WINTER ICE COVER PROBLEMS?

The injury mechanism and factors influencing low temperature kill were discussed in the most recent Turfax™. In the past four decades numerous writers have included ice cover damage caused by oxygen suffocation or toxic gases accumulation under the ice layer as being a major causes of winterkill. A survey of the turfgrass research literature on this subject reveals no valid scientific data to support this ill-founded concept.

One specific published study and numerous "real-world" field observations demonstrate that C₃ cool-season, perennial turfgrasses readily survive more than 50 days under dense ice coverage with no injury. A commonly published guideline advises removal of an ice cover after 20 days in place. There is no validity to this guideline as related to the fibrous roots and small crowns of perennial grasses. The 1960's origin of this 20-day maximum is based on Wisconsin studies with the very fleshy, high carbohydrate tap rooted alfalfa species. Physiologically, the root-crown system of this legume and of a turfgrass are drastically different.

The most complete ice cover study was conducted at Michigan State University by the author and Research Technician Jack Eaton. Three mature turfs, creeping bentgrass (*Agrostis stolonifera* var. *stolonifera*), Kentucky bluegrass *Poa annua* and perennial ryegrass (*Lolium perenne*) were exposed to ice cover for varying periods of time. The results showed that creeping bentgrass was the most tolerant of the three species, accurately reflecting its natural adaptation to cold climates. Further studies are needed to determine the exact mechanism of injury and to develop effective management strategies to minimize damage.