, very little recovery of the turf occurred. Dr. Wm. Meyer, plant pathologist at Warren's Nursery, has isolated Helminthosporium erythrospilum from "Toronto" bentgrass greens in Illinois and has been able to satisfactorily control it by applying 6 oz. of Daconil 2787 every week from early April through October. The best control with Daconil 2787 was obtained where high nitrogen levels were maintained.

For those "Toronto" greens with the stripe smut problem, 8 oz. of Tersan 1991 Fungo, Spot Kleen or Cleary's 3336 drench should be applied as early in the spring as possible, prior to the first mowing.

Neither disease is much fun to have on your greens. The "C-15 problem" is quicker and more devastating. Stripe smut is a much slower disease, but the end results are the same; removal of the desirable "Toronto" bentgrass and its eventual replacement with Poa annua. They both can be controlled chemically, but the treatments are very expensive. Controlling the C-15 problem is also very time-consuming. Controlling the stripe smut problem with systemic fungicides year after year could lead to the development of strains of stripe smut which are resistant to these fungicides.

Those who already have one of these problems on their "Toronto" greens may wish to follow one of the control programs, in the hope that less expensive and more permanent control will be found. It is my personal belief that overseeding programs with "Pencross" or "Emerald" creeping bentgrass should be started. It may be

advisable to completely re-seed, re-stolonize, or re-sod severely affected greens. For those people unfortunate enough to have one of these problems, my heart goes out to you; but for those of you who are contemplating re building greens on an established course or building greens on a new golf course, if you still use "Toronto" creeping bentgrass after having been forewarned, I can only say, "you made your own bed now lay in it".

I realize that "Toronto" creeping bentgrass has become the Cadillac of bentgrass greens, and that having "Toronto" greens on your course is a sign of prestige but when it develops either one of these problems, it will look more like a Model-T and add very little prestige to the course.

Dear Boss:

This is an answer to your request for a report on the accident which happened last week.

After completing the work on the roof of the three story building at 1313 Main Street, last Friday the 13th.

I went down to the ground level and pulled up the wooden barrel used for hoisting material to the roof. This barrel was attached to a 1/2" rope to a stake in the ground, using a clove hitch with a half hitch for security.

Proceeding to the roof, I filled the barrel with fittings, scrap, pipe, tools, etc. Then returning to the ground, I untied the rope from the stake - - - - - - - - .

Not until I was twenty feet above the ground, holding fast to the rope, did I realize the barrel weighed more than I.

As I went up, I met the barrel coming down at the halfway point which was 30 feet above the ground. When the barrel went by, the bottom hit my left ear and shoulder. The ear was damaged beyond repair, and my left arm was fractured in two places. Not wanting to fall 30 feet to the ground, I held tight with my right hand. Upon reaching the top, my head struck the pulley, causing a fracture of the skull and laceration of the brain.

At this point, the barrel had reached the ground and being made of wood, could not withstand the impact and collapsed, causing its contents to tumble out, reducing the weight. I now outweighed the barrel and started down. At the halfway point, I again met the barrel which had now been reduced to four staves and a jagged hoop. The hoop made contact slightly below my navel and caused a deep laceration ending at my chin.

When I landed, I was in the midst of the pipe, fittings, and tools which had been in the barrel. A 6" screwdriver pierced my right foot and both legs were broken. I guess I lost my presence of mind and turned loose of the rope. What was left of the barrel came back down and hit me again breaking my other arm.

My wife is writing this report for me. I don't guess I was able to grip the 1/2" rope tight enough with my right hand. The doc says the severe rope burns will take a while to heal.

Yours truly,

Ima Rigger

P.S. I do not feel this accident was my fault.

Creed

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Weld-On solvent cements for plastic pipe contain high-strength solvents which evaporate faster at elevated temperatures. This is especially true when there is a hot wind blowing. If the pipe is stored in direct sunlight, surface temperatures may be 20° F to 30° F above air temperature. Solvents attack these hot surfaces faster and deeper, especially inside a joint. Thus it is very important to avoid puddling inside socket and to wipe off excess cement outside.

By following our standard instructions and using a little extra care, as outlined below, succeesful solvent cemented joints can be made in even the most extreme hot weather conditions.

TIPS TO FOLLOW WHEN SOLVENT CEMENTING IN HIGH TEMPERATURES

1. Store solvent cements and primers in a cool or shaded area prior to use.

2. If possible, store fitting and the pipe, or at least the ends to be solvent welded, in shady area before cementing.

3. Cool surfaces to be joined by wiping with a damp rag. Be sure that surface is dry prior to applying solvent cement.

4. Try to do the solvent cementing in cooler morning hours.

5. Make sure that both surfaces to be joined are still wet with cement when putting them together. With large size pipe, more people on the crew may be necessary.

6. Use one of our heavier, high viscosity cements since they will provide a little more working time.

As you know, during hot weather there can be a greater expansion-contraction factor. We suggest you follow the advice of the pipe manufacturer regarding this condition. By using our high-quality Weld-On products as recommended and by following these hot weather tips, you can be assured of producing strong, leak-proof joints even during very hot weather conditions.

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