Defying Mother Nature

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Being greeted by the stench of a rotting, decaying, silage-like smell when removing one of the first greens covers of the year caused an overwhelming feeling of despair among the staff at Wayzata Country Club. The removal of the Green Jacket greens covers on March 26th at Wayzata Country Club created cause for some concern. Even after taking the same preventative steps as previous years, this year several greens had experienced various levels of damage from crown hydration. The worst of these was the tenth green with a 2,500 square foot area essentially dead and already decaying under the cover. The thoughts immediately turned to what, if anything, was still alive in the area. Several cup cutter plugs were taken from the damaged greens and placed in an indoor greenhouse to force the remaining plants from dormancy. Many of the plugs showed promise of returning plant growth, but plugs from greens ten and eleven left some concern.

To help jumpstart the damaged greens with significant numbers of living crowns under the senescing leaves, several different methods were used. These included topdressing the damaged areas with generous quantities of a black topdressing sand and continued covering with HPI covers, both of these measures taken to encourage the growth of the remaining plants. Further, some areas were quadra-tined to try and capture more heat down into the soil profile. The black sand was obtained from Plaisteds and is a new product developed by Dr. George Hamilton of Penn State University and the HPI covers were on loan from Jim Nicol, CGCS of Hazeltine National Golf Club.

Wayzata Country Club's Superintendent Bob Distel, left, and Assistant Superintendent Steve Roxberg, pump air to create a "hothouse" on the tenth green to expidite the recovery process.

The question was then what could be done to re-establish the damaged areas on the tenth and eleventh greens when there were live crowns in only about half of the remaining plants. Soil temperatures would drop too significantly at night to allow seed germination. Attempts to capture sunlight and heat and then retain this heat, were made using several different types of covers. The different types of covers that were tried included concrete curing blankets, HPI covers and Excelsior mats. While these covers worked well during the day with living plants, it became apparent that covering greens with these types of covers only held the cold overnight. Several interesting theories to remedy the problem were discussed and many ideas began to flow about how to actually put these theories into reality.

The initial steps were nothing too out of the ordinary. The tenth and eleventh greens were verticut to a depth of just under 0.10 inch in five directions to remove some of the dead leaf blades and to open the turf canopy up for overseeding. At this

(Continued on Page 15)

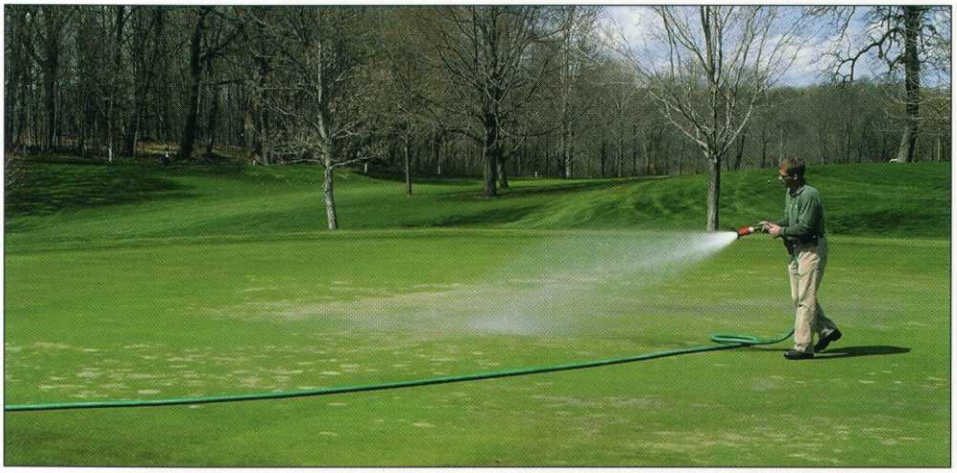
Defying Nature–

(Continued from Page 14)

depth no crowns of remaining plants were damaged but the surface was significantly opened up to improve seed and soil contact. Dominant Extreme bentgrass seed was applied with a drop spreader in two directions followed with a T.I.P. spiker in five directions to help impact the seed down into the verticut slits. A light layer of black topdressing sand was applied and brushed into the area to help capture sunlight and heat. All greens were sprayed with Trifloxystrobin fungicide at .25 oz/1,000 square feet.

With seed now present in the soil, the second part of the challenge began. The construction of a greenhouse would provide the ideal environment for seed to germinate. But how to construct an easily removable greenhouse that was weatherproof, lightweight and would not leave any adverse effects on the green surface became the next question.

Initial ideas included using a frame of scaffolding, a center support or vertical supports around the edge of the green and covering this frame with a 6 mil clear greenhouse plastic. Ultimately, it was decided not to use any frame and create a dome structure using heated, pressurized air, called a hothouse. This was accomplished by using a thermostatically controlled, 80,000 BTU propane heater complete with an electric blower. The propane heater allowed for the hothouse to be heated consistently. The plastic was laid out flat over the damaged area and the edges taped to provide more strength and decrease any tearing that could occur from the sod staples that were used to pin the plastic to the ground. Vents were cut into the plastic and the propane blower was attached to the edge of the plastic and



Watering the 10th green at Wayzata CC is Assistant Superintendent Steve Roxberg.

(Continued on Page 23)

Defying Nature–

(Continued from Page 14)

began to pump in enough air to form a bubble approximately four feet high at the center. Temperatures in the new hothouse would average between 75-80° during the day and the propane heater kept night air temperatures from 55-60°. However, on very sunny days caution had to be taken to ensure sufficient venting of the hothouse. On these sunny days the outside temperatures could be as cool as 55° and inside the hothouse temperatures could be reaching the low 90s. After only a few days soil temperatures were consistently at 55° and seed that was put out on April 6th began to show evidence of new life by the 13th. To date, approximately half of the damaged area has recovered from crowns and stolons and the remaining area is covered with new plants.

Maintaining the covered green was not as difficult as one may think. The cover was easily and quickly removable allowing for mowing and other maintenance practices to remain relatively uninterrupted. For example, in a 30-minute time span the green could be uncovered, cultural maintenance practices performed and recovered. Because of the potential for overheating, constant monitoring and watering of the turf under the hothouse is required. Watering was accomplished by crawling under a corner of the plastic and syringing the area.

"2,500 square feet of greenhouse plastic....$348. Three weeks rental of propane heater....$375. Germinating bentgrass seed on April 13th in Minnesota ...Priceless!"

The tenth and eleventh greens are well on the way to being fully recovered and should be fully open and playable in time for the Minnesota Golf Association Senior 4-Ball Championship that WCC is hosting on May 17th and 18th. The support and patience of the membership at WCC has also been instrumental during the period of the hothouse and the temporary greens that were necessary during this time.

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