

Frost Damage Mimics Disease Symptoms

By Dr. Gayle L. Worf

When late spring frosts occur, damage to bentgrass can occur that looks a lot like Helminthosporium. And since the damage takes place at about the same time one is looking for leaf spot, mistaken diagnoses are an inevitable consequence.

We had that problem this spring. It was aggravated by the fact that considerable overseeding had taken place a few weeks earlier because of the extensive winter injury that we experienced in southeast Wisconsin this year, and the young bentgrass was just up and becoming established when the unfortunate weather pattern occurred.

You might be interested in the results of a study we did this spring to verify the effects of frost on bentgrass, and to assure ourselves that no pathogens were involved. Jerry Kerchasky was our primary cooperator for this effort. We pulled plugs with a cup cutter, "planted" them in soil to protect the roots from artificially low exposure, then placed them in a growth chamber operating at 23 F. for 0, 4, 8 and 12 hours. No symptoms appeared for several days after the exposure. That's one of the difficulties in making a "frost damage" diagnosis, by the way—we might expect injury to be evident within 24 hours after the low temperature. After three or four days, the tips of many leaf blades assumed a tan-to-red discoloration. There were no distinct spots, but the color is typical of Helminthosporium infections.

Mature Penneagle turf was considerably more damaged than Penncross, which showed relatively little discoloration. But seedling Penncross injury was severe! The basic pattern on the young plants was similar to the mature ones, except that the leaf collapse extended further towards the base of

the plants. Individual plants were killed.

Frost injury to *Poa annua* produces distinct white tips on many leaves. Bluegrass behaves similarly, but occasional white bands across leaves also occurs. These

can mimic *Ascochyta* or dollar spot, for example.

We've not completed isolation efforts to confirm that no "secondary" organisms are involved with these symptoms. However, we have confirmed to our satisfaction that frost can, indeed, do real damage to turf when conditions are right for it.

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