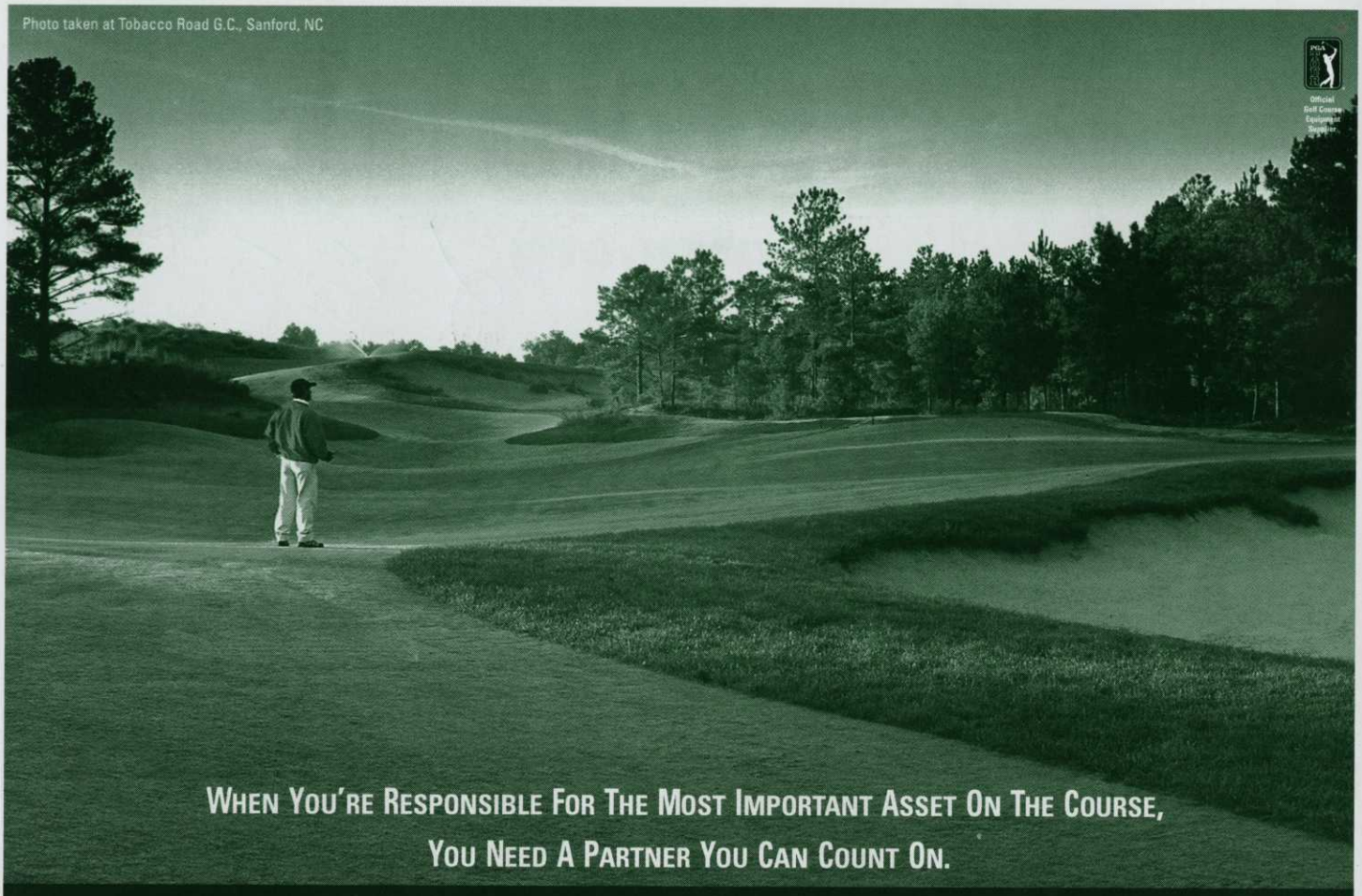

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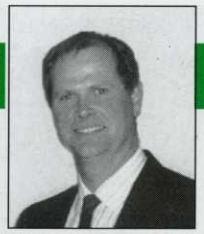
From Your President's Desk



Rick Fredericksen, CGCS
MGCSA President

Research Committee Comes Up With Unique Fund Raising Idea

The MGCSA Research Committee at its April meeting at Rolling Green Country Club came up with a unique financing concept to help the TROE Center. The goal is to create an annual income stream that would supplement the costs of operating the Center. The Research Committee would like to get at least 100 golf course superintendents to sponsor a 'hole-in-one' event at their respective course one day each summer. Costs to enter the event would be ten dollars per player. Just a quick estimate of funds generated with 100 players per 100 courses would be a gross gain of $100,000. The grand prize (for a hole-in-one) will be determined by the number of participants. Ten percent of the total monies contributed would be eligible to be given as the "hole-in-one" prize. This amount would be divided equally amongst those who get a hole in one during the event, after paying the entry fee, of course. Other draw prizes would be dependent upon contributions from the U of Minnesota fund raising group, donations from golf-related vendors and perhaps contributions from resort courses.

The event would be held on the third week of June on what would be your golf course's busiest day. Each volunteer course would choose a par 3 hole with a minimum length of 160 yards to be used as the event hole. For the whole day, the superintendent, assistant or both would station themselves at the hole to solicit participants. Informational brochures would be provided by the University of Minnesota to describe the attributes of the TROE Center and its relationship to golf courses. After contributing a tax deductible amount of $10 to the MGCSA and filling out a prize form, the participant would have one shot to get a 'hole-in-one'. If they land upon the green, they would be supplied with a ball mark repair tool courtesy of the MGCSA to fix their ball mark. If they miss the green, they walk away with a better understanding of the relationship between research being conducted at the U of M and the MGCSA.

The idea for this event came from Todd Locke from Syngenta who proposed the idea after participating in a similar event in Las Vegas. Imagine the opportunity to visit one-on-one with your players, at least once in the season. What a great chance to promote your management practices and the new advancements in turfgrass science to be achieved at the TROE Center. These advancements would be totally applicable to Minnesota golf and golf courses.

The annually generated funds would supplement the operational costs associated with the day-to-day management of the TROE Center. Expenses such as the employment of a full-time turf manager capable of maintaining the 16-acre center as well as help conduct experiments would be funded by the 'Hole-In-One' event.

Further information will be sent out soon to all of our members. I would like to congratulate our Research Committee for its support of the TROE Center and thank you, our membership, for your consideration and enthusiasm as we continue to support Dr. Brian Horgan and the University of Minnesota.

--Rick Fredericksen , CGCS
MGCSA President

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Inside This Issue of Hole Notes

ADVERTISERS

Water On, Water Off–

(Continued from Front Cover)

Here is how slit drainage works: Main and lateral pipe drains with a porous fill to the surface are installed parallel to the fairway. Then a perpendicular network of gravel-filled 1-inch wide by 10-inch deep slits, on 16-inch spacings, are installed laterally, creating an intensive drainage grid which can remove surface water rapidly.

After construction, new grass growth covers the slits in 10-14 days. The lateral trenches are topped with a sand mix and also recover quickly. Wider trenches are covered with a sand mix, and then covered with sod to provide a natural playing surface.

The specialized machines the company uses to create the lateral slits and fairway drains are manufactured in the U.K. and have been used uccessfully for many years on golf courses in Europe. Main and lateral trenches are excavated using a Shelton Super Trencher. The Super Trencher cuts a trench up to 5 inches wide and installs 2-inch or 4-inch tile. Excavated soil is conveyed into a wagon and hauled away to avoid leaving a mess.

In a separate operation, the trenches are backfilled with buckshot stone to within 3 inches of the surface, then topped with a sand mix. Then, the whole area is top-dressed with 40 tons per acre of sand, about an eighth of an inch thick, using a ty-crop spreader.

Backfilling trench with buckshot stone.

Slit drains are installed using a Shelton twin-leg gravel bander. Two hollow knives, at 16-inch centers, are mounted to the underside of a gravel hopper that is pulled by a tractor. Buckshot gravel is fed into the slits as it proceeds.

"By allowing the adjacent turf to root in the aggregate, without the addition of a finer top soil, maintains a high infiltration rate into the slit drain, which is required to remove excess water," explains Tom West, a Hartman Companies sports-turf contractor. "The excess surface water moves into the columns of coarse aggregate and is carried away by the lateral drain pipes to a collector drain pipe, which leads to an outlet ditch."

The primary idea of slit drainage, according to West, is to remove the excess surface water before it has a chance to pond, thereby softening the ground surface and promoting turf growth. The design for each slit-drainage or gravel-band system, he says, includes consideration of depth, soil texture, spacing and slope. Drain depths will vary depending on the topography of the area, since drains must remain on grade, according to West.

The art of slit drainage takes place in the planning stage, West says. "We have to pot-hole where drains cross irrigation lines to check depths and plan drains to go beneath or over the irrigation pipes. In order to protect the existing irrigation system, we need to constantly stop and start the trencher.

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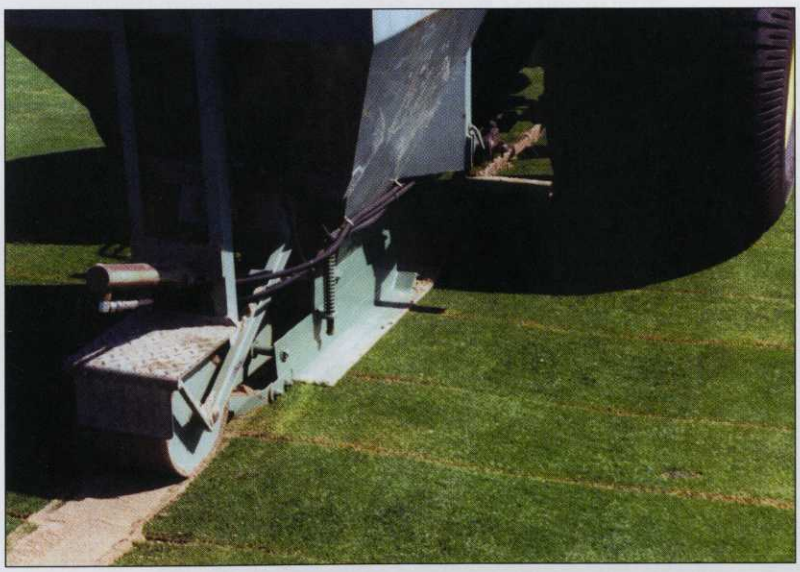
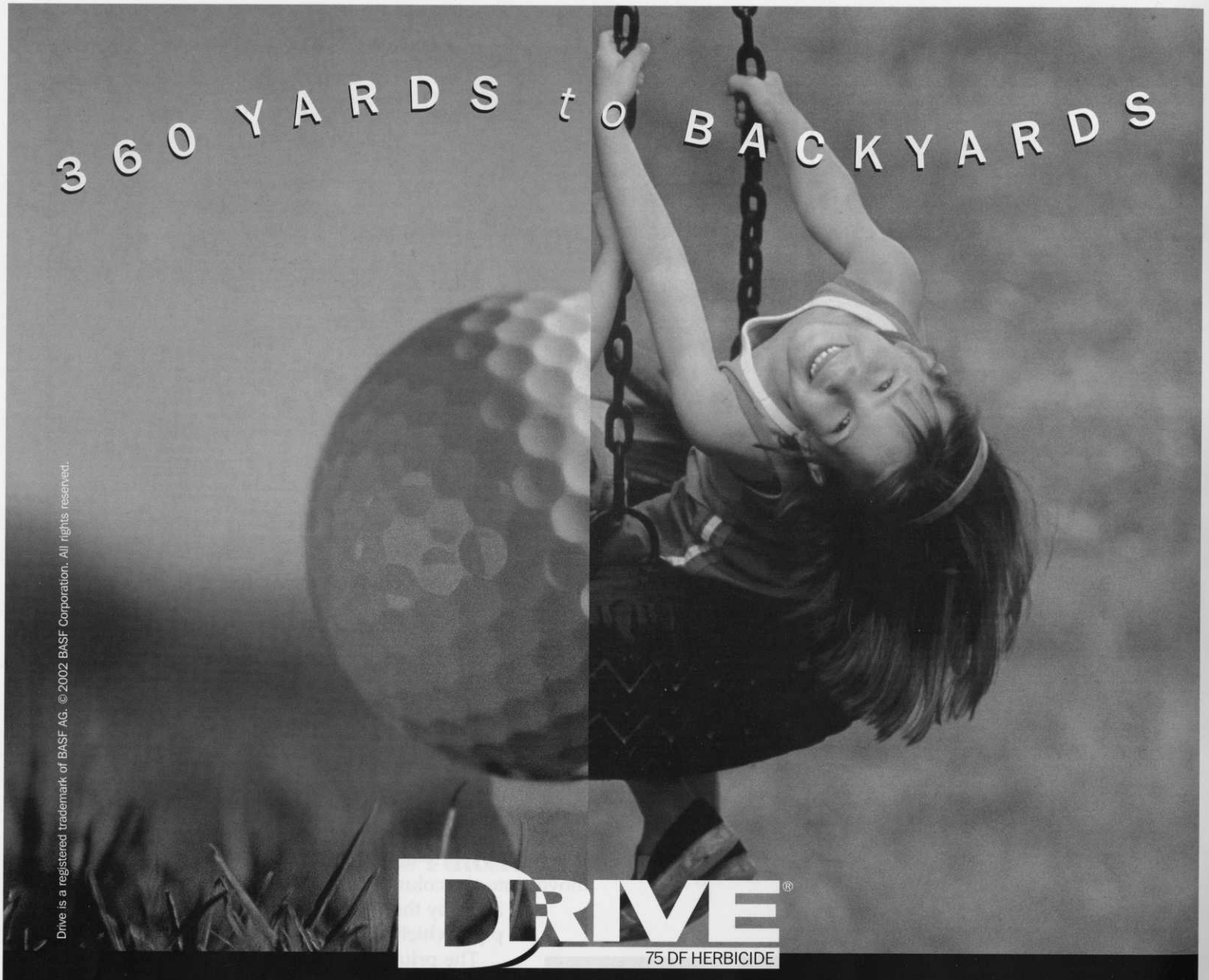


The final stage is backfilling with sand and compacting.



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Water On, Water Off–

(Continued from Page 5)

This is one reason we don't backfill as we trench."

Slit drainage has gained rapid popularity among area golf courses because of the many advantages it offers over conventional drainage alternatives. "The traditional approach to drainage was to re-grade a fairway or green and re-establish the area with new grass," West says. "This traditional approach typically took that portion of the course out of action for a whole year. Now, for the same cost per square foot, we can provide more effective drainage and the area can be used immediately."

Jeff Hartman points out that golf courses typically allocate a certain portion of their annual maintenance budget for drainage. In most situations, when a course has contracted with Hartman to upgrade drainage on a fairway or green, superintendents and general managers are eager to bring other problem areas on the course up to the same standard. "It becomes a revenue-based decision, once they observe how minimally the upgrades disrupt play."

Golf courses often apply the savings they realize from slit drainage to more drainage work or other course improvements, Hartman says.

Hartman Companies' primary clientele are private clubs that cater to revenue-generating tournaments. The revenue is dependent on keeping the course open and allowing carts. Good drainage allows these clubs to make more money. Members also value good drainage because the course does not have to close down for so long after heavy rains.

The proof and results of Hartman's slit-drainage system can be observed at Brackett's Crossing, Interlachen, Golden Valley, Midland Hills, Wayzata and a number of other Minnesota golf and sports turf clubs.

And the results were on display for the world to see in August 2002 when Hazeltine National Golf Club hosted the PGA tournament. More than three inches of rain drenched the course Friday night and Saturday morning, and only a herculean effort by hundreds of maintenance workers allowed the course to be playable on Saturday. The point, however, is that the course was made playable despite the rain, and earlier drainage projects by Hartman Companies contributed to that favorable outcome.

For complete details on Hartman's slit-drainage and other golf course services, contact: Jeff Hartman, Hartman Companies, 8011 Bavaria Road, Victoria, MN 55386, phone 952-443-2958, fax 952-443-3452, email jhartman@hartman-companies.com.

(Editor's Note: Cliff Johnson, a free-lance horticultural and business writer, wrote this article.)

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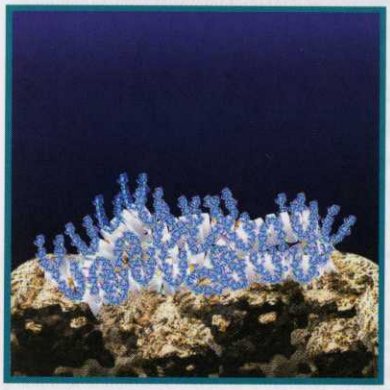
Think of Management of Water Repellent Soils First

Therefore Management of Localized Dry Spots can be Achieved

By Jim Turner
Business Manager Specialty Products, J.R Simplot Company

Superintendents each season fight LDS (Localized Dry Spots) conditions on their golf courses. The superintendent may want to think of water repellency management first before management of LDS. Moderate water repellent soils with dry weather conditions manifest into LDS. Water Repellency starts at the thatch soil interface and generally only reaches down to a depth of 4 to 5 centimeters. Water Repellency generally is a shallow soil condition. Water Repellent soils are coated with non-polar organic acids coatings, which repel water from hydrating the soil particles effectively. Water Repellent soils are progressive in nature; this fact is extremely important. Turf managers grow a monoculture crop - TURF, research has shown growing a monoculture crop will greatly increase the incidence of water repellent soils each year. Each season superintendents grow more and more dense turf conditions the overall goal. Growing dense turf each season also contributes to more non-polar organic acid coatings which is one of the major contributors to water repellency. There is no cure for water repellent soils; the superintendent has to learn to manage the challenge.

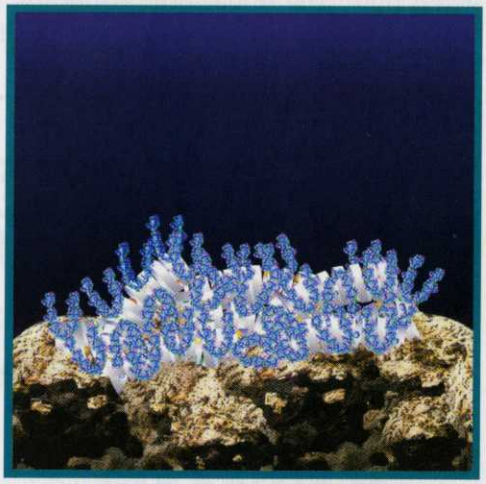


Surfactant pattern after a treatment program. For illustration purposes only.

All soils can show water repellency symptoms from sandy soils to clays. Sandy soils generally show the symptoms of water repellency the strongest. Sandy soils have less water holding capacity than fine textures soils. Performing the WDPT - Water Drop Penetration Test - can test water repellency for the degree and persistence of repellency. The WDPT can be a valuable tool for the superintendent; it can help determine both the locations and the severity of water repellency on the golf course. The WDPT is a measurement in time, time in seconds it takes for a water drop to dissipate into the soil core. The water drops are placed on the soil core starting at the thatch soil interface 1 centimeter at a time to a depth of 5 centimeters. After the water drops are placed on the soil core, they are measured in seconds how long it takes for the water drop to dissipate into the soil core. If the water drop takes longer than 10 seconds the soil is considered being water repellent. Important to note: a 10 plus second measurement at the "0" centimeter level can be very detrimental to the superintendent, and the other WDPT measurements on the same core sample are considered not to be water repellent. This type of WDPT evaluation shows that infiltration of

(Continued on Page 10)

Graphic depiction of water repellent organic acids on soil surface.



Surfactant pattern after a treatment program. For illustration purposes only.

Water Repellent Soils–

(Continued from Page 9)

water in the soil thatch interface is not being completed, therefore water movement into the soil profile will not happen uniformly.

Water does not move uniformly into soil profiles. Even in new green construction water does not move in a uniform pattern thru sandy or push-up green soils. Water will move in preferential patterns; one of the patterns identified is fingered flow. The finger flow pattern is where most of the water movement will take place in a golf course. The finger flow patterns are small river -lets of water that happen in water repellent and non -water repellent soils. Once the finger flow pattern has developed it will remain in place for extremely long periods of time. The superintendent must remember the water both applied and rainfall the golf course receives will now move through the finger flow patterns. Finger flow water movement is not uniform. Water will also move through cracks and crevices, flow over sloping layers and through different soil interface profiles. Superintendents should remember water is necessary for both for turf grass survival; we also need uniform water movement to achieve proper coverage of fertilizer applications and uniform coverage of control chemical products applied.

Water does not move uniformly into soil profiles. Even in new green construction water does not move in a uniform pattern thru sandy or push-up green soils. Water will move in preferential patterns; one of the patterns identified is fingered flow.

Plant water availability has to be taken into account when managing water on the golf course. Where is the water in relation to the root zone? What is the water holding capacity of the soils? These factors help explain why the frequency of water applications is important. When applying irrigation, the root zone can only hold a finite amount of water; excess water will move below the root zone due to gravity. Gravitational water is no longer available to the turf grass system. If the turf's grass root system is shallow (which is generally the circumstance) in summer heat stress

(Continued on Page 19)