

THE 1997 YEAR END REVIEW

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Extensive winterkill to *Poa annua* occurred at many courses scattered throughout Minnesota and northwest Wisconsin. The pattern of damage was consistent with the type of injury that often occurs to susceptible turf species in poorly drained sites during freeze-thaw events, which is commonly referred to as crown hydration. Most superintendents agree that the losses of turf were caused either by a late fall (1996) ice storm or a similar event that occurred in early April of 1997. A rapid drop in temperature to well below freezing immediately followed a heavy rain during each storm.

A dense layer of ice covered the playing surfaces for extended periods of time at many courses affected by winterkill, but physically removing ice from greens during December or January did not appear to prevent or minimize the extent of the damage seen the following spring. The layer of ice and snow, however, was a factor that contributed to the unusual absence of consistent frost development in the soil, which, in turn, may have resulted in more intense snow mold disease activity at a number of Minnesota golf courses over the winter.

Record breaking floods during spring devastated courses along the Red River of the North and its tributaries across eastern North Dakota and northwest Minnesota. Turf in low-lying areas of several courses was submerged in icy water for over a month. A surprising amount of bentgrass on greens survived the flood as long as silt and other debris from the playing surfaces was removed just as soon as floodwaters receded. In contrast, the survival of *Poa annua*, Kentucky bluegrass, and perennial ryegrass in flooded fairways and roughs was minimal and extensive overseeding operations were necessary to restore playable conditions after the problems associated with thick silt deposits were addressed.

To make matters worse, an unusually cool weather pattern persisted across the Region until mid-June, which greatly slowed the rate of turf recovery at courses affected by winterkill and floods. Sporadic outbreaks of pink snow mold were documented in several states well into early summer, particularly after a few days of cool wet weather.

Green speed seemed to be less of an issue to golfers on courses that were not affected by winterkill until warm weather finally arrived and initiated the first sustained flush of turf growth. Lowering the height of cut to or below 1/8 inch was the most common response to the golfer's expectation or demand for double-digit speed for day-to-day play. Light applications of Primo on greens (to limit shoot growth throughout the day), rolling, and double cutting are several examples of techniques that are being used more frequently at courses in the Region to increase green speed. An unfortunate side effect of the quest for fast greens was the invasion of moss into an increasing number of putting surfaces at numerous courses across the Region. One of the common denominators at courses affected by moss is a height of cut on greens in the 1/10 to 1/8-inch range.

Nearly every private course and most of the highly regarded resort courses that were visited in the Region during 1997 have initiated a mandatory non-metal spike policy. An increasing number of municipal and smaller privately owned daily fee courses are banning the use of metal spikes as well. Spike marks on greens was a non-issue at Turf Advisory Service visits this season, but scuff damage to the putting surface was still a concern where golfers drag their feet - even where alternatives to metal spikes are used.

Overseeding greens and/or fairways with bentgrass is becoming a more popular maintenance practice at older courses across the Region. Simple drum-type overseeding units have been developed that can rapidly produce numerous shallow holes in a playing surface and several models of slicer/seeder units can provide excellent seed-to-soil contact in fairways and greens. The means for introducing seed into greens or fairways without causing extensive surface disruption are available, but other equally challenging issues need to be addressed. What is the optimal rate and timing for overseeding operations? Which variety or blend of improved bentgrass varieties will produce the best results on greens vs. fairways? What maintenance practices (irrigation, height of cut, fertility, etc.) need to be modified after overseeding to achieve success? Site

conditions also need to be considered. For example, the chances are slim to none that the percentage of bentgrass can be increased through frequent overseeding on a small compacted poorly drained green located in a heavily shaded site.

Perhaps the most universal concern expressed by superintendents last season was the limited availability of dependable labor. The unemployment rate has steadily decreased across most of the Region and, as a result, it has become increasingly difficult to attract temporary employees to work on golf courses. College students have shorter summer vacations and, as equipment becomes more sophisticated, more time is spent training new employees each spring before they can work independently on the course. Competition for temporary employees has become especially intense in the area of the region where golf resorts are located due to the similar labor needs of hotels, restaurants, etc. Many superintendents have significantly increased the entry level wages for new employees and a small, but increasing, number of courses are exploring options, such as the importation of Hispanic labor to address their needs.