

ICE ON PUTTING GREENS

by Mark Smith, Superintendent, Minneapolis Golf Club



A group of seventeen concerned superintendents met with Dr. White and Dr. Stienstra at Southview Country Club on February 2, 1983 to discuss the ice coverage on putting greens throughout parts of Minnesota. Most superintendents reported ice buildup of 1/4"-1", the result of Christmas rains that dumped about 2" of rain at the Minneapolis-St. Paul International Airport.

Winter injury to turfgrass can occur a number of ways. Extensive damage occurred on many golf courses in the metropolitan area during the winter of 1979-80 mainly due to crown hydration. This winter the concern at this point centers on the prolonged period of ice coverage rather than hydrated crowns. Although the potential for injury due to crown hydration was great after the Christmas rains, examination of plugs from putting greens taken in January indicates that major damage did not occur at that time.

While it is generally accepted that damage can occur from the ice layer on *Poa annua* after 50-60 days¹ due either to an accumulation of toxic gases or a lack of oxygen under the ice, Dr. White pointed out that this work, accomplished by Dr. James Beard, was under laboratory conditions. It is unlikely that our field conditions are as severe as the laboratory conditions of the experiment. Furthermore, direct translation of the number of days established in the experiment to the field cannot be exact. We very likely have more than 60 days in our situation as it exists this winter. Dr. Stienstra seemed to concur. Dr. White went on to point out that the temperature under the insulating blanket of snow will remain a fairly constant 25 degrees during the winter, regardless of fluctuations in air temperature. This, of course, is quite desirable.

Kurt Erdmann at Rochester Country Club claimed some success in reducing the ice layer by removing snow with a four wheel drive pickup and snowplow and applying Milorganite in January. Kurt has decided to suspend his efforts to remove the ice due to recent snows. He points out that exposed greens during cold temperatures is also a very real concern. Other methods of dealing with the ice buildup discussed at the meeting were mechanically trying to crack the ice, melting the ice with materials such as Milorganite, powdered carbon, topdressing, muriate of potash, urea, and ammonium nitrate, and artificially heating the greens with propane heaters and tarps.

It is interesting to note that of the superintendents present, nobody reported ever having saved turf by removing the snow and ice. Most superintendents left the meeting having decided not to attempt to remove the ice at this time. Most superintendents, however, were going to do everything possible (plowing, shoveling, or chipping drainage channels) to expedite the removal of the snow, water, and ice once the spring melt begins. Superintendents were encouraged to monitor the situation by being alert to any putrid odor that may exist at the green surface which would be an indication of possible damage, and to remove plugs from the greens and bring them inside to see if growth occurs.

A big thank you to Roger Kisch for arranging the meeting and the staff at Southview for a delicious noon buffet. We would also like to thank Dr. White and Dr. Stienstra for taking time out from their busy schedules to attend the meeting. Let's hope that this meeting results in more green turf when the snow melts.

1. Beard, Dr. James. 1973. Turfgrass Science and Culture. Prentice-Hall, Inc. Englewood Cliffs, New Jersey. p. 248.