

turfgrass fellowships include a comparison between turfgrass and rain gardens to manage urban runoff, an assessment of different inorganic amendments to improve putting green construction mixtures, and an investigation to improve soil testing and soil test calibration for growing turf in Wisconsin. Two more studies

began in 2008 with funding from the fellowships. One study investigates the optimum time for applying late fall fertilization from both an in-the-field and a growth chamber design. The other study is looking at conserving water through rooftop collection of rainwater and subsurface irrigation.

Important turf research is being conducted in part by the funds raised from this golf outing. We are so lucky to play such a wonderful golf course while raising these funds. It was as much fun to play Green Bay Country Club as it is to watch our Green Bay Packers when they win! 🌿

Door Prize donors for WTA Golf Fundraiser 2008

Agrotain	Windshirt and a fleece vest
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Argue-ment GC	Foursome of golf with carts
Arthur Clesen	Windbreaker
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Big Fish GC	2 - twosomes of golf
Bridges GC	Foursome of golf with carts
Bristlecone Pines GC	Foursome of golf with carts
Bull at Pinehurst Farms	Foursome of golf with carts
Bullseye CC	Golf Bag
Carol & Bruce Schweiger	Bike
Charlie Schwab	Golf Balls, Golf Shirt, Windshirt
Cubby Obrien	Golf Balls
Decatur Lake Golf Course	Foursome of golf with cart
Dow	Windshirt
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Jacklin Seed	2 - windshirts, 2 - golf shirts
Laser Link	QuickShot Rangefinder
Lawsonia GC	Foursome of golf with carts
Lohmann Golf Designs	2 - Coolers, 2 - Jackets
Midwest Turf Products	2 - Home Depot Gift Certificates
Milorganite	Golf shirt, jacket, and hat
Monroe CC	Foursome of golf with carts
Oconomowoc GC	Foursome of golf with carts
Old Hickory CC	Hat, shirt, etc
Pendelton turf	2 - cases of beer with \$50 Home Depot gift certificates
Riverside GC	Golf Shirt and Putter
Rod Johnson	Wee One beer
Somerby GC	Twosome of golf with cart, picnic chair
Stoughton CC	2 - Foursome of golf with carts
Strawberry Creek	Foursome of golf with carts
Syngenta	Pair of Oakley sunglasses, shirt, and fleece jacket
Tiziani	Hole in one cart
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Waupaca Sand and Solutions	DVD Player
Weedman Lawn Care	Golf shirt
WI Turf Equipment	Golf Shirt and caps



Chapter Delegates Meeting

Desiring to give members as much information as possible about the upcoming conference and show, GCSAA took its 2008 Chapter Delegates meeting to New Orleans, Oct. 24-26. A total of 97 of the 100 GCSAA affiliated chapters were represented.

"We knew there was some concern about New Orleans' ability to host conference and show," GCSAA President David S. Downing II, CGCS said. "We felt the best way to address that was by hosting the delegates in New Orleans. Various association activities have been held there since Hurricane Katrina, so we were confident the delegates would be impressed by what they saw."

Not only did the meeting break ranks by moving from its traditional Lawrence/Kansas City region, but it also included a two-hour tour of the city and a briefing from local officials on the recovery from storms during the past two years.

"I thought it was great that we got to see the city," first time delegate Gary Myers, CGCS said. "I appreciate that we saw everything. There are still some areas that need to be rebuilt, but from the standpoint of attending Conference and Show, everything was fine. I did not hear any delegate say New Orleans would not be a good place for us. It should be a great event."

The agenda for the meeting was developed by GCSAA Vice President Mark D. Kuhns, CGCS. His focus was on presenting a complete picture of New Orleans, providing in-depth discussion on Chapter Effectiveness and giving attendees a look at the future of the association. The meeting also afforded attendees to hear GCSAA Chief Executive Officer Mark Woodward address the delegates for the first time. Woodward, who took over in July, shared his vision for the association. He touched on the following topics:

- The importance of chapter effectiveness.
- The need for member engagement on the chapter and national level.
- Building relationships to advance the association and its members.
- GCSAA and The Environmental Institute for Golf's role as a leader in ensuring golf's compatibility with the environment.
- The role of the GCSAA member now and in the future.

Special attention was paid to sharing tactics with delegates how they could help their chapters to become more effective. A report on the extensive work of the Chapter Relations Committee, chaired by GCSAA Past President Tim O'Neill, CGCS was presented. The committee identified four key elements to enhancing chapters:

- Strategic Planning
- GCSAA Field Staff
- Executive Paid Leadership
- Sharing of Resources with other Chapters

Peggy Hoffman and Peter Houstle of Mariner Marketing and Management facilitated a session focused on chapter effectiveness that explored means to increase volunteer participation, enhance communications, activate memberships, improve management and engage in strategic planning, all on the

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chapter level. The key take-away was research indicates that more people volunteer if they are directly asked, and are offered opportunities that are ad hoc or short term in nature.

The delegates heard several presentations and engaged in discussions regarding member programs and services. Topics included:

- Industry efforts to grow the game, focusing on the role of GCSAA and its members.
- Membership growth and retention efforts.
- GCSAA's financial picture.
- Marketing, outreach and advocacy activities.
- The importance of data for GCSAA and member input, including member needs. Assessment, compensation and benefits report, and golf course environmental profile project.
- GCSAA Education Conference and Golf Industry Show.

A staple of every delegates meeting, the opportunity to meet the candidates and discuss issues of importance was also conducted.

Based on the discussions, financial issues were leading area of interest. Downing, Woodward and GCSAA Managing Director of Finance Cam Oury presented the association's financial picture as being strong with no debt, valuable assets and a solid cash reserve. Although revenues will be lower in 2008 than 2007, association leaders indicated expenses were being managed down appropriately. Delegates also asked for assistance in communicating issues during tough economic times. Staff will provide support to help members in this area regarding Conference and Show attendance and in sharing their value and the importance of golf course maintenance in light of budget cuts.

"I appreciate the delegates taking their personal time to meet in New Orleans," Woodward said. We rely on them to be the conduit to chapters. We also need them to give us feedback. The one item that was very clear to me is that when member financial challenges are great, the opportunities and the need to assist our members are at their greatest. We live by the mantra that 'Members Matter Most' and I would contend they need us more than ever right now, and we need them as well because it is truly a partnership." 



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1000 Piece Dollar Spot Puzzle

By Dr. Jim Kerns and Paul Koch, Department of Pathology, University of Wisconsin-Madison

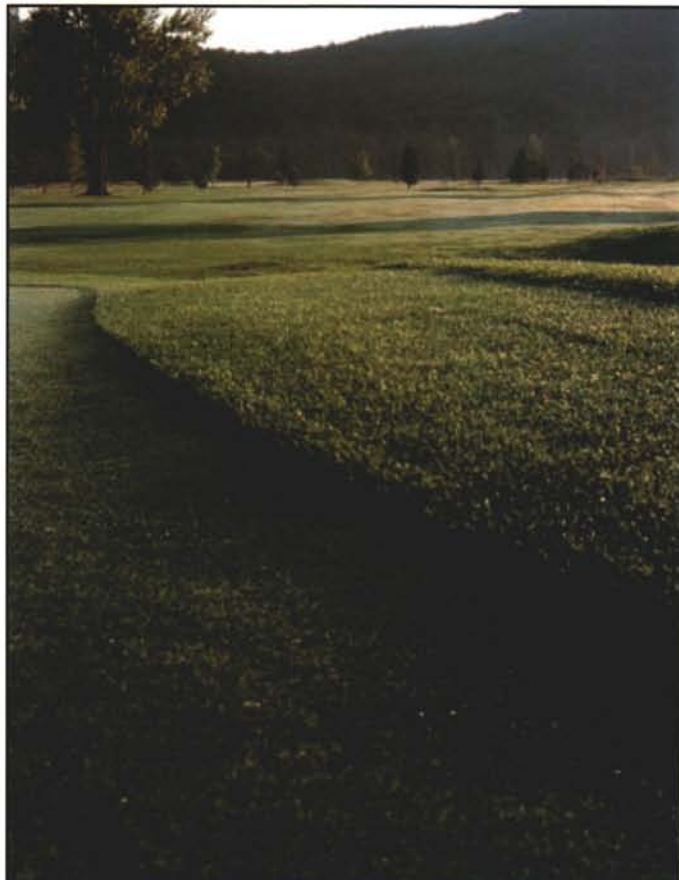
Winter is upon us (or at least it feels like winter to me) and you are probably wondering why I am writing about dollar spot. Well there is a good reason. I thought it would be good to tell you about the goals of my program with respect to dollar spot. This article is going to start with a review of the dollar spot pathosystem, during which I will point out discrepancies that need to be more carefully studied. Then the article will finish with our research plans with dollar spot.

Sclerotinia homoeocarpa was first reported as a pathogen of turfgrass in 1937 by F.T. Bennet. Although this particular name is

still used, the taxonomy of this fungus is still undecided to this day. It is well known that the dollar spot pathogen is not a true *Sclerotinia* because it does not produce true sclerotia (survival structure); rather the dollar spot pathogen produces a flat stroma (Fig. 1). Identification of fungi is largely based on asexual and sexual spore morphology and to our knowledge the dollar spot pathogen produces neither. Therefore we are reliant on DNA techniques to properly classify this organism. So why has this work not been done? DNA work is expensive and requires a lot of time. For example, to conduct a

project to properly classify this organism solely with DNA techniques, hundreds if not thousands of dollar spot isolates would need to be collected. Then three or four different genes would have to be sequenced, which equates to three or four years of work. On top of that time commitment, DNA work is tricky and may not work. Yet, people are doing this as we speak, or at least they are attempting to do this. Hopefully we can provide an update in the near future on this part of the dollar spot puzzle.

Okay we got the boring stuff out of the way; let's talk about the more practical aspect of the dollar spot pathosystem, the disease



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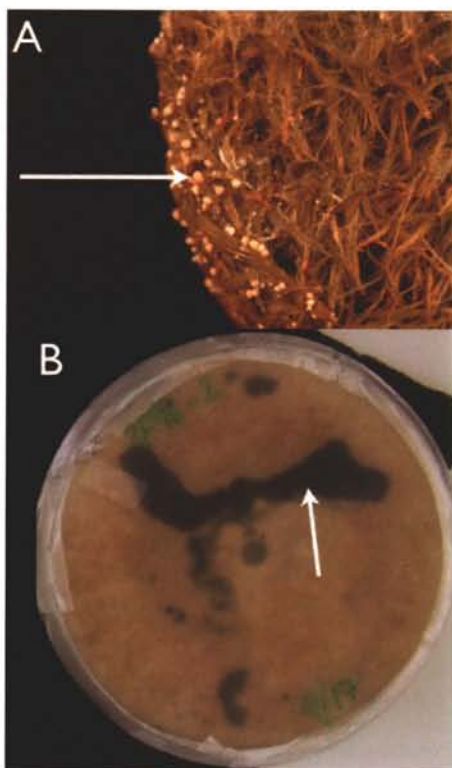


Figure 1. The difference between a sclerotia and a stroma. A) A true sclerotia that is produced by the turfgrass pathogen *Sclerotium rolfsii*. The white arrow indicates the sclerotium. *S. rolfsii* is a totally different fungus than a *Sclerotinia*, but it illustrates a true sclerotium very well. B) The white arrow points to the flat stroma that the dollar spot pathogen produces.

cycle. The dollar spot pathogen is thought to survive in the form of dormant mycelium and stroma in and on plant tissue. Then when conditions are favorable to the pathogen, the stroma or mycelium becomes active. The pathogen would then infect turfgrass leaves. As infection progresses to colonization we start to see symptoms characteristic of dollar spot. Once temperatures cool down in the spring the pathogen goes into survival mode again (Fig 2). One big caveat, this is a theoretical disease cycle. In other words no one has done the research to outline any of the dollar spot disease cycle.

Why it is important to understand the disease cycle? Well a basic understanding of the interaction between the dollar spot pathogen and its host is crucial for timing fungicide applications, cultural practices, fertilizer applications, etc. For example, a key component to the dollar spot pathosystem is how does the fungus survive. If we knew that we might be able to lower inoculum levels by lowering the survival rate

of the fungus. Another key component that we do not understand is how temperature affects infection of turfgrasses by the dollar spot pathogen. These are all things that the turfgrass pathology program aims to address.

Dollar Spot Epidemiology:

The turfgrass pathology program will examine the effect of soil temperature on pathogen growth; determine the optimal temperature for infection of turfgrasses by the dollar spot pathogen; attempt to transform the dollar spot fungus with green fluorescent protein (GFP) in order to carefully study the interaction between the pathogen and its host; and finally build and validate a “new” forecasting model for dollar spot.

For the first objective, the dollar spot pathogen will be grown on the surface of a native soil and USGA specification sand and exposed to temperatures ranging from 52 to 90°F. We will then measure the diameter of the fungus to get an idea of growth rate in soil in response to temperature. In conjunction with this experiment, we

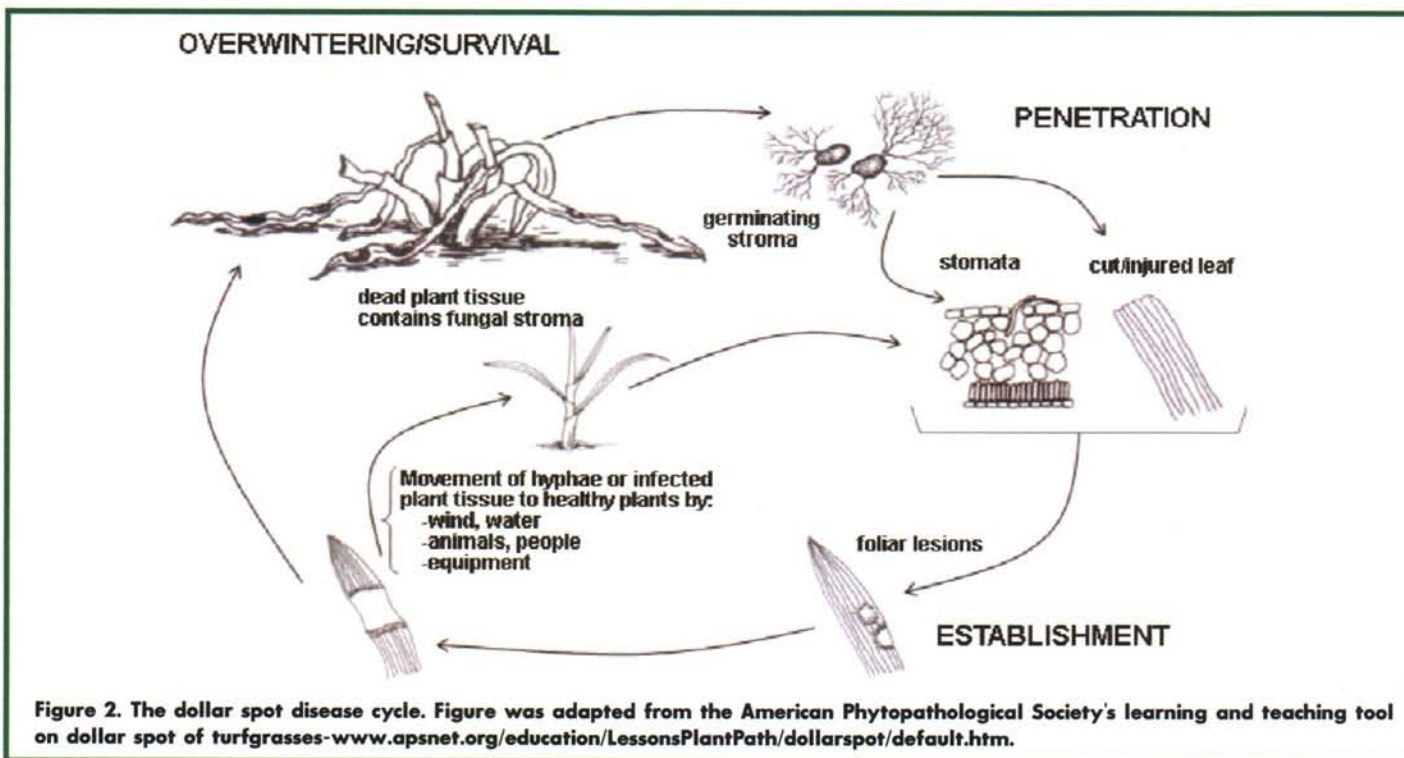


Figure 2. The dollar spot disease cycle. Figure was adapted from the American Phytopathological Society's learning and teaching tool on dollar spot of turfgrasses-www.apsnet.org/education/LessonsPlantPath/dollarspot/default.htm.

will also examine the influence of temperature on infection of creeping bentgrass by the dollar spot pathogen. This will be done in growth chambers so we can precisely control the temperature treatments. We will evaluate infection by quantifying the level of disease within each temperature treatment (Fig 3).

We are going to attempt to insert a gene into the dollar spot pathogen that will cause the pathogen to glow green under fluorescent light. This will allow us to accurately determine when and where the dollar spot pathogen infects turfgrass plants. This molecular tool will also allow us to monitor pathogen survival and colonization. This tool has been used extensively with pathogens of various field crops and has also been used for the spring dead spot pathogens of bermudagrass (Fig 4).

Finally, we are working with Dr. Damon Smith at Oklahoma State University to develop a dollar spot-forecasting model. Forecasting models for dollar spot have been developed in the past, but had little success in predicting dollar spot epidemics. However, newer statistical tools are available that facilitate the development of extremely powerful models for disease forecasting. Dr. Smith developed a model and spray advisory for Sclerotinia blight of Peanut that accu-

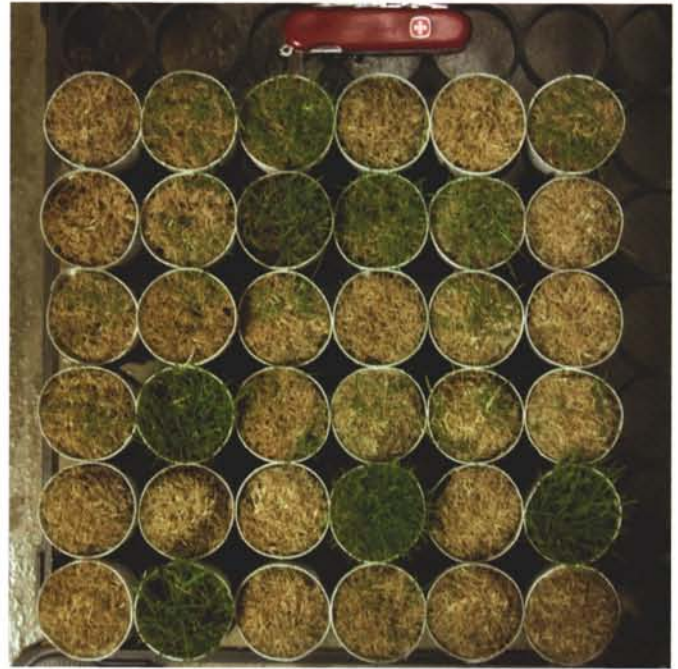


Figure 3. Example of how temperature treatments will be evaluated in growth chambers with respect to dollar spot development. This is picture depicting the influence of soil temperature on infection of creeping bentgrass roots by a Pythium root dysfunction pathogen.

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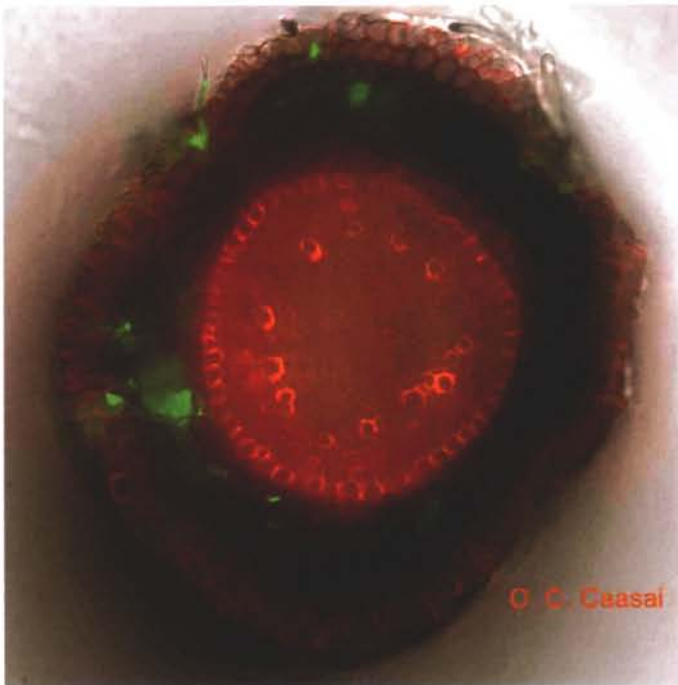


Figure 4. At Oklahoma State University, transgenic isolates of *O. herpovirica* expressing green fluorescent protein (GFP) are being used to monitor the infection process. Here the pathogen can be seen colonizing the root epidermis and cortex, but is not present in the vascular cylinder. Figure was adapted from American Phytopathological Society's feature article section. www.apsnet.org/online/feature/view.aspx?ID=931

rately predicted epidemics and cut fungicide application in half. In order to do this, we will have to collect at least two years of weather data along with quantifying the amount of spots that appear. Spots will be counted daily once the epidemic begins. Then we can correlate the weather parameters to the amount of disease to determine which weather parameters influence dollar spot epidemics the most. Then we can construct a forecasting model that we can build into a computer program. The overall goal is to have an algorithm that will provide a spray advisory.

This work will be conducted by a graduate student from the department of plant pathology that will be starting in January of 2009. Our department recruits a group of students to pursue their PhD, and then during their first semester they rotate through different faculty member's labs. By the end of the first semester they are placed in someone's lab. Currently, we do not know who that student is going to be.

Integration of Dollar Spot and Snow Mold Control:

Paul Koch is going to pursue his PhD with me as well. Part of his project is going to expand on the early season dollar spot work presented in the last issue of Grassroots. Basically, Paul is going to evaluate more applications in the fall and spring and compare those to a traditional

fungicide program. Applications will be conducted 1) once in fall; 2) twice in fall; 3) once in the spring; 4) twice in the spring; 5) once in the fall and once in the spring; and 6) twice in the fall and spring. We will only use boscalid (BASF's Emerald) and a tank mix of iprodione and chlorothalonil. The goals of this study are to determine if these particular fungicide timings can reduce dollar spot levels to below 5 to 10% disease severity and if acceptable dollar spot control is achieved-how much can a turfgrass manager save when compared to a traditional program.

Of course I would like to hear your input and thoughts on these ideas, so please feel free to contact me, my email address is jpk@plantpath.wisc.edu. Also if anyone has room for a dollar spot plot for this spring or summer, we would love to bring a weather station to your course to conduct our forecasting study. However, please keep in mind that the plot is likely to look pretty bad. I am very excited about starting this work and I hope you don't think like Ty Webb-"Don't sell yourself short Jim, you're a tremendous slouch!"



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Fall Activities Keep Students Busy

By **Shane Griffith**, *Badger Turf and Grounds Club*

The autumn term of 2008 is drawing to a close here at the University of Wisconsin-Madison. For the Badger Turf and Grounds Club this means another semester gone by of UW football and Thursday night club meetings. As a club we would like to return to having a regular column in *The Grass Roots* that alerts and informs readers to the activities and events that we have been involved with. We feel that this is an excellent way for current students to stay connected with UW alumni and turfgrass professionals throughout the state.

The turf club started the semester on a cool, breezy afternoon at Blackhawk Country Club. We assisted in the green aerification process until the evening's darkness chased us off the course. Fortunately, we have four new members that helped us with this annual tradition. The Blackhawk CC aerification continues to be the club's most reliable and anticipated fund raising opportunity. A special thanks to Monroe Miller, Chad Grimm, and the rest of the Blackhawk crew for making this opportunity possible year in and year out.

Later that week the turf club was back aerifying and top-dressing at the O.J. Noer Turfgrass Research Facility. This too has become an annual event for the club. It helps orientate turf students to the research being performed at the university, while providing the club a chance to build camaraderie and funds.

Recently we were given the chance to help perform meaningful turfgrass research on local Madison courses. The turf club



Badger Turf and Grounds Club at Lambeau Field.

encountered Japanese beetle grubs up close and personal while assisting turfgrass entomologist Dr. Chris Williamson with some of his research. A big thank you to Dr. Williamson for his generosity in funding, and for imparting us with a portion of his vast knowledge of insects.

You may be asking, what does the Badger Turf and Grounds Club do with the funds they are raising at these events? This year the club is sponsoring the travel of eight members to the Golf Industry Show in New Orleans. In recent memory, this is the largest group of turf students attending the show from the UW-Madison. These eight students will split into two groups to compete in the annual Collegiate Turf Bowl Competition

while attending the show. Last year our team placed in the top ten out of the ninety plus teams. This year we are setting our goals even higher. Club members are also planning to attend the WTA Winter Expo in January.

While cold temperatures are here for good, the school season is just heating up with finals right around the corner. If anyone is interested in speaking at one of our monthly turf meetings please feel free to e-mail badgerturf-club@hotmail.com. We are always interested in hearing from professionals in all areas of the turf management industry. We hope everyone has the chance to enjoy the upcoming holiday season which will be here in just a few short weeks. 🌱

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