Thirsty Greens--

(Continued from Page 29)

The rate at which turf ET takes place is determined by solar radiation, rooting depth, relative humidity, temperature, wind and soil moisture. Thus, a combination of conditions dealt to you by nature and what you do as a turf manager determines moisture availability and use, and the ability of your turf to thrive or simply survive.

Adequate water is especially critical for plants growing under severe stress conditions. Cool-season grasses during the hot summer months, regardless of location, commonly experience heat stress in combination with moisture stress.

This is especially evident on closely mowed turf areas such as golf course putting greens. Stress on this turf results from a combination of close, frequent mowing; shallow rooting; high ET rates and high air and soil temperatures. Golf course superintendents encounter pressure from golfers to keep greens at extremely low mowing heights, even during periods of summer stress and heavy traffic. This results in a shallow root system that cannot use water found deeper in the soil.

During periods of high ET, internal water stress develops because water loss exceeds water uptake through the root system. Midday wilt, even with sufficient soil moisture, is common on creeping bentgrass and annual bluegrass putting greens, especially on those maintained at extremely low heights. Wilt and even desiccation can occur within a matter of hours on close-cut creeping bentgrass because its limited root system largely is confined to the upper part of the soil profile where high temperatures disrupt normal root function.

Supplemental Irrigation Practices

Creeping bentgrass and annual-bluegrass greens often need supplemental irrigation to survive periods of summer stress. Syringing is the practice of applying small amounts of water, usually 0.10 inch or less, to correct plant-water deficits, reduce plant-tissue temperatures and wash the leaves. Syringing applies water to the canopy, but is not intended to restore soil moisture, as is a typical irrigation. Typically, superintendents syringe in the early morning to remove dew or at midday to moderate temperatures.

It's difficult to objectively evaluate the effectiveness of syringing because research on syringing is limited. Work in the 1970s at Michigan State University found that an application of 0.25 inch of water to 'Toronto' creeping bentgrass reduced canopy temperatures 1.8 to 3.6 degrees F for 2 hours. A Cornell University researcher found that applying 0.12 inch of water to 'Astoria' creeping bentgrass between 11:30 a.m. and 3:00 p.m. resulted in a canopy-temperature reduction of 7.2 degrees F immediately after spraying. However, the cooling effect fell off to only 2.5 degrees F within 10 minutes, and the bentgrass reached pre-syringing canopy temperatures just 15 to 30 minutes after syringing. Researchers at North Carolina State University in the 1980s found that in the absence of wilt symptoms, canopy temperatures of well-watered creeping bentgrass were no different 1 hour after syringing, regardless of the volume of water they applied (0 to 0.21 inch) or timing (12:00, 1:00, 2:00, 3:00 or 4:00 p.m.). These research studies focused on canopy-temperature reduction, and the data do not suggest any long-term benefit of canopy-temperature moderation from syringing.

Hand-Watering

One supplementary-irrigation practice-hand-watering-is not actually new but one that we now better understand. The difference between syringing and hand-watering is the volume of water you apply: hand-watering supplies considerably more water. As golf-course superintendents became more skillful at growing creeping bentgrass under hot and sometimes extremely humid conditions, they became aware that the small volumes of water applied through syringing did not meet the plants' needs. Thus, hand-watering has become more prevalent. Ask anyone who has worked on a golf course, especially from the upper Transition Zone southward, if one of the most important (and least favorite) summer activities is not hand-watering "hotspots" on bentgrass putting greens.

Several years ago, new research methodology made pos-(Continued on Page 33)

MGCSA CHAMPIONSHIP SET FOR AUGUST 14 AT INTERLACHEN CC



Thirsty Greens--

(Continued from Page 29)

sible a study performed at North Carolina State University to better understand the mechanisms by which syringing and hand-watering benefit turf. This problem was the focus of graduate studies for Benny Bennett, Jr. Bennett's main study goal was to determine how syringing and hand-watering treatments affected leaf water potential (a measure of plant-water status-the lower the potential, the greater water stress the plant is under), canopy and soil temperatures and turf quality. Bennett applied supplemental irrigation to a 'Penncross' creeping-bentgrass green growing on a USGA-specification root zone at a syringing rate (0.05 inch) or a hand-watering rate (0.20 inch) at 1:00 p.m. on days when canopy temperatures exceeded 35 degrees C. He measured leaf water potential, canopy temperature and soil temperature before irrigating and at 30, 60 and 120 minutes after the application.

* Leaf-water potential. Leaf water potential significantly increased in syringed plots but could not be sustained. A significant decrease in leaf water potential was noted at 60 minutes after syringing. In contrast, leaf water potential of hand-watered plots initially responded similar to syringed plots at 30 minutes after watering, but these increased levels were maintained for much longer (up to 120 minutes after watering). This probably was due to the uptake of water by shallow roots.

* **Canopy temperature.** Bennett observed immediate reductions in canopy temperature after both syringing and hand-watering (reductions ranged from 3.6 to 9.0F at 5 minutes after application . However, 30 minutes after application, canopy temperatures were back to control levels and remained there for the rest of the measurement period. It is unlikely that the differences in canopy temperature that occurred in this study could substantially contribute to creeping-bent-grass survival.

These results suggest that extended cooling of the canopy is not the primary means by which syringing and hand-watering improve turf performance. Rather, supplemental irrigation treatments apparently improve the water status of creeping bentgrass, as evidenced by higher leaf water potentials.

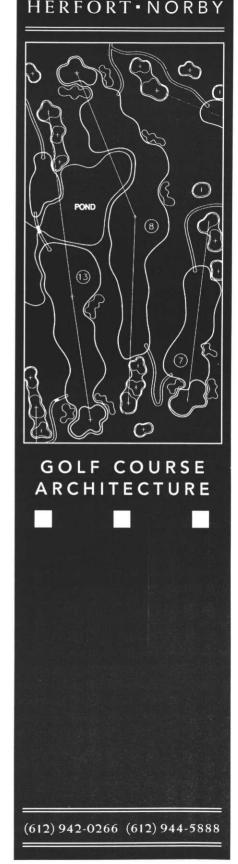
Turf quality in both syringed and hand-watered plots was significantly and visibly better than that of the control plots, which exhibited areas of desiccation and suffered from overall thinning. No increase in disease incidence occurred due to increased moisture in the hand-watered or syringed plots, and syringing and hand-watering treatments did not influence soil temperature in this study. These results validate supplemental irrigation, especially hand-watering, as a means of improving the quality and performance of creeping-bentgrass turf.

Influence of Research on Practice

Compared to full-coverage syringing, hand watering offers more efficient use of water for relieving initial symptoms of drought stress. By using quick couplers with hose-and-nozzle attachments to treat only the areas that have visual indications of heat and moisture stress, you avoid disrupting play and conserve water. Areas such as slopes, ridges or portions of the green that suffer from localized dry spot may need syringing or hand-watering, while the remainder of the green has sufficient moisture.

Continued research should address differing application rates, cultivars and root-zone mixes, as well as root-zone sub-surface air movement and other factors. Our research-based recommendations are improving, but to continue to improve cultural programs and refine Best Management Practices, researchers must continually explore new ideas and reassess standard practices.

(Editor's Note: Dr. Charles H. Peacock is professor of turfgrass science at North Carolina State University (Raleigh, N.C.).





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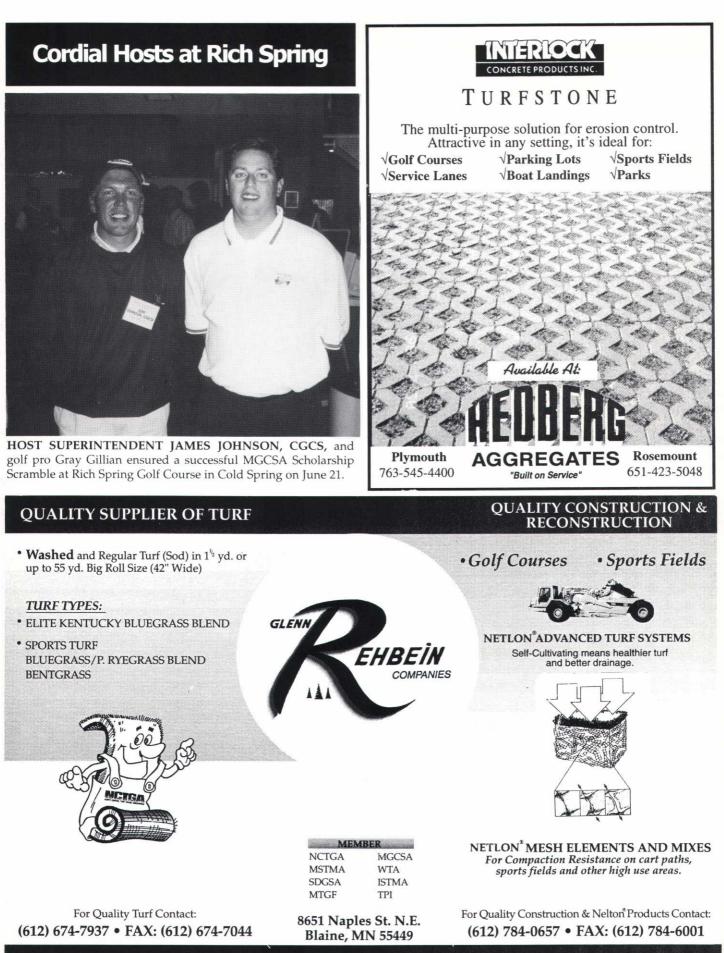
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34 HOLE NOTES

JULY 2000

Larry Vetter Becomes MTGF Executive Director

The Minnesota Turf and Grounds Foundation has announced that Larry G. Vetter has been selected as its Executive Director. Vetter replaces Bob Mugaas who has returned to his Hennepin County Extension position following a two-year leave of absence.

Larry is a long-time member of MGCSA, having joined the Association in 1966. He held most MGCSA offices including two terms as President in 1973 and 1974. He also served as the local committee chairman for the 1976 GCSAA International Turfgrass Conference and Show held in Minneapolis at the Convention Center. He received the Watson Award for Journalism in 1992 and has written numerous articles that were published in trade journals and appeared on dozens of educational programs throughout the country. One of his proudest achievements is not missing a monthly MGCSA meeting or Board of Directors meeting while serving on the Board or a GCSAA Conference for over ten years in the 1960s and 1970s.

Vetter helped spearhead the upgrading of *Hole Notes* into its present form and was involved in MGCSA's hiring of its first Executive Director, Al Wareham, who at the time had retired from the post of Executive Director of the MGA.

A graduate of the University of Iowa in Marketing and General Business and Iowa State University in Horticulture with a Turfgrass Specialty, he received a GCSAA scholarship in 1965. He was the Superintendent of Grounds of The Minikahda Club from 1966 through 1977. Following a brief stint as the turf instructor at Anoka AVTI, he then took on the challenge of starting a nation-wide professional seed division at Northrup King Co. in Minneapolis. In 1988, he became the Director of Commercial sales for Ringer Corp. in Eden Prairie, Minn.

Then in 1989 he formed hi s own company, Turf Management Products, Inc., located in Minnetonka, Minn. For the past four years he has taught Turfgrass Management and Culture at North Hennepin Technical

College. In addition to his new duties, Larry will continue to operate Turf Management which currently represents various manufacturers in the turfgrass industry such as Lange-Stegmann fertilizers.

Larry was one of the first in this area to actively support the formation of a turf foundation and has been involved in the development of what is now the MTGF from its initial inception. He has indicated a strong desire to help make the MTGF a focal point of the turfgrass industry in the state of Minnesota and the surrounding area by furthering the mutual cooperation of the Foundation, its allied associations, including MGCSA, and the University of Minnesota. It is felt that Larry's extensive involvement in the turf industry in this area for over 34 years will help facilitate that growth in stature so that the value of our industry, the contributions that it makes to the overall good of our citizens and the expertise of our members will be recognized and appreciated as an important part of the overall economy as well as a major contributor to the mental and physical health of the people in Minnesota.

One of his first challenges will be the coordination of MTGF's annual golf tournament to be held at Les Bolstad University of Minnesota Golf Course on Tuesday, July 18th. The event will be a 4-person scramble with an 8:00 a.m. shotgun. Lunch and awards will take place immediately following the completion of play. For more information or to receive a registration form, contact the MTGF office at (612) 625-9234.

In addition to the golf tournament, the MTGF, in cooperation with Dr. Jon Powell, plant pathologist, and other researchers at the University of Minnesota, will hold a turfgrass field day on August 8th starting at 8:00 a.m. The field day will cover 15 stops and include research of 10 faculty and staff members of the University of Minnesota. For more information or to register, contact the MTGF office.

The office of the MTGF will continue to be located at Room 422 Alderman hall on the St. Paul campus of the University of Minnesota. The MTGF complete address is: MTGF, Department of Horticultural Science, College of Agriculture, Food and Environmental Sciences, 422 Alderman Hall, 1970 Folwell Avenue, St. Paul, MN 55108. The office telephone number is (612) 625-9234 and the fax number is (612) 624-4941. Vetter's E-mail address is vette008@tc.umn.edu.

HOLE NOTES 35



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1995 Friend Speed Roller with Trailer National PTO-driven 5-gang Fairway Reel Mower plus....extra set of 5-gang verticut reels (1987) \$2,000 or Best Offer Contact: RED or MIKE

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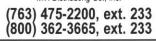
(763) 463-3369 Baker National Golf Course 2935 Parkview Drive Medina, MN 55340 Bid Opening May 15, 2000

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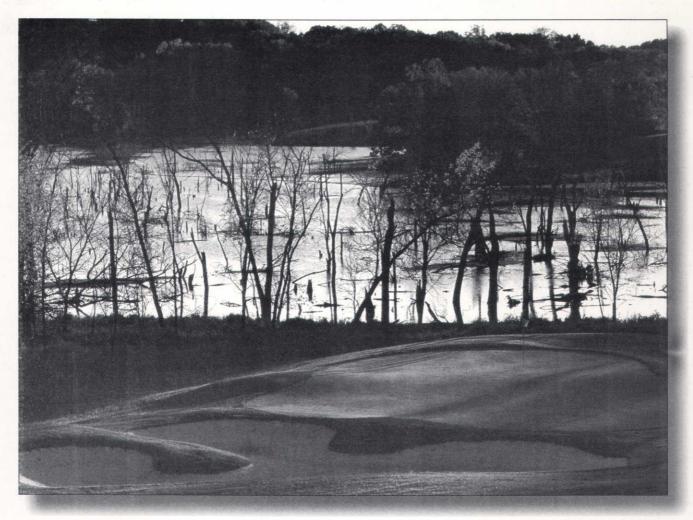
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36 HOLE NOTES

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By Steve Shumansky Perham Lakeside Country Club

Editor's

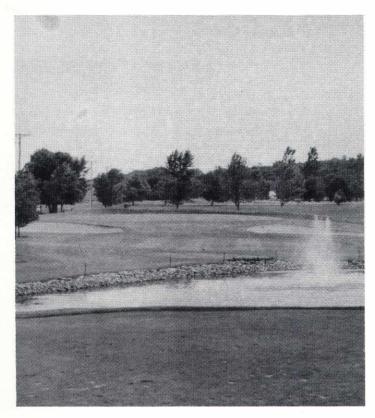
Corner

FROM INCEPTION....

The birth of a new course is something, short of, the birth of a child!!

However you want to look at it, history is being made. I have never had a child, but the older a course is, the more history there is to it. And with all the newer courses being built, history is being made. What will these courses see in the next 50 years? Will some of them even be there in the next 75 years?? I wanted to write something this past spring about the passing of a course, which isn't something that happens every day: "Rich Acres."

But I didn't have the time, or I guess make the time to see how the people involved felt about what was going on. What were the feelings of the people that cared for it and how did they feel when it closed? Well, I have been caught up in the birth of one that I feel will have a long and prosperous life, and I have had contact with many in the last few



The 6th hole at Rich Spring Golf Course, site of this year's MGCSA Scholarship Scramble on June 21 in Cold Spring.

years that will, as we all hope, will be there forever!! With every project we do, from building a tee, or adding a bunker, or something as simple as planting a tree, we're making history. It's going to be there for a long time!!! Think of it this way, it'll never be in any history books, but the reflections of the decisions we make today will reflect on people for years to come. The decisions we make today reflect on the future. I invite you all to come play Perham, and enjoy what we have created here.

THE BEAUTY OF IT ALL.....

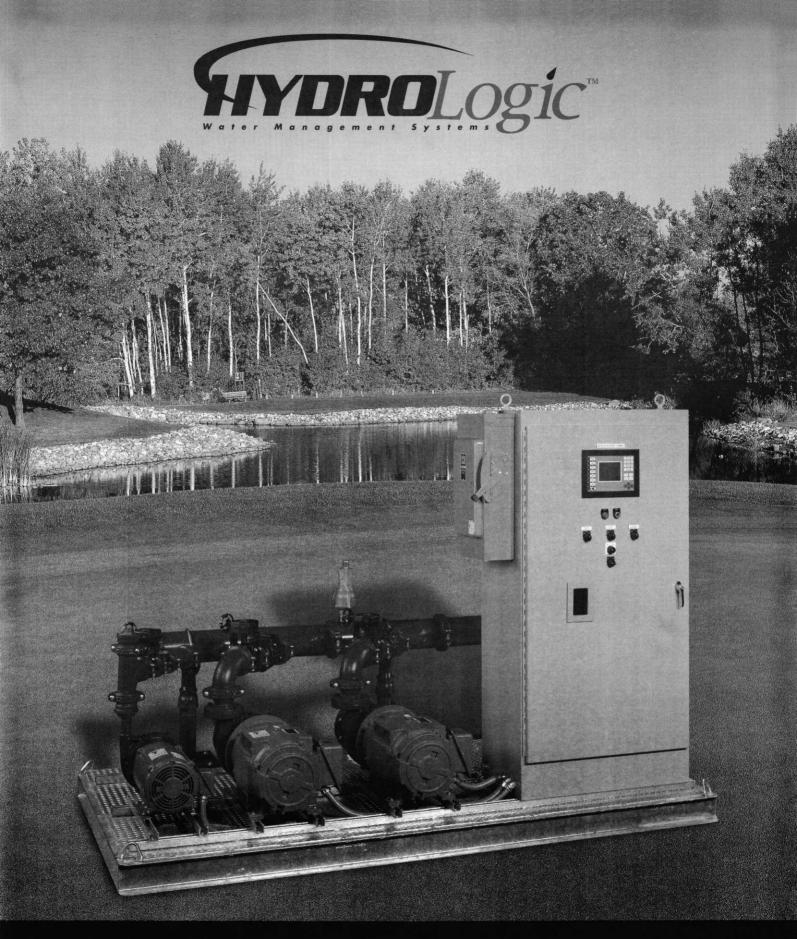
By now our staff has been groomed to perfection and our courses look like a postcard.

The pride we all take has somehow rubbed off, and our staff, is doing us proud. All the mowing lines are as straight as an arrow; one could snap a chalk line on. The shrubs are trimmed to a tee, the tree bases are trimmed and all the annuals are in place for our guests to enjoy. All the vibrant colors our annuals present bring beauty to the eye and somehow ease the stress in everyone's life. Isn't that a big part of what we do? Yes, we are in the beauty department! Sure, we all maintain golf courses and make them playable, but with today's standards, there is more to it than just having quick greens. The beauty of it all is.....We as turf managers set the stage. The scrutiny will always be there, but when we come to work in the morning and watch the sun come up and turn our staff loose, we create beauty!!

I know from all the years I have been in this business, I still enjoy coming to work and love being a part of making someone's day enjoyable. Sure it seems as if the same duties are done day after day, but think of Joe Blow, who gets to golf once a week, or once a month. It is up to us to make his experience the most enjoyable experience we can. But at the same time, WHAT IS YOUR GOLF COURSE ?? In a weird sense, it's your back yard. I had one of my employees a few years ago write on my irrigation map, "Steve's Back Yard". I have never erased that I just can't simply because it is true. Don't look at my home lawn and judge me, look at my course and pass judgment. It all comes down to what we are all about. Making the game of golf the most enjoyable experience our members and guests can possibly have. I personally get pleasure when golfers play my course and like their experience. Either they talk to one of my staff members or myself and say how nice things were. I expect them to say it's nice, but when my staff members come in and say someone complimented them, that means even more to me than if they told me directly. I guess it hits home to my staff and they can take that much more pride in what they do than me telling them they're doing a good job. It always helps when your staff has contact with the golfers, they hear it first hand, and I guarantee it makes them feel good. As I stated, we are in the beauty department. Please take pride in what you do, it shows!!!! With that, I'll close

I hope you and your course are in good health, and smile, whenever you can.....

--Steve Shumansky Editor



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