The GRASS ROOTS

AN OFFICIAL PUBLICATION OF THE WISCONSIN GOLF COURSE SUPERINTENDENTS ASSOCIATION

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ABOUT THE COVER

The Par 3 12th Hole at Oconomowoc Golf Club host to the 2017 Wisconsin State Amateur plays 199 yards from the back tee.

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Laughter is the sun that drives the winter from the human heart.
By French Poet Victor Marie Hugo, 1802-1885
This quote by Hugo can remind us to enjoy the good in life even during the cold dark days of winter.

THE GRASS ROOTS

is the bi-monthly publication of the Wisconsin Golf Course Superintendents Association. No part of the *THE GRASS ROOTS* may be used without the expressed written permission of the editor.

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WGCSA Board Of Directors

What Do You Do In The Winter?

By Jon Canavan, Golf & Recreation Turf Manager, Milwaukee County Department of Parks, Recreation & Culture

Recently Milwaukee County Parks hired a new Parks Director. When it was my turn to meet with him, the first question he asked was "what do you and your staff do all winter?" I was prepared for this question since it is pretty much what any new person I meet asks. I had a list put on paper ready to review with him.

1. Employees reviews:

Winter is a great time to sit down with your staff and discuss the past season. I once heard a superintendent complaining that their assistant did not do this or that. My question to him was - did you state a clear message for what they should be doing? If your assistant was doing something wrong, did you spend time explaining why you wanted it done a certain way? I have found that people cannot read minds and that most employees want to do a good job!

2. Education:

Have you been doing the same thing over and over for the past 10 years? I personally try to question myself as to why we are doing things a certain way. Between the GCSAA and the WGCSA there is a plethora of education that you can receive online, in local meetings, or by attending the national conference. Check out WGCSA.com to see all of the local education that is offered for the coming season.

3. Networking:

I have never understood why some people do not reach out to other superintendents, vendors and educational professors. Attending local and national events is a fabulous way to meet new people in the turf industry. One other big tool that has helped me with this is Twitter. What a great mode of communication to be able to ask questions or help out a fellow superintendent around the globe.

4. Winter maintenance:

This one event is critical for the next season to be successful. Having all your equipment in top running shape will save you hours of labor, money and headaches. Getting benches, ball washers, tee markers, bunker rakes and equipment cleaned and painted makes your operations look a lot more polished. This adds an image of professionalism for you and your team.

5. Recharging the mind and body:

Make sure to take time to rest and relax from the long season. I have found that this is a great time for a company outing or retreat. Letting your employees know that you care about them professionally and personally will go a long way. Make sure that you spend time with your family. I always use the winter months to coach my kids' sports teams.

These are just a few of the many things that we do during the off season. Hopefully whatever you do during the winter months is productive and relaxing, and makes it easier to jump right back in when spring arrives.

Wisconsin Chapter GCSAA
GOLF COURSE SUPERINTENDENTS ASSOCIATION OF AMERICA

WGCSA MISSION STATEMENT

The Wisconsin Golf Course Superintendents Association is committed to serve each member by promoting the profession and enhancing the growth of the game of golf through education, communication and research.

WGCSA VISION STATEMENT

The Wisconsin Golf Course Superintendents Association is dedicated to increase the value provided to its members and to the profession by:

- Enhancing the professionalism of its members by strengthening our role as a leading golf organization in the state.
- Growing and recognizing the benefits of a diverse membership throughout Wisconsin.
- Educating and promoting our members as leaders in environmental stewardship.
- Offering affordable, high value educational programs at the forefront of technology and service.
- Being key to enjoyment and the economic success of the game of golf.

Event Schedule!

February 3-8 Golf Industry Show, San Antonio, Texas
February 7 (Wednesday) Wisconsin Room at GIS - Smoke The Restaurant
Febraury 20 (Tuesday) Assistants Seminar - Whispering Springs
February 27 (Tuesday) Spring Business & Education Meeting - South Hills CC
March 7 (Wednesday) NGLGCSA Educational Conference - The Waters of Minocqua
April 25th (Wednesday) Super Pro Outing - University Ridge Golf Course
May 14th (Monday) May Golf Meeting - Racine Country Club
June 18th (Monday) June Golf Meeting - Wild Rock Golf Club
July 24th (Tuesday) WTA Summer Field Day - O.J. Noer Research Center
August 13th (Monday) Joint NGLGCSA/WGCSA Meeting - Horseshoe Bay Golf Club
September 17th (Monday) Wee One Fundraiser - Pine Hills Country Club
October 1st (Monday) WTA Golf Fundraiser - Kenosha Country Club (REVISED DATE!)
TBA (Saturday) Couples Evening - Green Bay
Nov 28th - 29th Golf Turf Symposium - American Club

Visit our website at www.WGCSA.com for the most up to date calendar and registration forms.

Gaining Steam in 2017: A State of the Pathology Lab Update

By Paul Koch, Ph.D. Department of Plant Pathology, University of Wisconsin – Madison

The dawning of a new year is always a time to reflect on the year that was and plan for the days ahead. We in the Wisconsin turfgrass industry won't soon forget 2017 as the US Open came to Erin Hills and additional major events were hosted at fantastic venues across the state. Looking back on what 2017 meant to my own program, I see it as another productive year working with great people that had its fair share of successes…but wasn't without controversy or failure. As I begin my 5th year as a faculty member, I am continually humbled by the dedicated work of staff and the support we receive from the Wisconsin turfgrass industry. This includes funding from the WGCSA, Turfgrass Diagnostic Lab contract memberships, hosting of research projects, or through simply providing us with feedback on things you like or areas we can address.

Since it can be difficult to keep track of all the different things we are doing in the program, let me provide you with a quick update on what we have been up to and a preview of some exciting projects in the works.

Kurt Hockemeyer Takes the Reins at the TDL

Kurt Hockemeyer took over the role of TDL manager from Bruce Schweiger on January 1st, 2017. While Kurt had done some turf diagnostics to a small degree, 2017 was his first foray into a large-scale operation like the TDL. While there were undoubtedly growing pains along the way, Kurt performed exceptionally well providing accurate and rapid diagnoses and responses to your questions. I heard numerous positive comments from those that interacted with Kurt, and as Kurt gains more experience his ability to offer support will only increase. What is particularly impressive is that Kurt was able to manage the TDL while also retaining his responsibilities for managing our fungicide testing program. The future of the TDL and the fungicide testing program appear very bright with Kurt at the helm.

Snow Mold Fungicide Timing and Propiconazole Uptake

When should I apply my snow mold fungicides? It's one of the most common questions I get, and there are many different theories about what is best. We are continuing a study investigating snow mold fungicide timing for the 3rd consecutive winter at Timber Ridge GC in Minocqua, WI and the OJ Noer Facility in Madison, WI. The study itself is quite simple, with a series of fungicide application timings beginning 6 weeks before typical snow cover and progressing at 2-week intervals all the way up until shortly before snow falls. We then rate the timings that provide the best snow mold protection over both sites and use weather data collected from each site to develop predictive models that can help determine optimal snow mold fungicide timing. In addition, this study is looking at the impact of temperature on propiconazole uptake in creeping bentgrass in growth chambers at various temperatures to determine whether colder temperatures really do reduce the rate of fungicide uptake. The mild conditions seen last winter prevented us from collecting much usable data at the Madison site, so we're anxiously awaiting the results this spring! This study is jointly funded by the Golf Course Superintendents Association of America and the Wisconsin Golf Course Superintendents Association and will end in the spring of 2018.

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WISCONSIN PATHOLOGY REPORT

Figure 1: Another year of Kurt Hockemeyer and I setting up our snow mold fungicide degradation study. This picture was taken shortly after applying fungicides for the 2017-2018 year on December 8th, 2017.

Impact of Snow Cover and Anti-transpirants on Fungicide Persistence

This follow-up to our past work researching the impacts of snow cover on the persistence of chlorothalonil and iprodione investigates the impact of snow cover on the persistence of propiconazole and chlorothalonil **(Figure 1)**. In addition, we are also testing to see whether the addition of an anti-transpirant such as Transfilm® can help prolong the persistence of these fungicides. We have conducted this research the past two winters and in both years observed that both fungicides degraded rapidly regardless of snow cover and regardless of the inclusion of an anti-transpirant. These results corroborated many of the same findings we observed in the previous study done with chlorothalonil and iprodione. This 3-year study is being funded by the Canadian Allied Turfgrass Research Office, the WGCSA, Syngenta Professional Products, and PBI Gordon and will end in the spring of 2018.

Release of our Dollar Spot Prediction Model

Dollar spot prediction models have generally been pretty ineffective, but this new model was developed in collaboration with Dr. Damon Smith (when he was at Oklahoma State University) and Dr. Jim Kerns (when he was here at Wisconsin). After nearly 10 years of developing and testing the model with various users, we are ready to launch it to the public in the spring of 2018. The model uses a 5-day moving average of air temperature and relative humidity to create a 'probability' that dollar spot will appear on a given day. This model will likely be most effective at timing sprays in the 'shoulder' seasons of spring and fall, since conditions for dollar spot development are normally consistently high throughout the summer. In addition, we're working with Spectrum Technologies to load the dollar spot model into some of their new weather data loggers and have the model calculated automatically and presented on your desktop computer. We believe that in the future this model can be used to spray fungicide only on the specific areas of the course that need it, saving money and time for the superintendent. The model's webpage is under development but will be available at this site (https://tdl.wisc.edu/dollar-spot-model/) once it is completed in early 2018.

Patch Disease Assay Development

Root-infecting diseases such as take-all patch, summer patch, and necrotic ring spot can be some of our most frustrating diseases to manage. One of the most frustrating aspects of these diseases are how difficult they are to diagnose…for both the superintendent AND the diagnostician. With that in mind, we have developed highly accurate and fast molecular detection assays for the fungi that cause summer patch, take-all patch, and necrotic ring spot. These assays, termed loop-mediated isothermal amplification (LAMP) assays, have been used in medicine and other areas of Plant Pathology in recent years and are touted for their speed, accuracy, and the fact you don't need pricey equipment to conduct the assay. We will hopefully be using these assays in our diagnostic work at the TDL in 2018 and beyond. This 3-year study was led by Dr. Brijesh Karakkat and was funded by the OJ Noer Foundation, which is unrelated to the OJ Noer Turfgrass Research and Education Facility.

Nitrogen Rate and Source Impacts on Dollar Spot Pathogenicity

Dollar spot is the number one disease most Wisconsin superintendents face, and nitrogen fertility is known to impact dollar spot development. Though dollar spot is known as a low-nitrogen disease, it remains unclear exactly what level of nitrogen is low enough to increase dollar spot. In addition, various nitrogen sources have been previously reported to impact dollar spot development. Ron Townsend from the Chicago District Golf Association conducted this research as part of his M.S. degree requirements and found that nitrogen applied as urea between 0 and 4 pounds of N per 1000 sq ft had virtually no impact on dollar spot development. However, at 6 pounds of N per 1000 sq ft the level of dollar spot decreased dramatically and provided disease control almost as effective as the fungicide program **(Figure 2)**. In addition, nitrogen source (among ammonium nitrate, calcium nitrate, and ammonium sulfate) was found to have no impact on dollar spot development. This 3-year research project ended this past summer and was jointly funded by the Chicago District Golf Association, the Illinois Turf Foundation, and the Midwest Association of Golf Course Superintendents.

The Turfgrass Microbiome

The microbiome is essentially the community of various microbes that interact in a given environment. For instance, the gut microbiome is the microbial community present in your digestive system, and research is showing it has a huge impacts on many factors related to human health. The phytobiome is the microbial community associated with plants, and has recently become an area of intense study. We have initiated multiple research projects investigating the impacts that various pesticides have on the turfgrass microbiome using recently developed molecular techniques that allow for mapping of microbial communities with great detail. The goal of this research is to 1) gain knowledge of the impact that pesticides have on the turfgrass microbiome and 2) to develop methods that will encourage healthy microbiome development that may improve plant health. Specific projects include one led by postdoctoral researcher Dr. Michael Millican and M.S. candidate Emma Buczkowski researching the effects of pesticide applications on the diversity of soil microorganisms. Another project includes assessing soil microbial diversity immediately after a fumigation event and assessing how the microbial community reestablishes over time. This particular project was conducted at Knollwood Country Club north of Chicago following a renovation by Superintendent Drew Barnett **(Figure 3)** and is currently being repeated at North Shore Country Club near Chicago following their renovation led by Superintendent Dan Dinelli. This is a new area of study for my group, and results have been frustratingly slow to come in with numerous failures. We are confident we have improved our methods and are excited about the potential results. This research currently doesn't have any direct funding, but we are in the process of applying for numerous national grants with other collaborating universities from around the country.

While the above research projects investigate how the microbial communities respond to pesticide applications, Ph.D. student Lily Gonzalez-Vazquez in my program is investigating how pesticides respond to changes in the microbiome. In particular, she is investigating how the microbiome changes over the course of a growing season, and the impact that those changes may have on how pesticides are broken down. Funding for this 5-year study is from a combination of Hatch Act funding and SciMed Graduate Research Scholars Program.

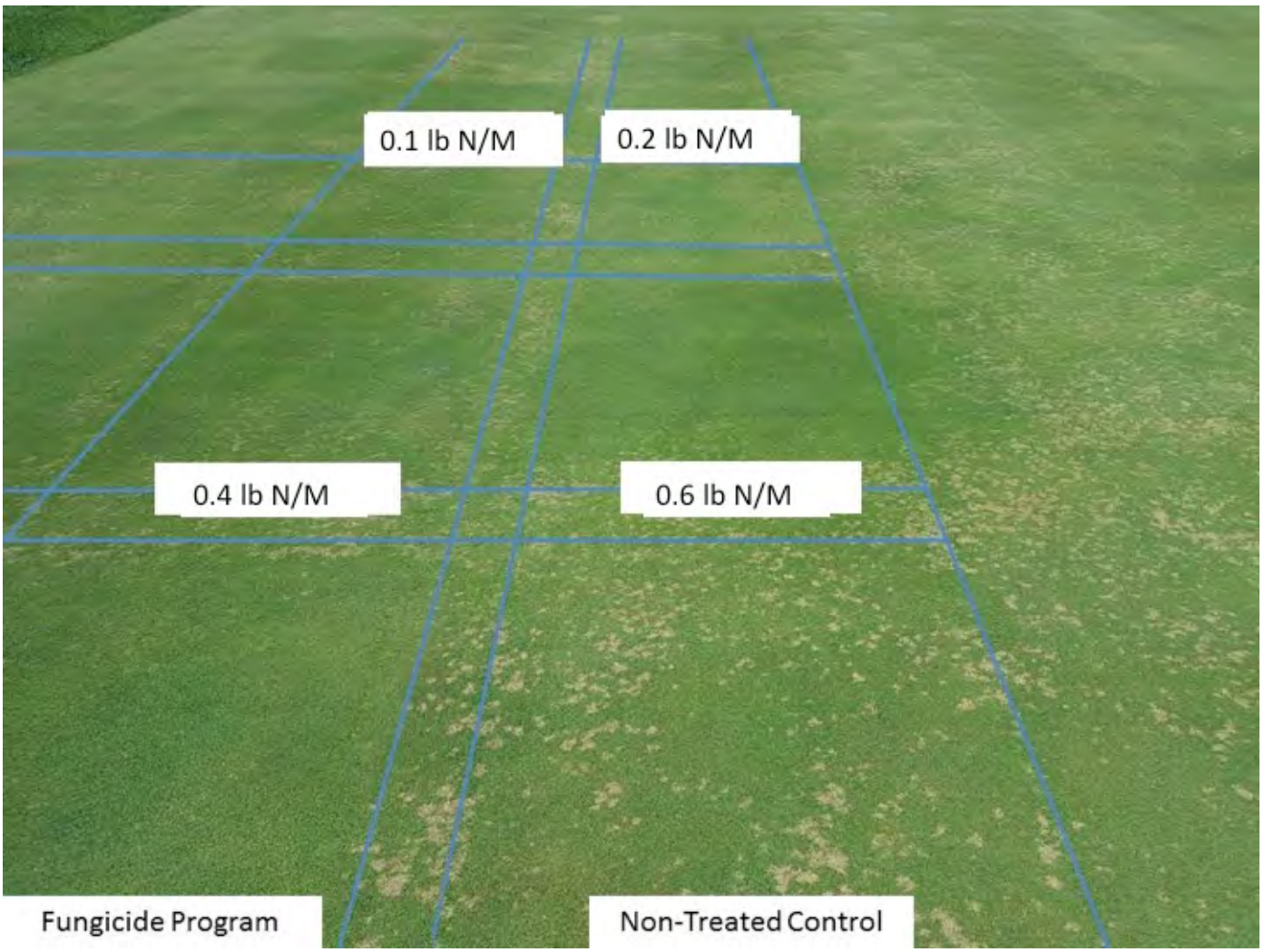

Figure 2: Ron Townsend's M.S. research consistently showed large decreases in dollar spot severity at 6 lbs of N applied annually per 1000 sq ft (0.6 lb applied biweekly, 10 apps), but much lower decreases in disease at lower nitrogen fertility rates.

WISCONSIN PATHOLOGY REPORT

The Common Ground Initiative

The Common Ground Initiative is designed to provide incentive for turfgrass managers to reduce the non-target impact of their pest management programs. I wrote about the initiative at length in the November/December 2016 issue of The Grass Roots and spoke about it at the 2016 Wisconsin Golf Turf Symposium. While many support the initiative and have offered positive feedback, it has been the most controversial thing I have undertaken since I've been at UW. We have made numerous updates to the initiative in response to thoughtful feedback from many of you, and I will detail those updates in a future issue of The Grass Roots. In brief, we have collected numerous golf course pesticide records and are fine tuning the statewide 'average' of pesticide impact. We also conducted a field study last summer testing various target reductions from the statewide average and found that no decrease in dollar spot control or turf quality was observed as low as 75% below the statewide average. This report can be viewed at the TDL Fungicide Testing Results website (https://tdl.wisc.edu/summer-2017-turfgrass-pathology-research/). I look forward to continuing to work with the industry on this initiative, and as always I welcome your feedback. This effort is currently being entirely funded by internal turf pathology program funds.

New Research and Outreach Projects

I received word in late December that we were successful in our application for a GCSAA Chapter Research Grant. The grant is titled 'Dollar Spot Control Using Urea and Iron Sulfate' and will look to further explore the ability of iron sulfate to suppress dollar spot. Iron sulfate on it's own (except at very high concentrations) and urea on it's own (except at very high levels) fail to adequately control dollar spot, but there have been anecdotal reports that superintendents combining the two in a regular spoonfeeding program have had more success. In addition, various reapplication intervals and water volumes will be explored in the hopes of obtaining significant dollar spot suppression while maintaining optimal turfgrass quality. This project is funded by the GCSAA, the WGCSA, and the Minnesota GCSA and is a joint project between Dr. Soldat and myself here at UW and researchers Dr. Brian Horgan and Sam Bauer at the University of Minnesota.

Just prior to receiving the good news from the GCSAA I also received news from the USGA that our research proposal to them had been selected for funding. The grant is titled 'Sclerotinia homoeocarpa epidemiology and resistance development as measured through improved molecular detection techniques' and will attempt to develop methods for quantifying the dollar spot fungus and resistant strains of the fungus in the field BEFORE symptoms become visible. This research is critical to obtain a better understanding of the basic biology of the dollar spot fungus, which will help us develop more effective control strategies. This research project is a collaboration between myself at UW, Dr. Bruce Clarke and Dr. Jim Murphy at Rutgers University, and Dr. Geunhwa Jung at the University of Massachusetts – Amherst.

Lastly, we are in the process of developing a new pesticide recommendation website for professional turfgrass managers. This website will allow you to search for pesticide recommendations in two ways. The first way is to search by pest and see our rankings (on a 1 to 4 scale) of the various pesticides for that pest. The second is to search by pesticide and see all the pests that a particular pesticide is labeled for. We are collaborating with Rutgers University and the University of Kentucky for the fungicide rankings and hope to have the website fully operational for all pests (diseases, weeds, insects) in the spring of 2018. Stay tuned for more information!

Superintendents know that they are only as good as the people around them, and my position is no different. I am profoundly lucky to have the people in my program that work as hard as they do **(Figure 4)**, and am also lucky to be able to count on your support year after year to fund significant portions of our program. I'm excited for 2018 and look forward to seeing you at meetings or out on the course to continue our work improving our state's great turf industry.

Figure 3: Our study at Knollwood Country Club north of Chicago investigating the impacts of soil fumigation on the turfgrass microbiome and how it reestablishes in the presence of various soil amendments. Thanks to Drew Barnett of Knollwood CC for hosting this study in 2016-2017 and for Dan Dinelli of North Shore CC in Glenview, IL for hosting a similar study in 2017-2018.

Figure 4: A huge thanks to all of the staff and students who made 2017 such a successful year for our program. Here we are, in order of finish, at the end-of-the-season mini-golf grudge match. From left to right: Kurt Hockemeyer, Michael Millican, Colten Demorett, Paul Koch, Matt Kapushinski, Brijesh Karakkat, Megan Olson, Sarah Arndt, Lily Gonzalez-Vazquez, and Emma Buczkowski.

A Review of 2017: My 1st Year as TDL Manager

By Kurt Hockemeyer, Turfgrass Diagnostic Lab Manager, O.J. Noer Turfgrass Research and Education Facility

WARNING. Star Wars: The Last Jedi spoilers ahead.

My first year as manager of the TDL was quite a hectic one, especially early in the growing season as I was still trying to get into a good rhythm for managing the diagnostic samples, conducting research trials, and maintaining the bentgrass putting greens. My undergrad help and spray technician didn't start work until the middle and end of May, respectively. Those first few weeks of April and early May were pretty stressful, but somehow, as always, I got through it. I'm always kind of in awe at how those stressful times look so much different when they are behind you. We can see the mistakes we made, the hours we put in, and the good choices too. Hopefully we can reflect and learn from these experiences. As Yoda says in The Last Jedi, "The greatest teacher, failure is." Hopefully I didn't spoil the movie for anyone. It's so true though. So enough about Star Wars and let's get into the numbers of the TDL from 2017.

I believe the record for most samples submitted to the TDL in one year is somewhere around the 250 mark, so the lab was just a little short on that number last year, with a total of 235 samples. Most of the samples were submitted between the months of May and August. A few samples were submitted on either side of that time frame, mostly just some folks who were concerned about some kind of winter damage or snow mold breakthrough. August was the busiest month with about 65 samples received. Thankfully I did not have to diagnose all 65 of those as Dr. Koch took over the lab for one week during August! But that's good for him to keep his diagnostic skills sharp. Not surprising, a majority of samples submitted came from the state of Wisconsin. Other popular states were Minnesota, Illinois, and Ohio (Figure 1). A few samples came all the way from western Montana, and one sample originated from Oklahoma. I even had some bermudagrass to diagnose.

The weather last year was pretty conducive to several different turfgrass diseases. Plenty of rain in early and mid-summer led to plenty of fungal development. Ascochyta leaf blight requires excessive moisture for infection and there was a rash of those samples submitted in early summer. Bipolaris leaf spot was very prevalent during the wet and warm parts of last year. The moisture early last year allowed the root pathogens to infect and compromise many root systems. But those symptoms did not reveal themselves until drier conditions prevailed into the fall. Anthracnose did not show up on my doorstep until August, which is not entirely surprising. As the stresses of the growing season built up and built up the plants on putting greens finally started to give in to anthracnose infection.

Not all of my job in the lab is to diagnose diseases though. Plant identification this past year was pretty varied. Through most of the year there wasn't really any one type of broadleaf or grassy weed that I kept seeing in the lab. That is, until we started to dry out. Rough bluegrass started coming in waves. This weedy grass thrives in cool, moist, and shady conditions. Plenty of moisture to start the growing season allowed this plant to grow and spread, but once the skies closed up, the shallow root system of these plants died out fairly quickly.

About 50% of all samples were submitted on behalf of homeowners, whether directly from the homeowner, or from a lawn care company. 42% of samples were from a golf course. The remaining samples came from sports fields or sod farms or I didn't know where it came from. We have several ways that submitters can pay for their submissions, including online by credit card, cash, and check. But one of the things that makes our lab unique is that we have contract members. The contracts are paid before the season even begins and gives our members access to several advantages. First off, contract members know that they have a specific number of sample submissions that are already paid for. No need for worrying about getting a sample paid or where the money is coming out of your budget. Second, contract samples receive priority when multiple samples come into the lab.

I always strive to contact all professional submitters (not just contract members) within 24 hours of receiving a sample with at least a preliminary diagnosis, because we know that your time is important. But contract members will receive first priority. Third, contract samples receive a discount on the price of full length reports.

Stardard reports give the bare minimum of information for a diagnosis, but full length reports contain a full rundown of everything that was seen in your sample, recommendations for addressing the diagnosis, and full color photos. Often these full length reports are used to present to club members to help them understand any issues facing the golf course. And finally, contract members have access to the bi-weekly TDL Updates, written by myself and Dr. Koch. Every other week we release this update that describes any trends we are seeing in the lab that may be of importance for contract members. I've heard that many contract members subscribe only for access to this resource. Our lab's funding comes mostly from these contracts, and that's why they are so important. Thanks to all of our existing contract members for your support of the TDL. If anyone is interested in becoming a contract member, don't hesitate to contact either myself or Dr. Koch for more information. Here's to a great 2018!

TDL
TURFGRASS DIAGNOSTIC LAB

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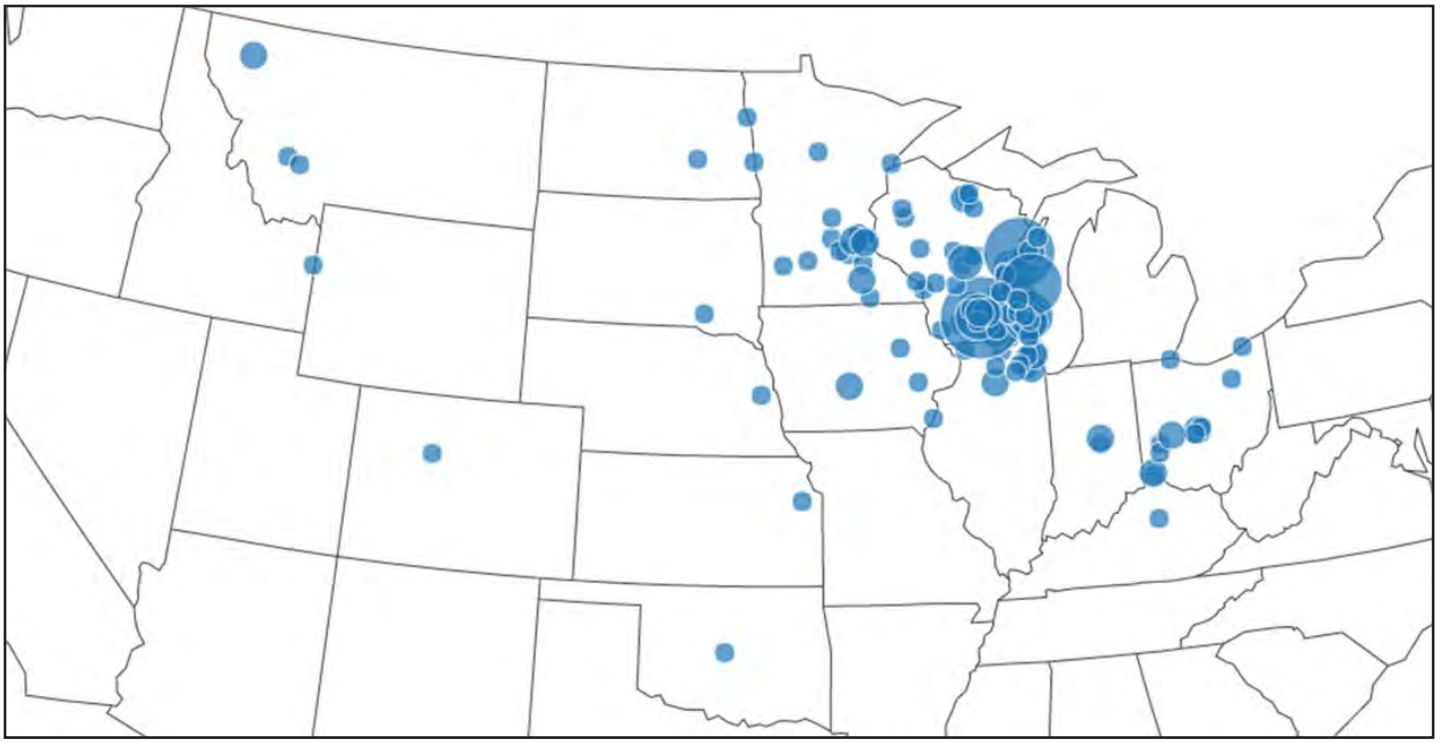

Figure 1. A graphical representation of where in the US each of the TDL samples came from. Larger circles mean more samples came from that area.

BACK IN TIME

Editors Note: A look back 52 years ago when Peter Miller began Vol 1 Issue 1 of Play Golf, the Official Publication of the Wisconsin Golf Course Superintendents Association. It was a valient attempt at communication in a different age and time compared to todays instant information.

WGCSA

Wisconsin Golf Course Superintendents Assn.

PLAY GOLF

VOL. I, NO. 1 APRIL, 1966

ANNUAL RYERSON MEETING APRIL 11

Starting 12 Noon

The New North Shore Country Club

If weather permits, a tour of the golf course.

Dinner Provided

Speaker: Dr. Thompson speaking on first aid.

A group picture will be taken, so be sure to attend.

You Help Choose The Name

Say, how about a title for our bulletin; surely some of you can come up with one: Badger Banter, Flag Stick News, Supt. News., anything you think we would like to call our newsletter. I cannot offer a trip to Florida, but you would be able to brag a bit that you named the newsletter.

I saw quite a few of you at the National Convention in Kansas City. As I have attended only three years I'm probably not an authority, but we had a good representation—25-30 people. That's great; I hope that next year in Washington, D.C., we will have as many.

Incidentally, why don't more of you people join the National, a real good organization? It's real easy, only costs you $50 which you should be able to convince your club to pay. The benefits start there: you receive a very fine magazine, $1,000 of life insurance, fellowship with superintendents from all over the country, and access to files of information. The National is a good organization, good for you.

This was a good conference this year. Kansas City had very good facilities, auditorium, the motel rooms were very good and the eating places, especially for steak, were excellent. The conferences were well attended, well worth your while, always something to suit everybody's varied interest. Mine in this particular case was water, and I found plenty of information on it at the conference.

I thought Roger Larson gave a fine talk; we should be proud of him, as California is now.

Bits and Banter

by PETER MILLER

I received an invitation from Wisconsin Turf and Equipment Co. to attend their Tenth Anniversary at their business location in Janesville, Wisconsin. Bill Eckert and myself went down not knowing really what to expect.

We were very impressed. Someone had done a wonderful job laying out a very good program. Each company or supplier, of which there were nine represented, were placed so as to represent holes on a golf course, each hole being a dart board. The visitors then proceeded to play "golf", being scored on each hole and possibly winning a prize. Bill was lucky enough to win a bag of Milorganite; he can just add that to the 2,000 bags that he already has.

The whole group was fed a very good dinner at the Vet's Club in Janesville and then heard a tremendous speaker, subject—"Have a Happy Heart". I assure you not a person left without a happy heart, so that would mean there were 238 happy hearts.

I think that congratulations are due Ralph and Ray Christophersen and their crew for a vesy fine job, and also to wish them an equally successful future.

Say, how many of you attended the flower and garden show in Milwaukee? If you did not, I think that you missed a great opportunity. Try to see it next year.

WGCSA Bulletin

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Irv Johnson Is Good Example Of Correspondent

How many of you have a local newspaper or newsletter that the club puts out weekly or bi-weekly, that you could write an article for? Quite a few, I bet.

There is probably not a greater way to inform your club about what is happening and when. Also, this is a great way to let your members know that you take great pride and interest in your golf course, and that you would like them to do so also.

I have a very good example here, an article written by Irv Johnson for the *BDM Divots*, the newsletter put out by Butte Des Morts Golf Club. It reads as follows:

Greens and Fairways Stand Long Winter

This year the golfers are off to a late start. Winter weather lasted through Easter. This may have been great for the many skiers at BDM and yours truly, but actually, I guess I would rather golf than ski.

Greens, fairways, and tees came through the winter in fine shape. Not so our creek crossings. Most culverts and some bridges were washed out by flood waters during the first week in April.

The new interceptor sewer which follows Mud Creek across holes 13, 14, 15, 12, 7, 4, leaves a bad scar. Flood waters uncovered much of the sewer line which was filled with loose soil awaiting a sodding job. Dry weather is needed now so thaft heavy trucks can bring in materials for finishing off this work. Bahr Construction has decided to sod all of this work to reduce the danger of more flood damage later before seed could get a firm sod built up. By June 1, the golf course should be in betttr shape than ever before and damage done by nature and man (or boys) should be completely healed.

Remember each individual that plays golf carries with him a responsibility to improve the course by his consideration of the people who follow him, and for the grounds. The better golfers more than ever must keep up the lead in setting a good example and by teaching others not to abuse or litter the golf course.

A new home for the superintendent is rapidly taking shape where the old one used to be. A heavy end loader and a couple of trucks made short work of the shack that was there. In two hours only a hole in the ground remained. It is the hope that this is the start of a continuing program to update the golf course at BDM. IRV JOHNSON

This is an excellent example of what you could be doing or should be doing for yourself and your golf course, whether your course is public or private.

SELL'S CELL

by WILLIAM SELL

Many of the Superintendents in the Milwaukee area attended the 37th International Turfgrass Conference and Show in Kansas City, Mo., the week of February 13th. Even though the area was fairly well represented there could have been many more present. The benefits derived from a conference and show are invaluable, and more superintendents should make an effort to attend.

Perhaps the officials of some of the clubs do not realize we have a National Organization; if they could be made aware of this, they may request the superintendent to become a member and to attend the meetings.

I was happy to hear that Ray Mertens of Racine Meadowbrook joined at Kansas City. Saw Roger Larson, Superintendent of golf courses for Del Monte Properties in California, and it was most interesting to hear how differently things are done on the Monterey Peninsula as compared to Wisconsin.

Patience, Patience, Patience

By Bruce Schweiger, Manager, O.J. Noer Turfgrass Research and Education Facility

Many of you may not have heard the good news from the O.J. Noer Turfgrass Research Facility (Noer). This maybe a long story but it is worth the telling.

In my first four years working at the Noer, I worked closely with Tom Schwab. A frequent topic of conversation was the lack of storage space, especially for the winter season. The Noer opened in 1992 and in that 27-year history the only real addition to the facility was the construction of a state of the art pesticide storage and mixing building. As with your courses every few years there seems to be a new piece of equipment or in our case, new pieces of specialized equipment used to perform our world-class research. Over time, the building is bursting at the seams. During the summer, a few of the less frequently used pieces can be stored in our metal covered hoop house. The cost of replacement equipment is so high, under cover storage for these pieces of equipment is more practical. Over the years Tom somehow made it work. Alas, even the Tetris genius is bound to loose. We began discussing the need for a new building and the best placement for this building.

As happens every year the UW will ask for requests for needed buildings, improvements and remodeling project. I took this to mean if I started asking for a building it would only be a matter of time. I soon to learned where this building might actually stand in the line for funding. Being afraid my equipment might have rusted to dust by then I was determined to find a different source of funding.

In January 2017, I reached out to the WGCSA Board with a request to fund a small 10 ft. x 20 ft. building with a gravel floor. As it happens, the WGCSA Board was meeting very soon after my request. I received a call from chapter manager Brett Grams explaining to me that the WGCSA Board was interested but felt the building was too small and should have a concrete floor. I quickly scrambled and received a quote for a 20 ft. x 30 ft. with a concrete floor. I submitted this information to Brett who disseminated it to the board. After some discussion the Board asked where we go from here.

Because this is a University facility, the UW Facilities Building and Maintenance Department needed to be brought into the discussion as to how we could make this dream a reality. The head of the department, Doug Sabatke, met with myself, Dwight Mueller (my then boss) and Phil Dunigan (the wizard of finance) to locate the building and have further discussion. One chilly February morning we met at the Noer and looked at the proposed site. Everyone was on board with one modification. The UW would not approve the building without electricity. A new hurdle and more financing needed.

The new pad ready for construction to start.

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NOTES FROM THE NOER

I worked with Cleary Building on the entire process. They sent out their electrician to determine where the electricity would come from and gave me a cost estimate. Luckily, when the pesticide building was built, it was wired for future expansion. The electrician would be able to connect to that electrical panel and run power 20 feet to the new building. We could have power but we needed funds to pay for it. I debated asking the WGCSA for more funds but decide that if a building were to be constructed it would make more impact if there were multiple organizations involved. I approached the WTA Board and explained the project and requested funding for the electrical upgrade to the building. Again, timing was great as they had a board very soon after the quote was complete and they granted my request.

Funding was in place, it was March. We would have a new building to do a grand opening at the July WTA Summer Field Day. Wrong! Now came the very time consuming part of the process. Gifts such as these need approval from the UW Board of Regents. The Regents do not meet frequently. Additionally, you need to be placed on the agenda. The earliest this project would be placed on the agenda was June. It came before the Regents and passed unanimously. Now we get to build a building! Not yet, patience.

To undertake a gift building project the UW enters into a legal agreement with the funding group to lease the land during the construction phase then after the project is complete they release the deeded land back to the UW. This could be very difficult since the funding was from two sources, luckily the money the WGCSA had committed had been already donated to the WTA and was being held at the UW Foundation in the Sustainability Fund. This fund was created years ago to fund research projects, graduate students and improvements to the Noer. The agreement goes through the WTA, with both parties being recognized as funding agents. After a few drafts of the agreement WTA President, Paul Huggett, signed the agreement and we were all set. Timeline is now forth week in June. Patience.

The building is being constructed by Cleary Building. I chose them because they built the existing pesticide building. This experience meant they understood UW policy and we able to match the existing building. A contract was signed with Cleary right after the Board of Regents approved the plan in June. They patiently waited for the land use agreements. Once it was signed all they needed was a check from the WTA and we were all set to begin construction. By now the possibility of even turning over soil before the WTA Summer Field Day was gone. Cleary was planning on an early August start all they required was a down payment on the contract and we are off.

The UW Foundation explained to the WTA president Huggett, the Sustainability Committee would need to have a meeting and approve the fund be spent of the project to release the money. Dan Biddick, Deer Creek Seed and WTA past president chairs that committee and arrange a special meeting the first week in July. The committee met and approved the request to spend these funds and forwarded the minutes to the UW Foundation. No check was sent, no money transferred. We had hit another roadblock. Patience.

There had been some changes in the way the UW Foundation could release these funds. There are too many people to list here that stepped up to the plate to assist the WTA being able to use the funds as they were designated. This process was long and hard. I can tell you at least five times I was assured that the funds were being released and we would be ready to begin. I would then inform Cleary, the WTA and WGCSA Presidents. A week would go by then I would receive a call from Cleary, "No check yet. Any idea where it is?" Jump back into action and the path was blocked or stalled. I can tell you that in early September the issue was solved and Cleary received their check.

Mid-September Cleary was on site, staked the site and shot grades. The last week in September the excavation was complete and the subgrade installed.

Now as luck would have it the very next morning when I was off property a professor that is conducting corn research in the field on the west side of the Noer brought out three trucks full of students and drove right through the new gravel pad. I quickly explained to them that my building pad was not a road and rerouted them to the proper entrance path to their plots.

Then on October 15th materials arrived. October 23rd the crew arrived and construction began in earnest. In seven days the building was erected, electrical install, rough grading and concrete was poured. I have included pictures of the process and the finished product.

I cannot thank the Board of the WGCSA and WTA enough for the support in funding this much needed building. I also thank them for their patience as the process hit roadblock after roadblock. I know they must have been frustrated by the project because at times I felt like Peter in Peter and the Wolf.

THANK YOU to both organizations!!!!

Top Left: Framed and ready for siding

Middle Right: The outside is complete.

Bottom: The inside is complete with concrete floor.

Evaluation of Application Strategies for Wetting Agents

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

The prevalence of hydrophobic conditions in sand root zones of golf course putting greens has led to continued research and development of wetting agents intended to prevent the development of localized dry spot (LDS). When I get protocols to test wetting agents, they almost always come with strict instructions to apply at least one quarter inch of water immediately after applying the product. We have always followed those instructions, but with the knowledge that the vast majority of superintendents are unable to do so when they apply them. Over my 10 or so years of testing wetting agents, we've struggled to identify differences among them. This stands in contrast to the feedback I often get from superintendents about the sometimes large differences in efficacy, or firmness, or soil moisture that they notice when switching between wetting agents. I started to wonder if the difference superintendents were observing was related to the way the products were being applied. Were some just more effective than others with less than the recommended watering? Therefore, we designed a study to investigate the efficacy of several wetting agents compared to a non-treated control under two different application strategies: one where the product was applied monthly and immediately watered in with a large amount of water and another where the product was applied at a half rate every 14 days and watered in overnight.

This research was conducted at the O.J. Noer Research Facility on a 'Penncross' creeping bentgrass putting green grown on a sand-based root zone. The plots were 4 ft. by 6 ft. and arrayed in a randomized complete block design with three replications. The treatments consisted of an untreated control and different wetting agents applied at the rates and frequencies listed in **Table 1**. In general, wetting agents were applied according to the label instructions (monthly, 4-6 oz/M, watered in immediately after application) and then the same group of wetting agents were applied at a split rate (14 days, 2-3 oz/M, watered in overnight). The first application occurred on June 9, 2017, and then at the appropriate re-application intervals shown in **Table 1** until the last application was made on Sept 1, 2017. Data were collected through September 15, 2017.

The putting green was mowed at 0.125 inches five days per week and fertilized using urea at 0.2 lbs N/M approximately every 14 days. Turfgrass quality and percent localized dry spot were evaluated every other week. Turfgrass quality was measured using the standard protocol for the National Turfgrass Evaluation Program (NTEP). Where the visual appearance of the turf is judged on a scale of 1-9 with 1 representing completely dead or brown turf, 6 representing the minimally acceptable quality to a golf course superintendent and 9 represents the highest possible turf quality.

Table 1. Average turfgrass quality, local dry spot, surface firmness, and soil moisture content during study period. Different letters indicate statistically significant differences at the 0.05 level.

Treatment	Rate	Water-In	Turf Quality	Localized Dry Spot	Surface Firmness	Soil Moisture Content
			1-9, 9=best	%	higher is softer	%
Control	n/a	n/a	4.71 de	20.5 ab	460 abc	12.7 bcd
Tri-Cure	4 oz/M, 28 d	Immediate	5.71 ab	6.2 cd	489 abc	13.0 bc
Parallel	4 oz/M, 28 d	Immediate	5.54 abc	6.3 cd	484 abc	11.7 bcd
Command	0.8 oz/M, 28 d	Immediate	4.42 e	27.3 a	439 c	10.6 d
Magnus	4 oz/M, 28 d	Immediate	5.67 abc	2.5 d	470 abc	13.1 b
TeraFirm	4 oz/M, 28 d	Immediate	5.0 cde	15.9 bc	463 abc	12.3 bcd
Revolution	6 oz/M, 28 d	Immediate	5.88 a	4.5 d	500 ab	13.5 b
Tri-Cure	2 oz/M, 14 d	Overnight	5.54 abc	4.5 d	446 bc	12.5 bcd
Parallel	2 oz/M, 14 d	Overnight	5.67 abc	5.6 cd	469 abc	13.6 b
Command	0.4 oz/M, 14 d	Overnight	4.62 de	25.9 ab	442 ac	10.8 cd
Magnus	2 oz/M, 14 d	Overnight	5.17 bcd	9.5 cd	492 abc	12.4 bcd
TerraFirm	2 oz/M, 14 d	Overnight	5.13 bcd	9.5 cd	460 abc	11.6 bcd
Revolution	3 oz/M, 14 d	Overnight	6.04 a	1.4 d	514 a	16.0 a

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Soil moisture and soil surface hardness was measured monthly. Soil moisture was measured using time domain reflectometry (TDR) via the TDR-300 (Spectrum Technologies) on a 1 ft centers for a total of 15 measurements for each plot. The data from these measurements were used to calculate average soil moisture, soil moisture uniformity (standard deviation of moisture), and maps of the moisture distribution. The TruFirm Turf Frimness Meter (Spectrum Technologies) was used to quantify the surface hardness as affected by the treatments by dropping the weight three times from a standard height and recording the average of the last two drops. The water drop penetration test was conducted on soil cores monthly during the study. This test is used to quantify the degree of water repellency of the soil. To conduct the test, small drops of water were placed at 1 cm intervals down to a depth of 5 cm of an air dried soil core. A stopwatch was used to record the amount of time required for each drop to fully penetrate the soil core.

Because of an unusually wet June and July, localized dry spot did not begin to manifest until August. Table 1 summarizes the average turf quality, localized dry spot, surface firmness and soil moisture content over the growing season. It appears that the split-rate applications were as effective as the monthly applications as the split applications had similar turf quality, LDS, and soil moisture content as their monthly counterparts. When we grouped the wetting agents together and ran statistics on the application strategy, we found no significant differences between the application strategies (Table 2).

Table 2. Average turfgrass visual quality, local dry spot, surface firmness, and soil moisture content under as affected by application strategy. Different letters indicate statistically significant differences at the 0.05 level.

Application Strategy	Turf Quality	Localized Dry Spot	Surface Firmness	Soil Moisture Content
Monthly, Immediate Watering	5.4 a	10.5 b	474 a	12.4 a
14 days, Nightly Watering	5.4 a	9.4 b	471 a	12.8 a
Non-treated Control	4.7 b	20.5 a	460 a	12.7 a

Table 3. Average moisture content as affected by treatment at individual dates through the study period. Different letters indicate statistically significant differences at the 0.05 level.

Treatment	Water-In	6/9	6/27	7/7	7/20	8/1	8/17	9/1	9/15
		Average % H_2O							
Control	n/a	19.5 ab	13.5 ab	12.3 abc	17.1 ab	13.2 bc	11.4 bcde	9.4 cde	5.1 bcd
Tri-Cure	Immediate	17.4 ab	12.4 ab	13.5 abc	15.2 b	13.2 bc	13.4 abcd	12.3 abc	6.4 abcd
Parallel	Immediate	14.2 b	10.8 b	12.6 abc	14.4 b	12.2 bcd	12.1 bcde	11.5 bcd	5.9 bcd
Command	Immediate	15.4 b	11.0 b	12.7 abc	14.7 b	10.0 d	10.2 cde	7.4 e	3.7 d
Magnus	Immediate	15.1 b	12.3 ab	13.2 abc	14.8 b	14.8 ab	13.9 abc	13.4 ab	7.1 abc
TeraFirm	Immediate	16.1 b	12.6 ab	13.5 abc	16.3 ab	11.6 cd	12.0 bcde	11.2 bcd	5.6 bcd
Revolution	Immediate	16.9 ab	12.5 ab	13.7 ab	16.4 ab	13.7 abc	13.8 abc	13.0 ab	8.0 ab
Tri-Cure	Night	14.9 b	10.9 b	10.9 bc	15.3 b	14.5 ab	12.8 bcde	13.3 ab	7.3 abc
Parallel	Night	18.4 ab	12.4 ab	11.9 abc	15.6 ab	14.6 ab	14.7 ab	13.2 ab	8.0 ab
Command	Night	16.4 ab	10.2 b	10.8 bc	14.9 b	11.4 cd	9.7 de	8.5 de	4.8 bcd
Magnus	Night	15.6 b	10.8 b	10.6 c	15.0 b	13.4 bc	13.4 abcd	12.7 abc	7.6 abc
TeraFirm	Night	18.6 ab	12.3 ab	11.9 abc	15.5 ab	12.3 bcd	9.1 e	8.3 de	4.3 cd
Revolution	Night	21.9 a	15.3 a	14.4 a	18.6 a	16.5 a	16.9 a	15.0 a	9.7 a

Table 4. Average turfgrass visual quality (1-9, 9=best) content as affected by treatment at individual dates through the study period. Different letters indicate statistically significant differences at the 0.05 level.

Treatment	Water-In	6/9	6/27	7/7	7/20	8/1	8/17	9/1	9/15
Control	n/a	6.3 a	5.7 ab	5.0 ab	5.3 a	5.3 a	4.0 abcd	3.0 cd	3.0 d
Tri-Cure	Immediate	6.3 a	6.0 ab	4.7 ab	5.7 a	4.7 a	5.0 ab	7.0 a	6.3 ab
Parallel	Immediate	6.3 a	5.3 ab	4.7 ab	5.7 a	4.3 a	4.7 abc	7.0 a	6.3 ab
Command	Immediate	6.0 a	5.7 ab	5.3 ab	5.3 a	4.7 a	3.0 d	2.7 d	2.7 d
Magnus	Immediate	5.7 a	6.3 ab	4.3 b	5.7 a	4.3 a	5.0 ab	7.0 a	7.0 a
TeraFirm	Immediate	6.0 a	6.0 ab	5.3 ab	5.7 a	5.0 a	3.7 bcd	4.0 cd	4.3 c
Revolution	Immediate	6.7 a	5.7 ab	5.7 a	5.7 a	4.7 a	4.7 abc	7.0 a	7.0 a
Tri-Cure	Night	6.0 a	5.0 b	4.3 b	5.7 a	5.0 a	5.0 ab	7.0 a	6.3 ab
Parallel	Night	6.3 a	6.0 ab	5.0 ab	6.0 a	4.3 a	5.0 ab	6.0 ab	6.7 ab
Command	Night	6.3 a	6.3 ab	5.0 ab	5.3 a	4.3 a	3.3 cd	3.3 cd	3.0 d
Magnus	Night	5.7 a	5.3 ab	4.3 b	5.3 a	4.3 a	4.7 abc	6.0 ab	5.7 b
TeraFirm	Night	6.0 a	6.3 ab	4.7 ab	6.3 a	5.0 a	3.7 bcd	4.7 bc	4.3 c
Revolution	Night	6.3 a	6.7 a	5.0 ab	6.3 a	5.3 a	5.3 a	6.7 a	6.7 ab

Table 7 shows the results of the water drop penetration test. The data suggest the there are no significant differences between the two application strategies in water drop penetration times. There are some trends that suggest the monthly application results in lower penetration times (good), but the differences are rarely significant.

In terms of product efficacy, in this trial Revolution was typically at or near the top for visual quality. Averaged over the year, Revolution was statistically similar in visual turfgrass quality to Tri-Cure and Parallel, and the monthly application of Magnus. Command and TeraFirm were at the bottom of the performance group. Command has a low application rate and the label indicates it is intended to increase infiltration, but says little about correcting hydrophobic soil conditions. Similarly, TeraFirm is marketed as a soil penetrant and the marketing materials highlight that the product is intended to promote infiltration and drainage – not correct localized dry spot. Therefore, it would be unfair to judge these products harshly for their performance in this trial. Magnus was interesting because it is a product intended to correct localized dry spot. It did so very well when applied monthly, but performed rather poorly relative to the other products when applied every 14 days (Table 5).

In conclusion, Revolution, Tri-Cure, and Parallel were effective at maintaining good quality turf under drought conditions regardless of application strategy. The products marketed as penetrants had little to no effect on localized dry spot. Only one product, Magnus, performed well under monthly applications but did poorly with the split applications.

Table 5. Average localized dry spot area as affected by treatment at individual dates through the study period. Different letters indicate statistically significant differences at the 0.05 level.

Treatment	Water-In	6/9	6/27	7/7	7/20	8/1	8/17	9/1	9/15
		% of plot area							
Control	n/a	0 a	13.3 a	3.3 ab	7.3 a	5.7 ab	35.7 abc	38.3 abc	60.0 a
Tri-Cure	Immediate	0 a	6.7 ab	1.0 ab	3.3 a	10.0 ab	18.3 bc	5.0 cd	5.0 c
Parallel	Immediate	0 a	6.7 ab	0.7 b	7.3 a	9.0 ab	18.3 bc	3.3 cd	5.0 c
Command	Immediate	0 a	2.3 ab	0 b	6.7 a	20.0 a	55.7 a	66.7 a	66.7 a
Magnus	Immediate	0 a	5.7 ab	0 b	5.7 a	3.3 b	5.0 c	0 d	0.7 c
TeraFirm	Immediate	0 a	5.0 ab	0 b	5.7 a	8.3 ab	40.0 ab	30. bcd0	38.3 ab
Revolution	Immediate	0 a	3.3 ab	0 b	2.3 a	7.3 ab	18.3 bc	3.3 cd	1.7 c
Tri-Cure	Night	0 a	7.3 ab	5.0 a	2.3 a	3.3 b	11.0 bc	3.3 cd	3.3 c
Parallel	Night	0 a	5.0 ab	0 b	3.3 a	13.3 ab	13.3 bc	5.0 cd	5.0 c
Command	Night	0 a	8.3 ab	1.7 ab	5.0 a	13.3 ab	55.7 a	61.7 ab	61.7 a
Magnus	Night	0 a	11.0 ab	4.0 ab	5.0 a	13.0 ab	23.3 abc	8.3 cd	11.7 bc
TeraFirm	Night	0 a	3.3 ab	1.7 ab	3.3 a	4.0 b	28.3 abc	11.7 cd	23.3 bc
Revolution	Night	0 a	0.7 b	0 b	1.7 a	0.7 b	5.0 c	1.7 d	1.7 c

Table 6. Average surface firmness (as measured by the TruFirm Meter from Spectrum) as affected by treatment at individual dates through the study period. Different letters indicate statistically significant differences at the 0.05 level.

Treatment	Water-In	6/27	7/27	8/25	9/15
		Higher number is a softer surface			
Control	n/a	446 ab	506 a	409 ef	480 abcde
Tri-Cure	Immediate	460 ab	503 a	504 abcd	489 abcd
Parallel	Immediate	428 ab	531 a	503 def	482 abcde
Command	Immediate	417 ab	513 a	414 abc	410 de
Magnus	Immediate	406 ab	505 a	514 cdef	455 bcde
TeraFirm	Immediate	472 a	502 a	423 bcdef	456 bcde
Revolution	Immediate	479 a	515 a	454 bcdef	552 a
Tri-Cure	Night	340 b	482 a	477 bcdef	484 abcde
Parallel	Night	354 ab	490 a	526 ab	508 abc
Command	Night	425 ab	546 a	397 f	400 e
Magnus	Night	423 ab	533 a	498 abcde	512 abc
TeraFirm	Night	427 ab	516 a	457 bcdef	440 cde
Revolution	Night	436 ab	518 a	575 a	529 ab

Table 7. Water drop penetration test results from cores taken on September 15, 2017. Means within columns followed by similar letters are not statistically different at the 95% confidence level. Means separated by Fisher's Protected $LSD_{0.05}$.

Treatment	Water-In	Depth of Water Droplet on Soil Core					
		0 cm	1 cm	2 cm	3 cm	4 cm	5 cm
		---------- time (s) until water drop penetrates the core ----------					
Control	n/a	125 a	285 a	297 a	286 a	276 a	250 a
Tri-Cure	Immediate	7 d	16 d	30 e	46 c	70 e	75 cd
Parallel	Immediate	12 d	21 d	30 de	55 c	97 de	93 cd
Command	Immediate	28 bcd	169 b	267 ab	253 ab	196 ab	204 ab
Magnus	Immediate	7 d	25 d	30 de	50 c	109 cde	76 cd
TeraFirm	Immediate	28 bcd	118 bc	228 b	227 ab	195 abc	201 ab
Revolution	Immediate	7 d	19 d	37 cde	69 c	75 e	45 d
Tri-Cure	Night	15 cd	22 d	52 cde	74 c	67 e	66 cd
Parallel	Night	9 d	38 d	97 cd	89 c	84 de	69 cd
Command	Night	42 b	256 a	253 ab	252 ab	234 ab	223 ab
Magnus	Night	19 bcd	46 d	87 cde	106 c	98 de	93 cd
TeraFirm	Night	38 bc	140 b	207 b	194 b	169 bcd	154 bc
Revolution	Night	7 d	60 cd	103 c	100 c	78 e	60 d

News and Updates From The Noer

By Bruce Schweiger, Manager, O.J. Noer Turfgrass Research and Education Facility

The O.J. Noer Turfgrass Research Facility had another strong year. The Professors provide some new insights and great research. We survived a few floods, this seems to be becoming the norm. Many of the accomplishments are due to the support of the entire Turfgrass Industry.

As you will read in another article, the biggest donation of the year was the new storage building funded by the WGCSA and WTA. I want to thank Paul Huggett, President of the WTA, Jon Canavan, President WGCSA and Neil Radatz, WTA Board Member for all the assistance and patience.

The Noer has come to depend on Reinders for their generous donation of equipment. Every spring the Reinders delivery truck pulls in with a Brand New Toro Triplex Greensmower (this year a 3150-Q) and a Heavy Duty Workman with hydraulics. These are pieces of equipment that the Noer would never be able to purchase. They have been making these donations for years. When Dr. Soldat purchased a traffic modeling machine, Reinders was there to assist us in making sure the hydraulic would be compatible to operate this machine. Thank you to Reinders and Toro!

JW Turf came to the Noer and we discussed the use of a John Deere 9009A to mow the general turf areas. After a few discussions a John Deere 9009A was delivered by Matt Springer for our use this year. This large area mower has decreased the time it would take to keep the plots mowed and also allowed us to mow some areas multiple times during the week. I was concerned with the size of the machine and the banks around many of our research plots, this large mower would scalp these banked areas. After a few weeks I was very impressed that the 9009A mowed all the green plots banks with NO scalping. After a few weeks my staff began striping the entire property and if you missed it the appearance was amazing. Larry, my season long staff, sure hopes there will be another John Deere 9009A in the shop when he returns next summer! Thank you to Matt Springer, JW Turf and John Deere!

There are many areas of the Noer that receive annual fertilizer applications. Mike Krupke and Insight FS from Jefferson was generous enough to ask for a list of our needs and provide us with the products and quantities the Noer needed. This may not sound like much but having a stock pile of various products is priceless when an application is needed by one of the researchers. This allows them to make the application when the need without waiting until that product can be purchased. Thank you to Mike Krupke and Insight FS!

Above: Reinders donated a Toro triplex greensmower and workman for the Noer Center for the year.

Below: JW Turf brought a John Deere 9009A to mow the general turf areas faster and without scalping for the season.

NOTES FROM THE NOER

Each year the researchers will be looking into the future on various plots and their future needs. This past year Dr. Koch discussed a new project under the rain structure. He needed removal of a very specialized irrigation system and the plot re-grassed. Removing abandon irrigation was fun, just make a mess, till it under and start over. An issue Dr. Koch identified was that the plot in question could not be irrigated from the Toro control system. After some discussion we arrived at two options:

1) Battery operated stand-alone controller

2) Pull new control wires to the plot and wire them into the existing controller and install irrigation

With the assistance of Carl Dowse, Site One Irrigation, and Justin Johnson, Olson-Toon Landscape, we were able to pull wires for the new plot along with extra wires for future expansion. On a sunny Saturday morning Justin and Carl arrived at the O.J. Noer bright and early and they pulled the wires to the existing rainout shelter. This project would not have been accomplished without their donations of time and equipment. The plot was then grassed by Dr. Koch's turfgrass class and is ready for research. Thank you to Carl Dowse and Justin Johnson!

The O.J. Noer is always looking to upgrade our equipment inventory. Over the last few years Matt Kregel at Strawberry Creek has been generous enough to make a few donations. Last year he was sorting his cups and flagsticks. He had noticed that the cups and flagsticks the Noer had been using were very worn out. He donated a good set of cups and red and white flagsticks (Badger Colors). When he purchased a new Buffalo Blower it made the older Toro debris blower out dated. The Toro Blower is not the newest piece of equipment and the trade-in value was low, so he offered it to the Noer. It was a great replacement for the hand held blower, it had come in very useful for blowing clippings, cleaning the parking lot and clean-up after topdressing and aerification. Thank you Matt for all your support!

One huge help came from Phil Davidson from University Ridge Golf Course. During growing season Phil has always been there when I need to borrow a piece of equipment for a short period of time. Phil has always been there when the Noer needed him. This year he went further allowing Jeff his irrigation technician to be so helpful. This spring he was my guide through the 17 irrigation breaks and leaks. Phil soon realized I am not a top rated mechanic but I can get things done with guidance ok a lot of guidance.

During my tenure here at the O.J. Noer he has always been very willing to allow Scott his mechanic to help me with diagnosis issues. Besides the donated equipment much of our fleet is somewhat old. Without the help of University Ridge Golf Course our equipment and some maintenance practices might not be accomplished our very limited budget. Thank you to Phil and his staff!

To all those I have mentioned and a few I am sure I forgot, THANK YOU!

Justin Johnson Olson-Toon Landscape brought out a trencher and wire puller to install irrigation wires.

Carl Dowse, Site One Irrigation and Justin Johnson from Olson-Toon Landscape install new irrigation wires.

Looking across the Noer Center plots you can see the donated equipment makes a big difference.

MEMBER SPOTLIGHT

Mike Stein

By Josh Lepine, Certified Golf Course Superintendent, Maple Bluff Country Club &
Ben Labarre, Golf Course Superintendent, The Legend at Bristlecone

Author Note: Thank you to everyone who participated in the Membership survey. The information and feedback obtained was invaluable. The requests for more member spotlight stories inspired me to start this column. I hope to randomly highlight a few members each edition from all geographic areas, facility types and membership classifications. It may take me 20 years to get to everyone in the directory but please be ready for that phone to ring and be prepared to share stories, photos and information about YOU!

Name: **Mike Stein**
Company Position: Golf Course Superintendent, Dretzka Park Golf Course
Years as WGCSA Member: **3**
Membership Classification: **B**

18 Holes With Mike Stein

1. **How did you get started in the turfgrass industry?** My older brother worked at Chikaming Country Club near our hometown of Sawyer, Michigan. He helped me get a job there over the summer of my sophomore year of High School. After working two summers there, I was unsure what to do after high school, so family friend Brian Zimmerman suggested I spend a summer in Milwaukee, where he was the Turf Manager for the Parks. I worked at Whitnal Park Golf Course for a season, and enrolled at Rutgers University's 2 year turf program. After completing the program, I became the Assistant at Whitnal. After working at Whitnal for a few more years, I moved to Lincoln Park Golf Course. After one season there, the opportunity arose at Dretzka, where I am today, and have been, since 2013.

2. What is the most rewarding part of your career? Building relationships with our patrons, improving playing conditions, sharing knowledge with youth during field trips to the course and coaching our seasonal staff.

3. What would you consider to be your greatest career challenge? Finding balance between work and home life.

4. Which three adjectives describes you the best? Easy Going, Hardworking, Helpful

5. Tell us about your family. My wife, Jessica, and I have been married for 5 years. We have two amazing young boys, Wyatt, 3 and Henry 1. We enjoy spending time outside and taking our dog Cooper for walks. We love watching and attending sporting events and trying new restaurants around town.

6. Any pets? Cooper our family dog, 7, who comes to work with me every day.

7. What drives/motivates you every day? Always trying to improve myself as a Husband, Father and Manager.

8. Who Would You Admire? My wife. She supports me in the summer when the days are long, and days off are few and far between.

9. Who is the person in history you'd most like to meet? My Great Grandfather Pat, who passed when I was just a baby. He was a mechanic who started his own Cadillac dealership in Springfield, Missouri. He was quite the fisherman and woodworker. I would have loved to talk woodworking with him and build something together. We still have many of the pieces he has made.

Above: Wyatt and Henry supporting the Packers

Below: Cooper at Dretzka Park

MEMBER SPOTLIGHT

Mike and Cooper taking a ride at the golf course.

10. What's a fun fact that people don't know about you? I am pretty handy, but never find time to finish projects at home.
11. What do you do in your spare time, favorite hobbies? Jessica says I have too many hobbies. Some include woodworking, beekeeping, and smoking meats. We hope to start camping and hiking as a family when the kids get a little bit older.
12. If you could go anywhere in the world on vacation, where would you go? Ireland
13. What is the one thing you would like to learn/accomplish someday? Restore a classic vehicle with my kids.
14. What is your favorite turf management related tool or technique? Twitter and a soil probe.
15. Favorites:
TV Show: The Woodwright Shop or the Red Green Show
Movie: Cinderella Man or Boondock Saints
Food: Lasagna
Sports Teams: The Packers
16. Do you golf? Handicap? Best shot or golf story? Anybody who has played golf with me knows I am not very good, but that leaves plenty of room for improvement!
17. Top Bucket List Item? Win the Lottery!
18. If you could provide one piece of professional advice, what would it be? Stay humble. Remember your roots.

Top Right: Mike and Jessica at the Badger vs Iowa game in 2017

Below Left: The Stein family at Bay Beach in Green Bay

Below Right: At the Brewer Game in 2017

MEMBER SPOTLIGHT

Henry, Jessica, Mike and Henry Stein with Cooper not wanting to particiapte in the family picture.

2018 Turfgrass Research Day

By David A. Brandenburg, Editor, The Grass Roots

The Wisconsin Turfgrass Association education committee and University of Wisconsin team of professors did an excellent job providing a fulfilling agenda for the 2018 Turfgrass Research Day Conference and Webinar. For a change the weather was near perfect for the trip to Madison and our view of Lake Mendota was filled with ice fishing shanties, walkers and the occasional ice skater.

Dr. Doug Soldat welcomed those in physical attendance and those watching from home on the webinar. He reminded us the importance of industry support in education and research. Remember to say thank you to the vendors who are listed on page 41 for supporting the conference costs.

Dr. Soldat discussed the Wisconsin Distinguished Graduate Fellowships that help cover graduate students tuition and stipend so they can concentrate on their work. The Robert C. Newman Fellowship is currently vacant but the others are as follows:

Wayne R. Kussow Fellowship – Ben Henke – MS Soils
Terry and Kathleen Kurth Fellowship – Audrey Simard – MS Entomology
John and Flora Berbee Fellowship – Emma Buczkowski – MS Plant Pathology

Doug then presented the scholarship recipients although most of the students were off campus enjoying their winter break.

WGCSA James R. Love Scholarship ($1,500) given to a junior or senior in turf and grounds management specialization was awarded to **Isaac Zimmerman**. Isaac is a senior in soil science and a native of Kiel. He has worked at Miller Park and University Ridge Golf Course.

Charles O. Newlin Scholarship ($1,500) given to an undergraduate studying turfgrass science in horticulture, plant path, entomology or related field was awarded to **Michael Bekken**. Michael is working on his Ph.D. in soils and received his BS at William and Mary majoring in biology and geology. He has worked for the R7A and Golf Environment Organization (GEO) in Edinburgh, Scotland. Bekken is studying the impact of best management practices on resource use in the Soldat Lab.

Emma Buczkowski being congratulated by Dr. Soldat for receiving the James W.. Huggett Memorial Scholarship.

WTA James W. Huggett Memorial Scholarship ($1,000) given to a junior, senior or grad student in horticulture, plant pathology or soil science was awarded to **Emma Buczkowski**. Emma is working towards her masters in plant pathology. She is from Portland Oregon and received her BS at Oregon State University. Emma studies the impact of pesticides on soil organisms in the Koch Lab and plans to work at a research technician in academia or industry.

WTA Scholarship ($500) given to a junior, senior or graduate student in horticulture, plant pathology and soil science was awarded to M**ichael Bekken** described above and **Lily Ganzalez Vazquez.** Lily is working on her Ph.D. in Plant Pathology and is from Puerto Rico. Lily obtained her BS at the University of Puerto Rico and studies the impact of pesticides on non-target organisms in the Koch Lab.

After a brief break to get the bugs out of the A/V equipment **Dr. Chris Williamson** began his talk on Best Management Practices for Honeybees by announcing Dr. Soldat has become a full professor. Congratulations Doug!

Chris started out explain that there are many more pollinators than just honeybees but there has been several tough years for pollinators of all kinds.

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Dr. Chris Williamson discussing BMP's for Honeybees.

The Oregon bee kill due to an applicator error happened in 2003 and started the discussion of neoniconide bans across the country. The media not being one to miss a good story has hyped it up and helped spread misinformation. Dr. Williamson reminded us that neoniconides revolutionized the white grub management.

He offered up the Bee Lab at the University of Minnesota (https://www.beelab.uwm.edu) as a good source for information on bees. 1/3 of our food supply and 70% of food crops depend on pollinators tying their success to ours.

Pesticides have played a role in reduced pollinator numbers but it is clearly not the only factor. Commercial use of bees places a lot of stress on colonies as they move across the country as does diseases and mites. To protect the bees product labels have been changed to include the highly visible Bee Box to alert applicators to the products effect on hives.

More research is needed especially on how hives overwinter and why some are successful and others are not. Bee Best Management Practices are being developed and improved to help us promote bees.

Dr. Williamson is working with 6 golf course as part of his Pollinator Protection Program Project. The courses are:

- Janesville Country Club
- Evansville Country Club
- UW Ridge Golf Course
- Blackhawk County Club
- Bishops Bay Country Club
- West Bend Country Club

Dr. Williamson contributed the Pollinator Fact Sheet that can be found on Pages 42 and 43.

Dr. Williamson can be reached at rcwilliamson@wisc.edu and followed on twitter @turfento .

Carmen Magro came to the podium next to discuss POGO and Optimizing Turf Performance and Health Through

Carmen Magro presented new ways to optimize turf health with technology.

Technology. Magro has been a superintendent and was Director of the Golf Course Turfgrass Management Program at Penn State before entering the sales and research industries.

Now with Stevens Water Monitoring Systems he is working on bringing technology into predicting and identifying turf problems.

The proper air and water balance is key for proper turfgrass maintenance throughout the world. Carmen explained how plant roots may extend 4 to 8 inches in the soil but most of the important roots that do the work are in the top 2.5".

Left: A view from the back row

Below: A few snacks and stories were shared before participants headed for home.

POGO provides a tool to not only measure moisture but also salinity and canopy temperature while using GPS to record the locations and syncs data for tracking trends and recording readings.

The GPS feature allows the unit to create maps and even pin sheets noting the location of the cup. The unit can also be used to track irrigation uniformity without the use of collection cups. As we know just because water hits the surface does not mean it is soaking in evenly.

Carmen can be reached at cmagro@stevenswater.com

Despite battling a cold **Dr. Paul Koch** was next to discuss Precision Disease Management: Present Strategies and Future Research Objectives.

Paul discussed how precision can help operators make turf protectant applications only when we need to and only where they need to be applied. He also added using a product with a low environmental impact will help.

Koch used dollar spot as an example of a problem found throughout the Midwest. Dollar spot has limited cultural practices to reduce its severity or turf plants with natural resistance. Even though dollar spot has been a common disease for over 100 years we still do not know a lot about how the fungus interacts with the plant.

Early on the fungus lives in the plant in an amicable relationship before it is triggered to become an enemy of the plant. Can we use models to make fungicide applications just before the fungus is triggered and the disease develops? Previous models have failed but the Smith Kerns model is showing promise with its use of Relative Humidity and Temperature as the main predictors.

Dr. Paul Koch discussed precision applications and dollar spot prediction models.

Using the model to schedule applications for dollar spot should result in savings of time and product especially in the shoulder seasons when the weather is often variable.

The Smith Kerns Model is available to us through the Turfgrass Diagnostic Lab website (https://tdl.wisc.edu/dollar-spot-model/) and through the Green Keeper App which can be used on computers, not just portable devices.

Dr. Koch announced he received matching fund for a grant to further study the impact of iron sulfate and urea to control dollar spot. He can be reached at plkoch@wisc.edu or followed on twitter @uwpaul

Dr. Frank Rossi then joined us via video feed to discuss Urban Grassland Management Program. He discussed the importance of using Best Management Practices (BMP's) to develop relationships with regulators before regulations are developed. It is up to us as users of water, fertilizers and fungicides to be recognized as environmental leaders.

He gave an example about a local superintendent could not afford the equipment wash water recycling system that was designed for his property but by reducing his water use through the use of a strahman nozzle he built a system for $6,000. Wash stations are priced and sized based on the amount of water they use. In this case planning ahead saved water, money and allowed the club to install the wash pad.

Rossi is doing research on golf spike design and how different footwear effects ball roll and green speed later in the day.

Unfortunately for turf managers complaints about new spike design often falls on deaf ears as there is only one primary spike manufacture in the world and the shoe companies have more money than we do.

Frank closed with a discussion on data and if I got this correct "Data won't replace a good manager, it will make a good manager better. Data won't help a bad manger and it may make them worse.

It was good to see Dr. Rossi again even by video and it is hard to believe this child of New York left UW Wisconsin 22 years ago to return to Cornell where he received his Ph.D.. Frank will be awarded the GCSAA Presidents Award for Environmental Stewardship at the Golf Industry Show for his work. Frank can be reached at fsr3@cornell.edu or followed on twitter at @fsr3.

Kurt Hockemeyer, Manager of the Turfgrass Diagnostic Lab was next up to provide an update on the lab and the variety of samples received in the 2017 season. Of the 235 samples 131 were from Wisconsin with the bulk of the rest from Minnesota, Illinois and Ohio.

34% of the samples sent in were abiotic with no disease present. Some of the unique items included ascochyta leaf blight which gives turf a droughty appearance, infects the plant at the cut and is spread by wheel tracks. Basal rot anthracnose usually thought of a problem for poa annua was seen to be more sever on bentgrass this past season.

Kurt Hockemeyer gave a update on the Turf Diagnostic Lab and a review of 2017 sampling.

Plant identification is part of Kurt's responsibility and with the wet summer and dry spells in the fall rough bluegrass (poa trivialis) was a common complaint on home lawns as it started to check out as it is known to do.

Hockemeyer described the TDL contract program to provide subscribers regular email updates through the summer and priority for submitted samples. 64% of his samples were from contract subscribers who get a number of free samples depending on their contract amount.

Kurt can be reached at hockemeyer@wisc.edu or followed on twitter at @kurtaculous.

Leslie Ptak, Compliance Assistance Specialist in the Madison OSHA Office joined us to discuss how OSHA works with the Green Industry. Leslie started explaining the difference between inspection and compliance assistance and that everyone's goal is less workplace injuries. The turf industry averages one fatality a year but overall the highest percentage of workplace fatalities is being struck by an object with falls the second most common.

In Leslie's region temporary workers and young workers have become a priority both of which have been common in the turf industry.

Leslie Ptak shared this important poster from OSHA to remind us of the dangers of working outside in hot weather.

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Ptak discussed some changes to injury reporting taking effect next year under OSHA 1904.41. Reporting changes for companies with 20 to 249 companies and again over 250 employees.

Changes in rules regarding silica may affect our industry when it comes to blowing off hard surfaces or spreading topdressing. Silica can accumulate in the lungs and cause cancers or silicosis. She suggested we consult the OSHA Small Entity Compliance Guide for the Respirable Crystalline Silica Standard for General Industry and Maritime and for the Respirable Crystalline Silica Standard for Construction for more information.

In happy news March is Ladder Safety Month and as someone who has ridden an extension ladder to the ground using a spotter is a good idea. The Heat Illness Prevention Campaign kicks off May 25th.

Our day ended as is started with **Dr. Doug Soldat** back at the podium to give his research update. Doug explained how the U.S. Open at Erin Hills was really the highlight of the golf season for himself and many in the badger state.

The first study Soldat discussed was on cart use and how it compacts different soils based on moisture content. If we knew a measure of moisture percentage that our soils would compact could we use that information to decide when to allow or not allow carts across the fairways? 15 passes of a cart were used and although you could visibly see the cart tracks they could not detect a difference in bulk density of the soil. Compacting may not be the issue as much as rutting is.

Dr. Doug Soldat discussed his recent golf cart traffic study and gave an update on some of his ongoing projects.

Masters student Ben Henke is working on Growing Degree Models on bent fairways and low mow Kentucky blue grass. With growth regulators GDD should cause the same results in Wisconsin and Nebraska but Ben has shown in Wisconsin some products show more rebound. He also has shown that trimmit and anuew provide more control in July than May. This could be due to slower plant metabolism due to the heat of summer.

Work is also being done on to study minimum mowing frequencies on Bluegrass and fescue. Bluegrass does not provide satisfactory ratings with monthly mowing but fine fescue can provide a satisfactory result when mowed monthly without much traffic. Bella Kentucky Bluegrass is showing promise being mowed once a month but is expensive to start because it is started vegetatively rather than from seed. The benefit of Bella is the grass stood up to traffic when the fine fescue did not and provided good quality when mowed on 4 week intervals.

Other work includes building a better equation to determine sodium hazard and work continues on potassium and how it interacts with snow mold and how long plots can go without applications of K. First turfgrass needs less K than older soil tests recommended and second it seems the plant can get enough K from feldspar found in the sand.

Tests on Game On herbicide are showing promise for early season applications while tests on wetting agents are showing 4 week applications are not the only way to apply them. 2 week windows provided as good if not better results. For more information on these reports visit turf.wisc.edu .

Dr. Soldat can be reached at djsoldat@wisc.edu or followed on twitter at @djsoldat .

Overall it was another great educational opportunity for turf managers thanks to the sponsors, WTA Committee and of course the well versed speakers.

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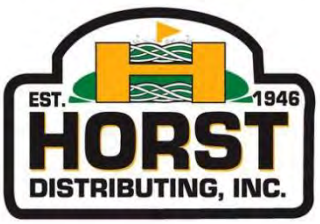

Best Management Practices for Turf Care and Pollinator Conservation: Fast Facts

- Populations of pollinating insects have been reduced by habitat loss, disease, parasitic mites, and misapplications of insecticides. We can take proactive steps to conserve these beneficial insects.
- Avoid applying liquid insecticides to the blooming portion of flowering weeds like dandelions or clover. To accomplish this in turf, mow before application or use a granular product.
- You can provide foraging habitat and nesting spots for pollinators by planting a diversity of blooming plants that provide flowers at different times in the growing season.

Best Management Practices for Turf Insecticides and Pollinators

If you are treating for belowground pests, consider using a granular—or spreadable—insecticide formulation. Granular products ensure insecticide residues go into the soil rather than into blooms of flowering weeds.

If you must treat with a liquid insecticide formulation, mow the area you will be treating immediately before application. Mowing removes the majority of flowers, thereby reducing foraging pollinators. While some modern insecticides are systemic, current research for weeds in turf has demonstrated that any systemic transfer of insecticides into weeds poses no hazard to pollinators.

Controlling flowering weeds prior-to or post-bloom with an herbicide before the application of an insecticide will also reduce the chances of directly contaminating flowers with an insecticide.

Species popular with pollinating insect species in prior research:

New England aster

Black eyed Susan

Pollinating insects are valuable organisms that we rely on for pollination services for crops, backyard vegetable gardens, and certain ornamental plants. In the last decade there has been concern about declining populations of bees and other pollinators. A general decline in pollinator numbers has been driven by the combined negative effects of habitat loss, diseases and parasites, and misapplied insecticides. All of these issues must be addressed if we are to help pollinators recover and mitigate future impact. In the turfgrass industries, managers must be aware of these issues and be proactive to ensure their methods do not contribute to losses in pollinator populations. To that end, researchers have developed rational, scientifically-based recommendations for Best Management Practices (BMP) that promote healthy landscapes, while conserving and enhancing pollinator health.

Follow label precautions and practice insecticide stewardship

Turfgrass stands are rarely devoid of weeds. Flowering weeds such as the common dandelion (*Taraxacum officinale*) and white clover (*Trifolium repens*) amongst others, provide an important food source for pollinators, particularly as early season forage for bees that emerge in spring. Weeds in cool season grass (bluegrass, fescue, rygrass) lawns host 50–100 different species of bees, butterflies, and flies. This demonstrates the need for us to consider the hazards to these insects from insecticide applications in turf. There are simple ways to reduce pollinator's exposure to insecticides. First and foremost, read and follow the label instructions on the insecticide you have selected. The wording on many insecticide labels have changed recently relative to pollinator conservation. The most common precaution is to avoid using insecticides on areas of turf with actively blooming weeds. This recommendation is the best way to minimize hazard from liquid insecticide applications that would coat flowers and taint pollen and nectar with insecticides. This is particularly important if you have a weedy patch of turf that needs an insecticide application.

Maximizing the surrounding landscape for pollinators

Habitat loss is one of the biggest contributors to pollinator decline. Bees need flowering plants for food but also spaces to nest. As natural habitats disappear, so do food and nesting resources. To help combat this problem, provide the best possible habitat for these important insects by planting a diversity of flowering plants in your landscape. This ensures that pollinating insects with differing food preferences will have a variety of shapes, colors, and sizes to choose from and that there will be plants in bloom throughout the growing season. Past research has shown that plants like New England aster, bergamot, black-eyed Susan, purple coneflower, plains coreopsis, prairie coneflower, and lanceleaf coreopsis can be quite attractive to a diverse array of pollinators. If you want to learn more about how you can successfully create your own pollinator gardens you can contact your local University Extension service to learn more about which flowering plants are suitable for planting in your area. In addition, the Pollinator Partnership offers free planting guides tailored to specific parts of the country at **www.pollinator.org/guides**. Finally, be sure to include resources for pollinators to use as nesting sites. For bees you can construct domiciles out of pieces of hollow bamboo or purchase pre-made "bee houses" to station in your gardens. Plans for building bee domiciles are available online. To help out butterflies and moths, you will need to include larval food resources such as milkweed for monarchs or parsley for black swallowtails. You can learn more online about caterpillar food preferences.

To view an electronic version of this publication, visit **ncipmc.org/action/fastfactsbmpturf.pdf**.

This work was supported by the USDA National Institute of Food and Agriculture, Crop Protection and Pest Management Program through the North Central IPM Center (2014-70006-22486). For more information about the development of this publication document, contact Susan T. Ratcliffe at sratclif@illinois.edu or by phone at (217) 333-9656.

This publication was developed during the National Pollinator Summit for the Development of Best Management Practices to Protect Pollinators in Turf (August 21-22, 2016, Sheboygan, Wisconsin). The authors, in collaboration with more than 60 university researchers, Extension specialists and industry stakeholders including lawn care professionals, golf course superintendents, managers and consultants, and product manufacturers have summarized and synthesized research and recommended management practices that protect pollinators in turf systems.

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Bergamot

Purple coneflower

Winters Ups and Downs

By David A. Brandenburg, Editor, The Grass Roots

As I finished last issues column we were in the middle of the coldest stretch of weather in quite a few years but since then the temperatures have been up and down and it has been somewhat dry in the Fond du Lac area.

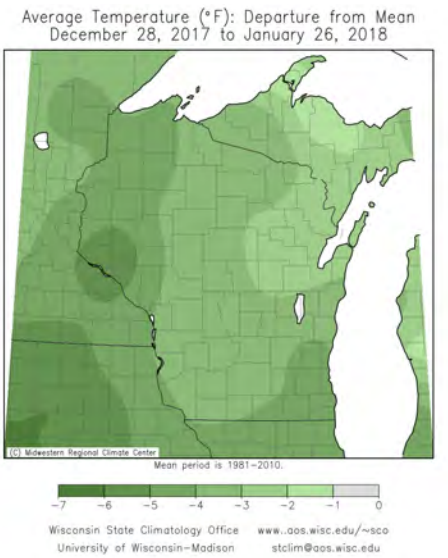
As of January 28th the frost depths vary from 3" to 6" by Janesville, 12" to 20" through Milwaukee up to the Fox Valley and Green Bay and the deepest depths in Madison, Lacross and the Dells with findings of 30" to 36".

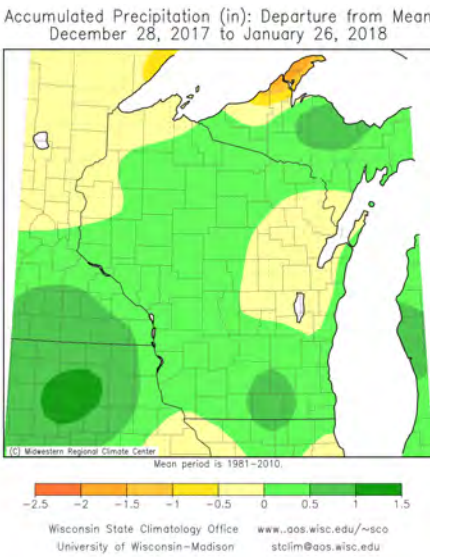
A few of our customers were playing at Pat Zurawski's The Golf Club at Camelot this weekend and were reporting 350 yard drives when hitting the frozen turf just right.

The forecast is showing more seasonable temperatures. In the Madison area the daily high's started rising on January 27th and we are not far from February 20th when the average daily high passes the freezing mark.

In Fond du Lac we have had a few rain events but so far the water has run off before any sudden freezes and the poa annua has seemed to stay dormant.

I have seen on twitter that some courses





have had to pump water from low spots due to the frozen ground and in some cases drain lines. Never a fun activity.

We have not been on the course much this winter preferring instead to remodel a men's rest room facility in the clubhouse. Starting from scratch including taking up the concrete floor to expose and replace old cast iron waste pipes before they collapse and cause problems. Any time we get to use concrete saws, jackhammers and pry bars it is a good winter.

****

Congratulations to Madisons Jerry Kelly for being named PGA Tour Champions 2017 Rookie of The Year. Kelly was able to win 2 events and was a regular top 10 finisher in his first year on the senior tour. Kelly had 3 wins on the regular tour and 91 top tens in his career.

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EDITOR'S NOTEBOOK

Congratulations to Eric Leonard and his wife Jess as they had their first child on New Years Eve. Ava Marie weighed 6lbs 15oz and was 20.25" tall.

****

From Club and Resort Business there are a couple clubs improving their clubhouses this winter with Prairie du Cheien Country Club geting a new 6,000sq ft facility expeceted to be open in mid-April.

Opened as a 9 hole layout in 1958 the course was redesigned into the current 18 hole layout by Gilmore & Graves in 1993.

Lake Windsor Country Club renovated it's Pinnacle Room to increase seating from 150 to 300 and add views of the golf course.

Lake Windsor opened in 1964 and offered 27 holes for a number of years before returning to 18 holes.

Best of luck to these clubs and everyone taking on capital projects this season.

****

WE NEED YOUR INFORMATION!

One of the more popular parts of The Grass Roots is the member news. Having Josh Lepine and Ben Labarre pen the Member Spotlight column helps but it only covers a few members a month.

Please send us your births, job changes, big deer, big fish, new dogs, old dogs, weddings and other member news so we can share it. Don't be shy and do not rely on the vendor members to tell me everything. Toot your horn, I am easy to reach at grassroots@wgcsa.com or 920-960-1678.

If you can send a picture that is helpful but sure is not needed.

You can also promote and tell us about a project you did. It can be as short as a picture with a caption, in the middle with before and after pictures or a entire article about the process from start to finish with pictures along the way.

I would be happy to help you out if you are uncomfortable putting your thoughts to paper or want some suggestions.

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2018 WISCONSIN GOLF EVENTS

Senior PGA American Family Insurance Championship June 18-24 University Ridge Golf Course.

LPGA Thornberry Creek Classic, July 3-8, Thornberry Creek Golf Course.

WSGA 117th Wisconsin State Amateur, July 23-26, Minoqua Country Club.

Symetra Tour PHC Classic, August 4-6, Brown Deer Golf Course

WPGA Wisconsin 98th Wisconsin State Open, August 20-22, North Shore Golf Club.

EDITOR'S NOTEBOOK

Joe Deschler may not be the nicest guy in Wisconsin but he is near the top of the list. Well Joe is almost retired. Almost because he has retired from Horst Distributing, almost because he is still going to work with used turf equipment. Well to be honest, how many of you thought Joe would ever fully retire?

Born in Racine and raised in Mequon Joe joined the golf industry at Ozaukee Country Club. He enjoyed the work and thought it would make a great career so he enrolled in the two year program at Penn State after high school.

After the first year at Penn State Joe came home, got married and before he could get back to school became the Golf Course Superintendent at Tripoli Country Club in Brown Deer. At that time he was the youngest superintendent in the state and he never went back to school for the second year.

Joe enjoyed the work but not having 500 member bosses so in 1967 he joined Horst Distributing as a sales manager where he stayed for over 13 years.

I know your thinking he worked for Horst, he retired from Horst so that must be the end of the story. No it isn't the end, in fact it is only the middle of his story as Joe had a detour that turned out to be a dead end road.

He started a business manufacturing energy efficient structures made from foam and concrete. It was a good concept and a great product and it is how Joe's house was built. Unfortunately it was the wrong time to be in the building trades and in 1988 Joe closed up shop after losing most of what he had saved up so far in his life.

His job at Horst had long been filled but he was able to join first Mid-State out of Columbus and then Hanley Implement in Sun Prarie doing sales. As Joe puts it they were both good ag companies but didn't quite operate turf sales they way he was accustomed to.

In 1994 Ron Schumacher retired from Horst and Joe took the opportunity to go back there for another 23 years traveling the northwoods and Upper Peninsula of Michigan.

Joe left Horst in July and you can read more about his career in the July August 2002 issue of The Grass Roots. And if you do not have that one on your desk you can get it through the TGIF portal at the WGCSA website.

Congratulations Joe! You have been a good friend to all and we are happy for you. You can reach Joe at grassguy1019@gmail.com.

****

I hope I will see many of you at the Golf Industry Show in San Antonio and again at our upcoming educational events. Be sure to look at the event calendar on page 5 to get the events into your calendar.

The WGCSA assistants day and our spring meeting in Fond du Lac and the Northern Great Lakes event in Minocqua are good low cost educational events for you and your staff.

Stay warm and enjoy the slow season!

Right: Joe Deschler at the 2016 Summer Field Day talking turf and equipment as he loved to do.

Bottom: Joe with his grandaughter Mariah in the 2002 issue of The Grass Roots

Joe Deschler enjoys boating with granddaughter Mariah.

Right: Joe's cart at Tripoli in 1964 as shown in the O.J. Noer Photo Collection at Michigan State's TGIF.

Bottom: Joe with the Horst team of salesman with Dr. Engelke in 2004.

Left to Right: Randy Mallmann, Dennis Robinson, Dr. Milt Engelke, Greg Kallenberg, Joe Deschler. This picture was taken at Jacobsen's Global Product Training held this past October at Tega Cay Golf Club, Charlotte, NC. Dr. Engelke held seminars on turfgrass management for all sales people in attendance.

PLAY A ROUND FOR PAR 4 RESEARCH

The 2018 PAR 4 Research Auction will run during the masters week to raise money for turgrass research at UW-Madison.
Please consider donating a 4-Some from your club to the auction. In 8 years we have raised over $75,000!
Visit wsga.com or contact chapter manager Brett Grams for more information.

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