

Turf Death Isn't Just For Golf Courses

HOW DIFFERENT TURFGRASSES SURVIVED THE WINTER AT THE O.J. NOER FACILITY



By Tom Schwab, O.J. Noer Turfgrass Research and Education Facility, University of Wisconsin-Madison

Turfgrass death from the winter of 2004/2005 is by now well documented at Wisconsin's golf courses. Reports of the extensive damage have been told in the popular press, trade magazines, professional gatherings, and on Noernet. The best description of what exactly happened to cause the turf death was written by Jerry Kershasky, from Westmoor Country Club, in the Spring, 2005 issue of the WTA newsletter.

His article has several pictures of turf death that occurred at the O.J. Noer Facility. Many sod farms also had extensive damage from this winter. Golf courses were not the only turf areas hard hit, but the message is pretty much the same.

In his article, Jerry quoted UW-Madison professor John Stier, who stated the damage most likely occurred when temperatures were in the mid-50s and large amounts of rain fell in early January. The rain was followed by below zero temperatures within 24 hours. This caused ice crystals to form in and around the crowns of susceptible plants, which ruptured cells and caused them to die. Dr. Stier also said the death could have occurred from the buildup of toxic gases or from the lack of oxygen that occurred under ice formed from that January weather. He believed the death occurred more from ice crystals formation in and around plant cells, than from toxic gases or lack of oxygen under the ice sheets.

The article stated that various species and biotypes within species survived differently. The Noer Facility definitely experienced this. Kentucky bluegrass and bentgrass survived just fine,

even after the rain and rapid temperature drop in January and under the resulting thick ice formation. Conversely the facility experienced death of tall fescue, perennial ryegrass, and some biotypes of *Poa annua* that were covered with ice.

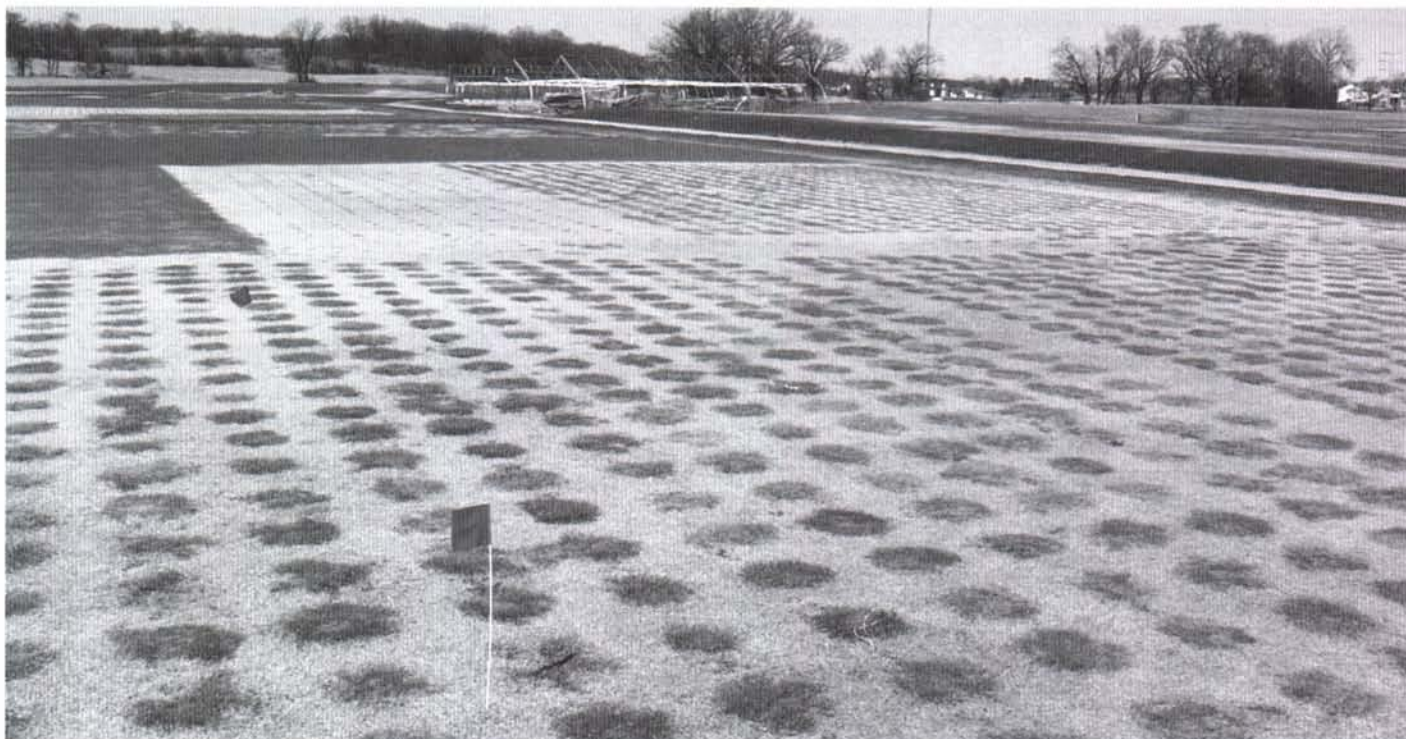
Bob Vavrek, from the USGA Green Section, was also quoted in Jerry's article. He made the point that both surface and subsurface drainage were critical factors in determining turf damage. This may be why all our fine fescue plots survived well under this



I remember the infamous day when all the ice formed. Doctoral student Kurt Stienke was bailing water from his runoff study, of over 1 inch of rain that fell on January 12th. Temperature dropped to -1F on the 14th.

This is what the facility looked like on January 15th.





The bentgrass clones in this breeding study survived, while the surrounding perennial ryegrass died under the ice.

winter's weather. They are all on higher well-drained ground and can't be compared with the species that were in the lower areas where ice accumulated.

We have lots of *Poa annua* var. *reptans* (creeping bluegrass) that is planted where the ice was. It typically has been slow to green up in past years, and I was sure it would not survive this winter under the ice. It appeared dead up until mid-April, but now on April 20th, it is starting to take on some color and will likely make it.

The researchers have assessed the damage at O.J. Noer and are repairing or replacing damaged plots according to what they determined. A tall fescue NTEP plot that was seeded in 2002 will be replaced with a different study. The winter kill was indiscriminate among the different cultivars of tall fescue. All of them died that were under ice. All the perennial ryegrass that died will be reseeded. The *Poa annua* that died will be bid farewell, as it was a contaminant that was not wanted in those studies.



The winter kill was indiscriminate among the nearly 150 different cultivars in this tall fescue NTEP as all were killed.

We learned lots at the Noer Facility from this winter's weather. I hope we don't see this much damage again, but on the positive side, it was a learning experience. Jerry's article

in the WTA Newsletter described the winter kill phenomenon very well. Let me know if you don't receive the newsletter and I can mail you a copy. ♣