



# Widespread Winter Woes

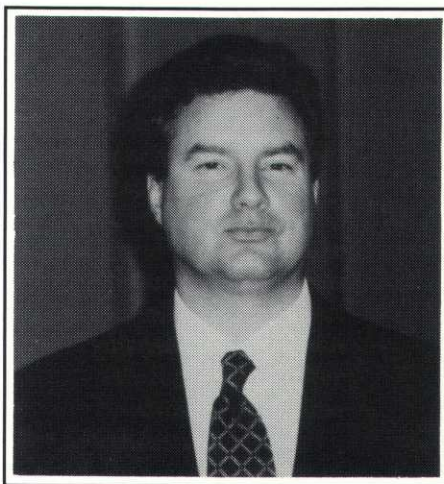
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There were over 75 participants at the recent Minnesota Golf Course Superintendents' Association monthly meeting hosted by John Harris at the Lafayette Club on April 29. The topic of discussion was the extent and severity of winterkill to turf that occurred on golf courses across Minnesota between November, 1996 and March 1997.

There were no positive responses to the first question of the evening. . . Who did *not* experience significant winter injury to turf this spring? Over 1/3 of the attendees believed that the extent of the injury was unusually severe. Other Minnesota superintendents I contacted during March and April responded in a similar manner. It was not a question of whether or not winterkill occurred; instead, the question was; (1) where did the injury occur? and (2) how extensive was the damage?

At least three weather events are partially to blame for the winterkill. Each of these events, alone, could account for significant losses of turf.

First of all, a heavy rainfall during late November was followed by a



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rapid drop in temperature. Some frost had already developed in the upper soil profile, so little of the rain soaked into the turf. This was an ideal scenario for severe crown hydration to *Poa annua* and perennial ryegrass turf. A thick layer of ice formed in low-lying portions of greens and fairways at this time. The ice cover remained all winter at a number of courses. I agree with many superintendents that a considerable amount of the injury seen in spring occurred during the November freeze/thaw event.

Secondly, The shallow frost in the upper soil profile quickly disappeared. The result was unfrozen turf buried and insulated by a layer of ice and snow. These conditions provided an ideal environment for snow mold activity.

Another rapid drop in temperature occurred in early April and, again, a heavy rain fell just before the freeze. Some additional turf that had been weakened by the earlier weather events may have been killed at this time.

Every superintendent I contacted this spring experienced injury to turf in poorly drained areas on fairways. Almost 100% loss of turf cover occurred on greens at other less fortunate courses. The pattern of injury seen during Turf Advisory Visits this season indicates crown hydration as the primary cause of damage. Significant thinning from snow mold also accompanied the crown hydration. Some superintendents believe that the heavy rain in late November reduced the effectiveness of the snow mold fungicide treatments, especially when the treatments were applied within a week of the rainfall event.

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