TORO. Reelmaster®2300-D • Hydraulic Reel Drive

- Diesel Liquid-Cooled Engine
- 3-Wheel Drive



This new generation utility mower incorporates the most successful features of Toro's trusted Reelmaster products for an unsurpassed cutting performance.

- Hydraulic-driven Reel System w/Interchangeable Reels
- Patent Pending L-I-N-K-S[™] Cutting Unit Suspension System
- Variable Reel Speed Control

- Large 18 hp Diesel Engine
- 3-Wheel Drive with Large Tires
- Open Service Accessibility
- On-Board Backlapping

CALL MTI AND TEST THEM TODAY -



14900 21ST AVE. NO., PLYMOUTH, MN 55447 (612) 475-2200 • 1-800-362-3665

HOLE NOTES

Official Publication of the Minnesota Golf Course Superintendents' Association

1994-95 MGCSA BOARD OF DIRECTORS

Officers

President	C
Vice-President James Gardner, CGG Rochester G&C 507/281-3241 • Fax: 507/282-86	C
SecretaryJohn Granho Eau Claire G&C 715/836-8422 • Fax: 715/836-84	C
Treasurer	ge
Ex-OfficioJoe Mon Tartan Park C 612/736.8791 • Far: 612/733.50	IC .

Directors

William S. Cox
Butch Greeninger MTI Distributing Co. 612/475-2200 ext. 202 • Fax: 612/475-0351
Richard GrundstromIndian Hills GC 612/770-3091 • Fax: 612/770-2302
Thomas Johnson New Richmond GC 715/246-4850 • Fax: 715/246-7059
Monty MontagueNational Mower/ Turfco Mfg., Inc. 612/646-4079 • Fax: 612/646-2887
Charlie Pooch Les Bolstad U of Minn. GC 612/627-4138
Dave SimeBenson GC 612/843-2109
Fred Taylor
Pat Walton, CGCSRolling Green CC 612/478-2179 • Fax: 612-478-6025

EDITORIAL COMMITTEE

Tom Johnson Scott Turtinen Larry Vetter

EDITOR Tom Johnson

Editorial and Business Office Scott Turtinen, Executive Director Minnesota Golf Course Superintendents' Association 240 Minnetonka Avenue South/P.O. Box 617 Wayzata, Minnesota 55391-1617 TEL: 612/473-0557 • FAX: 612/473-0576 TOLL FREE: 800-642-7227

FROM YOUR PRESIDENT'S DESK

Plan to Attend Mini-Seminar On March 13



As the puck is shot into the corner, the defenseman retrieves it and pulls up behind the net. The player looks up the ice to determine a plan for the attack. There are many options to get the puck up the ice, but which is right? A quick look at the coach as he makes a simple hand motion and the player begins the journey up the ice.

When I was elected President of the MGCSA, my first reaction was what do I do? I have a few ideas of what I think I should do, but how could I be sure? To answer this, I set out to talk to some of the "established" members of our association. Our conversations were enlightening and beneficial to me. It helped me shape some ideas I have to lead the association through the year. I will be taking these ideas to the board of directors for consideration and implementation. I thank the strong supporters of our association for their input.

Make plans to attend the Mini-Seminar on Monday, March 13 at the Mall of America. Fred Taylor and the Conference and Education Committee have put together a diverse and thought-provoking agenda. Come with a professional attitude and interest as the topics will stir up emotion. Registration has been sent out and additional information about the Mini-Seminar is found elsewhere in this issue of *Hole Notes*.

One of the issues that we are closely following is an OSHA safety requirement. If you attended the session at our annual conference, it dealt with the mandatory use of an OSHA-approved roll over protection system (ROPS) on all off-road golf course equipment that has a 20 HP rating or more. This would be for all equipment since 1968. We are currently following up on this requirement and will include notifying the USGA, GCSAA and legal counsel as it affects our members. Our Ex-Officio Joe Moris is handling this project and has been exploring all options on this issue. We have invited Don Strot, Sr. OSHA inspector, to talk once again to our association at the March Mini-Seminar. On another related issue from OSHA, the hard hat question will be discussed in detail.

A few changes are in order for our monthly membership outings. On a recommendation from the Industrial Relations Meeting in December, we will no longer have equipment displays. The interest has dwindled to an all-time low. All the equipment from the associate members can be seen at the MT&GF Summer Expo in August at the Resurrection Cemetery in Mendota Heights. I encourage all of our members to participate in this function to support the MT&GF. Also at our monthly outings, there will be guided tours of the host superintendent's maintenance facility. Watch for the times on the registration flyer to be included in the tour. We will continue to offer speakers to discuss relevant topics if the facility has the technical support available. At our April, May, June and October meetings where we have no structured golf event, we do now. We will have a sign-up for a membership mixer for those interested. The board welcomes these changes for our diverse association.

So far as President of the MGCSA, I have averaged over 100 phone conversations per month on association matters. If there are any comments or questions that Scott Turtinen can't answer at our office, feel free to call me. See you all at the Mall of America in March!

- Kevin Clunis President

HOLE NOTES is published monthly except bimonthly December/January, February/March for \$2 an issue or \$20 per year by the Minnesota Golf Course Superintendents Association, 240 Minnetonka Avenue South, Wayzata, MN 55391-1617. Scott Turtinen, Publisher. Application to mail at second class rates is pending at Wayzata, MN. POSTMASTER: Send address changes to HOLE NOTES, 240 Minnetonka Avenue South, Wayzata, MN 55391-1617.

Spreading Solutions

Turfco is proud to announce that North Star Turf has been appointed the distributorship for Turfco (Mete-R-Matics) products.



3080 Centerville Road St. Paul, MN 55117 (612) 484-8411 (800) 592-9513

If your existing top dresser just isn't spreading it anymore or if you're tired of doing it the old-fashioned way, call the turf professionals at North Star Turf for down-to-earth solutions.

Turfco top dressers continue to set the standard in the industry by offering features like the patented chevron surface conveyor for uniform application of any material, wet or dry. Coupled with the expertise and service provided by NST, owning a Turfco top dresser has never made more sense. Ask your NST representative for a demonstration today.

For superior applications, light or heavy, wet or dry...

The Mete-R-Matic III

Tow Type Top Dresser

- Patented Chevron Surface Conveyor for very light, uniform applications, even with moist material
- ☆ Ground driven for uniform application at any speed
- All wheel drive for uniform application on undulating turf
- Electric clutch control for ease of operation
- 🕆 3 Year Warranty

"We made the first powered top dresser in 1961"

Call 612-484-8411 or 800-592-9513



March Mini-Seminar Offers Variety

One of the annual rites of spring for Minnesota superintendents is quickly approaching—attending the MGCSA Mini-Seminar on March 13, 1995.

This year's event features a potpourri of timely topics and interesting speakers. A special panel discussion dealing with the new OSHA regulations and enforcement will highlight the morning session. Don Strot from the Minnesota OSHA office will offer the specifics of required worker protection that will affect every golf course in the state. This is a must-see discussion for every superintendent, and you will have an opportunity to ask questions!

As every superintendent knows, the hottest topic concerning the golf course today is environmental considerations. Dr. Don Gordon, Professor of Biology, Mankato State University, will bring a different point of view for attendees to ponder. He has written numerous articles concerning the potential environmental risks such as groundwater contamination and pesticide exposure related to golf courses. Some of his comments may not be popular with superintendents, but through controversy and debate comes enlightenment, and all who listen to Dr. Gordon will no doubt be enlightened.

Following Dr. Gordon will be Bob Mugaas from the U of M Extension Office speaking on surface water contamination. He will offer advice on ways to reduce the potential for run-off of pesticides and fertilizer.

Dr. Ward Stienstra's topic is "The Art of Spraying." He will share his experiences and research pertaining to efficacy of various application methods and procedures as well as common sense solutions to typical spraying dilemmas.

Steve Hamelau, Superintendent at the Alexandria Golf Club, will recall some of his most memorable moments concerning winter injury and the subsequent (and successful) regrassing of a number of Alexandria's putting greens. This presentation will be most humbling and informative for those of us who live with the unpredictable Minnesota winters. Look for many take-home tips on seed establishment from Steve.

Mona Bond, executive director of Iowa Alliance for Environmental Concerns, will inform the audience on "Political Potential." With all of the debate on environmental concerns, it is certain that some piece of legislation will be introduced that will have an impact on how superintendents do their jobs. She will discuss the ways and means to fight such legislation, and how to position ourselves to be more credible in our discussions with those who make the laws.

Finally, our friend from the Minnesota Golf Association, Ross Galarneault, will suggest methods for improving the playability of the golf course—especially as it relates to the rules of golf.

As you can see, this conference is bound to challenge and educate all who attend. Remember, your staff and club officials are encouraged to participate. See you there!

-Fred Taylor, Mankato Golf Club



Pesticide Application Training Reform

By Randy Allen, Tartan Park G.C.

(Editor's Note: Randy Allen attended a meeting of the Department of Agriculture, December 16th, which discussed the restructuring of the current applicator training system.)

The current system of certification and recertification for obtaining a pesticide license was discussed at a meeting

CORRUGATED POLYETHYLENE PIPE



I attended for the MGCSA. Those in attendance included representatives from the Department of Agriculture, Plant-Food Chemical Association, U of M and other groups that this will affect.

Several different ideas on how to improve the system were discussed. The home correspondence course for recertification was a subject of much debate. It was felt that this method was not a good measure of competence. The EPA requires some kind of measurement for applicator training, and they are concerned about an unmonitored open book home exam not being a true test of competency. The workshop training format, on the other hand, can be monitored and the training documented.

It was the consensus of the subcommittee to reduce or eliminate the use of the correspondence course. Discussion on changes in the training recertification included several alternatives: offering monitored tests at more locations, raising the cost of the correspondence course to the same as a workshop, plus offering more workshops made available by the U of M and Dept. of Ag. They will also keep the recertification intervals the same. Any group who wants an interval change should present their case to the Dept. of Ag. and/or the U of M for consideration. Some other ideas that were discussed were: Length of the workshops, aerial applications, state reciprocity and video disc presentations.

There definitely will be changes in the current applicator training system. The nature and scope of these changes will depend on a series of these subcommittee meetings and their presentation to a full committee.



Ski Outing At Lutsen

A scenic drive along the North Shore, and downhill and cross country skiing were on the agenda for the January meeting.

The modest number who participated enjoyed the camaraderie with fellow members and a great lunch buffet put on by the staff at Lutsen.

Thanks go out to Mike Davies and his staff for hosting the meeting. This beautiful area would make an ideal location for hosting a summer meeting.

6 • HOLE NOTES

SOIL CORE ANALYSIS A DIAGNOSTIC TOOL

By Joe Farina, Golf Course Turf Specialist Read Sand & Gravel, Inc., Rockland, MA

(Reprinted with permission)

The turfgrass plant, much like a human being, requires a proper balance of air, water, food and a healthy environment to sustain life and survive in its flora world. The basic teachings of turf physiology have sharpened the expertise of many a superintendent to help combat against the elements that seek to upset this balance and to weaken, stress or kill our grasses. When an adverse condition is noticed whether a pathogen, insect or climatic influence—the turf manager becomes a physician of sorts who analyzes, defines and resolves the problem using diagnostic methods of on site visual or off site laboratory tests. Most of the time this occurs after the damage has been done to some degree. We know that a weakened turfgrass plant is more susceptible to disease, stress and parasitic invasion. Identification of what causes a weakened plant in the first place could be the key to prevention and could increase the survivability of the turfgrass. A soil core analysis should be part of your check list.

True, many factors from close mowing to foot traffic or phytotoxicity can put a turfgrass plant in a weakened state, but the subsurface environment of the root zone area can set the stage for "do or die" of the turfgrass plant. Infiltration, porosity, organic content and particle distribution are the dynamics of a soil structure engineered for turf. Harmony and balance must exist among these root zone characteristics below the surface in order to support your cultural program atop the surface. When a soil imbalance exists, the turf cannot respond fully to the applications you apply to enhance its quality and vigor. Thus the turf plant becomes weak due to the soil environment in which it is anchored. Unfortunately, by the time the weakening effects are felt the mercury hits 90 plus, humidity is oppressive, there is a shotgun member guest at 12 o'clock, and you cancel lunch while you grab that bottle of antacid. Sound like the summer of '94? It's "no holds barred" with Mother Nature and the last thing on your mind is a soil test.

Spring and Fall are more opportune times to conduct a soil test analysis as a diagnostic tool prior to aeration and topdressing, and to make proper decisions on what material you should or shouldn't be amending the root zone with. Conventional soil testing methods are good for choosing a new root zone or topdressing material for greens and tees. However, for an existing soil profile in either a new high sand or an old push up green, a more surgical approach is required to locate, pinpoint and isolate a soil malfunction within a specific area from 0 to 12" so that you can implement the proper corrective action (a "smart bomb" analogy, if you will). Such a method has been developed by International Sports Turf Research Center of Olathe, Kansas, to test intact, undisturbed soil cores inch by inch and evaluate the physical well-being of the soil medium as it relates to the root system and health of the turf plant. This is especially effective on golf greens where intense culture and abuse struggle to find an equilibrium. Now soil testing technology has devised a way to bring your golf green to the laboratory. Okay, sure, core samples have been done for years by using a cup cutter or pounding in random lengths of PVC, but never with this high degree of accuracy.

This New ISTRC SYSTEM cores with a plugger device and extracts a 2" diameter by 3" deep intact core into a copper sleeve that is then capped and sent off the the lab. Two types of cores are extracted which represent specific levels of the root zone for analysis. First, the most crucial upper tier -0'' to 3'' - that is subject to general aeration practices, topdressing, soil amending, surface contamination and direct compaction. Second, the lower 3" to 6" tier that can harbor hard pan, fines build up, and is affected during vertidrain, deep tining and hydrojet practices. Additional lower tier cores may be extracted from 6" to 9" and 9" to 12", especially when considering deep tining or rebuilding. Identification of the make up of the soil profile with inch by inch accuracy is the intended purpose when subject to the following series of tests: USGA physical evaluation guidelines including infiltration rates; Walkley/Black organic; Particle distribution and textural analysis; Bouvoucous test; Porosity in capillary and noncapillary; Particle sphericity/angularity; and Root mass and feeder roots analysis.

Where and what are the most common soil problems found through core testing? Definitely in the upper tier 0" to 3". Buildup of organic and fine layers that seal off the root zone and impede proper infiltration, choking of the soil porosity creating an imbalance of air and water, the restriction of feeder roots from penetrating the depths of the root zone, and confining the root mass to the upper portion of the root zone. What could cause all the mayhem? The cause could be as simple as using improper topdressing material. Not that your topdressing material may be bad, but it just might be too much of a good thing such as high organics or particles too abundant in coarse or fines. Can you imagine what would happen to our cholesterol levels if we ate steak and eggs every day? Just as a blood test is a good diagnostic tool for human health, soil core analysis is a good diagnostic tool for the health of your turf.

Leitner Company

Specializing in Soils For Turf Maintenance and Construction
Distributor of Sand and Aggregate Products

• Representative for International Sports Turf Research Center, Inc. Olathe, Kansas Developer of the ISTRC System for Soil Testing and Analysis

Mike Leitner

945 Randolph Avenue • St. Paul, Minnesota 55102 • (612) 291-2655

PROUD SUPPORTER OF RESEARCH AND EDUCATION THROUGH THE MGCSA

'TOO MUCH WATER IS WORSE THAN TOO LITTLE'

By ROBERT C. VAVREK, JR. Agronomist, North Central Region, USGA Green Section

Jim Latham was cleaning out his desk as his December retirement date drew near. As one might expect, notes, letters, and articles that have been buried for years were discovered in the process. One gem found near the bottom of a drawer was an old article that was the source of the quote used for the title of this short review of the 1994 growing season. The article consisted of excerpts from a January 1994 issue of *The Greenkeepers' Reporter* written by O. J. Noer. The excerpts were sent to all members of the Royal York Golf Club in Toronto after a particularly difficult season during 1937.

The article emphasized careful use of irrigation, fertilizers and the importance of utilizing improved cultivars of turf for greens. It's surprising how little things have changed over a span of 50 to 60 years. During an "easy" season there is plenty of time to experiment with growth regulators, new fertilizers, rollers, biostimulants and other practices to fine tune the maintenance program. In contrast, when the Milorganite hits the fan during an extended period of hot, humid weather, it's time to keep it simple and follow the basic principles of sound turf management. One of the more important, but most often overlooked, maintenance practices to consider is amount and frequency of irrigation.

It was a "sneaky bad" season for a number of superintendents in the Midwest this past year, particularly in the Chicagoland and Detroit areas. If one would review the weather records for the summer, there would be little to suggest a period of severe turf stress, yet significant losses of turf on greens occurred during late July and August. The pattern for turf loss was surprisingly similar at many courses. Injury generally occurred on greens in problem sites, those usually affected by shade, poor air movement, tree root competition and inadequate surface drainage across the putting surface. It was not unusual to find 16 or 17 greens in excellent condition and one or two greens (those found in heavily-wood sites) to be very thin and weak.

The golfers' unreasonable expectations for ultra-fast green speed, regardless of the weather conditions, were also partially responsible for the injury to greens. The Midwest experienced a period of hot, humid weather just before the Fourth of July that caused a flush of turf growth. It became almost impossible to provide a fast, firm playing surface at many courses due to the vigorous growth of turf. The frequent rain and high humidity made the greens soft and, for lack of a more descriptive term, "puffy," more so on greens that possessed a significant amount of organic matter or thatch near the surface. Golfers at a few courses found that they were playing a temporary green by late summer because of the additional stress caused by a shaded site and/or their unwillingness to allow the superintendent to aerify, raise the height of cut, hand water, or initiate other practices to relieve stress on dying greens. A considerable

amount of *Poa annua* and bentgrass turf was lost due to excessive rolling, double cutting and ultra-low mowing heights during the peak stress period of midsummer—not to mention the adverse effects of using plant growth regulators at that time. Unfortunately, these practices were sometimes mandated by the golfers.

It quickly became obvious that more turf was lost by too much automatic irrigation than by too little irrigation. More black layer related problems were seen this summer than in any of my previous seasons with the Green Section. Superintendents who turned off the sprinklers early and switched to hand watering fared better than those who had neither the manpower nor experience to do so. To be fair, an unfavorable growing site was sometimes more to blame than any other factor, and the loss of turf was beyond the superintendent's control.

Fans increase air movement and fungicides can reduce the potential for disease, but they cannot compensate for a lack of sunlight. To borrow a favorite saying of Jim Moore, the Director of the Mid-Continent Region: "The three most effective fungicides for use on a number of stressed greens this summer would have been Stihl, McCullough and

(Continued on Page 9)

Best Bunker Sand From Plaisted Companies Is Preferred Choice Throughout Minnesota

With some suppliers, you can only hope for bunker sand that's consistent from one year to the next. But with Best Sand, you can count on the same top-quality sand, from the same company-owned quarries, meeting the same tough specs, truckload after truckload.

For bunker sand, topdressing, drainage gravel and more, do what so many Minnesota superintendents have already done. Call the Plaisted Companies at 612/441-1100 and order the Best Sand products you need now.

> PO. Box 332 Elk River, MN 55330 612/441-1100

FEBRUARY-MARCH 1995

1994 GREATER MINNESOTA TURF AND GROUNDS CONFERENCE AND SHOW

SURVEY RESULTS

1. To what allied association do you belong?

A.	MGCSA	81 responses	
B.	MAC	0 responses	
C.	MNLA	3 responses	
D.	MASMS	1 response	
E.	MTA	2 responses	
F.	MPSA	2 responses	
G.	MMFTSAC	0 responses	
H.	MSTMA	6 responses	
I.	Other	7 responses	

- 2. Do you feel the pricing structure for the conference and show was fair and reasonable?
 - A. Yes 97%
 - B. No 3%
- 3. Were you satisfied with your 1994 conference experience?
 - A. Yes 98%
 - B. No 2%
- 4. Would you like to see the conference/show expand or stay the same size for 1995?
 - A. Stay the same 48%
 - B. Expand 52%
- 5. Knowing that the cost of refreshments, i.e. coffee, soda, pastries, etc., is \$12,000 for a three day show, are you willing to continue to pay for that amenity in your registration fees?
 - A. Yes 71%
 - B. No 29%
- 6. Did you prefer the two day arrangement for the trade show?
 - A. Yes 91%
 - B. No 9%
- 7. Did you attend hospitality night?
 - A. Yes 51%
 - B. No 49%
- 8. How should the costs of hospitality night be financed? Vendors 57% Attendees 14% Association Annual Fees 9% Cash Bar 6% Combination of Vendors/Registration Fees 6% Separate Part of Registration 5% Not Vendors 1% Previous Incoming Monies 1%
- 9. Minnesota pesticide recertification should be required every:
 - A. one year 40%
 - B. two years 25%
 - C. three years 24%
 - D. four years 2%
 - E. five years 8%
 - F. don't know 1%

10. What did you most enjoy about the 1994 conference/show?

Speakers 39%Trade Show 18%Topics 13%Minneapolis CC 8%Visiting/Meeting Others 9%Everything 4%Concurrent Sessions 5%MTGF Theme 2%Fellowship Meeting 1%Session Time Management 1%



Too Much Water -

(Continued from Page 8)

Homelite." Unfortunately, many golfers still believe the trees on the course are more important than the quality of playing surfaces.

Careful management of irrigation is always important but even more so on shaded putting surfaces. Five-minute cycles might still provide excess irrigation to low lying portions of shaded greens during humid weather. I was surprised to find plenty of soil moisture in poorly drained areas of shaded greens even after 5 or 6 days without irrigation or rainfall.

Hand watering is often necessary in spite of a modern, sophisticated irrigation system. More important is hand irrigation *only* to the portions of the green and collars that need irrigation. Too much hand watering is just as detrimental as too much automatic irrigation. A comment I have heard (and agree with) from more than one superintendent who has been successful in keeping the greens dry is that "few superintendents have a feel for how much moisture stress greens can tolerate without causing permanent injury to the turf." Perhaps this is a point to ponder before firing up the irrigation on greens during the first dry day next spring? O. J. Noer was right over fifty years ago, and he is still right today.

