"Record Snowfalls of November and December Blanket Wisconsin Golf Courses!"

WISCONSIN

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EARLY WINTER CONCERN FOR WISCONSIN'S GOLF COURSES

By Thomas R. Parent

The last issue of the GRASS-ROOTS contained an article entitled "Let It Snow! Let It Snow! Let It Snow!" Perhaps that article should have been in this issue. Many of us were caught by the late autumn storms with a lot of work left to do on our golf courses. At Thanksgiving, northwestern Wisconsin had the heaviest snow accumulation in the country. Since then, it seems all that it's done is snow; included in the snowfalls was a twelve inch blizzard here in Madison on the first of December. For those of us who were unable to get all of the snow fence up or to get topdressing materials applied . . . "Let It Snow! Let It Snow! Let It Snow!

Although it seems some Golf Course Managers were applying snowmold fungicides in 20 degree weather, it appears everyone did indeed get them on the turf. For us, snow is probably the best protection from winter injury. It is free (some of the new turf covers are not!) and it prevents desiccation and insulates the turf from temperature extremes. It also affords a dampening from the temperature extremes that Wisconsin is so well known for. But, as in most things, too much of a good thing can be a problem. If your golf course has poorly drained greens or other areas that are not well drained, excessive snow cover can lead to problems in the spring or during one of those all-too-frequent Wisconsin January thaws. As the snow melts, the water will drain through the snow and accumulate in these areas. The standing water or ice accumulation can cause excessive hydration of the crowns of the turf plants. Hydration makes them much more susceptible to cold damage, especially if there is a sudden temperature drop below 20 degrees F. The steps needed to prevent this problem are much the same as those for ice and will be discussed later.

For those not fortunate (?) enough to get twelve inches of snow on the first of December and instead received over an inch of freezing **rain**, don't panic. Bentgrass can survive 150 days of ice cover undamaged. But then, who has 100% bentgrass greens? Healthy **Poa annua** can tolerate ice cover up to sixty days with little or no damage. I've been told the *Farmer's Almanac* predicted a brown Christmas this year. As much as I love the wisdom of that book, I think they blew it this year. So unless we get a thaw, those of us with ice problems should take some preventative action.

Although the exact reason ice cover causes damage is under debate, several theories do exist. Contrary to popular belief, the lack of oxygen by the grass plant is not the problem. Many believe the buildup of CO_2 or toxic gasses given off by low temperature microorganisms cause the damage. The solubility of cadmium, arsenicals and mercury increase under anaerobic conditions and could reach toxic level, and this potential source of damage is advanced by others. Ice can cause the same crown hydration problems as snow as it begins to thaw, or if the soil temperatures are near freezing.

What to do? Besides praying for a thaw before February 1, there are several approaches to prevent or lessen potential damage. If labor or money is short, concentrate your efforts on those poorly drained areas of the golf course. One method is to dig trenches in the snow to form a drainage system. This will facilitate the movement of water as the snow starts to melt. If the ground is sufficiently frozen, heavy equipment may be used to remove the snow to a depth of approximately one inch. This is a risky procedure as turf damage from the plow can result. For ice and/or snow problems, be ready for a sunny day, with temperatures at or above the freezing mark. Under these conditions, an application of Milorganite or topdressing will help get through the cover. The dark color of these materials will absorb sunlight and greatly speed melting. The USGA pamphlet listed below recommends two cubic yards of topdressing per 5,000 square feet or twenty pounds of fertilizer per 1,000 square feet. The addition of a granular surfactant, mixed with the fertilizer or topdressing, will enhance the effect of the material on the snow. As snow melts, it forms a layer of water on the top which slows the melting process. The use of a surfactant **should** reduce this layer and promote faster melting and draining.

If worse comes to worst and the above methods fail or are imprac-

continued on page 31