

## TABLE OF CONTENTS

THE PRESIDENT'S MESSAGE	
<b>Time Flies!</b> . . . . .	<b>3</b>
GAZING IN THE GRASS	
<b>Constructing Sand Based Putting Greens to Reduce Nitrogen Leachate</b> . . . . .	<b>4</b>
NOTES FROM THE NOER FACILITY	
<b>Green Industry Day with State Legislators</b> . . . . .	<b>8</b>
TDL	
<b>TDL Year in Review and Upcoming Changes for 2005</b> . . . . .	<b>13</b>
WISCONSIN PATHOLOGY REPORT	
<b>Control of Sclerotinia Dollar Spot on Putting Greens in 2004</b> . . . . .	<b>17</b>
PERSONALITY PROFILE	
<b>He Really Knows (and Loves) His Turf Equipment</b> . . . . .	<b>20</b>
WGCSA	
<b>2004 WGCSA Fall Business Meeting and Wisconsin Golf Turf Symposium</b> . . . . .	<b>26</b>
JOTTINGS FROM THE GOLF COURSE JOURNAL	
<b>A Big "Thank You" for Wayne Kussow</b> . . . . .	<b>33</b>
WISCONSIN ENTOMOLOGY REPORT	
<b>Spray Volume Can Have an Enormous Effect!</b> . . . . .	<b>37</b>
THE EDITOR'S NOTEBOOK	
<b>A Brave New Year</b> . . . . .	<b>38</b>
POA TRIVIA	
. . . . .	<b>44</b>

## ABOUT THE COVER

In recognition of the Green Industry's visit to Madison on February 15th to meet with legislative leaders and discuss our concerns about the future, our cover features the beautiful Wisconsin State Capitol building. It is the third capitol building in Madison. Moved to Madison from Belmont, the first capitol building was completed in 1838. It was replaced by a new capitol in 1857. That building burned in 1903.

Ground was broken for our current facility in 1907 and completed in 1917. Only a few inches lower in height than our

nation's capitol building in Washington, D.C., it remains the most impressive state capitol building in the U.S.

*"It can hit a hundred and five in July, and forty-five below in January. One hundred and fifty degrees of temperature is how we keep the riffraff out. When that doesn't do it, then it's up to the mosquitoes and leeches. If it wasn't for them, and another thing or two, this piece of God's country would be overrun with people."*

- William Least Heat-Moon

## THE GRASS ROOTS

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# Time Flies!

By **Marc Davison**, Golf Course Superintendent, Green Bay Country Club

Where did 2004 go. Isn't it amazing how fast time flies? It seems like we were just putting up Christmas decorations or just taking them down a few short months ago. How often do you consider keeping them up year round and just unplugging them? Seems to make good sense but it makes us look lazy, doesn't it?

Last year will be remembered by many of us as a "good year." Not too hot, not too humid, decent rainfall, low disease pressure, a relatively good year for growing grass. There isn't anything wrong with a year like that now and then, is there?

The PGA Championship was held in Wisconsin in August at Whistling Straights. What a great event, held at a great golf course, and best of all, held right here in Wisconsin. We will remember the 2004 PGA for years to come.

Last year brought much sadness to our association also. Four long time members—Brad Wagner, Ron Schumaucher, Mike Kilpatrick, and Wayne Otto—passed away. These men will be greatly missed by our organization. Our deepest sympathies go out to their families.

What will the new year bring into your life: retirement, a new job, a new child, a new mower? Let's just pray that we will be successful in all that we set out to do.

February 15, 2005 marks an important day for the green industry in Wisconsin. We will be heading to the State Capitol to meet with our representatives and state senators. Brian Swingle and the Wisconsin Landscape Federation are coordinating this effort. As you may have read in a recent letter from me, the WGCSA is going to be very active in this event. By now you should have not only seen the letter I mailed in December, but you should have also received a phone call from one of our board members encouraging your participation in this rally. We need a large presence in Madison to make the impact necessary for us to convey the importance of our message.

What is the message we are trying to convey to our legislature? You may recall in 2000, a very large and extensive survey was conducted on the green industry in our state. The survey's results indicated the green industry annually contributes 2.3 billion dollars into our state's economy and employs over 43,000 people in more than 4,700 businesses across the state. The green industry is a very large component in the economy of



Wisconsin and we want them to realize just how important it is. A second message we would like to send to our legislature is that we are very concerned and conscientious of our environment. We are responsible, educated, professional turf managers that make well informed decisions based on solid university research regarding pesticide and fertilizer usage. We would like to be heard on issues relative to our

business before regulations restricting or altering our current practices are forced onto our industry. Our goal is to be proactive and to emphasize the positive impact our industry has in the state and the concerns we have about our environment.

Along with the letter I sent in December a form was included to register your involvement in this rally. Please fill out the form which includes who your district's State Senator and Representative are. Meetings with legislators will be pre-arranged for all those who register and plan on attending. We will be grouped with fellow associates from the same district. Two or three green industry partners will go together to visit the representatives from their district. A training session will take place the morning of February 15 so we will be well prepared to speak with the politicians. Please plan on attending this outing! Get involved; our future may depend on it. Thank you in advance for your support of the green industry.

Our wonderful Grass Roots publication has been losing advertisers over the past couple of years. Without the proper financial support we achieve from advertisers, the shortfall must be made up by our association. The cost to produce our award winning magazine is substantial and very well worth it, I hope you would all agree. With advertisers backing out and slowly escalating costs, something has to change. What can you do? Encourage the vendors you buy from to advertise in the Grass Roots. If they are not currently doing that, consider buying only from vendors that do support our magazine. We appreciate all the support vendors give us and I know they appreciate our business. Please take note on who you buy from and who advertises in the Grass Roots.

Enjoy some time off this winter. Get away from the shop and office. We all know how time flies. It will be April 1st before we know it. Hope to see you in Orlando.✂





# Constructing Sand Based Putting Greens to Reduce Nitrogen Leachate

Dr. John Stier, Bob Lisi, and Dr. Jim Park, Department of Horticulture and Department of Civil Engineering, University of Wisconsin-Madison

## PROLOGUE

A significant body of research has been published that shows established turf allows relatively little nitrate leaching to occur (Geron et al., 1993; Kussow, 1998; Liu et al., 1997; Miltner et al., 1996). Research has also documented that the barren nature of putting greens during establishment, coupled with the need to frequently apply nitrogen at moderate to high rates in order to produce a usable turf as quickly as possible, will undoubtedly lead to leaching of nitrate (Brauen and Stahnke, 1995). Although we as an industry have known this for over 10 years, there have been no significant steps taken to reduce the problem. It's been assumed the problem is unavoidable and in the long run, relatively insignificant. While nitrate leaching during establishment may contribute a low total amount to our surface and groundwaters, it's our responsibility to make attempts to correct the problem. Sometimes it takes a person with a mindset not limited by what is "known" to come up with a solution.

A few years ago an undergraduate student from civil engineering who'd been working for us at the O.J. Noer Facility asked if I thought a layer of crumb rubber in a putting green could reduce nitrate leaching. I was skeptical because I knew the Michigan DNR had concluded crumb rubber to be chemically inert. The student, though, was persistent and worked with his major professor conducting laboratory tests to measure nitrate leaching in sand:rubber profiles following nitrogen fertilizer application. They were able to show

that a 4 inch crumb rubber layer in a sand profile reduced nitrate leaching 22% compared to a conventional USGA putting green profile (USGA, 1993). Laboratory data are great, I thought, but the real test would lie in the real world. We knew we had to conduct field trials to truly measure the effectiveness of crumb rubber to reduce nitrate leaching.




## THE TRIAL


We constructed a putting green at the O.J. Noer Turfgrass Research and Education Facility during the summer of 2001, dividing it into 9 mini putting green profiles separated by plastic barriers. We used a randomized block design with 3 replications of 3 profiles to test the effectiveness of a crumb rubber layer to reduce nitrate leaching: USGA profile, USGA profile with coarse rubber

substituting for the gravel layer, and a USGA profile with the choker layer replaced by fine-grade crumb rubber (Fig. 1). Lysimeters were installed under the drainage layer for collecting water samples as they leached out of the putting green (Holder et al., 1991).

The area was seeded to 'Penncross' creeping bentgrass at 1 lb/1000 ft<sup>2</sup> on 11 September 2001 and irrigated up to four times daily during establishment. Fertilizer was applied on 11 and 18 September (15-24-8) to supply 0.6 lb N/1000 ft<sup>2</sup>, again on 1 and 11 October (46-0-0) to supply 1 lb N/1000 ft<sup>2</sup>, again on 16 November (21-3-12) to supply 0.7 lb N/1000 ft<sup>2</sup>, and a final time on 21 May 2002 (21-3-12) to supply 1 lb N/1000 ft<sup>2</sup>.

Water samples were pumped from the lysimeters within 1 day after rainfall or approximately



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12 in	Sand:peat	Sand:peat	Sand:peat	14 in
2 in	Fine crumb rubber			
4 in	Gravel	Gravel	Coarse crumb rubber	4 in

Fig. 1. Putting green profiles used at the O.J. Noer Turfgrass Research and Education Facility in Verona, WI, to compare the effects of replacing either the choker layer or the gravel layer with crumb rubber.

Table 1. Nitrogen and phosphorus in leachate from USGA putting greens with and without crumb rubber sub-layers, Verona, WI, 13 September to 28 September 2002.

Treatment	Leachate volume (L)	Average NO <sub>3</sub> -N (mg/L)	Total NO <sub>3</sub> -N (mg)	Average PO <sub>4</sub> -P (mg/L)	Total PO <sub>4</sub> -P (mg)	Average pH
USGA†	54.9	6.1 a†	3.2	1.5	32.4	7.06
Rubber choker	40.0	4.7 a	2.7	1.0	23.1	7.04
Rubber gravel	36.0	2.5 b	1.5	0.6	13.6	6.88
LSD (0.05)	ns	2.1	ns	ns	ns	ns

† Values followed by the same letter are not significantly different at  $P < 0.05$ . The ns indicates no values among the treatments are significantly different at  $P < 0.05$ .

every 2 weeks to measure volume of leachate and the amount of nitrate-N, ammonia-N, reactive phosphorus, and pH. Nitrogen and phosphorus analysis were conducted using Hach Test N Tube methods described in Lisi et al. (2004). In brief, water samples were filtered and reacted with the appropriate reagents to produce a colored solution. The amount of nitrogen or phosphorus in the sample was determined by measuring the intensity of color in each sample with a spectrophotometer and comparing it to data from standard solutions of known nitrogen or phosphorus concentrations.

Turf quality and color were rated on a 1 to 9 scale, with 9 being ideal turf, and density was rated on a 0 to 100% scale. Turf infiltration rates were measured on mature turf in the summer of 2002 using a double-ring infiltrometer.

## THE FINDINGS

Field data supported the laboratory tests showing crumb rubber could reduce the amount of

nitrate-N in leachate from sand based putting greens. Replacement of the 4" gravel layer with similarly-sized crumb rubber reduced the concentration of nitrate-N approximately 60% (Table 1). Replacement of the 2" choker layer with finely ground crumb rubber did not significantly reduce nitrate-N in the leachate. Ammonia-N data were similar for all treatments (data not shown). Phosphorus concentrations and amounts as well as pH were statistically similar for all treatments ( $P < 0.05$ ). Leachate volumes were similar for all treatments (Table 1), as were infiltration data (data not shown). The lack of effect on leachate volumes and infiltration indicate drainage was not affected by replacing either the gravel or the choker layer with appropriately-sized crumb rubber.

As expected, the majority of nitrogen in the leachate occurred during establishment. Nitrate-N concentrations from the USGA profiles exceeded the U.S. EPA

drinking water standard of 10 mg/L five times during autumn 2001. Although all treatments resulted in at least two instances of nitrate-N being greater than the EPA standard, water draining from the greens with the 4" drainage layer of crumb rubber consistently had less N than water from the other treatments. By spring 2002 all treatments had N contamination less than the EPA standard, except for 17 March 2002 when water samples from the standard USGA putting green had 10.7 mg N/L.

The project indicates sand-based putting greens can be constructed so as to reduce nitrogen leachate during establishment without adversely affecting putting green hydraulic or turf qualities. The benefits of replacing the gravel layer with crumb rubber are that crumb rubber of the appropriate size may be easier to locate and cheaper to ship than appropriately-sized gravel. In addition, use of the crumb rubber removes it from the waste stream; in essence, recycling a waste rather than using an essentially non-renewable material such as gravel. We are now investigating the potential of crumb rubber in the greens to reduce pesticide leaching.

## CONCLUSION

Replacement of the 4" gravel layer of a USGA putting green with similarly-sized crumb rubber significantly reduced nitrate leaching during establishment without affecting drainage or visible turf quality, color, or density.

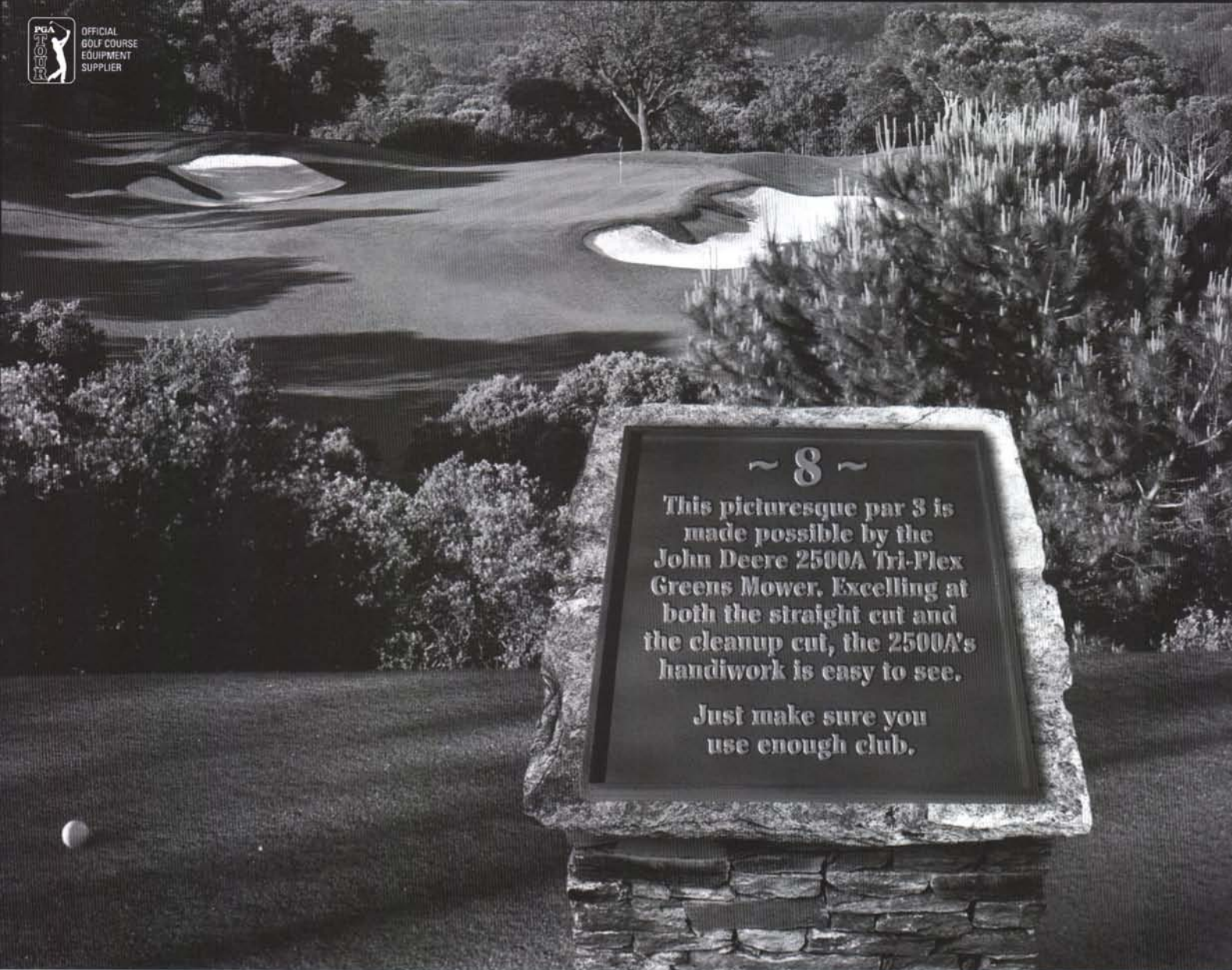
## References Cited

- Brauen, S.E., and G.K. Stahnke. 1995. Leaching of nitrate from sand putting greens. USGA Green Section Record 33(1):29-32.
- Geron, C.A., T.K. Danneberger, S.J. Traina, T.J. Logan, and J.R. Street. 1993. The effects of establishment methods and fertilization practices on nitrate





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- leaching from turfgrass. *J. Environ. Qual.* 22:119-125.
- Holder, M., K.W. Brown, J.C. Thomas, D. Zabcik, and H.E. Murray. 1991. Capillary-wick unsaturated zone soil pore water sampler. *Soil Sci. Amer. J.* 55:1195-1202.
- Kussow, W.R. 1998. Nitrogen carrier effects on N and P losses from Kentucky bluegrass turf. *Wisc. Turf Res.* XV:17-19.
- Lisi, R.D., J.K. Park, and J.C. Stier. 2004. Mitigating nutrient leaching with a sub-surface drainage layer of granulated tires. *Waste Mgt.* 24:831-839.
- Liu, H., R.J. Hull, and D.T. Duff. 1997. Comparing cultivars of three cool-season turfgrasses for soil water NO<sub>3</sub>-concentration and leaching potential. *Crop Sci.* 37:526-534.
- Miltner, E.D., B.E. Branham, E.A. Paul, and P.E. Rieke. 1996. Leaching and mass balance of <sup>15</sup>N-labeled urea applied to a Kentucky bluegrass turf. *Crop Sci.* 36:1427-1433.
- United States Golf Association, 1993. Recommendation for a method of putting green construction. USGA Green Section Record, March/April, 1-3.

Table 2. Quality, color, and density of 'Penncross' creeping bentgrass (*Agrostis stolonifera*) on three putting green profiles the year following seeding, Verona, WI, 2002. Quality and color were based on a 1 to 9 scale, with 9 = ideal, 6 = acceptable.

Profile	Quality		Color		Density (0-100%)	
	16 Jul	28 Sep	16 Jul	28 Sep	16 Jul	28 Sep
USGA	4.8	6.0	6.0	6.0	93.3	100.0
Rubber choker layer	5.5	5.7	6.0	5.7	93.3	100.0
Rubber "gravel" layer	5.2	6.0	5.7	6.2	96.7	100.0
LSD (0.05)	ns	ns	ns	ns	ns	ns

ns = not significant at P < 0.05.

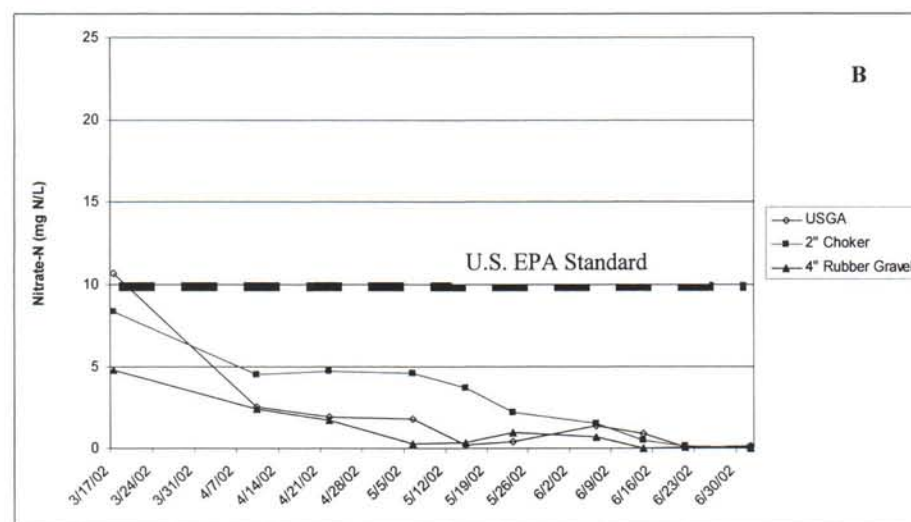
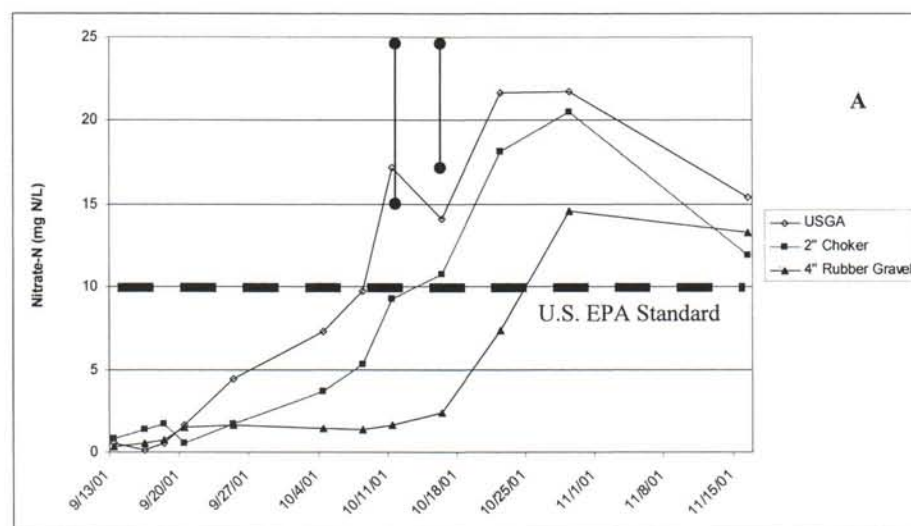


Fig. 2. Nitrate-nitrogen concentrations in leachate from 3 types of USGA-based sand putting greens planted with 'Penncross' creeping bentgrass on 11 July 2001: USGA = conventional, 2" Choker = USGA with 2" choker layer of fine crumb rubber, and 4" Rubber Gravel = USGA with gravel drainage layer replaced by similarly sized crumb rubber. The U.S. EPA drinking water standard of 10 mg/L Nitrogen is indicated by the dashed line. Dates on which data were significantly different between treatments ( $P < 0.05$ ) are indicated by the bar-bell type vertical lines.

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# Green Industry Day with State Legislators

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

Members from the green industry are meeting with state legislators in February to make known the huge impact the industry provides to Wisconsin's economy. It is important that many members of the green industry participate in this event which is being dubbed "The Green Industry Day on the Hill." It would be great if you could participate.

The reason it's important to have this "Day on the Hill" right now is because of the newly completed Wisconsin Green Industry Survey. This independent and unbiased survey, conducted by the Wisconsin Agricultural Statistics Service, found that Wisconsin's green industry contributes over \$2.7 billion annually while providing over 43,000 jobs to the state's economy.

Our day with legislators is for impressing this economic impact upon them. We are not meeting to lobby any specific laws. It will be a positive meeting to get to know each other and for us to promote the landscape industry. Then when future issues arise that may impact our industry, they will know who to contact before making decisions.

Future decisions that could impact us are issues of pesticide and fertilizer use, small business taxes and benefits, land and water use, advancements in plant breeding, invasive species, and other environmental concerns. We are the people in the trenches working to promote healthy plant growth and a clean environment. They need to know we are affected by their decision making and that we are there to supply expertise before laws are changed.

Brian Swingle, executive director of the Wisconsin Landscape Federation (WLF), is coordinating this "Day" to educate legislators about the green industry. He started by bringing together representatives from 14 different green industry organizations for a planning meeting on October 14th, 2004 in Waukesha. They discussed the feasibility of having this "Day on the Hill." Everyone present thought it would be a beneficial program and that now would be the time to publicize our importance to law makers.

The "Green Industry Day on the Hill" will take place on February 15th, 2005 in Madison. We will begin by meeting at the Inn on the Park in downtown Madison, where participants will be given an issues statement to present to the individual legislator we meet. The program will run from 9:00 a.m. to 1:45 p.m. and lunch will be provided.

If you wish to participate contact me at the Noer Facility (608-845-6895) or Brian Swingle at the WLF

office in Greenfield (414-529-4705). If you prefer, you may contact a board member from any of the participating associations listed below. They will have the meeting information as well.

A couple hundred people are needed in order to make this day a success. Our goal is to have representatives of the green industry from every corner of Wisconsin. You don't have to be a political creature to volunteer to help. You just need to be concerned about plants, the environment, and your business.

## "Green Industry Day on the Hill" Participating Associations and Organizations:

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Gardens Beautiful Garden Centers  
Grounds Management Association of Wisconsin  
Northern Great Lakes Golf Course Superintendents Association  
Wisconsin & Upper Michigan Florist Association  
Wisconsin Arborists Association  
Wisconsin Christmas Tree Producers Association  
Wisconsin Golf Course Owners Association  
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# Green Industry Day On the Hill

Tuesday, February 15, 2005

Inn on the Park on the Capitol Square

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## Schedule:

9:00-9:30 a.m. Registration/ Meet with Your Team at the Inn on the Park  
9:30-10:45 Speakers, Briefing on Issues, Role Play a Visit with a Legislator  
10:45-11:00 Walk to the Capitol  
11:00-11:30 Meet with Senators  
11:30-12:00 p.m. Meet with Representatives  
12:15-12:30 Debriefing of Legislative Visits with Green Industry Legislative Leadership Committee  
12:30 Buffet Lunch  
1:00 Speakers  
1:45 p.m. Depart for Home

\*\* Inn on the Park is located at 22 South Carroll Street, Madison, WI 53703. P: (608) 257-8811 F: (608) 257-5995

## Day On the Hill Registration Form

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Green Industry Association Affiliation (e.g. WLCA, CFGW, WNA, etc.) \_\_\_\_\_

To identify your state legislators visit: [www.wisconsin.gov/state/core/government.html](http://www.wisconsin.gov/state/core/government.html), and under "Legislature" click on "Who are my State Legislators?"

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