Late Fall Sand Topdressing: Water Retention And Influences on Winter Injury

Mid-year Report — May 1999
GCSAA/MGCSA Cooperative Research Project

Principal Investigator: D.H. Taylor, University of Wisconsin-River Falls
Cooperators: Timothy Berggren, Superintendent — St. Croix National Golf Club;
Richard Grundstrom, Superintendent — Indian Hills Golf Club;
Daniel Swenson, Superintendent — River Falls Golf Club

Purpose

The objectives of this research project are to determine (1) if sands commonly used for topdressing golf greens in the North Central region of the United States vary significantly in their water retention characteristics, (2) if heavy rates of topdressing just prior to winter are likely to increase winter damage, and (3) if brushing sand into greens following late fall sand topdressing affects winter survival of the turf.

Location of Project

The laboratory experiments are being conducted at the University of Wisconsin-River Falls. Field plots are being applied on practice greens at River Falls Golf Club, River Falls, Wis.; Indian Hills Golf Club, Stillwater, Minn., and St. Croix National Golf Club, Somerset, Wis.

Rationale/Purpose

Topdressing golf greens just prior to winter has been recommended for many years as a method of reducing winter desiccation. This research was initiated as a result of several incidents of winter damage on golf greens in Minnesota which seemed to be associated with late fall topdressing practices. Suggestions of the causes led to considerable speculation but inadequate answers. The research was begun in the summer of 1997. Field plots were established at three golf courses in November 1997 and 1998 and data from the first and second winters are now available.

Methods

Seven sands, five sand/peat mixtures and four sand/amendment mixtures (other than peat) were selected for laboratory physical and water retention analysis. Analyses included particle size, pH, organic matter content, water retained at several potential energy levels and saturated hydraulic conductivity. Experiments are yet to be conducted to assess water retention in thin layers of sand placed over a typical root-zone soil mixture.

Field plots were established on one golf green at each of three courses. The treatments consisted of a topdressing layer applied in late fall after winter disease fungicides had been applied. Treatments consisted of the following:

- A control plot with no topdressing applied,
- Four sand or mixes: (1) uniform, silica sand, (2) 85/15 by volume silica sand/peat, (3) mortar sand and (4) 85/15 by volume mortar sand/peat,
- Two topdressing depths: (1) 2.4 mm or 0.09 inches and (2) 4.8 mm or 0.18 inches,
- Brushed vs. unbrushed treatment: topdressed material was brushed into the turf following topdressing for the brushed plots or left without brushing for the unbrushed plots.

At each location turf and soil parameters were measured.

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Sand Topdressing—
(Continued from Page 21)
ured in the early spring as soon as growth was clearly evi-
dent to determine the effect of topdressing on winter sur-
vival, early spring color, turf temperatures and soil
moisture.

Results

This report will focus on the results of the second-year
field plots which were applied in early November 1998 with
results of the overwintering being recorded in March and
April 1999. The winter was a very unusual one. Topdress-
ing was applied to the plots at River Falls Golf Club on
November 4, at St. Croix National on November 5 and
Indian Hills on November 6. Topdressing was brushed in on
November 7, 1998 at all three courses for those plots receiv-
ing that treatment. Although temperatures were in the
mid- to low thirties (°F) when topdressing was applied,
November temperatures were above normal and many golf
courses stayed open through the middle of December.
The first significant snow of the season occurred on
December 17, 1998, and plots remained snow-covered through
January. After initially warm temperatures in early Febru-
ary we received a heavy, freezing rain, followed by snow
during the second week in February. Snow melted off the
entire plot area at River Falls Golf Club by March 8, 1999.
On March 8, we received approximately 12 inches of snow.
This snow gradually melted off and by March 18, 1999, the
plots at River Falls and St. Croix National had a small
amount of snow remaining on the plot areas but were mostly
clear. At Indian Hills the plots were still almost entirely
covered with snow or ice. Though ice on the plot area
was minimal, approximately four inches of ice covered por-
tions of the green and crew members were in the process
of breaking up the ice and removing it. As soon as the snow
melted off the plot areas, differences in color were evident
on the plot areas. Color ratings and surface temperatures
were measured on March 26-27, April 2-3 and April 8, 1999.
By the middle of April differences between plots were dis-
appearing and were almost entirely gone by the end of
April. Tables 1, 2 and 3 show a summary of the data from
measurements on April 2 and 3.

Similar to results of last year, plots topdressed with mor-
tar sand or mortar sand/peat mixtures were quicker to
green up in the spring than either control plots which
received no topdressing or plots topdressed with the silica
sand. Plots topdressed with silica sand/peat were intermedia-
ate in rate of spring green-up. Control plots came out of
winter much browner in color and were slow to resume ac-
tive growth in the spring compared to most topdressed-
plots. Late fall topdressing does appear to offer some pro-	ection from winter desiccation. Our opinion is that the
color of the silica sand was the responsible factor, keeping
those plots cooler and slowing recovery from winter dor-
mancy, as compared to the darker-colored mortar sand-
topdressed plots.

The only damage to plots was several small areas on

John Queensland, MGCSA Scholarship Chairman, ad-
dresses the crowd at the Scholarship Scramble.

(Continued on Page 24)
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not recover from winter for several months. The damage seemed to occur in poorly-drained areas of plots. Sand type appeared less important than the depth of application. Based on results so far it would appear unwise to topdress heavier than 0.09 inches in the late fall. Even at this rate, overlap areas may be susceptible to damage.

Table 1
Color ratings and surface temperatures for plots at River Falls Golf Club on April 2, 1999

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Color Rating*</th>
<th>Surface Temperature (deg F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control - no topdressing</td>
<td>4.0 c**</td>
<td>55.0 abc**</td>
</tr>
<tr>
<td>Silica sand at 0.09-inch depth</td>
<td>4.8 bc</td>
<td>53.6 c</td>
</tr>
<tr>
<td>Silica sand at 0.18-inch depth</td>
<td>5.0 bc</td>
<td>51.7 d</td>
</tr>
<tr>
<td>Silica sand/peat at 0.09-inch depth</td>
<td>6.0 ab</td>
<td>54.2 bc</td>
</tr>
<tr>
<td>Silica sand/peat at 0.18-inch depth</td>
<td>5.0 bc</td>
<td>53.7 c</td>
</tr>
<tr>
<td>Mortar sand at 0.09-inch depth</td>
<td>7.0 a</td>
<td>54.9 abc</td>
</tr>
<tr>
<td>Mortar sand at 0.18-inch depth</td>
<td>6.8 a</td>
<td>55.8 a</td>
</tr>
<tr>
<td>Mortar sand/peat at 0.09-inch depth</td>
<td>6.8 a</td>
<td>54.7 abc</td>
</tr>
<tr>
<td>Mortar sand/peat at 0.18-inch depth</td>
<td>6.5 a</td>
<td>55.6 ab</td>
</tr>
</tbody>
</table>

* Color rating scale 1 - 9: 1 = brown, 4 = light, yellowish green, 7 = moderately dark green, 9 = very dark green.

** Numbers within columns followed by the same letter are not significantly different using Tukey’s HSD test at 5% probability for separation of means.
MGCSA Affiliate News

Chris Hoff Joins Turf Partners

Chris Hoff, assistant superintendent at Hudson Country Club, Hudson, Wis., for the past five years, has been hired by Turf Partners/EcoSoil Systems, Inc. as its new operations manager for its Roseville, Minn., facility. Chris joins MGCSA members Chris Quinlan, Cary Femrite and Leif Erickson at Turf Partners.

MTI Distributing Adds Service Technician in Fargo

MTI Distributing announced the addition of George Vogt to its Fargo, North Dakota branch. He will provide shop and field services support for commercial products to customers served by the Fargo location.

Mike Bentson, Fargo Branch Manager said, “George is no stranger to the professional turf management industry. He has served as service technician, assistant superintendent and superintendent at golf courses in Northern Minnesota and North Dakota since 1971. George’s knowledge and experience is valuable to our providing continued customer satisfaction to the professional turf management industry.”

George joined MTI on June 28, 1999 and may be reached at (701) 281-0775 or 1-800-782-1031.

MTI also announced the following changes:

Mike Bentson has taken over the Fargo Branch management responsibilities.

Curt Lindlauf has taken over the inside sales support responsibilities for the Fargo Sales Team.

Dan Evavold has taken over outside sales responsibilities for the Fargo Sales Team.

Bob Fredericks, MTI’s marketing manager said, “These changes will better utilize our employees’ natural talents and focus them in the areas that will most positively impact customer service and meet the needs of the changing professional turf management industry.”

Toro Announces TURF EXPRESS 2000

The Toro Company has announced plans for a major road show event this fall. The TURF EXPRESS 2000 will be hitting the road in September and will run through mid-November. Toro will operate four TURF EXPRESS 2000 tractor & show trailers in two teams. This event will provide the turfgrass industry an opportunity to see and demonstrate seven new products.

TURF EXPRESS 2000 will be stopping in Minnesota for a one-day showing the week of September 27th. Exact date and location was to be determined by the end of July.

MEMBERSHIP REPORT
NEW MEMBERS: JULY 15, 1999

Class

Jay Johnston
Country View Golf Course A — (GCSAA pending)
8029 Upper 146th Street W., Apple Valley, MN 55124
W: (651) 481-3108

Charles Kornmann
Conway Farms Golf Club C — GCSAA
403 Prairie Ave., Libertyville, IL 60048
W: (847) 296-0588

Thomas D. Kufalk
Country View Golf Course C
28095 County Rd. A, Spooner, WI 54801
H: (715) 635-3796

Theodore J. Langlois
Mill Run Golf Courses C
564 E. Madison St., Durand, WI 54736
H: (715) 672-8463

Brian Miller
Austin Country Club C
1309 8th Avenue S.W., Austin, MN 55912
W: (507) 437-6961

Christopher W. Nelson
Lakeside Country Club C — GCSAA
36548 178th St., Waseca, MN 56093
W: (607) 837-5996

Jesse Walker
Inver Wood Golf Course C
18075 Echo Dr., Farmington, MN 55024
W: (651) 457-3870

Scott M. Nelson
Austin Country Club Student
R.R. 5, Box 3, Austin, MN 55912
W: (507) 457-8961

Todd Loechke
Novartis Turf & Ornamental Affiliate
138 25th Ct., West Des Moines, IA 50265
W: (515) 225-8715

RECLASSIFICATIONS

Warren C. Haugen
Oakdale Country Club A-GCSAA — AA

Wade Wiebold
Southern Hills Golf Course B to A — GCSAA

Michael McDonnell
North Branch Golf B to A

Joseph T. Anderla
Valley View Golf Club C to B

Chris Hoff
Turf Partners C to Affiliate

James Holden
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AUGUST 1999
New B.S. Degree in Golf Facilities, Turf Systems Management Offered This Fall at U of M/Crookston

Beginning with the approaching fall semester, the University of Minnesota/Crookston will offer a new Bachelor of Science Degree in Golf Facilities and Turf Systems Management.

This degree will provide students with skills and experiences to build and maintain attractive and functional turfgrass environments. Extensive coursework in plant science, horticulture and turf management helps students to develop technical skills. Complementary courses in recreation management and human relations will provide background for managing employees and customers.

UMC is said to be “high tech” driven. Each student and faculty member is issued a state-of-the-art IBM laptop computer. Students and faculty communicate, teach and learn via the World Wide Web and an internal network system. Superior computer skills are developed through coursework and daily exposure to the latest technology. UMC claims that its graduates are in demand because they have the computer skills necessary to excel in management positions.

The school also says that its students receive personal attention in classes with a low student-to-instructor ratio. Students in the new program also can develop technical skills through hands-on experience in labs and internships. The curriculum has been developed with specific industry demands in mind.

Extensive surveys were sent to members of the Minnesota Golf Course Superintendents Association prior to the set-up of the program.

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