Winter Turf Injury Update for Iowa Golf Courses – 19 Feb 2008

Dr. Dave Minner
Iowa State University
Extension Turfgrass Specialist

As the harsh winter conditions continue, this is the third winter update of the samples and ice removal plots we are evaluating on the practice green at Veenker Golf Course in Ames, IA. The mixed bentgrass/annual bluegrass green has good surface drainage with no standing water; however the ice storm that started on 1 December and the snow that followed between 11 and 14 December has left the green with an inch of ice covered by approximately 4 inches of snow. Some melting occurred between January 4 and 7 as temperatures reached a high of 39º F. Some of you may have lost your ice cover during this short period of thawing, however, most of the calls have indicated that the melting snow only created water that once again refroze and only added to the thickness of the ice immediately on top of the grass surface. In addition, we have had approximately 2 to 16 inches of snow since the first of January throughout Iowa. Temperatures have been as low as -12°F with wind-chill temperatures as low as -40°F. Properly hardened off creeping bentgrass can withstand -12°F, however at this temperature annual bluegrass has been reported to be susceptible to direct low temperature injury. I believe that the ice and snow cover that we have had this year has actually been an important factor that protects the grass from the extreme temperature and wind conditions we have experienced this year.

From my previous two reports you can see that there are many factors that can lead to winter injury, but the question often becomes is there any thing during the winter that I should be doing to my specific greens to help them survive the winter (see the December update). The update from Veenker is our best effort to describe what is happening as the winter unfolds. It is only one green of the many we have in Iowa. If you have been sampling your greens through the winter please contact me so that we can share your experience with other members in the Iowa Golf Course Superintendents Association.

Should you remove the ice?

So far, all of the samples that we have taken on Veenker's practice green through 29 January 2008 (60 days of continuous ice cover) are alive and doing fine (see the attached pictures and descriptions of samples growing in the green house). Our last set of samples was taken on February 18, 2008 (78 days of continuous ice cover) and they are growing in the green house, but it will take about 14 days to determine if they will recover. The samples looked good and there was no foul smell or indication of anoxia when samples were taken and ice was removed for the 18 Feb ice removal plots. Our research trial from 4 years ago indicated that creeping bentgrass had no injury with 77 consecutive days of ice cover. I would anticipate that our current ice cover will last at least 90 days. In my 13 years in Iowa, this is the longest duration of ice cover that I have experienced. Even with this I would not suggest that you remove the ice and expose the turf as shown in the pictures for plot 5-1. The turf under the ice appears to be quite green and even may not have been completely hardened off because of the early ice cover that occurred near the

first of December 2007. Every time we have exposed the turf it has turned brown from the below freezing temperatures that are still occurring every night. I still recommend that you leave the greens alone and wait until the end of the first week in March to make a decision about ice removal. There is a lot of frozen ice and snow on the greens and the entire golf course so you should expect a lot of surface water when the thaw finally does come. I have no problem with removing the snow over the ice in an effort to reduce the amount of melt water you will have on the green. I would caution you to not remove all of the ice since it will only take one warm sunny day to start the growth process in cells while the ground is still frozen and while night temperatures are still cold enough to directly kill cells that are breaking dormancy and starting to grow. I would leave at least a half inch of ice on the green at this time. In fact, I think you will find it very difficult to remove the type of ice we currently have on the greens. The ice we removed on 19 December 2007 was easily crumbled with the solid tine aerifier and was scooped off with plastic shovels to fully expose the grass surface. There was an air gap between the grass and ice. The ice removed on 29 January and 18 February would not separate or "flake off" from the grass below. Instead, the soil thatch, grass plant, and 1.5-inch surface ice layer was connected as a single unit. Because this appears to be a year with unprecedented ice cover, I suggest that you all should dig through the snow and ice and sample at least one green. As frozen as things are this year I suggest using the sawsall with the coarsest blade available. Have a couple extra blades on hand and cut as deep as possible or your sample with shear off without any roots for regrowth. We try to get a two inch square plug with at least a half inch of soil attached. Most of you know what dead rotted grass smells like, so bury your head in the hole and inspect the bouquet of your greens. I also sniff the plug just like a cork from a fine bottle of wine. The smell of freshly tilled soil is a good sign that the green is still alive and healthy. The foul smell of a rotting pile of grass clippings or rotten eggs is not a good sign. I am not getting much response from anyone who has sampled their greens so I think it is time to take a look at what is going on under the ice. My guess is that most of us are in good shape on most of the course. I still anticipate losing some grass in areas with poor drainage and where surface water normally collects. Annual bluegrass will always be more susceptible to winter injury than creeping bentgrass.

Please contact Dave Minner 515-231-1741 dminner@iastate.edu or Jeff Wendel 515-232-8222 jeff@iowaturfgrass.org to keep us informed as you continue with your winter protection strategies.