



## Is One Week In The Year Worth Worrying About? The Answer - Yes!

### The Scourge of Pythium Blight

By Steve Abler and Dr. Geunhwa Jung, Turfgrass Diagnostic Lab,  
Department of Plant Pathology, University of Wisconsin-Madison

**Pythium Blight.** Two words that will strike fear in the heart of even the most experienced turfgrass manager. If there is one disease that will cause a turf professional to sprint to his/her sprayer, Pythium blight is that disease. Why is Pythium blight so feared? I was talking with Dr. John Stier and he stated that Pythium blight weather usually only occurs for one week in a typical summer in Wisconsin. Why is there so much concern over a disease that is only active for 1/52nd of a year? The reason for the concern is that Pythium blight can devastate a stand of turf literally overnight.

Pythium blight is caused by several Oomycetes in the genus *Pythium*. Although Oomycetes have been traditionally studied by mycologist (fungus experts), they are not true fungi. These organisms have different zoospore morphology, reproductive characteristics, cellular components, and biochemical pathways than true fungi (Moore-Landecker, 1996). These differences are the main reasons why broad spectrum fungicides generally are not effective at controlling Oomycetes and Oomycete fungicides rarely control true fungi.

Optimum weather conditions for outbreaks of Pythium blight



Pythium symptom with active mycelium.

are prolonged periods of high humidity with daytime temperatures above 85°F and night-time temperatures above 68°F. Contrary to popular perception, work with highland bentgrass has shown that plants grown under low soil moisture conditions are more susceptible to the pathogen than plants maintained at field capacity. Severity of the disease is increased by high nitrogen fertilization and low calcium levels. Most cool-season turfgrasses are susceptible to Pythium blight, and newly-seeded plants are particularly vulnerable to infection and colonization (Couch 1995).

Initial symptoms of the disease appear as water-soaked patches a few inches in diameter. The patches rapidly enlarge and affected plants turn brown in



Streaking of pathogen on golf cart wheels.

color, mat together, and are greasy in texture. The greasy texture of the plants is due to multiple pectolytic enzymes of the pathogen that break down

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the cell wall of the leaves (Moore, Couch, and Bloom; 1968). The patches often have a purplish "smoke ring" and cottony white to gray mycelium is usually visible on newly colonized plants. Because *Pythium* zoospores are motile in films of water, patches often have uneven edges that spread in the direction of drainage patterns and equipment tracks. The pathogen is also spread on debris such as clippings. Blighted leaves shrivel up when dry weather returns. If not treated promptly, extensive and rapid damage caused by the disease can require the area to be completely reestablished.

Fungicides that are labeled for the curative control of

Pythium Blight include mefenoxam (Subdue MAXX®), propamocarb (Banol®), azoxystrobin (Heritage®), pyraclostrobin (Insignia®), and chloroneb (Terraneb® SP). Synergistic combinations of fungicides that provide enhanced disease control include mefenoxam or propamocarb + mancozeb or Fosetyl Al. For areas prone to Pythium blight, preventive applications of fungicides are most efficacious. Preventive applications should be made when night-time temperatures do not drop below 65°F for more than two consecutive days (Couch 1995).

Hopefully, the one week of Pythium blight weather that we had in early July will be all that

we see for 2003. If the hot, steamy weather returns, and you have a question about Pythium blight or need a quick diagnosis, please don't hesitate to call or send a sample to the TDL.

#### Literature Cited

- Couch, H.B. 1995. Diseases of Turfgrasses. Krieger Publishing Co., Malabar, FL.
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- Moore-Landecker, E. 1996. Fundamentals of the Fungi. Prentice-Hall, Upper saddle River, New Jersey. 🍀

## This Guy Knows His Stuff

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

I am proud to introduce the latest weapon against turfgrass diseases and other turf problems to hit the state. That weapon is a person, Mr. Steve Abler, head diagnostician for the University of Wisconsin Madison's Turfgrass Diagnostic Lab (TDL). Steve started on May 1st and hit the ground running. I've witnessed him numerous times this summer, both in the field and the lab. This guy

knows more about turfgrass diseases and their diagnosis than most anyone! If you have a problem with turfgrass, you will want Steve on your side.

Steve is one part of a team of diagnosticians at the TDL. You already know the TDL administrator and Steve's boss, Dr. Geunhwa Jung, from the UW-Madison Department of Plant Pathology. They will be able to help you with any of your turf

disease questions. But there are more people that make up the TDL. The TDL is not only for turfgrass diseases. It is for any turfgrass problem that you may encounter. Turf insect problems may be directed to Dr. Chris Williamson. Dr. John Stier may be called in for information about turf species, weeds, and many other management questions. And Dr. Wayne Kussow may be needed for plant nutri-



Steve spends lots of time with the microscope for identifying difficult turfgrass diseases.



Gary Gaard and Steve Abler examining a turf sample.

tion, soils, and other turf health questions. But Steve will be your first line of defense — and if he doesn't know the solution himself, he will find it out.

Steve comes from a great background. He has his roots in the state — having been born in Fond du Lac. He received his bachelor's degree from the University of Wisconsin-Oshkosh in 1999, and went on to get his Masters from Virginia Tech. While in Virginia he worked under Dr. Houston Couch, who is one of the most renowned turfgrass pathologists in the country. Now he will be working with and learning from Dr. Jung at the UW, who is one of the young and upcoming turfgrass pathologists and another great mind for turf management. At a recent turfgrass symposium, Dr. Couch said of Steve's move to the University of Wisconsin, "His experience with disease diagnosis is second to none, and working with Dr. Jung will make them the Dynamic Duo of plant pathology in Wisconsin." Coming from a person like Dr. Couch that state-

ment says a lot for our turf industry.

Samples sent to the TDL cost \$50 or you may purchase a contract which will assure the long term existence of the lab. The lab has to bring in enough money to support itself. There are different contract levels which include different numbers of samples that you can send to the lab for diagnosis. The nice thing about buying a contract is that you will be insuring that the lab will be there when you really need it. You may not need this important service this year but some year you will. Contact Steve at 608-845-2535 or swa@plantpath.wisc.edu to find out more about the lab, how to submit samples or buy a contract. You may also stop by the lab which is located in the OJ Noer Facility at 2502 Highway M, Verona, Wisconsin, 53593. Or be sure to come to Summer Field Day on August 12th. Steve will be giving an educational talk about the lab.

One more thing about Steve that you will notice in addition to his turf knowledge is that he is a



Steve explaining disease management to a graduate student of Plant Pathology 559.

very pleasant person that will be a good friend to our turf industry for a long time. His wife, Becky, also likes Wisconsin and will soon be joining him when she finishes her studies in Virginia this fall. She is also from Wisconsin, and both are big Packer fans.

When you meet Steve, please join me in welcoming him to the position. Hopefully you won't have serious turf problems this year. But if you do, rest assured that the right person is here to help you find solutions quickly and effectively. This guy knows his stuff. 🍷

## WTA Summer Field Day Has Something for All Turf Managers

By Audra Anderson, Wisconsin Turfgrass Association Administrative Secretary

The 2003 WTA Summer Field Day is shaping up to be one of the best ever. Mark your calendars now to be in Verona on Tuesday, August 12th, 2003. The location, as always, is the O.J. Noer Turfgrass Research Facility. This facility conducts the greatest amount of the University's turf research. It provides ample space to host the large crowds of interested turf managers and gives you a chance to view all the current research.

This year at Field Day, ex-Green Bay Packer Blaise Winter, will be with us. He is now a motivational speaker and will be the keynote speaker at

the 2004 Wisconsin Turfgrass and Greenscape EXPO in January. He will be at Field Day to talk with people of the turf industry to see what interests they have both within and outside their jobs.

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 feature something for everyone. No matter what arena of turfgrass management you work in, you will find something that pertains to you. And there is so much more. There is time given for you to have one-on-one dis-

cussion with the UW turfgrass researchers to find answers to your specific questions.

There is also a huge trade show featuring over 40 compa-



The small groups during research tours provide attendees ample time to ask individual questions.

nies that supply every piece of turfgrass equipment, product, or service that you could ever need. Many of the vendors let you test drive and compare their mowers and other vehicles during the trade show hours. If you prefer, you can sit back and take notes during the equipment demonstration period as factory representatives demonstrate all the latest features on their newest equipment.

The vendors sponsor a silent auction where attendees can bid and get deals on nice prizes. The proceeds made from this silent auction go directly to support turf research. Keep in mind that if you have the winning bid, we can

bill your business later. You don't have to bring cash to the show.

Lastly, don't forget the lunch. The lunch is always superb and almost worth the admission price by itself. Lots of good networking and comradeship is shared over lunch and throughout the whole day.

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
- Research tours
- Lunch that makes your mouth water
- "Ask the Expert" time (one-on-one discussions with the

researchers)

- Equipment demonstrations (on your own or with factory representatives)
- Huge trade show
- Silent auction
- All proceeds go to turf research at the UW-Madison to benefit your profession

It's a fun and educational day, well worth the small registration cost. Plan now to attend and bring a friend with you. A registration form is included in the newsletter. Give me a call if you have further questions at 608-845-6536 or email at [ajander2@wisc.edu](mailto:ajander2@wisc.edu).

## Golf Opportunity of a Lifetime

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

The WTA fundraiser is offering a golf experience like no other for 2003. Superintendent Tony Rzadzki has secured his new golf course, the Bull at Pinehurst Farms, to host this fine event on October 8, 2003. National and local golf writers have been saying fine things about this new course opening, the only Jack Nicklaus signature course in Wisconsin. Some local golf experts have been bragging about the course also. Bruce Schweiger of Reinders Turf and Irrigation said, "There

are so many interesting shots to be had and the holes get more and more interesting as you play the round." He also stated that you'll be glad the event is a scramble because the course is very difficult.

Everyone will have an interesting round of golf. That is — everyone that is lucky enough to get into the event. As of mid July there are 99 registered golfers. I wish we could allow more than the 144 golfer maximum because there will likely be people on the waiting list. That's

what happened last year when the event also sold out. If we could allow more golfers the WTA could make more money for turfgrass research.

Tony is hosting the event for minimum fixed expenses. The event is \$125, and nearly 75% of your registration fee will go to turfgrass research at the University of Wisconsin-Madison. The name of the turf research initiative is the Wisconsin Distinguished Graduate Fellowship in Turfgrass Research. This program assures that the professors at the UW will





have quality turfgrass graduate students in perpetuity.

Thus the WTA golf fundraiser is a very important source of funds for the well being of the turf industry. You may donate to the fundraiser even if you are not a golfer. There are golf hole sponsorships. For \$100 you can show your support for turfgrass research. Your name will be put on a sign at the beginning of a specific hole showing your support for research. You may make an additional donation also. Or you may donate a door

prize to the event.

Wisconsin's vast turf industry thanks you whichever way you show your support. But if you are a golfer, I hope you are able to play this spectacular venue. You may see the course we are playing by visiting the Bull's website. Go to [www.golfthebull.com](http://www.golfthebull.com), hit the golf course layout button, and then go to the hole by hole tour. You will be amazed at how beautiful the course is and you won't want to miss this opportunity to play it. Call Audra for a registration form

or for any other details on the golf fundraiser at 608-845-6536.

**WTA Golf Fundraiser,  
Wednesday, October 8th, 2003,  
'The Bull at Pinehurst Farms'**

- Golf on Wisconsin's only Jack Nicklaus signature course.
- Great price and most of registration fee goes to turf research.
- Cart and Practice Range.
- Lunch.
- Door prizes for everyone.
- Golf prizes. 🍷

## Wisconsin Turfgrass Survey Now On-Line

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

The recent Wisconsin Turfgrass Survey conducted by Wisconsin Agricultural Statistics Service and University of Wisconsin-Extension is now available on-line at [www.hort.wisc.edu/wts](http://www.hort.wisc.edu/wts). CDs of the on-line format are available by contacting John Stier at [jstier@wisc.edu](mailto:jstier@wisc.edu) or at 608-262-1624. Paper copies, which include more statistics but no interpretation, are available through John Stier or at the O.J. Noer Turfgrass Research and Educational Facility. The electronic formats were developed using funding garnered by the Wisconsin Sod Producers Association and the Wisconsin Landscape Federation from a

United States Department of Agriculture Specialty Crop block grant. The survey documents the economic impact of the Wisconsin's turf industry. The first page serves as an introduction to the economic importance of the turf industry and includes a letter of acknowledgement from former governor Scott McCallum. Several of the main sectors of the turf industry have their own page, e.g., home lawns, golf courses, and sod production. Less visible but still important turf areas such as roadsides, cemeteries, and other sectors are described on a final page.

The economic impact of Wisconsin's turf industry was

found to be just under \$1 billion annually based on 1999 data. Evidence from within the state and the U.S. indicates the industry may be growing more than 5% annually. Currently Wisconsin's turf industry employs over 50,000 people. Turf is the 4th greatest use of developed land in the state with now over 1.2 million acres, close to the 1.35 million acres devoted to soybeans, and growing at the rate of 40,000 acres annually. Several eastern states now report turf is the major use of developed land. Expect the turf industry to increase in size as urbanization continues in Wisconsin. 🍷

# CALENDAR OF EVENTS

July 29	Midwest Sod Council Field Day	Lurvey Turf Nursery, Whitewater
Aug 12	NGLGCSA Monthly Meeting	Homestead GC, Marquette, MI
<b>Aug 12</b>	<b>WTA Summer Field Day</b>	<b>OJ Noer Facility, Verona</b>
Aug 13	WNA Field Day	Silver Creek Nurseries, Manitowoc
Sept 9	NGLGCSA Monthly Meeting	Black Bear GC, Minong
Sept 22	WGCSA Tournament Meeting	Nakoma GC, Madison
Oct 1	NGLGCSA Monthly Meeting	St. Germain GC, St. Germain
Oct 3,4	WGCSA Dinner Dance	Greenwood Hills CC, Wausau
<b>Oct 8</b>	<b>WTA Fundraiser Golf Outing</b>	<b>The Bull at Pinehurst Farms, Sheboygan Falls</b>
Oct 14	WGCSA Superintendent/Guest Meeting	Racine CC, Racine
Nov 5-8	PLCAA Green Industry Conference	St Louis, MO
Nov 18,19	Wisconsin Golf Turf Symposium	American Club, Kohler
Dec 3,4	GCSAA/WGCSA Regional Seminar	Fond du Lac, WI
<b>Jan 5-7</b>	<b>WTA Turfgrass and Greenscape EXPO</b>	<b>Marriott Madison West</b>
Jan 14-16	Mid-Am Trade Show	Chicago, IL
Jan 21-25	STMA Conference and Exhibition	San Diego, CA
Feb 9-14	GCSAA Golf Course Conference and Show	San Diego, CA
Feb 22-24	WLF Convention	American Club, Kohler
Feb 24,25	Reinders Service School	Olympia Resort, Oconomowoc
March 1	WGCSA Spring Business Meeting	Ramada, Fond du Lac
March 11 (tentative)	Spring Valley Turf Fair	Country Inn, Pewaukee

WTA Members — If you have an important date you'd like to share with other members —  
Call 608-845-6895 or Fax 608-845-8162 and let us include it in the next calendar.

## Contact Telephone Numbers

GCSAA	Golf Course Superintendents Association of America .....	800-472-7878
Mid Am	Mid Am Trade Show.....	847-526-2010
NGLGCSA	Northern Great Lakes Golf Course Superintendents Assoc. ....	715-542-2373
PLCAA	PLCAA Green Industry Conference.....	800-458-3466
Reinders	Reinders Turf School .....	800-782-3300
Spring Valley	Spring Valley Turf Fair .....	800-635-2123
STMA	Sports Turf Manager Association .....	800-323-3875
Symposium	Wisconsin Golf Turf Symposium .....	800-287-9645
WGCSA	Wisconsin Golf Course Superintendents Association .....	414-786-4303
WLF	Wisconsin Landscape Federation.....	414-529-4705
WNA	Wisconsin Nursery Association .....	414-529-4705
WSTMA	Wisconsin Sports Turf Manager Association .....	608-845-6895
<b>WTA</b>	<b>Wisconsin Turfgrass Association.....</b>	<b>608-845-6536</b>

# Doing Less with More

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

The recent NCR-192 meeting allowed turf researchers from across the Midwest to discuss research projects and other issues, including funding. The annual meeting fosters interstate projects such as the web-based Lawn Problem Solver, annual bluegrass seedhead reduction, Low Input Sustainable turf, and more. All agreed that state and national budget cutbacks have impacted turf research programs at all levels, from Agricultural Experiment Station's support to grants from turf organizations, resulting in fewer people and more work. In short, everyone is asked to do "more with less." Funding from the chemical industry and Ag Experiment Stations is down. Funding from national associations such as the USGA, GCSAA, TPI, and NTEP is flat, but the addition of at least 20 turf faculty in the last 6 years results in less average funding per researcher. State funding exists at some locales (including Wisconsin) but is targeted to very specific items, often related to legislative issues, which does little to improve the lot of the average turf manager. Program revenue (registration fees for programs) is viewed by administrators as a bonafide means of attracting revenue that can be used for research, but margins are low to nonexistent, programs require a great deal of prepara-

tion, and competition for audiences from within the Green Industry is constantly increasing.

One of the scariest implications is that universities no longer seem to be held in high public opinion. The UW system, for example, will absorb 38% of the state budget cuts while only accounting for 9% of the state budget. In the past Cooperative Extension served to build bridges with the public which generated good will and strong public support for the university system. Funding for Cooperative Extension has been continually cut, even during the 1990's boom times, resulting in fewer programs and registration costs for formerly free events. The loss of outreach efforts and the crass push for revenue-generating patents and research projects by university officials drive an even larger wedge between the public and the university.

What can be done about these issues? Turf organizations need to be involved in state and national administration, starting with the USDA and the EPA. Turf is not currently "part of the club" and is outside the circle of other commodity and service groups. Pressure needs to be applied to state legislators to appropriate sufficient funding for universities to provide reasonable educational access and sufficient staff and supply funds so universities can

concentrate on the public good instead of adopting a business approach. Particularly important is funding for extension programming and staffing.

The one idea all attendees seized upon was "Doing Less with More." Kansas State University increased their undergraduate turf student enrollment 300% and now has nearly 200 students and received an additional faculty position. Graduate students and undergraduate students are now carrying out duties formerly held by full-time technicians. Some universities have increased the amount of on-site research at golf courses in order to reduce maintenance costs at university facilities. Maintenance costs of non-research areas at university research stations have been reduced by ceasing mowing and other operations. Kansas recently instituted a check-off system in golf which generated \$10,000 last year. One Midwest state turf foundation has developed an endowment fund: new members contribute \$1,000 to the Founders Society. Endowments are clearly en vogue at universities across the country, but they are only part of the answer. Universities and their turf programs will need a variety of support mechanisms in order to continue assistance to the turf industry. ■



The field of sports turf science and management has undergone some dramatic changes over the last decade. One change is the ability to play indoors on real turf. Other changes include substituting artificial turf media that look, feel, and play like the real thing,

and the use of sub-air systems that allow turfgrass to remain alive in the middle of winter. However, have you ever wondered where some of the earliest roots of turf management are found or where the field of turf management may have begun?

Well I had the fortunate opportunity to find out first-hand this past summer.

From June 2-7, 2003, some of the world's premier researchers, scientists, students, and professionals gathered in Athens, Greece at the 1st International

## A World of Opportunities

By Kurt Steinke, Prospective Ph.D. Student  
University of Wisconsin Madison, Department of Horticulture

Conference on Turfgrass Management and Science for Sport Fields. This was a great opportunity for colleagues to present some of the most recent research results, exchange scientific and technological information, and promote the international turf community. The conference also happened to coincide with some of the final preparations for the 2004 Summer Olympic Games, which are being held in Athens. As you watch the games on television next summer, you will see before your eyes some of the immediate applications and results that were discussed at the conference.

The conference was split into eight separate sessions ranging in topics from soil and water management to environmental impact to turfgrass physiology. I presented some of the work that Dr. John Stier and I are finishing regarding the use of plant growth regulators in maintaining shaded sports turf areas. The talk was entitled "Influence of Trinexapac-Ethyl on the Cold Tolerance and Non-Structural Carbohydrates of Shaded *Supina* Bluegrass." Some other researchers that presented included Dan Potter (University of Kentucky) on sports field insect pests, Bernd Leinauer (New Mexico State University) on subsurface irrigation, and Nick

Christians (Iowa State University) on sand-based root zone media.

The conference also had plenty of social events arranged to keep everyone busy. A tour of the city of Athens was one highlight of the week. This tour included views of the stadium where the first modern Olympic Games took place in 1896. We visited several religious temples and tombs of Greek gods and goddesses and the sacred rock of the Acropolis where everything began 6,000 years ago. It was truly an eye-opening experience to walk through the ruins where democracy and justice were born.

The conference concluded with a full-day cruise to several of the hundreds of Greek Islands that exist in the Mediterranean and Aegean Sea. Traveling through the Mediterranean Sea with the Greek sun and breeze was a relaxing and enjoyable time for all. The weather cooperated for the entire conference with sunny skies and temperatures in the mid-90's so everyone was happy to get out and see some of these ancient ruins and islands that we have heard so much about.

I thank the international turf community which I had the opportunity to interact with. There were researchers and professionals from more than 20 different coun-

tries around the world. I was impressed at the variety and quality of issues and topics that were discussed. Some of the very same problems that are relatively new to professionals in the United States have been present in other countries for years. For example, the use of pesticides and even fertilizers is not an option in some countries because of restrictions on using chemicals for aesthetic purposes. Therefore these researchers have been working on other ways to maintain a quality turf without using chemicals for many years already. I also came away with a new appreciation for our country and the quality and quantity of research and work that we produce. There is no other country in the world that is as hard working, prosperous, and productive as the United States of America.

This international turf conference was truly a joy and privilege to participate in. The wealth of information and ideas exchanged are too numerous to mention but all were welcomed and received with great attention and detail. The field of turf management is a worldwide experience and it is through opportunities such as these that many of our current and future problems will be solved. 🍀



## MEET THE UW-MADISON TURF PROGRAM GRADUATE STUDENTS

### Gray Leaf Spot

### A Serious, Emerging Disease on Perennial Ryegrass

By Joe Curley, University of Wisconsin-Madison, Department of Plant Pathology

I have been interested in plant diseases in one form or another since I was young. I grew up on a small farm in northern Minnesota and saw many different diseases on the plants and trees around me. Later, and especially during my undergraduate training, I developed a more general interest in science and research, as well as more spe-

cific interests in genetics and plant pathology. When I came to graduate school at the UW-Madison I knew that I wanted a research project that emphasized both genetics and plant disease. There were several projects of this type in the Plant Pathology department, but the project dealing with perennial ryegrass and gray leaf spot in Dr.

Jung's lab seemed like the best one for me.

First, I would like to tell you a little bit about gray leaf spot and its control, and finally a little bit about my research. Gray leaf spot has recently emerged as a serious disease on perennial ryegrass (*Lolium perenne*), a valuable cool-season turf and forage grass. It is caused by



*Magnaporthe grisea*, the fungus that causes rice blast disease on rice, as well as leaf diseases on a very wide host range among the grass family. The disease is also a problem on tall fescue (*Festuca arundinacea*), and warm-season grasses such as St. Augustinegrass (*Stenotaphrum secundatum*).

Most perennial ryegrass varieties are susceptible to this disease. The current control methods involve cultural practices such as reduction of leaf wetness (by changing irrigation practices), lowered cutting heights, which act to create a less favorable environment for the fungus, and reduction of nitrogenous fertilizer applications, as too much nitrogen increases the turf's susceptibility to gray leaf spot. Also very important is fungicide application, however, a few strains of the causal fungus have developed resistance to one of the most effective fungicides, the strobilurins (Heritage). Therefore resistance management strategies are very important.

One control tactic that would be very useful against gray leaf spot is host resistance. In fact, in rice, which is the main crop host of *Magnaporthe grisea*, resistance is the most commonly used strategy. If resistant perennial ryegrass cultivars were available, the amount of fungicide applications required would be greatly

reduced. And that is the main focus of my research.

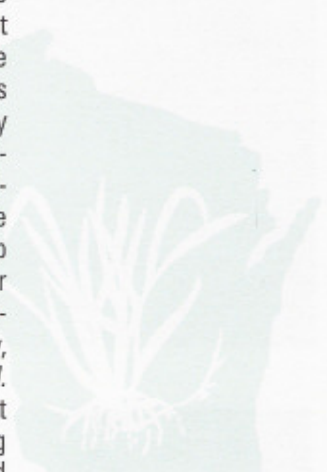
In my project I use greenhouse inoculations of gray leaf spot on perennial ryegrass, along with DNA marker data, to map the chromosomal location of genes for gray leaf spot resistance. The plants I work with are derived from a cross between annual ryegrass (*Lolium multiflorum*) and perennial ryegrass. Included in this group of plants are a number of progeny plants, from a controlled cross between two parent plants, which are used for both gathering DNA marker data and gray leaf spot reaction data. Using these plants, I have found a wide range of difference in disease reaction, from resistant to very susceptible. A major goal of my work is using quantitative trait locus (QTL) mapping to determine the number of genes involved in gray leaf spot resistance, as well as their chromosomal location. Another important goal is to generate DNA markers which are inherited along with resistance, so that in a breeding program, plants can simply be tested for the resistance marker at the seedling stage rather than being inoculated at the mature plant stage.

In closing, this is a very exciting project, and I am very glad to be working on it for my Ph.D. It can be pursued in many different directions, because so much is known about the genetics of the



Graduate student Joe Curly pictured with his major professor Dr. Geunhwa Jung.

*M. grisea*-plant host system, and more importantly because the causal fungus infects so many important grass species, ranging from cereal crops to forage grasses to some of the most important amenity turfs in the expanding golf industry. And as distant as these grasses may seem, they are all in fact genetically related, so that often genetic information gained from one species can be used to help solve a problem in another. For example, ryegrass's nearest relative in the grain crops is barley, which also is susceptible to *M. grisea*. Finally this project promises many interesting results, both for scientists and end-users in the golf and turf management industries. 🌱



## Irrigation Shower

By Jeff Gregos, Departments of Plant Pathology and Horticulture  
University of Wisconsin-Madison

Recently you should have received a mailing that explained an ongoing expansion effort at the O.J. Noer Facility called the "IRRIGATION SHOWER." If you have already gotten involved we would like to take this opportunity to extend our sincere thanks. Over the past year, the O. J. Noer Facility has reached several milestones, which we couldn't have done without your support

and generosity. If you have yet to get involved, I invite you to take a few moments and catch up on the exciting things that have been happening at the facility. First and foremost is our continuing relationship with the Turfgrass Industry in the State of Wisconsin. The O. J. Noer Facility has been serving the Turfgrass Industry for over 10 years, providing valuable and

beneficial information to growers such as you. We are also proud to report that the entire facility is in use or scheduled for use later this summer. As a testament to our need for expansion, the plots that were added with funds from individual projects over the past few years are already in use. Finally, ten acres were deeded to the College of Agriculture and Life Sciences from the Athletic

Department earmarked with the intent of developing 75 additional irrigated research plots.

The 10-acre addition has come a long way from its beginnings as a cornfield two years ago due largely in part to the help we've received from The Bruce Company (surface grading), Olds Seeds Solutions (seed), Spring Valley (fertilizer), and Rettler Associates (land development plan). However, the land addition is still not ready to accept research plots. This is where we need your assistance. With the cooperation of Reinders Turf and Irrigation we have developed an irrigation plan and bill of materials, outlining the products needed to complete the addition. We hope that you recognize the

importance of this expansion program and that you will join us in our efforts. We have set up two ways for you to take part in this exciting development — direct donation or via a Reinders' purchase.

#### **DIRECT DONATION**

Through direct donation you can give product that you already have on hand. This may include pipes, valves, heads, boxes, etc. To make your involvement as easy as possible, we would be happy to pick up any donation. To arrange a pick-up please call Jeff Gregos at 608-845-2535, or simply return the tear-off portion of the Irrigation Shower Brochure. If you need another brochure then please give me a call.

#### **REGISTRY PURCHASE**

Reinders has played a crucial role in the design of the irrigation system for the expansion. In addition, they continue to be a major player in making the expansion effort a reality, through establishing this registry. You can directly purchase products for the project, which will then be delivered to the O.J. Noer Facility. To place an order via the registry, please call Phil Zastrow at Reinders, 1-800-785-3306.

With your help we will continue to be one of the premier Turfgrass Research Facilities in the country, and to provide top-notch research that you have come to expect from the University of Wisconsin-Madison Turfgrass Research Program. 🌱