



The New Guy Is Here! (Well, Not So New)

By Bruce Schweiger, Turfgrass Diagnostic Lab Manager, University of Wisconsin-Madison



Happy some season from the Turfgrass Diagnostics Lab (TDL). This “spring” has been more than interesting. To add to the surprises of spring, many of you are looking at this article and wondering where did Dr. Paul Koch go. On May 1st I took over as his replacement managing the University of Wisconsin’s TDL. Don’t anyone panic. Dr. Koch is still here. You can tell by his article elsewhere in this

newsletter. With Paul now being Dr. Paul he has moved into a post doctorate position expanding his work with turfgrass research and outreach, but still serves as my boss at the TDL. What this means to you is that you can continue to have confidence in the lab for its reliability and accuracy in processing your turfgrass samples and making recommendations.

During this season I will have Dr. Paul looking over my shoulder, much like how he had his predecessor, Steve Abler, looking over his shoulder. For this season all the samples that come to the TDL will be inspected by me and then double-checked by Paul to insure the accuracy.

You know that the TDL has a long tradition of excellence with the past two managers setting very high standards. We all know what a great job Dr. Koch has done, but let us not forget when Steve Abler took over the lab, it was at a low point in our history and he brought it back to the high standards that all of us demand. I have always told young turfgrass managers when you take over a less than spectacular property you can shine very quickly. I on the other hand have taken over an institution and will need to work very hard to keep up the extremely high standards. The reputation that these two men have set are the reason the TDL receives sample submissions from all over the country. Having started this late in the season my goals this

year are to learn more about diseases, diagnostics, and how they actually do these mysterious plot ratings.

I call myself the new guy, but as most of you know, I’ve been around a fair amount. Many of you know me only as the guy that comes to the WTA Golf Fundraiser and donates a bike for the raffle. This is true but there is much more about me that you may or may not know.

I received my start in the golf business at Maple Bluff Country Club in Madison, where I worked for Tom Harrison. I was drawn to that summer job because of my love for the game of golf. As a young high school student, the idea of working outside all day and then getting the opportunity to play Maple Bluff on crew day was the perfect summer job. At that time I was enrolled at the UW-Madison in the pre-pharmacy program with the goal of taking over the family business. After two years of chemistry, organic chemistry, physics, calculus and pharmacology I decided that I did not want to spend my career working inside. As much as the ideas of being a pharmacist and helping people was great, the work environment was not appealing (Thanks, Tom). I began wondering what I could do and realized I loved working in the turf industry, especially after the time Tom let me run the crew for a week and see what turfgrass management was really like. That may have been the best week of my young life. That helped me make my decision to talk with Dr. J.R. Love about enrolling in the UW-Madison Soil Science Turfgrass Program. The next fall I was on the Ag campus studying with the likes of Cubby O’Brien, Tom Schwab and John Meyer. Boy, were they great mentors.

After graduation I took many different roles in the turfgrass industry and they have all added to the experience. Instead of explaining my work history, here is a brief list:

- Golf Course Superintendent 5 years
- Golf Course Superintendent/ General Manager 6 years
- Sales Representative 24 years
- TDL Manager 1 month

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PRESIDENT'S MESSAGE

Super Grass, Spring Rites, Shoelaces, and Grass Roots

By Paul Huggett



One definition of insanity is doing the exact same thing and then expecting different results. I keep searching for the perfect grass and always seem to find strengths and weaknesses in them all. Growing environments, climates, and uses all affect the outcomes of the “super grass” that I am looking for. Yet I never give up trying. Crazy; no, Passion; yes. I do have an answer for the “super grass” in my closing comments.

Greetings, as your new WTA president. I am honored to be elected into this roll. I am stepping into a great situation. My hat goes off to Dan Biddick, current past president, for leading the WTA through changes and challenges. His constant optimism and leadership has kept the mower going straight down the field with all blades spinning and sharp. Thank you Dan and all the current board members. What a great team.

I am not new to the WTA. I started out doing plot work in college with Dr. Gayle Worf, and driving the WTA truck. Later I joined the WTA board and served 10 years as treasurer before stepping down for a few years to serve on other boards. Now I recently rejoined the WTA board and have been elected president. My work experience includes growing up on a sod farm and currently owning that farm which my parents started in 1954.

Our season got off to a slower start than a year ago but is now in full swing. I don't know about you but for me the “Rites of Spring” always seem to repeat themselves, like when you need to irrigate and discover that the fertilizer truck drove over your new water main cracking the pipe. It happens no matter how hard you prepare and of course it's not a problem all winter. I hope this spring is energizing you to organize, fix, and keep moving.

Efficient and resourceful are two words that should be on many turf managers job descriptions. I acquired my dad's old hiking boots after he passed away. I hated the laces in them because they got caught on the speed hooks as you tied them up. Being too cheap to replace them, they finally wore out 2 years later. Monday I went

to the closet and found some pink “shoe laces” my girls received for free at a cancer fundraiser run. I do say the pink laces work well next to my camo boots and the other black lace. Practicality, price, and style all worked. May whatever shoe lace you find work for you and your repairs.

“Grass Roots”, not the magazine Monroe Miller brought to national prominence, but rather, the efforts by its members to garner support for our cause. Sod producers, golf course superintendents, sports turf managers and lawn care professionals from the WTA recently got together to promote our industry and show group support and our strength to the UW-Madison's Dean of the College of Agricultural and Life Sciences Kate Vandembosh, and the UW's Academic Planning Council. Our efforts were successful in promoting the need to refill the position of turfgrass pathologist vacated by Dr. Jim Kerns. This is great news! It's because of our group effort we were able to show that our industry greatly needed to have this position refilled. United we succeed, divided we fall. Your WTA is about joining forces to provide an infrastructure for turf research. Thank you for your membership support, TDL contracts, and guidance as we search for that super turf. Have a great summer.

The answer is: Accepting 80% success makes life easier, trying for 90% is crazy, and expecting 100% leads to insanity. Have fun growing turfgrass this summer! ■



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

As you can see the majority of my career has been as salesman. When I embarked into sales, I worked for Tom Wentz at the Scotts Company and he taught me three things that have served me well for all these years:

- “Say what you are going to do and then do it!”
- “When making recommendations, do what is in the customer’s best interest. Trust is what life is all about.”

- “You can’t make recommendation from the office. You need to see the course and ride with the customer to see what they see. Get out of the office!”

I have tried to live my life with these three statements ringing in my ears. Over the past 24 years I have seen more turfgrass issues and solutions than most. I have been involved in the construction and/or re-construction of over 1,000 golf holes, multiple sports

complexes, and countless lawncare and landscape projects. It is with this information and experience that I hope to become a successful manager of the TDL like the managers before me.

I look forward to meeting, talking to, and being a supportive assistant to each and every one of you. If you ever need to contact me, you may do so at 608-845-2535 or bschweiger@wisc.edu. See you all at Summer Field Day on Tuesday, July 30th!!!! ■

What Does the WTA Do with Your Money?

By Mark Kienert, WTA Treasurer

Are you curious about where the money goes? I have a great answer. Would you like me to write a check? OK, here goes: **Two Million four hundred sixty three thousand two hundred fifty six and no/100 dollars** has been donated to turfgrass research since 1996. All financial records have been kept electronically, so it is easy to total the dollar amounts of what we have done. WTA Treasurer Paul Huggett produced this report in 2005 and I added the totals since I took over as treasurer. Please review the accompanying report as it outlines association activities. It shows WTA’s income sources, along with funding that has been awarded by the association. Two of the four endowment’s market values are less than book value because they are being used to finance recipients’ school expenses.

The totals are amazing for an organization of volunteer board of directors, several UW-Madison faculty and staff, one administrative secretary, and one ambassador. The bottom of the chart lists a few positive disclaimers: The totals do NOT include research funding from 1980 to 1996. It also does NOT include the O.J. Noer Turfgrass Research Facility in Verona (including planning, land acquisition, actual construction, irrigation system and well, maintenance equipment, today’s land value, or improvements). It does NOT include total endowment account values since inception or the UW-Madison matching funds for the endowments of one million dollars. The total does NOT include gifts-in-kind and contributed materials. The total efforts that WTA has contributed to turfgrass research in Wisconsin could be more in the range of \$3.5 to 7 million dollars if the above were included. It would be difficult to estimate the value of the O.J. Noer Facility’s land and buildings in today’s market (millions, I would bet). And the real value of the WTA’s contribution to education - priceless!

Please give me a call if you have any WTA financial questions at (715) 423-2204 or email me at tomanpak@wctc.net. ■

What has the WTA done with your contributions?

As of February 28, 2013

Educational-Fund Raising Activity Income (since 1996)

Summer Field Day	\$	97,805
Golf Outing	\$	131,245
Expo	\$	161,790
	\$	390,840

Other funding comes from dues & generous Contributions

Grants Awarded (since 1996)

Scholarships	\$	36,800
Endowment Accounts	\$	298,395
Research	\$	589,365
	\$	923,760

Graduate Student Fellowships (since 1996)

Berbee Fellowship (Book values)	\$	250,000
Kurth Fellowship	\$	250,000
Kussow Fellowship	\$	250,000
Newman Fellowship	\$	250,000
Sustainability Fund	\$	148,656
	\$	1,148,656

TOTAL Contribution for

Turfgrass Research & Education \$ 2,463,256*

*This total does NOT include research funding from 1980 to 1996. It also does NOT include the O.J. Noer Turfgrass Research Facility in Verona (including planning, land acquisition, actual construction, irrigation system and well, maintenance equipment, today’s land value, or improvements). It does NOT include total endowment account values since inception or the UW-Madison matching funds for the endowments of one million dollars. The total does NOT include gifts-in-kind and contributed materials.



Maple Bluff Country Club



Wisconsin Turfgrass Association Golf Fundraiser

Benefitting the
**Wisconsin Turfgrass Research
Sustainability Fund**



Maple Bluff Country Club – September 23

Where: Maple Bluff Country Club
500 Kensington Drive
Madison, WI 53704
(608) 249-2144

When: Monday, September 23, 2013
9:30-11:00 Registration
9:30-11:30 Range
10:30-11:30 Lunch
11:45 4-Person Best Ball Shotgun Start
After Golf Hors d' Oeuvres, Reception, Prizes, Cash Bar

Cost: \$125 per person

What: Golf, Cart, Practice Range,
Lunch, Door Prizes, Golf
Awards, Hors d' Oeuvres

Questions: (608) 845-6536

Directions from Interstate: West on Hwy 30 / Hwy 30 becomes Aberg Ave. / Left on Sherman Ave. / Right on Oxford Place / Right on Kensington Dr. (one block) into lot.

Maple Bluff Country Club

Maple Bluff Country Club, which today stands as one of the oldest and finest golf clubs in the Wisconsin, has a rich history that dates back to 1899. It was common in those days to see members arrive in horse and buggy or by steamboat which would leave the university area several times a day and land near the property. In 1901, MBCC was one of nine state golf clubs to form the Wisconsin State Golf Association. The club grew and prospered and in 1916 was enlarged to a full 18 hole course. The many course improvements over the years will thrill your game.

You are invited to play this classic Wisconsin treasure on September 23rd. Course superintendent Josh LePine, his staff, and the members of Maple Bluff Country Club, welcome everyone to this WTA event. Proceeds from the golf outing will be used by the UW-Madison turf faculty to develop new techniques for managing turfgrass with the most environmental approach.

ENTRY FORM – WTA Golf Outing Fundraiser

Name: _____ Phone: () _____

Name: _____ Email: _____

Name: _____

Name: _____

of People Attending ____ x \$125 per person = _____

You May Also Sponsor A Golf Hole or Make an Additional Tax Deductible Contribution

Optional Tee Sign Golf Hole Sponsorship x \$100 = _____

Name To Be Printed on Tee Sign --- _____

or Additional Tax Deductible Contribution = _____

- Please make check payable to WTA and return to 2502 Highway M / Verona, WI / 53593
- Refer questions about the outing to Audra Anderson at @ 608-845-6536 or ajander2@wisc.edu
- Registration deadline is Tuesday, September 17, 2013
- You may register by yourself or as a foursome

WTA Summer Field Day - Don't Miss It!

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

The WTA Summer Field Day will be here before you know it. The date is set for Tuesday, July 30, 2013. This is a great opportunity to visit the O.J. Noer Facility and learn about all the new turfgrass research being conducted at the University. There are over 60 ongoing studies this summer and several of the most pertinent ones will be showcased during the research tours. The education will describe new turf maintenance findings to help all turf managers on their sports fields, golf courses, sod farms, lawn care sites, parks, and other commercial turf areas.

Comments from attendees of previous field days asked for longer discussions during the educational tour. This year's presentations by UW-Madison turf researchers promise to be more in-depth than in past years. Bring your questions and be ready to learn from the researchers about their latest findings. There will be education both in the morning and afternoon, with the morning focused on lawn care and general turf issues, and afternoon focused towards golf turf. Attendees will gather relevant information from both sessions.

The morning lawncare and general turf research updates include these topics and more:

- Rust management for sod and lawns
- Choosing the right nitrogen source for the job
- Grass selection and fertility influence on weed populations
- New strategies for broadleaf control
- Environmentally sound lawn management
- Pre and post drought turf management
- Controlling ants

The afternoon golf turf research updates includes these topics and more:

- Spray volume affects on fungicide efficacy
- Fine fescue management
- Tools and technology for precision turf management
- Earthworm management in turf
- Wetting agent selection and application strategies
- Pigments and photochemical efficiency
- Chemical problems in putting green root zones

The education will be complemented by the ever popular summer field day tradeshow. Helpful vendors will offer expert advice about their latest equipment and supplies/services to help you manage your maintenance program better. Several vendors allow test drives of their equipment so you can compare performance.

Summer Field Day is a great way to learn about the latest research coming from the UW-Madison, compare the newest commercial offerings from the trade show, and visit with colleagues over a great lunch. You will surely leave Field Day with many ideas to put into practice back home. Contact Audra Anderson, WTA administrative assistant, at 608-845-6536 or ajander2@wisc.edu if you have any questions.

Your Field Day brochure is included in this newsletter or may be downloaded from the WTA website, www.wisconsin-turfgrass-association.org. You may also pay online from the website if so desired. Field Day 2013 is going to be the best ever, and we hope to see you there on July 30th. ■

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How Reliable is Soil Testing?

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

Who hasn't heard the phrase "Don't guess, soil test!", or listened to a speaker tout the importance of soil testing prior to planning out a fertility program? But the truth is a soil test is only as good as the method used and the research data supporting it. And unfortunately, the methods are not always appropriate and the data behind the soil test interpretations is thin or non-existent. But soil testing can be an effective part of your fertilizer program when used properly. In this article we'll cover the most common soil testing mistakes and how to avoid them.

One of my favorite quotes on soil testing comes from O.J. Noer's book, "The ABCs of Turfgrass Culture (1928)." O.J. worked under Emil Truog, a Soil Science Professor at the University of Wisconsin who pioneered soil testing as we know it today. So as a turfgrass agronomist with a great deal of technical knowledge about soil testing, O.J. said, "There is a tendency to **place undue emphasis** upon the value of chemical soil tests. This is true of some technical workers as well as salesmen. These methods have a promising future but their present usefulness is limited by **imperfect [methods]** and for a **lack of definite correlation with field experience.**"

Although this was written 85 years ago, many aspects of this quote still ring true. We'll go through the three highlighted parts individually and I'll try to explain their continued relevance to our situation today.

"Imperfect Methods"

Soil testing is a relatively straightforward practice. You collect some soil, you send it to a laboratory. The laboratory dries and grinds the soil, then takes a pinch and adds a half ounce

or so of a chemical extractant and shakes the soil/liquid solution for a few minutes. Next, the solution is poured through a filter and the clear solution is analyzed for the nutrients in the soil. The chemical extractant is usually some sort of acid ($\text{pH} < 7$) combined with salt. The acid is used to extract the plant available phosphorus, while the salt is used to measure the exchangeable cations like potassium, calcium, and magnesium.

For acidic soils, commonly used extractants include the Bray-1 and the Mehlich-3. For high pH soils, the Olsen extraction is a good choice. Often, soil testing labs will use several different extractants on the same soil. For example, they may use the Bray-1 for phosphorus and ammonium acetate for potassium and other cations. Soil testing laboratories usually use the tests that are most appropriate for the soils in their region, so if you are sending samples across the country it makes sense to make sure the proper extractant is being used on your soils. Table 1 gives some general guidelines, although exceptions may apply. Some soil test reports do not list the extractant that was used. In that case, simply call the laboratory and ask. You'll notice that Mehlich-3 shows up in every category in Table 1. While Mehlich-3 may not be the best test for all situations, it is regarded by many as the most versatile extractant and it's the one we have the most calibration data for here in Wisconsin, with the Bray coming in a close second.

Assuming the correct extractant is chosen, there is another important but overlooked step in getting good results: pulling the sample properly. Nutrients aren't uniformly distributed in turfgrass soil like they are in agricultural fields. Because we usually apply fertilizers to the soil surface and do not till them in, over time

certain nutrients, especially phosphorus, accumulate near the surface and are at lower levels deeper in the soil. This means that the deeper you push the probe into the soil, the lower your soil phosphorus levels will appear. I have fielded many phone calls where the manager explained that the soil phosphorus levels rose rapidly from one year to the next, even though the manager applied no phosphorus fertilizer. This could be attributed to a shallower testing depth than the year before. For this reason, it is critical to maintain a consistent sampling depth over the years. Use a sharp tool to score a line on the probe at your desired testing depth - I recommend something between 10 and 15 cm - and make sure you use a consistent sampling depth from year to year.

"Lack of definite correlation with field experience"

In general, soil test reports do not offer a user-friendly experience. In fact, most people understandably skip the details and decimal points and go straight to the section where it says either low, optimum, or excessive. The often overlooked question, however, is how was the assessment of low, optimum, or excessive developed? Soil test data are specific to a crop type and a soil type. That means the "optimum" number for corn on a Batavia silt loam will be different from that of corn on a Miami silt loam. Or, the "optimum" level for soybeans on a Batavia silt loam will differ from that of corn on the same soil. That means that we need to run a whole bunch of studies for each crop type and each soil type to have reliable data. Much of this work has been done in agriculture because of the economic significance of food production. But soil testing research for turfgrass is hard to find. The little work that has been done is only specific for a particular grass species (or even variety), and the soil type that it was growing on. For example, we ran the study shown in Figure 1 to show that for a high pH sand root zone with 'A4' creeping bentgrass the optimum Mehlich-3 phosphorus is above 7 ppm. Under no circumstances could I assume

Table 1. General guidelines for appropriate soil tests for low and high pH soils.

Nutrient	High pH Soils (>7)	Low pH Soils (<7)
Phosphorus	Olsen, Mehlich-3	Bray-1, Bray-2, Mehlich-1, Mehlich-3, Morgan, Modified Morgan
Potassium, Calcium, Magnesium, Sodium	Buffered ammonium acetate ($\text{pH}=8.5$), Mehlich-3	Neutral ammonium acetate ($\text{pH}=7$), Mehlich-3
Micronutrients	DTPA, Mehlich-3	DTPA, Mehlich-3

Continued on page 8

that 7 ppm would be ideal for a loam soil growing Kentucky bluegrass. We'd need to run another study for that number which we haven't done yet. So, to get around this issue, we take the data we have (in this case 7 ppm) and round it up for safety. At the Wisconsin state soil testing laboratory, any Mehlich-3 soil test less than 25 ppm will say "low" - even though the true definition of "low" is probably much lower.

In essence, I suppose you could say most soil test interpretations for turfgrass are simply educated guesses. If you sent the same soil sample to six different labs, chances are you'd get at least three different interpretations. Now you can fully appreciate the irony embedded in the phrase "Don't guess, soil test". Turfgrass researchers continue to improve the soil testing recommendations, but that type of research is time consuming and expensive. It is also worth noting that every time a researcher conducts one of these studies, they tend to find that the levels required are lower than what we previously thought - meaning that "low potassium" you got on your last soil test report might be optimum down the road.

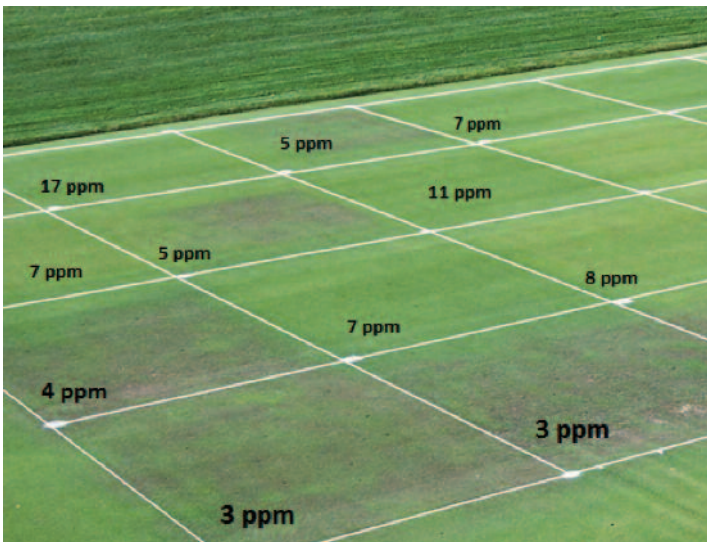


Figure 1. Phosphorus deficiency of creeping bentgrass on a high pH sand based root zone. Deficiency symptoms disappear above 5 ppm Mehlich-3 extractable soil phosphorus.

“Undue Emphasis”

Without understanding all the limitations that we just covered, it's easy to see how one could get carried away by attempting to find the "ideal" level of every nutrient in the soil. One common over-interpretation is when soil test reports recommend balancing the soil cations using the base cation saturation ratio or BCSR. BCSR-style interpretations use the same methods as described above, but recommend that the soil cations (calcium, magnesium, and potassium) are balanced in an "ideal" ratio. Unfortunately, after years of research we still have no evidence that this approach works, but we do know that someone who follows this approach ends up spending a lot more money¹.

To avoid over-interpretation or relying solely on your laboratory's (or consultant's) interpretations of your soil-testing results, I recommend you compare your results with PACE Turf's Minimum Level for Sustainable Nutrition guidelines which can be found here: www.paceturf.org/PTRI/Documents/1202_ref.pdf. Instead of drawing their interpretations from a single study, these

minimum levels are based on a very large database of soil testing results where the turf was deemed to be performing average or above average (all soil samples from poor performing turf were thrown out). The "minimum level" was set at the lower one-third of the dataset². That means about 33% of the soil samples with good turf had soil test levels (for potassium or phosphorus, etc.) below that minimum level. While you could argue this remains a conservative approach, the minimum levels published by PACE are drastically lower than many traditional soil test interpretations, and likely more accurate.

In conclusion, soil testing can be useful for fertilizer planning, but is far from a perfect system. More research is required to continue defining and re-defining optimum soil test levels for the multitude of soil types and grass varieties. While our soil testing methods have come a long way in the last 85 years, there is still a tendency to place undue emphasis on the value of soil testing. For best results:

1. Make sure you have a consistent depth when you pull your soil samples.
2. Send your samples to the same reputable laboratory year after year, and ensure they are using a proper extractant based on your soil pH.
3. Don't over interpret your soil test results. Avoid balancing cations and double check the laboratory or consultant's recommendations with the PACE Turf's MLSN Guidelines before making decisions on corrective action. ■

¹ For an extensive summary of this research, check out "A review of the use of the basic cation saturation ratio and the 'ideal' soil" by Drs. Peter Kopittke and Neal Menzies in the March/April 2007 edition of the Soil Science Society of America Journal.

² It's actually a bit more complicated than this, and you can read more here: <http://www.plantmanagementnetwork.org/pub/ats/proceedings/2013/rootzones/8.htm>

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Registration Open

By Veronica Iwanski, Turfgrass Producers International

The registration for the 2013 TPI Summer Convention & Field Days on July 23 - 25 in Chicago is now open. The Lawn Institute Memorial Golf Tournament and Chicago Architectural Tour will kick-off the event on Tuesday July 23, followed by networking and social activities that evening.

Wednesday will be packed with education, business meetings, and the opportunity to visit with exhibitors during the Tabetop Displays with dinner.

On Thursday, see exhibits and live equipment demonstrations at the Doug Fender Memorial Field Day hosted by Payne Sod Farm, Manteno, Illinois. Afterward, enjoy an informative tour and BBQ dinner at Summit Seed.

TPI has planned an event with your return-on-investment in mind. For more information, visit the Summer Convention & Field Days Event page on the TPI website at www.TurfGrassSod.org or call the TPI office at 800-405-8873; 847-649-5555. ■



Rust Research in Progress...Your Help Needed!

By Dr. Paul Koch, Department of Plant Pathology, University of Wisconsin-Madison

Turfgrass research takes on many forms at the University of Wisconsin. Some are more visible to you than others. Sometimes research projects are done entirely within the lab or in growth chambers, and you may be unaware they are even happening. Those more 'basic' research projects contrast with 'applied' projects that are conducted in the field. Our 'applied' projects get conducted at the O.J. Noer Facility in Verona, and at many turfgrass locations throughout Wisconsin and even in surrounding states. Dr. Soldat, Dr. Williamson, and I often depend on these sites to host research that we cannot conduct at O.J. Noer, and they provide a valuable contribution to our research. In rare cases, however, we ask for help from a wider audience. This is one of those cases.

Before I get to the help I need, let me first introduce the research project. Rusts are one of the most common and ancient diseases of plants in the world. Observations have been recorded on numerous plant species as far back as Roman times. Rusts are also a common disease on turfgrass, though traditionally not one of significant concern to many turfgrass managers. Rusts are actually an umbrella term for several different rust species. On turfgrass the most common rust species observed are stripe rust (*Puccinia striiformis*), crown rust (*P. coronata*), and stem rust (*P. graminis*). Traditionally, it has been thought that the primary rust on turfgrass species, such as Kentucky bluegrass and perennial ryegrass, was stem rust. Most breeding efforts have been focused on resistance to that particular rust. However, in the past 5 years or so, rust has become a more significant problem for turfgrass managers, especially sod producers. The problem has become so significant for some that turf thinning and even loss is apparent if the area is left untreated. Interestingly, recent research out of Rutgers University has shown that the most common type of

rust found on turfgrass is actually crown rust, not stem rust (Beirn *et al.*, 2011).

With that in mind, we are initiating a multi-point research project in conjunction with the Wisconsin Sod Producers Association. This is where you come in. As part of this project we would like to use molecular techniques to identify the different types of rust present on different turfgrass species throughout Wisconsin and the Midwest. To make this successful, we need as many samples as we can get. I ask that if you find rust on yours or your client's golf course, your lawn care properties, your sod farm, your school or commercial

Rust sampling and submission procedure

1. Pick or cut 5 to 10 turfgrass plants affected with rust from the base of the plant, including both leaves and the stem.
2. Wrap all plants together tightly in aluminum foil. Do NOT wrap in moist towel.
3. Place wrapped plants in a standard business envelope (4.125 x 9.5 inches), include completed 'Rust ID Submission Form', affix postage, and promptly mail to the Turfgrass Diagnostic Lab at:

Turfgrass Diagnostic Lab
2502 Highway M
Verona, WI 53593

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property or anywhere you see rust on turfgrass, please submit it to the O.J. Noer Facility for identification. Rust sample collection and submission is quick and easy. Just follow the steps listed in the adjacent box titled 'Rust Sampling and Submission Procedure.' After you collect a sample, please fill out and include the 'Rust Identification Submission Form' that is included here. Additional copies of the form can be downloaded from the 'News' box on the front page of the Turfgrass Diagnostic Lab's website (www.tdl.wisc.edu). If you're in the Verona area, please feel free to drop samples off directly at the O.J. Noer Turfgrass Research Facility.

Not sure how to tell if your turf has rust? Fortunately, rust is one of the easier turfgrass diseases to diagnose. In its earliest stages, rust infection can appear as small yellow flecks on the affected leaf blades. As the disease progresses, however, it produces orange pustules on the leaf surface that holds thousands of individual rust spores that are also orange (Figure 1). This gives rust disease its characteristic orange or rust-colored look (Figure 2). It's not uncommon to see large clouds of rust kick up from a rust-infected lawn that is being mowed (Smiley et al., 2005). If you have any doubt whether the sample before you is rust or not, please submit the sample anyway and we'll discard it if the sample is indeed not infected with rust.

Rust is one of those turfgrass diseases that we often see but give little attention to. With the headaches that rust has been causing for certain segments of the industry in the past few years, if left unchecked it will undoubtedly spread to other segments of the turf industry. Getting a more complete idea of the make-up of the rust species present in Wisconsin and the Midwest will allow us to prepare more effective control recommendations for this increasingly troublesome disease.

If you have any questions, comments, or concerns regarding this research please don't hesitate to contact me at plkoch@wisc.edu or 608-576-2673. Thank you in advance for your assistance in conducting this research.

References:

- Beirn, L.A., Moy, M., Meyer, W. A., Clarke, B. B., Crouch, J. A. 2011. Molecular analysis of turfgrass rusts reveals the widespread distribution of *Puccinia coronata* as a pathogen of Kentucky bluegrass in the United States. *Plant Disease* 95:1547-1557.
- Smiley, R. W., Dernoeden, P. H., Clarke, B. B. 2005. *Compendium of Turfgrass Diseases*, 3rd. ed. p 40-44. ■

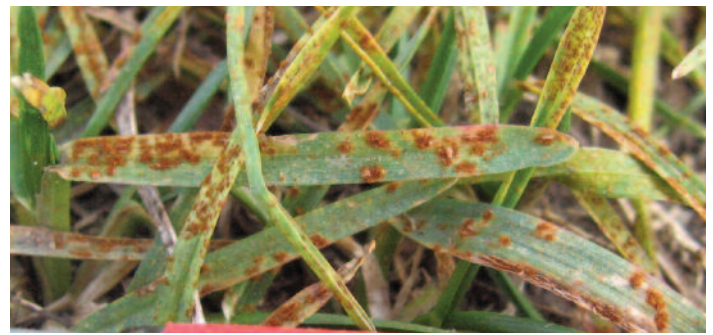


Figure 1: Orange pustules, called uredinia, are formed on the leaf surface of rust-infected plants and contain thousands of rust spores that can spread to turfgrass plants near and far. Photo courtesy of iaturf.blogspot.com.



Figure 2: As the disease progresses, the individual rust pustules can give affected turf an overall orange or rust-colored appearance.

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Rust Identification Submission Form

Submitter's Name: _____

Address: _____

Date Submitted: _____

Sampling Instructions:

- 1) Pick or cut 5 to 10 turfgrass plants affected with rust from the base of the plant, including both leaves and the stem.
- 2) Wrap all plants in aluminum foil.
- 3) Place in an envelope and promptly mail to the Turfgrass Diagnostic Lab at:

Turfgrass Diagnostic Lab
2502 Highway M
Verona, WI 53593

Thank you for your assistance in this important research project. Please call (608-576-2673) or email (plkoch@wisc.edu) with any questions, concerns, or comments you may have.

Sincerely,

Paul Koch, Ph.D.
Associate Researcher
University of Wisconsin

CALENDAR OF EVENTS

2013

June 11	NGLGCSA Steve Spears Memorial Golf Outing	St Germain GC, St Germain
June 17	WGCSA Tournament Meeting	South Hills CC, Fond du Lac
July 23-25	TPI Summer Convention and Field Days	Chicago
July 30	WTA Summer Field Day	O.J. Noer Turfgrass Research Facility, Verona
Aug 20	WGCSA/NGLGCSA Joint Meeting.....	Stevens Point CC, Stevens Point
Sept 16	Wee One Golf Outing	Pine Hills CC, Sheboygan
Sept 23	WTA Golf Fundraiser	Maple Bluff CC, Madison
Oct 1	NGLGCSA Crew Outing	The Woods GC, Green Bay
Oct 5	WGCSA Couples Outing/Party	Wild Rock GC, WI Dells
Oct 23-25	PLANET Green Industry Conference	Louisville, KY
Dec 3,4	WI Golf Turf Symposium	American Club, Kohler

2014

Jan 14	WTA Turfgrass Research Day	Pyle Center, Madison
Feb 2-7	GCSAA / GIS	Orlando, FL
Feb 5	WGCSA Hospitality Room at GIS	Orlando, FL
Mar 3	WGCSA Spring Business Meeting	Fond du Lac

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

Contact Telephone Numbers

GCSAA / GIS	Golf Industry Show	800-472-7878
NGLGCSA	Northern Great Lakes Golf Course Superintendents Association.....	www.nglturf.org
PLANET	Professional Landcare Network Green Industry Conference	www.landcarenetwork.org
Symposium	Wisconsin Golf Turf Symposium	800-287-9645
TPI	Turf Producers International	800-405-8873
Wee One	Wee One Foundation Golf Outing	630-457-7276
WGCSA	Wisconsin Golf Course Superintendents Association	920-643-4888
WGIF	Wisconsin Green Industry Federation	414-529-4705
WSPA	Wisconsin Sod Producers Association	262-895-6820
WTA	Wisconsin Turfgrass Association	608-845-6536