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O.J. Noer Rainwater Harvesting and Subsurface Drip Irrigation Update

By Brad DeBels - Graduate Fellow, Department of Soil Science, University of Wisconsin-Madison

The availability of clean water has never been more important as populations rise and the demand on water resources intensify. In recent years, summer droughts have put a great stress upon the available water supply in southern Wisconsin. Restrictions on irrigation from domestic water supplies have become common during these times of drought, resulting in demands for alternative water sources for irrigation. Rainwater harvesting is one practice that has become more popular recently. Rainwater harvesting refers to the collection of rainwater from impervious surfaces and storing the water until needed for irrigation or alternate services. This practice can diminish the demand on potable water supplies during growing season irrigation and reduce harmful runoff from impervious surfaces into surface waters. A rainwater harvesting system coupled with subsurface drip irrigation (SDI) system installed during the 2008 summer at the University of Wisconsin-Madison O.J. Noer Turfgrass Research Facility will be examining the efficiency and practicality of this system.

An SDI system is being utilized due to the concern of water use efficiency during irrigation. SDI systems have had many proposed benefits compared to the conventional overhead irrigation system. Subsurface irrigation allows for continual recreational use during irrigation with zero disturbances to the irrigation system or recreational activity. Water losses from evaporation and wind are also diminished. The SDI system applies irrigation water at reduced application rates reducing the occurrence of turf damage from excessive soil moisture. The reduction in application rate simultaneously causes a decreased energy demand to operate water delivery systems. Coupling rainwater harvesting with the many benefits of SDI will allow for examination of better water efficiency and the possible independence from potable water supplies.

(1) Aboveground tank located on the Southeast corner of the building. Visible are the water collection conduit and overflow vent.

(2) Below ground tank located near the Northeast corner of the building. Visible are the access hole and water outlet. Subsurface collection conduit is not visible.

The O.J. Noer research building has a 7,050 ft^2 rooftop with a rain gutter system allowing rainwater to be collected and directed towards two different locations of the building. Polyvinyl chloride pipe is being used as a conduit for water transport from the rooftop into storage tanks. At each location a 4,000 gallon vertical water holding tank will store collected rainwater prior to irrigation. The combined 8,000 gallon capacity will allow for weekly irrigation of 1 inch for one month without rainfall. The difference in aboveground (1) and belowground (2) tanks is being utilized to demonstrate the aesthetics and accessibility of the alternate systems. Buried tanks can become aesthetically pleasing by covering them with home patios or landscaping. Tanks are equipped with access holes, overflow vents, water outlets and outfitted with one submersible pump that will deliver water to the network of subsurface drip irrigation lines. The split-plot experimental design is comprised of twenty-one 15 ft x 10 ft plots (3 & 4, on page 3) where 2,700 ft^2 is irrigated and 450 ft^2 is of non-irrigated control plots (total of 3,150 ft^2). The design allows for examination of different depth and spacing of drip irrigation tubing effectiveness. Drip emitter placement at soil depths of 5 and 10 inches will be studied while varying drip lateral spacing

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The Wisconsin Turfgrass News is the official publication of the Wisconsin Turfgrass Association, edited by Tom Schwab. O.J. Noer Turfgrass Research and Educational Facility.

PRESIDENT'S MESSAGE

In Appreciation to All Who Make WTA Succeed

By Dan Biddick, WTA President

The Wisconsin Turfgrass Association is a nonprofit organization dedicated to the promotion of environmentally responsible turfgrass management through research and education programs. Their mission is to support turfgrass research and education at the University of Wisconsin-Madison.

As President of the Wisconsin Turfgrass Association, I would like to take a moment to thank a number of people for their support and commitment to the association. Their dedication to the mission and goals of our association have made my role as president very rewarding.

First of all I would like to thank the professors: Dr. John Stier, Dr. Chris Williamson, Dr. Jim Kerns, and Dr. Doug Soldat. Your efforts in research, extension, and outreach put UW Madison in the forefront of turfgrass programs in the country. Thank you!

Secondly I would like to thank the O.J. Noer Facility staff: Facility Manager Tom Schwab, Turfgrass Diagnostic Lab Manager Paul Koch, and receptionist and administrative assistant Audra Anderson. Your "behind the scenes" efforts have made the O.J. Noer a great "one of a kind" facility in this country. Thank you!

Thirdly, I would like to thank my fellow board members: Vice President Dean Musbach, Secretary Dan Barrett, Treasurer Mark Kienert, and directors Raechal Volkening, Wayne Horman, Dena DiVencenzo, Aron Hogden, and Dustin Riley. You are volunteers —- great volunteers. Your energy, creativity, and dedication inspire me. Thank you!

Fourthly, I would like to thank our honorary board members: Terry Kurth, Tom Harrison, and Monroe Miller. You have provided deep and healthy roots for the WTA to grow and blossom and reach for the sky. Thank you!

And finally, I would like to thank every Wisconsin Turfgrass Association member for their support. Each year you have to choose which organizations and associations to support with membership dues and time commitment. Every organization is vying for your time, energy, and dollars. I am honored and appreciate that you have chosen the WTA. Thank you!

I will do my best to lead the WTA. With your help, the WTA will be in a position to meet and exceed the challenges of the future. Have a great holiday season!

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Year behind board member name, is the expiration of their current term.

between 12, 18 and 24 inches with application rates of .96, .43 and .24 in/hr respectively. The effectiveness of each irrigation strategy will be monitored by evaluating soil moisture, turf quality, chlorophyll index and canopy temperature weekly within each plot. Installation of the project was completed on August 14, 2008.

Since the completion of the installation on August 14th until winterization of the irrigation system on October 25, 2008, 18,960 gallons of water were collected and irrigated on the plots. The system stored 73% of all rainfall during that time period. Already a significant amount of rainwater collection, it is expected that the rainwater collection system will be even more efficient in coming years. Throughout late summer and fall the rainwater harvesting/drip irrigation system provided adequate means of sustaining quality turf without the need for supplementary potable water usage.

A primary criterion for evaluating the effectiveness of the drip irrigation systems is monitoring soil moisture. Forty-nine soil moisture readings are taken with a portable moisture probe in each of the 21 plots (1029 measurements) and evaluated using soil moisture contour maps (Fig 1 & 2). Evidence that drip emitters are spaced excessively far apart will be represented by horizontal striping on the contour maps. When this situation occurs over an extended period of time similar trends will be evident in the turfgrass stand. Even though this degree of turf striping appears overwhelming for the turf stand, periodic rainfall events can quickly rectify the turfgrass striping. This suggests that the reduced installation costs of large emitter spacing may offset the momentary damage caused by temporary insufficient soil moisture.

The timely and abundant rainfall that alleviates moisture stress and irrigation needs also results in consistent filling of storage containers to full capacity reducing the potential to collect additional rainfall. To exploit all the benefits of collecting rainwater, additional irrigation should still take place, although not necessarily needed by the turfgrass. During wet periods the use of SDI can keep surface moisture to a minimum while conventional overhead irrigation methods could result in excessive surface moisture promoting turf damage and disease. A 3.7 inch irrigation event took place to demonstrate the possibility of surface wetting from excessive irrigation by an SDI system. At the completion of the trial no surface ponding, turf damage or excessive surface soil moisture was recorded, confirming the benefits of the SDI system.

As populations and water needs continue to escalate throughout the United States, efficient water conservation practices are becoming ever more important. The ability to harvest rainwater for irrigation provides an opportunity to significantly reduce the demand on potable water supplies while simultaneously reducing the potential of surface water pollution from runoff. With many benefits already realized, potential energy benefits of the SDI system will also be evaluated by utilizing solar energy to power the water delivery system. Exploiting the benefits of collecting rainwater, an SDI system and using solar power for energy will result in a self-sufficient irrigation system. The rainwater harvesting/SDI system installed at the O.J. Noer is a great step in exemplifying the potential ways to improve energy and irrigation efficiency which is vital for environmentally sustainable turfgrass irrigation practices in the future.

(3) Complete plot area with drip irrigation laterals marked prior to installation. Noticeable are different drip lateral spacing.

(4) Plot area during drip lateral installation.

(5) *Striping of turfgrass due to excessive spacing of drip emitters.

Figure 1: Adequate soil moisture uniformity from proper spacing of drip laterals.

Figure 2: Evidence of uneven soil moisture visible by horizontal color pattern.

New Location, New Format, New EXPO!

By Paul Koch, Turfgrass Diagnostic Lab, University of Wisconsin-Madison

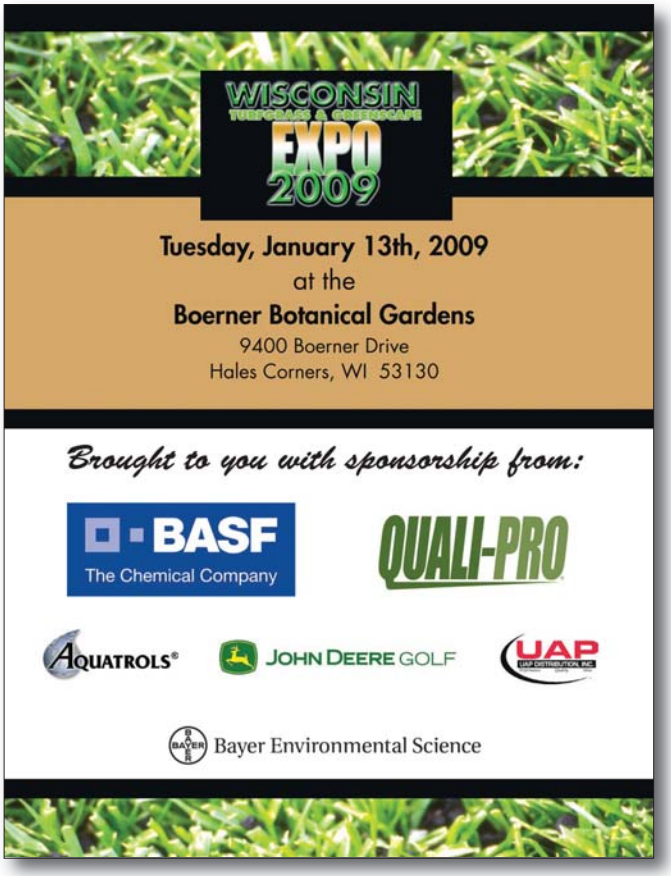
The Wisconsin Turfgrass and Greenscape EXPO will undergo positive changes this January. Changes were needed due to competition from other educational events, and soaring operating costs. The increased costs to hold EXPO at its Middleton location made it difficult to make ends meet without significant increases in registration fees or drastic cuts in both the number and quality of the presenters. Wary of increasing fees in the current economic climate, and refusing to decrease the quality of the show, the WTA will unveil a new format in a new location that allows for high-quality presenters and a substantial reduction in registration fees.

The new one-day Wisconsin Turfgrass and Greenscape EXPO will take place on Tuesday, January 13th, 2009 at Boerner Botanical Gardens in Hales Corners, Wisconsin. Boerner Botanical Gardens is a gorgeous facility located in Whitnall Park, approximately five minutes southwest of Milwaukee. More information on the facility, as well as directions, can be found at their website www.boernerbotanicalgardens.org.

Doors for EXPO will open at 7:30 AM with introductory remarks by WTA President Dan Biddick at 8:00. A trio of University of Wisconsin professors, Dr. Doug Soldat, Dr. Chris Williamson, and Dr. John Stier will follow with presentations on topics as diverse as calcium management, updates on emerald ash borer in Wisconsin, and rain gardens. The keynote address will be given by Greg Lyman, Director of Environmental Programs for the Golf Course Superintendents Association of America (GCSAA). Mr. Lyman will present on "Putting the green in the green industry." The morning will conclude with a presentation by Chris Gray, general manager and director of golf course operations at Marvel Golf Club in Benton, Kentucky. Mr. Gray is a recipient of the 2007 GCSAA/Golf Digest's Environmental Leaders in Golf Award presented by the GCSAA and will focus his morning talk on using vegetable oils in maintenance equipment. Lunch will be provided by the renowned Bartolotta catering company, and following lunch there will be sufficient time to meet with sales representatives at the table-top trade show or mingle and catch up with friends after a long, busy summer.

The afternoon will divide into three concurrent sessions. Leading one session will be new Wisconsin turfgrass pathologist Dr. Jim Kerns, who will walk turfgrass managers through the diagnostic process for all turfgrass problems in his workshop "Turfgrass Troubleshooting." Dr. Kerns recently gave this presentation to great reviews at the Carolina's Golf Course Superintendent Association Education Conference in Myrtle Beach, South Carolina. Another session will have a series of two panel discussions. The first one is titled "Dealing with the economic downturn" and will include Reinders representative Bruce Schweiger, Director of Milwaukee County Parks Brian Zimmerman, and General Manager and Superintendent of Rolling Meadows Golf Course David Brandenburg. The second panel will discuss marketing strategies and opportunities for turfgrass managers and includes previously mentioned Greg Lyman and Chris Gray, along with Jodi Zirbel of EPIC Creative. In the third session, Dr. Soldat and Dr. Stier will personally be on hand to meet with you and review your NR-151 plans to make sure they are compliant with state regulations. This will be a session where prior appointments are

Continued on page 5



Tuesday, January 13th, 2009 - Morning Sessions

7:30 - 8:00	Registration
8:00 - 8:05	Welcome - Dan Biddick - WTA President
8:05 - 8:45	**Calcium: A Second Class Nutrient?** Doug Soldat - UW - Madison Soil Science
8:45 - 9:30	**Emerald Ash Borer in Wisconsin: Preparedness and Management Options** Chris Williamson - UW - Madison Entomology
9:30 - 10:15	**Should Rain Gardens Replace Turf for Urban Water Management?** John Stier - UW - Madison Horticulture
10:15 - 10:30	Break
10:30 - 11:15	**Putting the Green in Green Industry** Greg Lyman; GCSAA Director of Environmental Programs
11:15 - Noon	**The Practical Side of Using Vegetable Oils as Diesel Fuel** Chris Gray; Director of Golf Course Operations at Marvel Golf Club
Noon - 1:30	Lunch and Trade Show

Afternoon Workshop Sessions

1:30 - 4:30	**Turfgrass Troubleshooting** Jim Kerns - UW - Madison Plant Pathology Paul Koch - UW - Madison Turfgrass Diagnostic Lab
1:30 - 4:30	**Get Your NR-151 Plan Checked** Doug Soldat - UW - Madison Soil Science John Stier - UW - Madison Horticulture
1:30 - 3:00	**Dealing with the Economic Downturn** David Brandenburg - CGCS Rolling Meadows G C Brian Zimmerman - Milwaukee County Parks Bruce Schweiger - Reinders
3:00 - 4:30	**Don't Be a Sad Dog! - Marketing Strategies for Turf Management** Chris Gray - Marvel Golf Club Greg Lyman - GCSAA Jodi Zirbel - Epic Creative
4:30 - 6:00	Wisconsinizing Social Hour

Dr. Gayle Worf to Be Inducted into WGIF Hall of Fame

By Bob White, Wisconsin Green Industry Federation

This article appeared in the December 2008 "Green Side Up", the monthly publication of the Wisconsin Green Industry Federation. It is reprinted with permission.

Dr. Gayle Worf, professor emeritus of Plant Pathology at the University of Wisconsin-Madison, is regarded by his peers as an outstanding leader and pioneering plant pathologist. Dr. Worf was a disease expert and resource for all of Wisconsin agriculture including our own floriculture, ornamental, tree, and turf industries.

At UW-Madison, Dr. Worf assumed a major role in Wisconsin's effort to minimize losses from the Dutch Elm Disease. When systemic fungicides came into prominence, he organized and conducted schools for arborists concerning the latest methods of tree injection. These schools served as models that were used in other states in this region. His bulletin, *Dutch Elm Disease in Wisconsin* - and its revision - provide the best available information concerning the disease and its control.

Dr. Worf was a leader in organizing Wisconsin's statewide Dutch Elm Disease control-demonstration program in which municipalities cooperated in the assessment of combinations of disease suppression measures and in the utilization of diseased elm wood.

Dr. Worf played a similar role in floriculture, confronting disease problems on geranium crops and the potential for greenhouse quarantines. He developed and organized turf disease information for homeowners, golf courses, lawn care professionals and sod producers.

In the mid-eighties, Dr. Worf determined that the frog-eye patterned disease symptoms found primarily in Kentucky bluegrass were not caused by Fusarium, as was commonly believed, but by another fungi, Leptosphaeria korrae, and renamed it Necrotic Ring Spot.

He worked closely with the Wisconsin Arborists Association (WAA) in all aspects - advising, consulting, informing, training, and evaluating. As a result of his efforts, the WAA formed a fund to support cooperative research in an effort to assist in solving problems with which its members are concerned. Dr. Worf initiated the monthly publication of the *Wisconsin Urban Forester* to provide up-to-date information regarding the maintenance of trees and shrubs for city foresters, commercial arborists, landscape architects, nurserymen, and professional foresters and forest biologists.

The *Wisconsin Urban Phytonarian* was another idea developed by Dr. Worf to collate information on plant health problems into one publication. This loose-leaf collection of information sheets described symptoms of diseases and recommended treatments, and provided a reference of great value to county agents and others concerned with urban plant problems.

He cast a wide net in protecting Wisconsin agriculture. He was one of the first in his field to recognize and describe the significance of a new disease - yellow leaf blight - on corn in Wisconsin in 1967. As a result of his discoveries, we were better prepared when Southern corn blight struck in 1970. In 1968, Dr. Worf found a second disease new to the U.S. - eyespot - and he aided in its identification.

Born in Kansas in 1929, Dr. Worf earned his B.S. and M.S. degrees at Kansas State University in Agronomy and Plant Pathology. He served as County Agent in Ness County, Arkansas from 1955-1958, and then entered graduate school at UW-Madison, where he completed his Ph.D. in Plant Pathology and Botany in 1961. For the next two years, he was an Assistant Professor of Plant Pathology at Iowa State University. In 1963, he was invited to return to UW-Madison, where he was appointed Associate Professor in 1966 and Full Professor in 1969.

Among the litany of awards bestowed upon Dr. Worf are the "Friend of the County Agents Award" and the Distinguished Service Award from the University of Wisconsin Extension. Dr. Worf will be inducted into the WGIF Hall of Fame on January 15th, 2009 at the WGIF Awards ceremony during the Mid Am Evening Reception.

New Location, New Format, New EXPO! - *continued*

made, plans are evaluated, and attendees are then free to move to one of the other two sessions. An hour and a half of "Wisconsinizing" will conclude the day with refreshments and hot hors d'oeuvres for a chance to relax and catch up with friends.

The quality of the facility, lunch, and presenters might lead you to believe the WTA will have to at least maintain registration fees from past years. But sensitive of tightening budgets, and with the generous help of the Wisconsin turfgrass industry, the WTA has managed to charge only a $35 registration fee for WTA members ($40 for non-members). The lower registration fee and elimination of the need to stay in a hotel frees up your money for other educational events, needed work supplies, or of course your Turfgrass Diagnostic Lab contract memberships. For those who are traveling a significant distance who need to spend the night in the area, a reduced rate of $89 per night is available at the Holiday Inn Express. Call 877-863-4780 to reserve your room, making sure to mention the Wisconsin Turfgrass Association to receive the discounted rate.

The more affordable registration fee would not be possible without the support of the turfgrass industry. Please note the EXPO registration form shown on page 4 that shows our conference, lunch and workshop sponsors that continue to make the WTA and its Winter EXPO a success. Keep an eye out for your registration forms in the mail, and for more information please contact Audra Anderson at 608-845-6536 or ajander2@wisc.edu, or visit the website www.wisconsinturfgrassassociation.org to download a form.

All Pythium Induced Diseases Are Not Created Equal

By Dr. Jim Kerns, Department of Plant Pathology, University of Wisconsin-Madison

To continue our discussion about *Pythium* diseases from my summer 2008 WTA newsletter article, I would like to talk about the differences of diseases that are induced by *Pythium* species. Many people, academics included, have trouble distinguishing between the diseases that are induced by members of the genus *Pythium*. In turf, there are five distinct diseases that can be induced by species of *Pythium*. They are *Pythium* root rot, *Pythium* blight, *Pythium* root dysfunction, damping off, and snow blight. The unique concept with *Pythium* induced diseases is that many species of *Pythium* can induce these diseases. Within the genus *Pythium* there are over 120 recognized species, with approximately 20 species that can induce one of the five diseases named above. *Pythium* species are ubiquitous or are always present in soil. The rest of the article will focus on each of the five diseases and the pathogens that induce the disease, signs and symptoms of each disease, conditions that favor disease development, and finally control measures for each disease.

Pythium Blight:

Pythium blight is commonly induced by *Pythium aphanidermatum* especially during the summer months, yet five other species of *Pythium* are known to induce blight symptoms. All turfgrass species can become affected by Pythium blight. One in particular is *P. ultimum*, which can induce blight during periods of cool, wet weather. As mentioned in the last article, Pythium blight develops as circular spots ranging in size from 0.75 to 2 inches in diameter that usually appear during hot, humid conditions (Figure 1). The spots can expand rapidly and can follow drainage patterns or mowing patterns. In the morning, grass in the affected areas can appear water-soaked and dark. When affected grass blades are rubbed between the fingers, they can feel oily. This is how this disease gets its other common name, grease spot. As you know, mycelium can develop during the morning as well. Pythium blight is most severe during hot, humid conditions, but can occur during cool, wet conditions. Grass that is lush and dense as a result of high nitrogen fertility is especially susceptible to attack. Pythium blight can be controlled with many fungicides, but mefenoxam consistently performs the best in many University research trials. Other fungicides that have good control of Pythium blight are cyazofamid (Segway, FMC), propamocarb, and fosetyl-Al. Limiting nitrogen fertilization during the summer months will also help alleviate Pythium blight symptoms. Finally if manipulating drainage is an option, this is usually the best proactive measure for Pythium blight.

Pythium root rot:

Sixteen or more species of Pythium can cause Pythium root rot! This is the likely reason why there is very little university research on this particular Pythium disease. However, some of the more common species associated with Pythium root rot are *P. graminicola, P. aristosporum, P. vanterpoolii,* and *P. arrhenomanes*. Symptoms of Pythium root rot are nondescript, as they can occur in patches or as a general decline. This disease is usually associated with putting greens (all turfgrass species used for putting greens can be affected) and can occur at any time during the growing season. Typically, symptoms are most prominent in clean-up passes or areas of high traffic. A key diagnostic feature of Pythium root rot is the roots will be black or water-soaked and severely stunted. This is important to keep in mind because this is one of the main distinguishing features between root rot and root dysfunction. However, the only "good" way to diagnose Pythium root rot is to use a microscope. This is the only way to observe the sexual spores produced by *Pythium* species, called oospores (Figure 2). If you do not have a microscope I would recommend that you submit a sample to the TDL, because this particular disease can devastate large areas of turf very quickly. This disease can occur throughout the growing season, but only when soils are wet for a prolonged period. This sounds very vague because this is all we know about the conditions that favor Pythium root rot. As for control, Pythium root rot can be chemically controlled with ethazole, propamocarb, mefenoxam, and cyazofamid. The best control measure is to limit traffic and raise the mowing height in low-lying areas or areas that are habitually wet that are exhibiting decline.

Figure 1. Symptoms of Pythium blight on tall fescue. Symptoms initially developed as small circular spots like the affected area on the right, then progressed to the larger blighted area to the left.

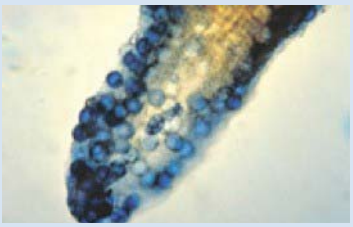


Figure 2. Oospores of a Pythium species in a creeping bentgrass root exhibiting symptoms of root rot. This is really the only way to definitively diagnose Pythium root rot. Image courtesy of APS Turfgrass Compedium Image Collection, American Phytopathological Society.

Figure 3. Stand symptoms of Pythium root dysfunction on a newly established creeping bentgrass putting green. Note the yellow, orange color of the patches and that symptoms develop in distinct patches.

Pythium root dysfunction:

Pythium root dysfunction is induced by *P. aristosporum, P. arrhenomanes,* and *P. volutum*. This disease is only a problem on creeping bentgrass putting greens. Symptoms of Pythium root dysfunction initially appear as small, circular patches (2 to 6" diameter) that resemble wilt, or drought stress. Symptoms then progress to larger more irregular patches with a yellow, orange color (Figure 3). As summer stresses

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mount, the symptoms progress to large areas of necrotic or dead grass. The roots of creeping bentgrass affected with Pythium root dysfunction have bulbous root tips, lack root hairs, and have a light tan color (Figure 4). The pathogens infect creeping bentgrass roots when soil temperatures are between 50 and 75˚F, yet symptoms do not develop until the summer months when creeping bentgrass is subjected to heat and drought stress. Pythium root dysfunction is most severe in newly constructed or renovated putting greens with high sand content rootzones. Additionally, this disease appears to be more problematic when nitrogen fertility is low. Before control measures are conducted, please consult with the TDL or another diagnostic lab. This disease is easily confused with take-all patch and the chemical treatments are fairly different. Chemically this disease is controlled with pyraclostrobin, cyazofamid, and a tank mix of fosetyl-Al and propamocarb. Applications should be performed when soil temperatures are between 50 and 75˚F for preventative control. Curative applications are not very effective, but pyraclostrobin and the tank mix of fosetyl-Al and propamocarb appear to help alleviate symptoms. Raising the mowing height and slightly increasing nitrogen levels also help limit symptom development.

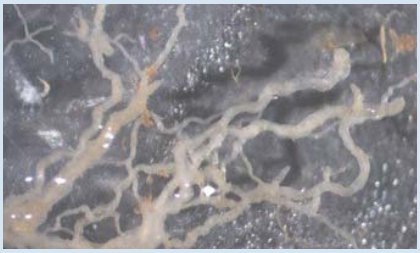


Figure 4. Creeping bentgrass roots exhibiting symptoms of Pythium root dysfunction. Note that the root tips are inflated, roots lack root hairs, and have a light tan color. However, they still look healthy when compared to roots exhibiting root rot.

Figure 5. Stand symptoms of damping off of a creeping bentgrass putting green. Note the patchy appearance of the newly established stand.

Damping off:

Damping off is induced by many species of *Pythium* and many genera of fungi. Stand symptoms associated with damping off is a patchy appearance of a new stand of turfgrass. These fungi can either attack the seed preventing germination (pre-emergence damping off) or the seedlings can germinate but then are killed (post-emergence damping off). The affected plants may have a lesion, but the lesion will rapidly girdle and kill the young seedling. The plants will collapse (damping off), shrivel, turn chlorotic or necrotic as they die (Figure 5). Conditions that favor damping off development are excessive moisture, poor seed to soil contact, and planting old seed. Damping off can be controlled by carefully monitoring soil moisture, planting in areas with good air movement, and using certified seed. This disease can also be chemically treated with mefenoxam, propamocarb, fosetyl-Al, and cyazofamid. Fumigation does reduce the pathogen population, but it is not always 100% effective.

Snow blight:

Snow blight is not a common disease, but I thought I would include it for fun. It is induced by five *Pythium* species. It occurs on cool-season grasses in colder regions of Japan and North America. The symptoms are similar to Pythium blight except they occur under snow cover or during the winter. High nitrogen fertility, poor drainage, saturated soils, and deep snow cover favor snow blight development. Since this is fairly uncommon, control measures are relatively unknown.

Many diseases are induced by many species of *Pythium*. It is critical to understand the difference between these diseases because control measures are different. If there is doubt about which disease you are facing, please submit a sample to the TDL or another diagnostic lab. The common factor among these diseases is that they kill grass, fast!

Jim Latham: We Will Miss Him Greatly

By Dan Quast of DHD Tree Products with excerpts taken from the News Notes of the November/December 2008 USGA Green Section Record with permission.

Veteran USGA agronomist Jim Latham passed away in Deltona, Florida, on July 16, 2008. Jim worked for the United States Golf Association on two different occasions, from 1956 to 1960 as an agronomist in the Northeast and Southeast Regions, and then again from 1984 to 1994 as director of the Great Lakes Region. The intervening 25 years were spent with the Milwaukee Metropolitan Sewerage District, promoting one of the nation's first businesses designed to recycle waste products into landscape fertilizers.

Following his retirement from the USGA, he actively volunteered as a member of the USGA Turfgrass and Environmental Research committee for eight years. In 2003, Jim was named a recipient of the USGA Piper & Oakley Award, which recognizes meritorious service to the USGA Green Section and the game of golf by a volunteer.

Jim Latham was admired for his practical insight and straight-shooting assessments of turfgrass management problems and solutions that resulted from his long involvement in the turfgrass industry.

Jim was a friend to all, always willing to help and always there when you needed him. A brilliant agronomist, a devoted family man, dedicated to the profession we all love. Golf course superintendents in the present, past, and future owe Jim a debt of gratitude for his local, national and international contributions to better turfgrass. Even if you never had the opportunity to meet Jim Latham, he made our jobs easier. We who knew him will miss him greatly.

Thanks, Monroe!

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

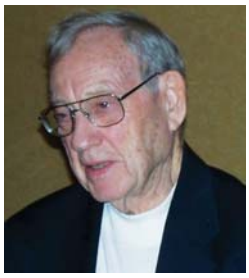
Monroe Miller was recently recognized for his enormous dedication to his profession and the industry at the 43rd annual Wisconsin Golf Turf Symposium on November 19, 2008. The recognition was done both during the conference and at an evening retirement dinner. It was attended by the many people who, having been touched by his professionalism and drive, showed their appreciation to him for being on their side. "I wouldn't want to be on the other side of Monroe's drive for his priorities," said Mark Kienert during his remarks during the conference. Also giving remarks during the recognition were Dr. Wayne Kussow and Jake Schneider. From the view of a renowned turf researcher and from a young golf course employee, they both expressed their high respect for Monroe. Their words mirrored the admiration felt by all of us who are fortunate to be Monroe's friends and colleagues.

Monroe's career is legendary. He spent 36 years as the skipper in charge of the golf course at Blackhawk Country Club, where he has influenced every blade of grass, shrub, flower, tree, and landscape feature on that approximately 90 acres parcel of land. But its not the course conditioning, spectacular as it was, that he is most proud of. It's more the people that he left an impression on that make him proud. There are the 100 plus turf students who worked for him who are better off as they progressed into the industry, the university researchers and administrators that have been touched by his allegiance to his alma mater, the business associates that always got a fair and honest rapport, and peers from all professions within the green industry that benefited from his knowledge.

His collection of accolades is numerous. The latest is the 2009 Colonel John Morely Distinguished Service Award from the Golf Course Superintendents Association of America (GCSAA), which he will receive in February. Previous awards include the UW College of Agricultural and Life Sciences Honorary Recognition Award in 1989, the United States Golf Association Green Section Award in 2004, and being honored as the first golf course superintendent to be inducted into the Wisconsin State Golf Association Hall of Fame in 2005.

The awards he worked the hardest to achieve are for editing and writing the WGCSA bimonthly chapter publication, 'The Grass Roots'. When I say he worked the hardest, I don't mean he was working with that goal in mind. I'm referring to the hours and effort it took to write so prolifically, tirelessly, and endlessly, not to mention interestingly, which was more than any mere mortal could be expected to do. And 100% of this writing was done on weekends, evenings and other times that most of us call free time. Then the awards just happened to come, not because it was a goal, but because it was rightly deserved. These prestigious GCSAA national awards were in the category of "Best content in a chapter publication with an unpaid editor." Everyone, like me, who would read every word of every issue, surely understood the selection for winner. Monroe won the award 19 of the 24 years that he edited the newsletter, and may have won a few more times except the GCSAA quit giving that award 5 years ago.

Monroe with wife Cheryl, being honored at his retirement dinner



Professor Emeritus James R. Love reminisces about his former grad student Monroe Miller

The list of Monroe's other achievements go on and on, with his work on the WTA and WGCSA boards, the University's Board of Visitors, committee work for the GCSAA, and service to America in the Armed Forces. But as former UW horticulture professor Dr. Frank Rossi said at Monroe's retirement banquet, "People are not going to remember you for all the work you did. They'll remember you for being a good father, husband, and friend." Monroe got the family part correct along with his lovely wife Cheryl in raising their three girls to be upstanding citizens. He also got the friend part correct as seen by all the good people that came to wish him the best during the Symposium Honorary Recognition and the evening retirement banquet. He has made lots of great friends and has surely earned a long and healthy retirement. Happy graduation into retirement and thanks for being our friend!

CONGRATULATIONS

Monroe

There's More to Green Bay than Football!

WTA GOLF 'FUNDRAISER FOR THE FELLOWSHIP' AT GREEN BAY CC

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

We love Green Bay for the Packers but we also discovered the golf there is excellent. This was found out when Green Bay Country Club played host to the Wisconsin Turfgrass Association 'Golf Fundraiser for the Fellowship' on October 6, 2008. The golf course was so beautiful and the hospitality was second to none. The Dick Nugent designed golf course, skillfully maintained by our host Marc Davison and his staff made for such a fun round of golf. This was Marc's second time hosting the WTA Golf Fundraiser, the first being when he was superintendent at Blackwolf Run in 1991. We're so grateful for Marc's dedication.

The day started out with a fun round of play-golf on Green Bay Country Club's natural grass putting course. The course proved to be quite challenging as not a single hole-in-one was carded by any participant. That unique experience, playing on Wisconsin's only natural grass putting course, was just the beginning of an exquisite day. After that we hit some range balls and putted on the practice green before heading out to experience the real beauty of Green Bay CC. The course's landscape with natural areas, hills, trees, water, and endless challenging shots was a super experience for everyone. A few rain drops fell during registration but stopped before golf. The morning was windy and cool, but by afternoon the temperature was in the lower 60s and skies were mostly sunny.

Eighty-six golfers participated in the fundraiser this year. All were treated to the great rounds of golf and additionally everyone went home with a nice door prize. Many of the prizes were worth more than the entry fee. Thanks go to everyone who donated the door prizes. The list of prize donors is listed on page 11. A list of tee sign sponsors, who further contributed to the event success, is mentioned on page 10.

Every participant should feel proud knowing they are supporting the future of their profession. The main purpose of the

Continued on page 10

The day started with a fun round on Wisconsin's only 18 hole natural grass putting course

Some of the rolling beautiful terrain of Green Bay CC

Hole #10 displayed Green Bay's amazing design that was experienced throughout the course

'Golf Fundraiser for the Fellowship' is to raise funds to support turf research in Wisconsin. The Green Bay outing raised $7,400 towards that goal. Several of the studies funded by the 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 listed on page 11

Steve Spears, Shawn Savel, Steve Abler, and Randy Swonger enjoying the WTA Golf

WTA Golf Fundraiser Tee Sign Sponsors

Agrotain International
Aquatrols
DHD Tree Products
LL Olds Seed Solutions
Maple Bluff Country Club
Oneida Golf & Country Club
Pendelton Turf Supply
Sentryworld Golf Course
Sue Kershasky
Syngenta
UAP Distribution
Wausau Country Clu

Sister-in-Law Gail and brother Charlie are regulars at the WTA Fundraiser

Bridges of Brown County

Bruce Schweiger demonstrates his Tiger Woods swing

Door Prize donors for WTA Golf Fundraiser 2008

Agrotain	Windshirt and a fleece vest
Aquatrols	2 x Applebee's gift certificate
Argue-ment GC	Foursome of golf with carts
Arthur Clesen	Windbreaker
Bayer	Two Bayer ES Golf Shirts
Big Fish GC	2 x twosome 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
Evergreen Country Club	Foursome of golf with carts
Jacklin Seed	2 x windshirts, 2 x golf shirts
Laser Link	QuickShot Rangefinder
Lawsonia GC	Foursome of golf with carts
Lohmann Golf Designs	2 x Coolers, 2 x Jackets
Midwest Turf Products	2 x 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 x case 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 x 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
UAP	Golf shirt
Waupaca Sand and Solutions	DVD Player
Weedman Lawn Care	Golf shirt
WI Turf Equipment	Golf Shirt and caps

2009 School of Turfgrass Management

By Dr. Doug Soldat, Department of Soil Science, University of Wisconsin-Madison

The 2009 School of Turfgrass Management will be held on February 16-20, 2009 at the West Madison Agricultural Research Station on the west side of Madison, Wisconsin. The short course is geared towards turf professionals regardless of their educational background. Past attendees include lawn care operators, golf course employees, school/sports turf personnel, sod producers, consultants, product distributors, and more.

This week-long short course provides the equivalent instruction of a full 3-credit, semester-long course at the university for only $595. Attendees also receive a large binder full of helpful reference information including booklets and identification guides. A graduation banquet is held on the final day.

The course content is unlike any single course at the university as it combines information from a variety of disciplines. Monday sessions focus on turf growth, species selection, turf identification and establishment. Tuesday sessions focus on soil types, soil physical properties including compaction and drainage, plus properties of various fertilizer types and timing. Wednesday sessions start with pesticide laws and applications, continue with hands-on instruction for pesticide calibration, then finishes with weed identification and management. Thursday covers water use, irrigation systems, insect pests, and diseases. The course concludes Friday at noon following a course review and interactive discussion and training on handling mass media interviews and public complaints. For more information contact Doug Soldat at 608-263-3631 (office) or call Audra Anderson at 608-845-6536 for a brochure. Registrations are due by January 26, 2009. ■

Registration information on pages 13-14

Instructors

Without question, the strength of the School lies within the depth and expertise of the turfgrass faculty at the University of Wisconsin and the University of Minnesota. This school will allow for extensive interaction with scientists having national and international recognition.

Dr. John Stier
Department of Horticulture
University of Wisconsin

Dr. Brian Horgan
Department of Horticultural Science
University of Minnesota

Dr. Chris Williamson
Department of Entomology
University of Wisconsin

Mr. Jeff Saatkamp
Department of Agriculture, Trade and Consumer Protection

Dr. Jim Kerns
Department of Plant Pathology
University of Wisconsin

Dr. Doug Soldat
Department of Soil Science
University of Wisconsin

Program Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
8-10am	Growth and Development	Basic Soil Properties	Pesticides and the Law	Water Management	Course Summary
10-12pm	Growth and Development	Turfgrass Soil Management	Insect Pests	Irrigation Systems	Environmental Communication
12-1pm	Lunch **(provided)**	Lunch Break	Lunch Break	Lunch Break	
1-3pm	Turfgrass Selection	Turfgrass Fertilizers	Insect Pests	Disease Management	
3-5pm	Turfgrass Identification	Nutrient Management	Equipment Calibration	Disease ID Lab	
5-6pm	Dinner Break	Dinner Break	Dinner Break	Graduation Banquet	
6-9pm	Establishment & Renovation	Soils Lab	Weed ID and Management	Graduation Banquet	

Registration Form

School of Turfgrass Management
February 16-20, 2009

Mail to: Wisconsin Turfgrass Association
2502 Highway M
Verona, WI 53593

Fill out a separate registration form for each participant.
Please print clearly

Name _____
Company _____
Address _____
City/State/Zip _____
Phone _____
Fax _____
Email _____

Enclose fee of **$595** and make checks payable to **Wisconsin Turfgrass Association**
Registration Deadline: January 26, 2009

Please complete the following survey:

Facet of the Turfgrass Industry:
__Golf Course __Landscape
__Lawn Care __Parks and Rec
__Supplier/Manufacturer __Irrigation
__Consulting Services __Sod Producer
__Cemetery Management __Other

Years in the Turfgrass and Grounds Industry:
__1-4 __5-10 __11+

Highest Level of Education:
__High School __Two-Year College
__4-Year College __Masters
__Doctorate __Others

Formal Turfgrass Education:
__Two-Year Prgm __Four-Year Prgm
__Extension Seminars __Short Courses
__Other (please list)_____

How many people do you supervise?
__1-4 __5-10 __11+

Do you assist with training?
__Yes __No

Are you a member of the Wisconsin Turfgrass Association or the Minnesota Turf and Grounds Foundation?
__WTA __MTGF __Both

Registration

Registration Fee: $595
Registration fee includes:

Lunch on Monday
Comprehensive reference materials
Turf Pest Guides
Hand lens
Graduation Banquet and Dinner
Refreshment Breaks
**Lunches Tuesday-Friday and lodging are not included in the fee.*

Registration Deadline

January 26, 2009

Registration is limited, so we encourage you to register early. Persons who register after the school is filled will be placed on a priority mailing list for the next session. Mail check/money order (payable to Wisconsin Turfgrass Association) to:

Wisconsin Turfgrass Association
2502 Highway M
Verona, WI 53593

Phone: 608.845.6536
Fax: 608.845.8162
Email: ajander2@wisc.edu

Confirmation

Upon receipt of your registration, you will receive confirmation, with additional information/maps on area hotels and restaurants. The school will be held at the West Madison Agricultural Research Station, 8502 Mineral Point Road Madison, WI 53593
www.cals.wisc.edu/westmad

Wisconsin Turfgrass Association

UW Extension

UNIVERSITY OF MINNESOTA

About the School

The School of Turfgrass Management provides 40 hours of intensive in-depth training in the biology, ecology and cultural management of turfgrass. Technical information will be presented in both lecture and laboratory settings on the basic applications of turfgrass management, such as golf course management, lawn care, athletic field management and sod production. Demonstrations and hands-on learning will be integral aspects of the learning experience and provide extensive interaction with the wealth of turfgrass expertise at the University of Wisconsin and the University of Minnesota.

The Goal

This school is designed to provide a basic foundation of turfgrass training for individuals with no formal education in turfgrass management or for those who desire a refresher.

Who Should Attend

Turfgrass professionals of all skill levels will benefit from this school; however, it will be particularly useful for individuals entering the turfgrass industry, as well as professionals who have been in the turfgrass industry for many years and lack formal training.

Accommodations

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CALENDAR OF EVENTS

Jan 7-9	Minnesota Green Expo	Minneapolis Convention Center
Jan 13	**WTA Turfgrass and Greenscape EXPO**	**Boerner Botanical Gardens, Hales Corners**
Jan 14-16	Mid-Am Horticulture Trade Show	McCormick Place West, Chicago
Jan 15	WGIF Annual Convention	Hyatt Regency, Chicago
Jan 13-17	STMA Annual Conference and Exhibition	San Jose, CA
Feb 2-7	Golf Industry Show	New Orleans, Louisiana
Feb 9-13	TPI Midwinter Conference	Point Clear, Alabama
Feb 16-20	School of Turfgrass Management	UW West Madison Ag Research Station
Feb 17	Pesticide Applicator Training, Turf and Landscape	Carroll College, Waukesha
Feb 19-22	PLANET Executive Forum	Orlando, FL
Mar 3,4	NGLGCSA Winter Symposium	Midway Best Western, Wausau
Mar 4	Pesticide Applicator Training, Turf and Landscape	Quality Inn, Eau Claire
Mar 5	Pesticide Applicator Training, Turf and Landscape	Holiday Inn-City Centre, Green Bay
March 11,12	Reinders Turf and Irrigation Conference	Waukesha Expo Center, Waukesha
Mar 18	Pesticide Applicator Training, Turf and Landscape	UW Ag Research Station, Arlington
Mar 31	Pesticide Applicator Training,Turf and Landscape	Carroll College, Waukesha
April 7	Pesticide Applicator Training, Turf and Landscape	Carroll College, Waukesha
July 27-31	TPI Summer Convention and Field Days	Michigan State University

WTA Members — If you have an important date you'd like to share with other members, call 608-845-6895, fax 608-845-8162, or email tgschwab@wisc.edu to include it in the next calendar.

Contact Telephone Numbers

GIS	Golf Industry Show	800-472-7878
Mid-Am	Mid-Am Horticulture Trade Show	www.midam.org
MN	Minneapolis Green Expo	888-886-6652
NGLGCSA	Northern Great Lakes Golf Course Superintendents Assoc.	715-542-2373
PAT	Pesticide Applicator Training Turf and Landscape	608-262-7588
PLANET	Professional Landcare Network Executive Forum	www.landcarenetwork.org
Reinders	19th Turf and Irrigation Conference	800-785-3301
School	School of Turfgrass Management	608-263-3631
STMA	Sports Turf Managers Association Conference	800-323-3875
TPI	Turf Producers International	800-405-8873
WGCSA	Wisconsin Golf Course Superintendents Association	414-786-4303
WGIF	Wisconsin Green Industry Federation Annual Convention	414-529-4705
WSTMA	Wisconsin Sports Turf Manager Association	608-845-6895
WTA	**Wisconsin Turfgrass Association**	**608-845-6536**