TABLE OF CONTENTS

ABOUT THE COVER

Continuing a Grass Roots tradition, the cover of our July/August issue features the favorite hole of the host golf course superintendent of the Wisconsin State Amateur and the Wisconsin State Open.

John Granholt will welcome Wisconsin's best amateurs to the Eau Claire Country Club in July. He likes their tenth hole. It's a par 4 that plays 414 yards from the back tee.

Michael Lee has chosen the 13th hole as his favorite at Blackwolf Run. At 341 yards, this par 4 offers a severely undulated fairway and a small flat green. Named "Chimney," Mike recommends "do not miss the green right or short."

Jennifer L. Samerdyke has captured the essence of these two wonderful golf holes in Wisconsin.

"God gives all men all earth to love,
But since man's heart is small,
Ordains for each one spot shall prove,
Beloved over all."

– Rudyard Kipling

THE GRASS ROOTS

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Super Role Models

By Kris Pinkerton, *Golf Course Superintendent, Oshkosh Country Club*

The rush to prepare our golf courses for spring opening is over, and the summer's tournament and outing schedule is well under way. Schools have let out for the summer months which have allowed us to fill those vacant seats in the breakroom. Amen!

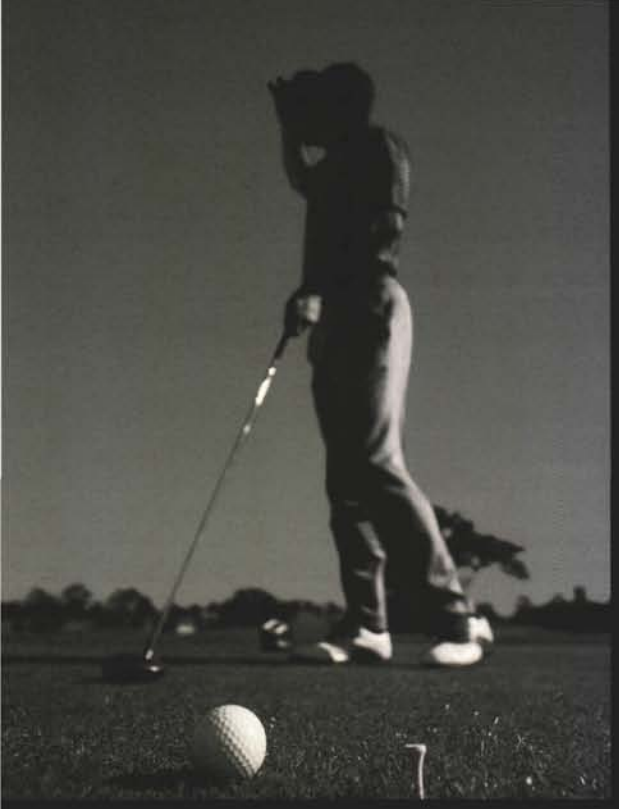
Years ago, as a young inexperienced seasonal crew member, I was very excited about the upcoming summer tournaments! While cutting those laser-guided straight lines on greens, I remember thinking that there was no way my boss could come even close to matching this perfection! And changing cups before the club championship gave me a chance to outwit the best of putters.

Looking back now, the years spent working on golf courses taught me a number of valuable lessons as I grew up. I learned to put forth an effort to be a good listener and effective communicator. The summer work allowed me to gain confidence in myself and in my abilities. Working on a golf course also allowed me to make friends and interact with my peers. Some of these individuals were wonderful role models and many of those friendships continue on to present day. I owe the profession a lot for what it has given and taught me.

That is why each season, just as summer help is reporting for duty, our full-time staff sits down to discuss our role as supervisors and responsible adults. It is important that as adults we give proper support and guidance as our young seasonals wade through the summer months. A poorly executed job assignment may not be as detrimental to an employee's psyche as is his or her supervisor's reaction to that assignment. And even if they had completed the assignment correctly, critiquing their work in a negative fashion can affect their confidence.

We as adults may also have forgotten, or may not understand, how much our young seasonals depend upon us for our approval. It should be our duty as supervisors and adults to retain the vision that the objective of summer employment is to ask the best of one's self, to build character and self esteem, and most importantly enjoy the summer months working outdoors.

Sometimes it is the little things in life that forge the character that will carry all of us to new heights in the future. Enjoy the summer!



Milorganite helps new greens grow in quicker. Sadly, it has no effect on slow play.

Fortunately, not all decisions require hours of hemming and hawing. Take choosing a fertilizer for new greens, for example. Research shows that Milorganite achieves faster, more complete grow-in than other organic fertilizers. It builds up roots, improves water retention and infiltration rates, and reduces phosphorus deficiency. Now, if only it could help reduce the number of practice swings before each shot. For details, visit milorganite.com or call 1-800-287-9645.

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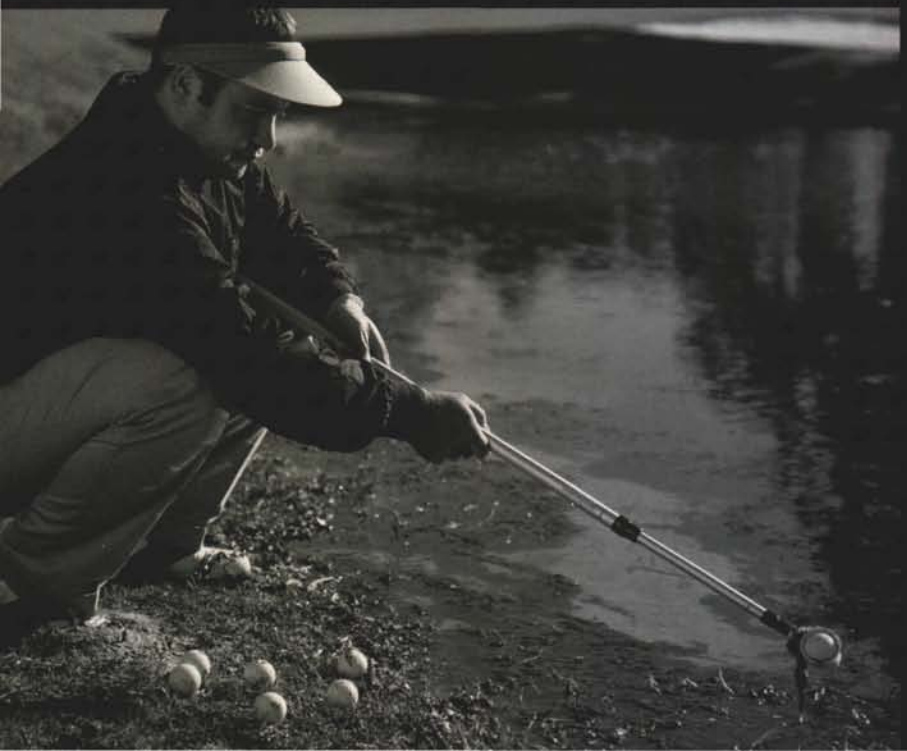

The Push for Effluent Irrigation

By Dr. John Stier, *Department of Horticulture, University of Wisconsin-Madison*

Fights and arguments over water rights and water quality are as ancient as civilization. In Wisconsin we think of water quality and quantity issues as being remote: confined to the mid-East, or perhaps in our own Western states. In reality the truth is much closer to home. In today's newspaper two articles were devoted to the need to preserve water quantity and quality right here in Wisconsin. Over 70% of Wisconsin's citizens depend on groundwater for drinking, bathing, washing, and other uses (Seely, 2001). Yet private wells are going dry, and aquifers beneath municipalities are being drawn down at an alarming rate. Part of the trouble is we are using water faster than the aquifers can be replenished. The other aspect is that of contamination: as water quantities diminish, pollution rates increase. Pollutants can come from natural causes like arsenic from the soil or from human by-products such as agrichemicals. While research has yet to document golf courses as being genuine polluter of water supplies, the public generally does not know of the results or does not believe the data.

Nearly 80% of water use in our country goes towards irrigation (Figure 1; Ratcliff, 1999). In 1995, 134,000 million gallons of water were used daily for irrigation. Fifty million acres of agricultural land and over 20 million acres of residential and commercial landscapes were irrigated. On a hot summer day, an 18-hole golf course may use up to 300,000 gallons of water. Golf course irrigation, though, accounts for less than 2% of water use in the U.S. One of the advantages of golf courses being run by increasingly educated and professional superintendents is the intelligent water use practices which have been developed and which are increasingly refined. Indeed, golf course irrigation is typically highly efficient. Nighttime or early morning irrigation result in minimal evaporative losses. Irrigation is monitored to avoid runoff. Since golf courses are nearly 100% pervious surface, the water that is not used by plants for growth will eventually percolate back to an aquifer, cleansed and filtered by the foliage and root systems of the turf and other plants. In addition, many golf courses have their own water supplies (e.g., ponds). Yet golf courses are highly visible to the public and are constantly under scrutiny. The homeowner who has had his water turned off by the city due to a drought, or the environmentalist who questions the very right of a golf course to exist, view golf course irrigation as an obscene waste of a valuable resource.

Theoretically our water can come from four sources: precipitation, surface water, ground water, and effluent water. For nearly 20 years golf courses in the Western U.S. have increasingly turned to effluent water as a way to skirt the rapidly shrinking availability of fresh water. The economics can be favorable as well: effluent water costs can be 80% or less of potable water costs (Huck et al., 2000). Potable water is, of course, fresh, i.e., drinking water. Effluent water has been through at least one cycle of domestic use (McCarty, 2001). It is sometimes referred to as gray, reclaimed, recycled, or even wastewater. According to the National Golf Foundation, 13% of U.S. golf courses used effluent water for irrigation in 1999 (NGF,

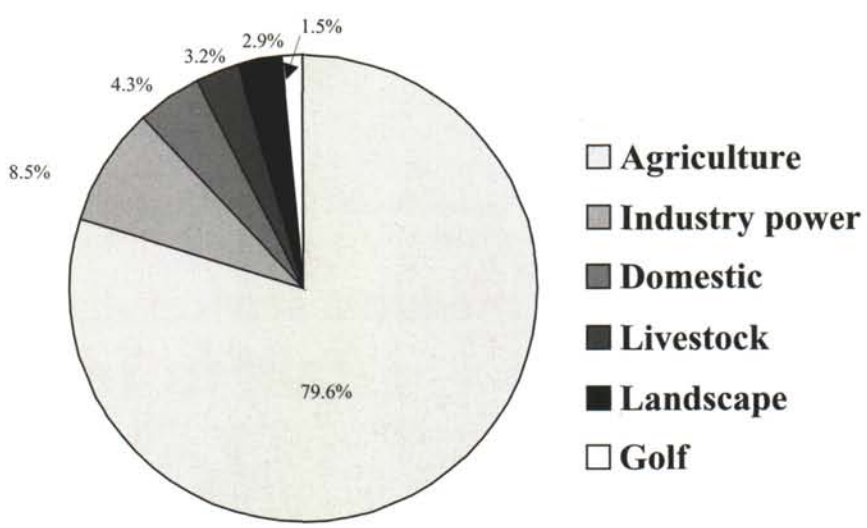

Figure 1. Water use in the U.S (Ratcliff, 1999).

1999). The majority of these golf courses were located in the southwest, but an increasing number of golf courses in the southeast are turning to effluent water. Lately, a sprinkling of golf courses along the east coast have begun using effluent water. Mounting public pressure has forced the use of effluent in some locations. For example, California passed legislation in 1992 requiring effluent water to be used, where available, for irrigation.

Effluent water is usually subjected to three levels of treatment before being discharged for reuse: primary, secondary, and tertiary (McCarty, 2001). In primary treatment, screening and sedimentation are used to remove organic and inorganic solid materials. This includes sand, stones, and other material which may be washed and placed in a landfill. Approximately 60-70% of suspended solids and 25-40% of biological oxygen demand (BOD) are removed by the primary treatment. (BOD is biodegradable organic material such as proteins, carbohydrates and fats. Untreated, their decomposition uses oxygen dissolved in water which is necessary for most aquatic life and creates septic conditions). Primary effluent may be chlorinated to kill bacteria and decrease odor problems. It is NOT intended for irrigation as it can contain harmful human pathogens and other undesirable compounds.

Secondary treatment consists of trickling primary effluent water through vats of bacteria designed to remove up to 90% of the organic matter. Afterwards, the water is chlorinated to kill pathogens. The primary pathogen which engineers are concerned with are coliform bacteria. After treatment, secondary effluent water must have less than 23 coliform bacteria per 100 ml water. Secondary effluent water is a principle source of water for agricultural irrigation in some areas. Although it can be used for turf in some instances, it generally is not recommended due to the high level of nutrients and other compounds it can contain.

Tertiary treatment produces water that is most suitable for turf irrigation if potable water is not available. Secondary effluent is filtered over beds of charcoal to remove non-biodegradable organic material and most nutrients such as nitrogen and phosphorus. Properly treated tertiary effluent

should be relatively odorless and must have less than 2.2 coliform bacteria per 100 ml water.

While wastewater engineers are concerned primarily (or only) with pathogen levels in effluent, superintendents must also consider the many management issues associated with use of effluent for golf course irrigation. From an agronomic stance, effluent can have effects on both turf and soil qualities. There are often additional financial considerations that must be met—effluent water is not necessarily "free". Many regulatory issues must be met before effluent can be brought onto a golf course and used for irrigation.

The four main characteristics of effluent water which dictate its utility for any situation are 1) Biological components, 2) Organic components, 3) Dissolved salts and nutrients (including heavy metals), and 4) Dissolved and suspended solids. Wastewater treatment facilities generally reduce the concentration of biological and organic components to a minimum. The potential for problems and remedies associated with dissolved salts, nutrients, and solids will be discussed in the next issue of The Grass Roots.

Author's note: This is the first installment of a three part series on effluent irrigation. The idea for the article came from questions I've had from superintendents inquiring about effluent water, from several presentations I've seen at turf conferences around the country in recent months, and from a presentation I gave at the 2001 Northern Great Lakes Golf Course Superintendents Association annual conference. The next two issues will focus on agronomic concerns and economic/regulatory issues.

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And You Thought Last Year Was Fun!

By Tom Schwab, *O.J. Noer Turfgrass Research and Education Facility, University of Wisconsin-Madison*

Field Day 2000 had everything. There was great education, a huge trade show, and presentation of the first WTA Turfgrass Research Distinguished Graduate Fellowship. Attendees also enjoyed the fundraiser putting contest, dunk tank, and auction. Crowds were large. Lunch was superb. The weather was even cooperative. Well, Summer Field Day 2001 is stacking up to be all that and more.

The date is August 14th and the site is, as always, the OJ Noer Facility in Verona. So much has been happening at the Noer Facility and in Wisconsin's turf industry on the whole that you'll want to get the latest news during Field Day. Results from the Wisconsin Turf Survey will be summarized so you can learn what an important impact you make on Wisconsin's economy. Get the latest perspective from the professors about the DNR NR151 Regulations for non-point pollution and how it will affect your business. You can also find out about the Noer Facility expansion. Learn what additional research will be conducted, or give your own input on projects you'd like to see performed when the available research land is doubled.

Not that the current 105 research plots aren't producing great information. The current investigations are producing superb information and that knowledge will be shared during the Field Day research tours. Field Day starts out with two different research tours. One focuses on golf subjects and the other is for lawn care, sod, and sports turf interests. The tours will make every effort to present talks that you want to hear about, not just ones that are presently located at the facility. Here is a preliminary list of some of the presentations:

1. Putting green management issues.
2. Management of the homelawn.
3. Control of troubling turfgrass diseases.
4. Control of troubling turfgrass insects.
5. Using plant growth regulators in athletic field management.
6. Contributions of lawn care pesticides and fertilizers to urban runoff.
7. Using Kentucky bluegrass for golf course fairways.
8. Strategies for growing turf in the shade.
9. Maintaining ornamental grasses.
10. Audubon sanctuary tour.
11. There will be more presentations also. The professors and graduate students are still determining what would be the most beneficial to present come August.

If you have topics for this year or the future that you'd like to see presented, then please call the Noer Facility and let us know at 608-845-6895. In addition to the tours, the researchers will make themselves available all afternoon to answer your individual questions one-on-one under the ask-the-expert tent.

The research tour is the highlight of the Field Day, but there is also much more! There is a huge trade show featuring over 50 companies that supply every turfgrass piece of equipment, product, or service that you would ever need. Many of the vendors let you test drive and compare their mowers and other vehicles during the trade show hours. Or if you prefer, sit back and take notes during the equipment demonstration period where factory representatives demonstrate all the latest features of their equipment.

The vendors also sponsor a silent auction where attendees can bid and get deals on needed supplies with the proceeds going to support

Dr. Stier speaking to large crowds on the virtues of *Poa supina*.

Dr. Kussow entertains and educates another group of interested turf managers.

The huge trade show with attendees lining up for the delicious lunch.

turf research. The auction is going to have a new feature this year. Your name will be entered in a drawing for $200 cash every time you place a bid. And remember that if your auction bid wins, you can pay later. You don't have to bring cash to the show. The fun doesn't stop with the auction. There will be a putting contest and a radio controlled off-road toy truck race with the winners taking home other prizes.

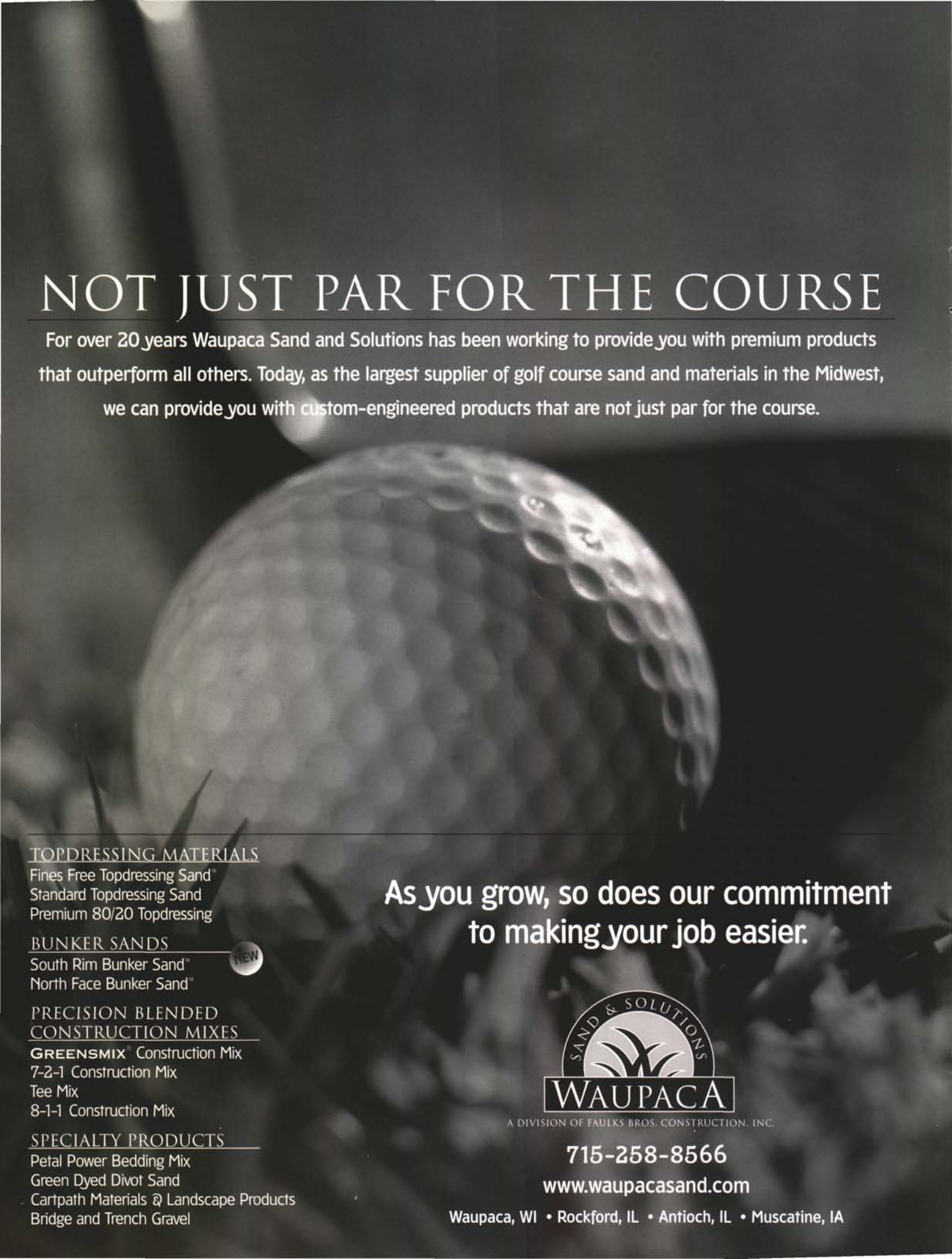
If that isn't enough fun and education, then come to one of the afternoon workshops. Immediately after lunch there will be a workshop on pregerminating seed and one demonstrating painting equipment for striping athletic fields and installing logos.

Lastly, don't forget the lunch. The lunch is always superb and almost worth the admission price in and of itself. Lots of good networking and comradeship is shared over lunch and throughout the whole day. And speaking of the admission price, it can be waved by becoming a new WTA member. Every new member in 2001 gets free admission to the show. WTA memberships cost $125. Call 608-845-6536 for more information.

Here is a recap of the highlights and the reasons why you must make plans now to attend this important event in August:

- Coffee, juice and donuts at morning registration.
- Between 8 to 10 presentations during the research tour.
- Lunch that will make your mouth water.
- Two afternoon workshops.
- Ask-The-Expert tent (one-on-one discussions with the researchers).
- Equipment demonstrations (on your own or with factory representatives).
- Huge trade show.
- Auction with $200 cash drawing.
- Games with valuable prizes for the winners.
- All proceeds go to turf research at the UW-Madison to benefit your profession.
- Free registration to new WTA members.

It's really a fun day and well worth the small registration cost. Also try to bring a friend who hasn't ever attended Field Day before. They will be impressed. Field day chairperson Jim Trzinski and the rest of the planning committee guarantee that the weather will be warmed up by then. Contact Audra at 608-845-6536 or by email at ajander2@facstaff.wisc.edu if you have any other questions. Anyone else on the UW Turf Team would also be glad to answer questions you may have and we all hope to see you there.



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