

# BACTERIAL WILT — It's Not Just A Toronto C-15 Disease

By Carl Grassl, Jr.

We were contemplating a good spring—no winterkill or ice damage like we had experienced during the spring of 1986. The turf was healthy. Even the young *Poa annua*, which healed most of the previous winterkill areas, was healthy. We had excellent spring recovery. Greens had wintered well and we started the speed patrol program around May 20th. Greens were aerified (1/2" tines, plugs removed vertically cut, brushed) on May 27th. Sand top dressing program started its fifth year. The turf on the greens had remained healthy through the first four years of the sand topdressing program with only occasional complaints about color. And that was understandable because we were spoon feeding greens every three weeks with about an 1/8# of N just below 1/8" and putting speed was acceptable to excellent, depending on which member you spoke with.

On approximately June 15th the hammer fell, and oddly enough it came almost to the day of the record-setting heat of 101 degrees at Mitchel Field in Milwaukee. It appeared someone spat-

tered mahogany stain on the putting green, but they were very precise about what strain of grass they hit. To our knowledge Seaside bents were heavily seeded into many areas of the course years ago, especially greens. The center of our putting green at Blue Mound has a low swail. How ironic. Obviously this green has had winterkill problems for many years and been overseeded for many of those years with Seaside bentgrass, heartland of the bacteria infection.

Samples were sent to Michigan State University and the University of Wisconsin-Madison. Both institutions positively identified the bacteria, along with a few other diseases, like take-all patch. A few days later Dr. Gayle Worf and Mike Lee spent time on their hands and knees trying to identify the stain spot on *Poa annua*. No luck. All spots were found on bentgrass plants, with identical characteristics—curved, curled at the tip of the leaves, brown leaves, and tan to white tips. The plants shriveled and died, one at a time. The *Poa annua* stood healthy and green and alone until its offspring

grew its way through, trying to become part of the *Poa annua* "army" filling the voided areas.

Through that stress period the bacteria became evident on two other greens in small areas. The disease then subsided for about three weeks or so, even to the point of some recovery. However, temperatures remained hot and with our mid-summer Men's Invitational approaching about mid-July, prep work began for speeding the greens for the tournament. One day prior to the event, an all day rain occurred, followed by 90 degree temperatures. We counted two days and again the mahogany stain appeared on the putting green, only to a much greater extent. Bacterial wilt had struck again, only this time with a pattern—two days after a rain. This pattern held true for the remainder of summer; each time it rained 1/10" or more, the rainfall was followed by considerable infection two days later. This did not appear true after irrigation. My practice had been to irrigate greens every four to six days depending on need. However, identifying the presence of additional bacteria two days after irrigating was not evident.

Through the remainder of the season a few more greens were infected in very minor areas. This continued through the fall period. Speed



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of infection and the complete decay of the infected plant seemed to be slower in cooler temperatures, but was very evident until the off color of cold temperatures made identification very difficult. Highly stressed areas from play and heavy traffic seemed to be the pattern the bacteria followed, but did not remain so. Areas completely away from traffic on the edge of a green became infected. Again, it depended on the strain of grass, which appeared to be the Seaside bent of a lighter colored strain.

A much heavier feeding program has improved the quality of the infected greens. Applications of ¼ pound of N and K every two weeks, along with ample ounces of fungicides brought color and vigor back into the greens this past fall. The bacteria remained identifiable until cool temperatures tinted the grass in general. "Out of sight, out of mind," as the saying goes. It looks like it will be spring before the sight of the bacteria will eat away the enthusiasm one has entering into another golf season.

The infected greens were overseeded three times this fall, beginning the third week in August and at three pounds per M. Seed germinated best

in the deteriorated spots under considerable sand topdressing, which was a bit of a surprise. I did not presume seed would germinate and grow so well in a sand only environment. Dead plant material provided an acceptable seedbed and stands of seedling Penn-cross flourished in the void spots, along with minor *Poa annua* found in clumps. Polyethylene covers were placed over the three seeded greens the third week of November with the intention of hopefully protecting the new seedling growth as much as possible.

As I look forward to next season, the frustration of working with a disorder of this nature is amplified by the fact that there is no easy cure, only one which involves side effects that could harm considerable amounts of healthy turf. Working with Mycoshield (oxytetracycline) is a prime example and depending on when such preventions are tried, under what weather conditions or club schedules, a corrective decision may or may not promote your popularity.

Let's talk about member reaction toward such a disease. I compliment Blue Mound members for their understanding the facts as they were presented. The history of the bacterial

wilt at other clubs was discussed and their resolutions were considered. We looked at immediate action, meaning a regrass of all twenty greens, along with a long term resolution which definitely made more sense because the highly susceptible strain Toronto C-15 was not in the picture. It was decided to monitor next season, hoping we'd get lucky. This is a format which a superintendent surely doesn't feel comfortable with, but, I guess that's our business—"take it one day at a time".

A somewhat comical aspect to this bacterial wilt dilemma comes from adjacent clubs concerned about the spread of the bacteria from club to club. Any member of a club where greens are infected must have their golf shoes thoroughly sterilized before playing another club! Now, the fact that disease can be spread by golf shoes is somewhat valid. However, let's be sensible. I feel more grass would be killed by the sterilent used to clean the shoes, than to ever worry about the increased severity of the disease being transmitted by golf shoes. But this goes to show how worrisome bacterial wilt is to golf players. And believe me, they have good reasons for concern.

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