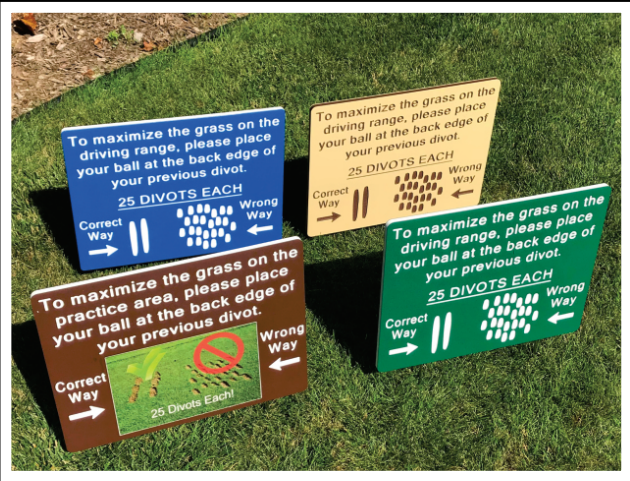


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THE GRASS ROOTS is the quarterly publication of the Wisconsin Golf Course Superintendents Association. No part of the THE GRASS ROOTS may be used without the expressed written permission of the editor.

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Here to Serve

By: Jeff Barlow, Certified Golf Course Superintendent, Waupaca Country Club


The golf season is upon us. Most of us have been preparing since last November, and the transition to spring is a welcome sight. I hope everyone's course wintered well. As many of us prepared for a mid-April opening, Mother Nature had other plans, and she prolonged the cold temperatures and winter-like weather for much of April and early May. As I write this article, it is May 10th, and we are just preparing to put the first cut on our roughs. From a positive standpoint, we haven't used much diesel fuel to date which is nice since fuel prices remain inflated.

As the weather has warmed over the last couple of days, golfers are again coming out in droves. It appears as if we are in for another busy golf season. This is once again positive for the golf industry, and I hope that this interest in the game of golf continues to grow in the long-term.

As our golf season begins, so do our monthly meetings. The golf and education committees have worked hard and spent significant time securing monthly meeting locations. Please try and attend these events. Bring a guest, neighboring golf course owner, superintendent, or staff member and show them what it is all about. Playing different courses may spark an idea that can improve your course, or by networking with fellow Superintendents, you just might learn something. It is difficult to justify continuing to ask clubs and owners to close the course for an event if very few people participate. Times are changing and I hear more of my board members concerned about not taking days off to recharge during the golf season. Take time and get away; your golf course won't miss you for a day or two.

To stay informed of the happenings of WGCSA, visit our website. This is our main form of communication. Please take time to open and read our emails and make it a habit to visit our website a couple of times weekly. If anyone isn't receiving regular communications, please reach out to Brett Grams, and he will be able to assist you with any issues that you may have.

In closing, I want to thank the members and industry partners for their continued support. Furthermore, if anyone were to have any questions or concerns, please pick up the phone or send an email or text to any board member. These ideas and concerns get shared with the board in an effort to improve the overall operation. The board wants what's best for its members and any ideas, concerns, or criticism would be welcomed. Remember, the board makes decisions, but the members are the ones that keep the association going!

Hope everyone is off to a successful start to the 2022 golf season! 



WGCSA MISSION STATEMENT

The Wisconsin Golf Course Superintendents Association is dedicated to serving its members, advocating on behalf of the golf course management industry, and supporting the future of golf.

WGCSA VISION STATEMENT

Through promoting environmental stewardship and best management practices on behalf of its members, the Wisconsin Golf Course Superintendents Association is recognized as the regional leader in golf course management.

SPRING BUSINESS MEETING AND THE GCSAA

By: Shane Conroy, GCSAA Field Staff-Great Lake Regional Representative

The Wisconsin GCSA Spring Business Meeting is always one of my favorite WGCSA events. It's great to hear from the board and connect with members as the season nears.

I was fortunate to have the opportunity to present a couple of times at this year's Spring Business Meeting. During the morning session, I spoke about various programs and initiatives coming forth from GCSAA, including the First Green program.

Founded in 1997, First Green is the only STEM (science, technology, engineering, and math) education and environmental outreach program in the United States and Canada that uses golf courses as learning labs.

First Green pairs golf courses with local schools, clubs, or organizations for unique STEM learning opportunities. This program is a great way to connect with the local community, promote the value of superintendents, and communicate the benefits that golf courses bring to the area. To date, nearly 20,000 students have participated in a First Green field trip. With several more scheduled for this summer and fall, the First Green continues to grow.

From the First Green, we dove into the new Certified Golf Course Superintendent (CGCS) and Certified Turf Equipment Manager (CTEM) designations. I know most of you are familiar with the CGCS designation. However, there have been some updates to the program which took effect this past fall. The modernization updates include:

- Removing the self-assessment and portfolio
- Incorporated portfolio items into the exam and attesting stages
- Updated the exam
- Developed a new attesting rubric

The modernization of the CGCS program does not make earning the coveted designation easier. Like most successful programs, as they grow, they need to evolve. This was the approach as the committee decided to make some changes to modernize the program. The intent was to keep the high standards of the certification process while reducing the amount of time necessary to complete it.

The CTEM designation is making its debut this year. The requirements to earn the CTEM designation include:

- Currently employed as a turf equipment manager
- 3 or more years' experience
- Successful completion of EM certificates levels 1 and 2
- Successful completion of shop attesting

To wrap up the morning presentation, I touched on a few more initiatives and programs including Rounds 4 Research (which had its best year yet earning over \$480,000), the Golf Course Environmental Profile Surveys (keep an eye out in your inbox for these important surveys), and the GCSAA Conference and Tradeshow.

During the afternoon session, WGCSA members took part in a Best Management Practices (BMP) Facility Workshop. WGCSA members brought their laptops for a hands-on learning experience where they left with their facility BMP underway. It was great to see so many superintendents take part in this important initiative. BMPs offer guidelines for superintendents to manage their facilities in an efficient and environmentally sustainable manner. BMP manuals document the professional course management and science-based practices you employ at your facility. While superintendents spearhead BMP efforts, the use of BMPs benefit everyone in the community.

I want to thank all the members who came out to the Spring Business Meeting and the chapter for giving me an opportunity to provide an update and conduct a Facility BMP Workshop. Have a great season, and as always, please reach out if I can help with anything. 🍀



Attendees taking in the offerings at the Spring Business Meeting held at South Hills Golf and Country Club in Fond du Lac.

SUMMER IS HERE! HOW TO FIND & RETAIN TALENT

Wisconsin Golf Industry Best Management Practices: Labor & Staffing



Wisconsin golf course maintenance departments provide full-time and seasonal work for a diverse workforce across the state. As we enter summer months when our golf courses are the busiest, having the right teams in place can help lead to a successful season. Conversely, labor shortages during summer months can create challenges.

Overcoming Labor Shortages

Labor supply is influenced by demographic, economic, technological, educational, and societal factors. BMPs help with overcoming labor shortages and minimizing staffing costs, lowering turnover and associated expenses. It is important to get in front of hiring by creating a talent funnel.

What Organizations Should You Work with to Recruit Candidates?

Talent acquisition is conducted through collaborating with local school systems, municipalities, workforce development boards, and community programs. Labor & Staffing BMPs include creating a system for continuous labor supply through developing multi-level local and state relationships.

A working system provides the ability to secure qualified job candidates in a turnkey manner, saving time and financial resources.

Engaging educational institutions is a priority. Support scholarships for local college students or host field trips for elementary, junior high, and high schools to explore golf courses from a science, math, biology, and learning perspective. Keep relations with educators and students going after programs have completed and share ongoing job opportunities to develop future generations of golf maintenance professionals.

Wisconsin Golf Industry Labor and Staffing BMPs:

- Adhere to federal & state hiring regulations, including compliance in areas of equal rights
- Provide ongoing OSHA & safety training, post required signage
- Communicate written operating standards in multiple languages & through various formats

- Educate on PPE & proper safety precautions when operating equipment or handling chemicals
- Understand current golf maintenance labor data, including expenses, retention, & turnover rate
- Utilize social media, newspapers, other platforms to communicate opportunities & workplace culture
- Lean on multiple recruiting pipelines to integrate diversity & inclusion into hiring practices
- Sponsor events, host meetings with community influencers i.e.; school administration, chambers of commerce, parents
- Explore H2B process for seasonal employees
- Create interview processes using internal teams, multistep screening, EEOC compliant questions, & rating systems
- Develop formal, consistent onboarding process to help employees acclimate
- Have a development plan for each employee, one they have a voice in creating & are excited about
- Utilize OTJ services from workforce development boards to create training; incorporate mentoring
- Create Apprenticeship program where students may take courses to enhance what is learned on the job
- Develop relations with government-based programs, school systems, vocational schools, community colleges, universities; provide continuing education opportunities

Best Practices for Recruitment

Finding the right person can require time and expenses, however filling the position with the wrong candidate costs even more. The Human Capital Benchmarking Report from the Society for Human Resource Management indicates that the average cost per-hire is \$4,129.00.

Structured hiring systems include recruitment, interviewing, and onboarding – these boost the quality and quantity of leads, plus improve efficiency. Connecting with vocational

rehabilitation programs, veteran-based programs, and JobCorps will help improve diversity and inclusion. *Resources for Recruiting:* www.wisconsinogolfbmp.org/bmphome/labor-staffing

Resources for Finding Candidates:

- Public workforce systems
- Vocational rehabilitation
- Veteran-based programs
- School systems
- Chamber of Commerce
- Ex-Offender programs
- Retirees
- Staffing agencies
- H2B program

On-the-Job Training

On-the-Job Training (OJT) can be developed internally or alongside workforce development boards for new hires focused on safety training, introductory job skills, and employability skills. OJT provides an opportunity to align mentors with new team members. These programs also offer reimbursement opportunities for employers to help compensate for costs associated with training and loss of production for newly hired employees.



Employee Retention for a Successful Operation

It is crucial to create a culture of inclusiveness, teamwork, learning, training, and professional development. This is important for reducing turnover, creating motivation, and increasing productivity. Retention impacts bottom-line results as it costs 30 percent of an annual salary on average to replace a worker. Track turnover metrics regularly to establish retention goals, improve communications, and control costs.

As superintendents, we are responsible for creating a positive culture. When we routinely check in with teams and are open to feedback it can promote a positive environment and successful operation! ✓

A SUCCESSFUL REBUILD: Equipment Manager Program Back In Action

By Austin Wright, Grounds Complex & Equipment Manager, Sand Valley Golf Resort

Over the last couple of seasons, we've had to take a step back from the Equipment Manager sessions and meetings and put our focus on our golf course operations. During this time, we had to simplify our day-to-day tasks around the shop due to COVID. The Wisconsin Golf Course Superintendents Association (WGCSA) Equipment Manager Committee also made a couple changes. We now welcome Justin Prescott (Kenosha CC) and John Niemiec (Westmoor CC) to the EM committee. The WGCSA Equipment Manager sessions will continue to be directed towards bettering the golf course technicians and build the profession in Wisconsin.

Seminar Recap

We kickstarted the 2022 Equipment Manager Sessions with a Fuel and Lubricants Seminar provided by Conserv FS and hosted by Ben LaBarre at The Legend at Bristlecone Maintenance Facility. I am pleased to announce that, including speakers and staff, there was a total of 27 technicians or industry workers in attendance. We even had a couple come up from Illinois.



No matter the course you are at or your geographic location, you will be using fuel and lubricants within your operation. We had great speakers from Conserv FS that spoke on gasoline and diesel fuels. They discussed the chemistries that make up high-quality fuels such as cetane improvers, detergents, corrosion protection, lubricity enhancers, oxidation inhibitors, fuel stabilizer, de-emulsifiers, and moisture control. **FUEL TANK TIP: Check your tanks for water.** This service is provided for free by your fuel supplier. If needed, consult with your supplier for drying agents over winter. Fuel tank filters should be 10-2 microns and made of micro-glass filter media. Fuel tank care is very important to

the overall operation since all the turf equipment uses the product that they store. Check your tanks a couple of times per year to ensure proper fuel storage.

During the lubricants portion of the session, we discussed quality lubricants such as engine oil, hydraulic fluid, and briefly touched on grease. When you consider purchasing lubricants for your operation, always know what the manufacturer requires for that particular machine. The manufacturer set the OEM standards for a lubricant for a reason. If you choose to use a different product (many of us do...), make certain that it meets or exceeds the OEM standards. **OIL/LUBE TIP: You get what you pay for...** If the product is cheap, there is a reason why it is cheap. Quality products provide quality protection. When you think of what our golf course equipment goes through on a day-to-day basis, we need to run high-quality lubricants. Unlike your personal vehicle, golf course equipment runs at full throttle for the majority of the time while performing the task. You need to consider this demand when choosing your lubrication products. Another great resource that you can use to better your operation is running an oil analysis on a few different machines. This is a way to check the health of your engine or hydraulic system. It also lets you know how your oil is holding up during that service duration. Can your oil and filter system go longer, or did you push your oil past the protection it can provide? These are all things to consider when performing your routine preventative maintenance.

Shop Tour

The best part of our Equipment Manager Educational Sessions is the shop tour. This is an opportunity for the host course to showcase their operation and tips/tricks. During this time, all the technicians in attendance are networking and discussing things they do in their shops. The Legend at Bristlecone has an amazing team with one of the most unique maintenance facilities in Wisconsin. Ben and his staff led three tour groups that talked about the different areas within the facility. As we went through the tour, we were able to see how their facility has evolved over the years. It was original to the section of land, and as it developed from farmland to a golf course and neighborhood, the farm buildings became the grounds facility. You can feel the character and history of the buildings. The Bristlecone team has done a fantastic job utilizing every inch of the facility in a positive manner.



Coolest Storage Barn (old cattle barn repurposed)

Look Into The Future

As the Equipment Manager Committee looks into the future, we are excited about some upcoming events/sessions that we are working towards (engine rebuilding, tech-to-tech training, golf events, etc.). We are striving to make the educational sessions free for WGCSA members. We need to continue to build the membership. More EM members within the WGCSA will lead to better education, speakers, events, etc. We feel that it is important to get every golf course technician involved with a local chapter. Building a local network is important to the success of the Equipment Manager profession. We are all working on similar equipment and looking to achieve the same goals. If you are having an issue, there is a good chance someone in the area has already solved the problem and can be a great resource. The EM Committee will also continue to work with the Assistant Superintendents Committee to setup an annual two-person (EM & Class C) scramble golf event. If it doesn't happen this year, we will work on lining it up for 2023.



Custom hand tool storage

“Being new to the industry, it is an awesome opportunity to meet other technicians in the field and learn how they run their operations. I look forward to more seminars and events that will help me grow throughout my career.”


Ryan Fleisner,
Equipment Technician, Sand Valley



Special thanks to Ben LaBarre and the entire Bristlecone team for hosting this event. We also want thank Conserv FS for providing the fuel and lubricant education. If anyone is interested in hosting an Equipment Manager event or have an education idea/topic, please don't hesitate to reach out to Austin Wright, awright@sandvalley.com or the WGCSA Board of Directors. ✓



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BRISTLECONE EVENT KICKS OFF THE YEAR

By: Adam Suelflow, Superintendent, Wisconsin Club

Super/Pro Event Recap

The 2022 WGCSA golf schedule is underway after a successful Super-Pro event hosted by Ben LaBarre and The Legend at Bristlecone. This event was sponsored by Premier Golf & Utility vehicles and is an annual event in conjunction with the WPGA. Weather conditions were right spot on for spring golf in Wisconsin-overcast with a high of 42 degrees. Despite the weather, there was a great turnout and a happy crowd come dinnertime. This event featured two divisions: Division 1 consisted of a superintendent and golf professional from the same facility while Division 2 was an open division.


Division 1 Results

- 1st Place – Josh Grisa/Riley Thomson (Blackwolf Run)
- 2nd Place – David Bach/Chris Zugel (Whistling Straits)
- 3rd Place – Jim Schuman/Alex Beson-Crone (Blue Mound G&CC)

Division 2 Results

- 1st Place – Steve Fischer/Ben Rudolph (Premier Golf & Utility Vehicles)
- 2nd Place – Scott Mowatt/Mike Dunlap (Lake Windsor GC)
- 3rd Place – Mark Voeller/Mark Lockhart (Golf Galaxy/Lauderdale Lakes GC)
- 3rd Place – Andrew Kosloske/Steve Vorpapel (Washington County GC)

June Golf Event Intro

Join us June 20th for our second golf event of the year. This event will be a two-person scramble event at the Wisconsin Club. The day will start with education from Doug Soldat followed by a 10:00 Shotgun. Lunch will be served on the course. The day will culminate with appetizers and cash bar at the “Turn Bar” near the 9th green. 

2022 WGCSA Events Calendar <i>as of 5.20.2022</i>		
Mon June 20th	June Golf Meeting	Wisconsin Club, Milwaukee
<i>Tues August 2nd</i>	<i>WTA Summer Field Day</i>	<i>OJ Noer Research Facility, Madison</i>
Mon August 22nd	Member Guest Meeting	South Hills CC, Fond du Lac
<i>Monday September 19th</i>	<i>Wee One Fundraiser</i>	<i>Pine Hills CC, Sheboygan, WI</i>
Fall TBD	Equipmt. Managers Meeting	Location TBD
<i>Monday, October 10th</i>	<i>WTA Golf Classic</i>	<i>Oneida Golf & CC</i>
Sat December 3rd	Couples/Guest Evening - Appleton	 <p>Wisconsin Chapter GCSAA GOLF COURSE SUPERINTENDENTS ASSOCIATION OF AMERICA</p>
January 11-12, 2023	56th Annual Turfgrass Symposium	

Bold are WGCSA organized. *Italicized are WTA/PGA/Wee One events.* **Red = To be determined**



Left to Right: Riley Thomson, Josh Grisa, Ben Rudolph, and Steve Fischer



Aaron Goninen lines up a putt on 18.



Hole 14 at The Legend at Bristlecone.



Host superintendent, Ben LaBarre (left), joined by Jim VanHerwynen, superintendent at South Hills Golf & Country Club and future host of the Member-Guest Meeting on August 22nd.



The Wisconsin Club—our host for the June meeting



Reinders Turf Conference Tradeshow Floor

REINDERS SHOW RETURNS

By: Jake Schneider, Editor

In a sign that 2022 might bring us back to some sense of normalcy, the biennial Reinders Green Industry Conference returned to the Waukesha Expo Center on March 9-10. Due to the pandemic, the 2020 show had to be cancelled, but it returned with a spirit of optimism after a long winter and two years of coronavirus-driven nonsense.

The 25th edition of the event kicked off in style with a performance by Wisconsin's very own Charlie Berens of 'Manitowoc Minute' fame. After sampling the infamous homemade donuts, Mr. Berens may have even shifted his allegiances away from Kwik Trip's tasty glazers. Of course, he reminded us to watch out for deer and to tell our folks that he says hi.

Once the comedy set wrapped, attendees from across the green industry were treated to a plethora of educational seminars delivered by a host of local and national experts. Tracks were specially designed for golf course superintendents,




Charlie Berens

equipment managers, lawn care professionals, and sports field and grounds managers. There was certainly something for everyone, and as usual, the most difficult part of the show was picking which talks to attend.

Between the presentations, it was obvious that folks were glad to again be socializing with their peers and sales reps as the trade show floor was abuzz. Attendees even had a chance to catch a glimpse of one of the most precious commodities in the world—new turf equipment!

To top it off, a raffle was held at the end of each day, and Paul Meyer from Franklin Public Schools and Rod Betterly with Halloran and Yauch were the envy of many as they walked away with new PitBoss Pellet Grills.

A few jokes, donuts, networking, learning a thing or two, drooling over the latest mowers, and dreams of summer barbecues—not a bad way to get ramped up for the 2022 growing season. 

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Your golf
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Whether we like it or not, autonomous mowers are going to play an increasingly big role in the future of golf course maintenance.

Rise of the Machines— Autonomous Mowers on Golf Courses

By: Cory Isom, USGA Agronomist, West Region

KEY TAKEAWAYS:

- Autonomous mower technology is rapidly improving.
- Small, rotary-style autonomous mowers typically used for home lawns are now being used on golf courses.
- Large-area, reel-style autonomous mowers are still not commercially available in the U.S.
- Regulatory issues around safety and liability will need to be solved before widespread adoption of autonomous mowers happens on golf courses in the U.S.

Imagining what future technology looks like has been part of literature and motion pictures for decades. Scenes of robots performing normal and not-so-normal tasks make us wonder if those visions will ever be a real thing in our lives. Recent advances in technology have brought us little robots that automatically vacuum your floors, autonomous tractors for agriculture and early versions of self-driving cars. The idea behind all these innovations is to improve efficiency and performance while giving us non-robots more time to do other things. If I don't have to be vacuuming, plowing my field or driving my car to work, I'll have more time to do what I want. There is also a strong possibility that a robot might

make fewer mistakes or perform certain tasks more safely than the average human.

Robots are also available to perform tasks that humans are less interested in doing. Like most industries, golf course maintenance operations are struggling to find workers. Many other industries have used automation to offset issues around labor scarcity or rising labor costs, and golf is likely to head in the same direction. Conversations during [USGA Course Consulting Service](#) visits increasingly focus on labor challenges and how to meet expectations with less staff. Automated mowers may end up providing part of the answer.

While automation and “smart” machines have been used in large-scale agriculture for many years, can those same technologies be applied to golf courses? Are they viable on the much smaller scale of a typical golf operation? Are autonomous mowers a feasible option to overcome staffing challenges and rising labor costs? This article will look to answer some of these questions by exploring the current state of autonomous mowing on golf courses, the benefits and challenges associated with this technology, and the outlook for the future. [2_Old Mower]



As long as there have been tractors and cutting units, there's been a need for someone to drive the mower. This could be changing.

Before we start, though, it is important to define what we mean by an autonomous mower. For the purpose of this article, an autonomous mower is a machine that may require a human being for transport and/or setup, but does not require an operator to perform the mowing.

A Brief History

In some form or another, several turf equipment companies have been working on autonomous mower technology for 20+ years. However, not much has moved beyond the prototype phase. A small company, Precise Path, introduced the golf world to the RG3 greens mower back in 2009. Facilities that initially tested the RG3 were impressed but the mower was not made commercially available until 2015. That was also the year that Precise Path was acquired by the parent company of Cub Cadet. Early adoption of the RG3 was not widespread, but Cub Cadet continued to refine the technology and made some nice improvements to the mower. Superintendents' hopes were high in early 2020, when Cub Cadet was on the cusp of commercially releasing the RGX greens mower, an upgrade to the RG3. Those hopes were dashed just weeks after the GCSAA Conference that year when Cub Cadet announced it was suspending the program indefinitely. Meanwhile, John Deere and Toro displayed concept autonomous mowers at the 2020 GCSAA Conference. These were larger, five-reel mowers presumably designed for fairway mowing. It is also worth noting that a company called Turflynx, based in Portugal, was developing

an all-electric, completely autonomous triplex fairway mower that was being tested in Europe in 2019. Turflynx was recently acquired by Toro.

Where Are We Now?

Cub Cadet's departure from the autonomous game left a void that still has not been filled. Autonomously mowing greens is not an option currently available to golf course superintendents. Large-area autonomous mowing with reel mowers is being worked on but is still not commercially available.

So, while the traditional golf course maintenance equipment manufacturers continue to quietly work on their autonomous mowing technology platforms, other companies have introduced their own autonomous mower options. Most of these have been geared for the homeowner or commercial landscape market. Companies like Echo, Husqvarna, Worx and Belrobotics all have similarly designed robotic lawn mowers. These are all rotary-style, narrow-cutting-width mowers. They are battery powered and are typically controlled by a smart phone app. A boundary wire has traditionally been the way to keep these mowers in their proper place, but new advances have eliminated the need for a wire. Europe gets the gold star for early adoption of these mowers. In fact, the robotic lawn mower market in Europe is estimated to reach \$1.5 billion by the end of next year. Husqvarna claims that their Automower mows over 2 million lawns around the world.

Another company, Turftroniq in the Netherlands, sells two aftermarket kits that can convert most modern fairway mowers to be partially or fully autonomous. Their AMS kit still requires an operator be on the vehicle at all times, but steering and cutting unit raising/lowering are done autonomously. Their RMS kit makes the mower fully autonomous. An interesting benefit to this technology is that if you ever want to take control and mow, you just jump on the mower and flip a switch. Sadly for U.S. customers, Turftroniq products are currently limited to the European market.



Toro Autonomous: Turftroniq's RMS aftermarket mower kit makes this fairway mower fully autonomous.

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Some golf courses in Europe and Canada have been using autonomous mowers for both roughs and fairways. WINSTONgolf, in Germany, has jumped into this world more than most. Course Manager Jordan Tschimperle uses 24 of the Husqvarna Automowers to mow fairways and rough on 27 of their 45 holes and a Bigmow by Belrobotics to mow their driving range. They also extensively tested the previously mentioned Turflynx all-electric fairway mower back in 2019. Current plans are to purchase a few more Automowers as well as the Belrobotics Ballpicker for their driving range this year. With more robots on their maintenance staff than people, WINSTONgolf is realizing substantial labor and fuel savings.

One of the first questions that comes up when discussing autonomous mowers is how much they cost. This is a great question because other than the small, rotary-style mowers there is nothing commercially available to cite. Small mowers like the Husqvarna Automower will set a course back about \$6,000 per machine. This includes expenses associated with setting them up. Husqvarna is very excited to roll out their newest version of the Automower in 2022. However, this machine, like most others in this market segment, will have a limited presence in the American market in the near term.

In 2019, the Turflynx F315 mower was around 125,000 Euros (\$143,000). With further development and inflation, if that style of mower was released in 2022 it could be priced in

the \$200,000 range, maybe more. That sticker price may shock a lot of superintendents. However, the benefits of this technology may prove worthy of the expense for certain areas of the country. Let's look at the general benefits and challenges that come with utilizing autonomous mowers on a golf course so we can better understand the calculus each facility will face as they decide whether to invest in this technology now, or in the future.

Benefits

As we move into the benefits and challenges of these machines, it is important to make a distinction. I've referenced two completely different styles of autonomous mowers. The small mowers are rotary-style with a plastic disk that is outfitted with as few as three razor-blade cutting units. They weigh anywhere from 30-150 pounds. I'll refer to these mowers as "rotary." Based on the machine concepts and videos shared to date, Toro and John Deere will eventually be offering autonomous versions of the traditional fairway reel mowers. These machines will probably weigh just as much or more than your standard triplex or fairway unit. I'll refer to them as "reel" mowers.

The fundamental rationale for using autonomous mowers is to save on labor and all of the machines described in this article offer that benefit. Rotary mowers can be programmed to run 24 hours a day, seven days a week. Battery type and



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configuration can vary between models but generally, if the mower is running at peak capacity, it can cut grass for about 16-18 hours each day with multiple charging cycles mixed in between. This is important because the cutting width is only around 10 inches, so it takes time and multiple units to mow large areas. It is reported that one of these mowers can mow close to 1.25 acres each day.

Autonomous rotary mowers require very little supervision. Once installed within their respective boundaries they will only stop working when they return to their charging station or send an alarm to the user interface. The average lifespan of the mower blades is anywhere from three days to two weeks depending on turf conditions. Tschimperle at WINSTONgolf said that it takes two to three hours to replace the blades on all 24 of their machines. He also reported that they have saved over 80% in annual fairway maintenance costs by using the Automowers. Most of these savings are in labor, fuel, parts and service.

Reel mower range and productivity is still unknown. The Turflynx all-electric machine was able to mow for seven hours before needing a charge in 2019. At that time, charging took two hours. Since this was a triplex unit, productivity for a single charge was 12-15 acres depending on terrain. If Toro and John Deere decide to offer this style of mower in an all-electric model, expect similar or better productivity than the original Turflynx machine. If traditional engines or hybrid machines are used, range and productivity will be much greater.

Should the style of autonomous greens mower that Cub Cadet was working on come back, it could still be a nice labor "redistributor." That mower required a chaperone to escort it to each green, unload it and send it on its way. However, while the machine was mowing, the chaperone could be cutting cups, raking bunkers, fixing ball marks or

performing any other tasks until the mower was ready to be loaded up and delivered to the next green.



It will be interesting to see if autonomous putting green mowers make a comeback.

There is another interesting benefit specifically with the small rotary mowers. If they're running all day every day, the turf within their boundaries has always been recently cut. Superintendents that have used autonomous mowers extensively have been surprised by the consistent playing conditions produced with these small rotary machines. The turf health benefits of autonomous mowers are still being studied, but it is reasonable to expect lower disease pressure due to a reduced leaf wetness period and fewer earthworm cast issues.

Challenges

One major hurdle with autonomous mowers will be the sticker shock. With price tags ranging from \$6,000 to over \$200,000 for different mower options, varying levels of productivity, and a range of potential features, it is hard to come up with a widely applicable cost-benefit analysis.

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Continued from page 17

If the mower is all-electric, substantial fuel savings will be part of the equation as well as the value of zero emissions. Redirecting labor to other maintenance tasks can mean those one or two open positions may be less urgent to fill than they used to be. Regardless, each facility wanting to incorporate autonomous mowers into their maintenance operation will have to come up with their own cost-benefit analysis, and it could be a moving target depending on market conditions.

Another challenge associated more with the rotary-style mowers is quality of cut. Even with regular blade changes, the quality of cut on the rotary mowers may not be comparable to a well-adjusted reel mower. Each superintendent will have to determine whether the quality of cut meets the standards at their facility.

Designating where autonomous mowers drive and mow has typically been determined by a boundary wire, which can be a barrier to entry for many courses. Installing a ground wire is a substantial expense and creates challenges when aerating, trenching or repairing irrigation issues. However, a few of the rotary mower companies now offer mowers that utilize real-time kinematic (RTK) base station guidance which eliminates the need for a ground wire to delineate mowing areas. In the absence of a ground wire, RTK is currently the only GPS technology that will provide the level of precision required for accurate mowing and cleanup passes every time. All indications are that commercial golf course mowers are going to come standard with RTK technology in the future, which will be essential for widespread adoption.

Maintenance on these machines will range from very simple to extremely complex. For the rotary mowers, ease of maintenance is a benefit because they require little more than regularly changing blades and the plastic disk that holds them. However, the reel mowers will be much more complex. Numerous sensors, onboard computers, Lidar, radar, sonar and cameras will all be part of the autonomous reel mower platform. How these get serviced and repaired is still an unknown. Will there be special training required for a mechanic to work on these machines? Will dealers be the only ones allowed to service these high-tech components?



Cameras, on-board computers and sensors will be abundant on autonomous reel mowers. How do all these get serviced?

This discussion naturally leads to the biggest challenge for autonomous mowers – liability concerns. Imagine a scenario where property damage or bodily injury happens when an unmanned mower is involved. Who is responsible for that accident? If there is no operator on the machine, is the company that sold you the technology now at fault? Or is it the course who purchased this technology? Or is it the mechanic who last worked on the safety feature that failed? The automotive industry is trying to wade through these same issues as they work to introduce autonomous vehicles to the masses. It is reasonable to assume that autonomous golf course machines will fall in step with whatever liability and insurability regulations the automotive industry adopts. Until that time, this is probably the biggest hurdle to overcome for the major turf equipment manufacturers.

LOOKING AHEAD

Technological advances in the autonomous world are rapid. It seems like there are new capabilities every month. New companies continue to jump into the market and drive competition and innovation.

In the rotary market, the United States will see a limited launch of the Husqvarna CEORA™ Automower in 2022. Anticipate a full launch in 2023. This mower will have a drive unit and a detachable cutting deck. There will be three decks with different height-of-cut capabilities. The fairway cutting deck will reportedly cut as low as 0.25 inch and as high as 1.75 inch. The other decks will have height-of-cut ranges higher than this. Programmable cutting areas will allow the user to have the same machine cut different areas at different heights of cut without human intervention. No ground wire will be necessary for these RTK-guided units. Productivity will be around 5-6 acres per day if the machine is running 24/7. Typical charging time is around four hours for eight hours of mowing. Batteries are expected to last five to seven years. The price point on this type of machine will be in the \$30,000 range.



Small, rotary-style autonomous mowers are likely to become more of a presence on U.S. golf courses in the near future.

This style of autonomous mower will likely not be the only one to hit the U.S. market in the next few years. Companies like Echo and Stihl already have a presence in the autonomous home lawn mower market but will look to expand into commercial and possibly golf applications in the near future.

For reel mowers, the future is a bit more uncertain. Major golf equipment manufacturers like Toro and John Deere have been working on autonomous mower concepts and prototypes for many years now. Both companies displayed their latest concepts at the recent GCSAA Conference in San Diego. The Toro version was a hybrid triplex while the John Deere unit was a conventional diesel-powered, five-reel fairway mower. Both units were loaded with sensors, cameras and onboard computers. Both also had a seat and steering wheel, which is significant because it will allow the mowers to be controlled by humans when necessary. Company representatives were cautiously optimistic and the plan is to extensively test them in the field this year. No timetable was given for a potential commercial launch from either company.

As previously mentioned, Turftroniq has an aftermarket kit that can make a normal fairway mower partially or fully autonomous. As their distributor network and support expands to the United States, this could be a viable option sooner rather than later.

“With all these autonomous mowing options swirling about, and the ongoing labor challenges affecting golf courses everywhere, the mass adoption and acceptance of this technology seems inevitable. As regulatory bodies finalize safety, liability and insurability issues with an autonomous platform, you’re likely to see a groundswell of new machines hitting the U.S. commercial, sports field and golf markets.

FINAL THOUGHTS

As we consider what a golf course maintenance operation could look like with autonomous mowers continuously mowing large portions of the course, a thought comes to mind. What happens to those employees whose main role has been to sit on a machine and mow for hours every day? Will they want to do a different job on the course? Will they be able to do a different job on the course? Will this reduce the number of workers on golf courses, or will autonomous mowers simply help to fill positions that are already open? In a labor-challenged market, it is hard to think there could be many drawbacks to the concept of robots mowing grass for us. However, if recent conversations on this topic are a harbinger of things to come, there will be no shortage of strong opinions on the impending rise of the machines.

Cory Isom is an agronomist in the West Region who still enjoys sitting on a mower. 🌱

Acknowledgements Special thanks to Jordan Tschimperle for his contributions to this article.

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MEET JOSEPH LABORDE

By: Ben LaBarre, A, The Legend at Bristlecone Pines Golf Club and Josh LePine, CGCS, Maple Bluff Country Club

As a WGCSA Board member, I want to thank everyone who participated in the Membership survey last year. 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: Joseph LaBorde

Company Position: 1st Assistant Superintendent

Years as WGCSA member: 1

Membership Classification: C

Brief BIO: Hello, my name is Joseph LaBorde. I am a 23 years old and am the 1st Assistant Superintendent at the Millwaukee Country Club. I grew up in Perkins, Oklahoma and moved to Saratoga, Wyoming at the end of my freshman year of high school. I have worked on four different golf courses in three states ranging from Colorado to Wyoming to North Carolina. I am excited for the challenge of a new golf course and the new climate of Wisconsin.



Joseph LaBorde

How did you get started in the turfgrass industry? I cut my teeth at the Old Baldy Club in Saratoga, Wyoming when I was 16 years old.

What is the most rewarding part of your career? Looking back and seeing how much I've grown and how this industry has shaped me into who I am today.

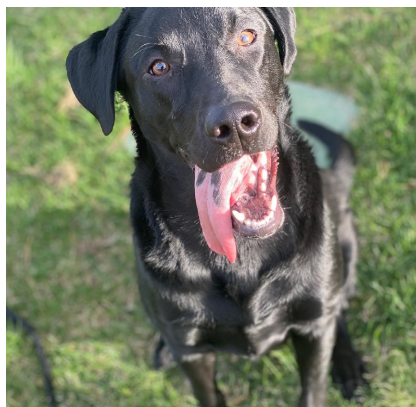
What would you consider to be your greatest career challenge? Earning the respect of others around me before they would follow my leadership. Not everybody is going to listen to somebody that's young and ambitious, so there had to be a change in management approach in order to achieve that.

Which three adjectives describes you the best? Hardworking, Intelligent, Diligent

Tell us about your family. My parents live in Wyoming along with my younger brother and sister.

Any pets? Yes, I have a two-year-old black lab named Benelli.

What drives/motivates you every day? I am constantly driven to be better and improve not only myself, but also the golf



Benelli

course and fellow employees. Making everyone better is the goal.

Who do you admire? Kevin Klemenz who was my boss at Old Baldy. He got me started in the turfgrass industry and has provided me with knowledge and leadership over the years and helped me become the turfgrass manager I am today.

Who is the person in history you'd most like to meet? Doug Kenney, the co-founder of National Lampoon.

What's a fun fact or two that people don't know about you? I've been thrown through a windshield going 70 mph. Wear your seatbelts.

What do you do in your spare time, favorite hobbies? I like spend my free time going fishing and golfing.

If you could go anywhere in the world on vacation, where would you go? Dubai

What is one thing you would like to learn/accomplish someday? My goal is to be a superintendent at a golf course that holds professional golf tournaments.

What is your favorite turf management related tool or technique? Allowing people to make their own mistakes and using that as a learning experience. Sometimes you just gotta figure it out.

- Favorites:** **TV Show:** Sopranos
Movie: Silence of the Lambs
Food: Lamb
Sports Teams: St. Louis Cardinals

Do you golf? Handicap? Best shot or golf story? I do golf and have an 18 handicap. I guess that my best golf story and shot is combined into one: the other assistant superintendent cut the cups one day and I played that afternoon and got my first ever hole-in-one. To make it better, the other assistant superintendent came from Wisconsin.

Top Bucket List item? An Alaskan moose hunt.

If you could provide one piece of professional advice, what would it be? Take notes on everything that happens. Every interaction with a superior, everything you notice on the course, simply take notes and you will find the time to accomplish the task. 🌱

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The UW Soil Testing Laboratory is Back in Madison and Open for Business



By: Doug Soldat, Dept. of Soil Science, University of Wisconsin-Madison

The University of Wisconsin Soil Testing Laboratory has a new home. In 2021, the Marshfield-based lab began a transition to a new location in Madison and is now operated within the Wisconsin State Laboratory of Hygiene on University Avenue. The new location is a pitching wedge away from the Blackhawk Country Club maintenance facility; in fact, the back windows of the lab look out over Blackhawk's 7th fairway.



The new UW Soil Testing Lab on University Avenue in Madison looks out over Blackhawk Country Club.

Moving is nothing new to the UW Soils Lab. The lab started in the late 1950s and originally was housed in the basement of King Hall on UW-Madison's campus. In the 1960s, the lab became one of the first in the nation to use computer generated soil testing reports. As it grew, it created pressure on the many other important research labs in the Soils building, and it was clear that the lab needed to find a new home. Sometime in the late 1960s the laboratory was moved to a location on Park Street. At some point, the lab was again moved (reasons and dates of the move are unknown to me), this time to a series of trailers on Rosa Road off Mineral Point Road on Madison's west side. In 2004, the lab moved to a state-of-the-art building just down the road on the West Madison Agricultural Research Station property. Then, in 2015, budgetary constraints forced CALS to consolidate the Madison-based UW Soil and Plant Analysis Lab with the UW Soil and Forage Analysis Lab in Marshfield. Why another change so soon? In short, the Marshfield building required

very expensive upgrades in air handling order to maintain compliance with state and federal guidelines. The renovation costs were so high that the Department of Soil Science and the College of Agricultural and Life Science are not able to fund the renovations required to keep the building operational. The lab itself operates in the black, but not by enough to cover the costs of the improvements. Until recently, it appeared that

the only option would be to close the lab all together. Much credit should be given to Professor and Soil Science Chair Alfred Hartemink for being unwilling to let the historic lab close under his leadership, so he searched tirelessly for a creative solution. We are also very grateful that Jamie Shauer, the director of the State Laboratory of Hygiene, welcomed the idea of integration with open arms. Everyone is excited about the new collaboration, and I am hopeful that after a long journey involving many different locations the UW Soil Testing Lab has found a permanent and secure home within the Wisconsin State Laboratory of Hygiene.

The lab is located at 4702 University Avenue, Madison, WI 53705 and it is fully open for business. You can drop off samples in person or mail them in with a sample submission for that you can download from www.uwlab.soils.wisc.edu. ✓



A lab worker weighs samples while Director Andrew Stammer (center) leads a tour of the new facility.

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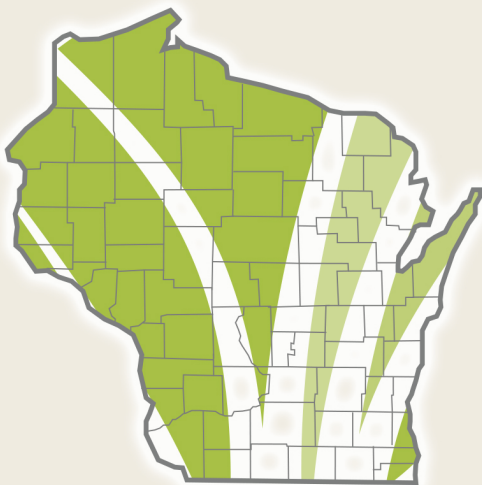
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FUNGICIDE PERSISTENCE, FUNGICIDE TIMING, AND IRON SULFATE FOR SNOW MOLD CONTROL



By: Paul Koch, PhD, Department of Plant Pathology, University of Wisconsin – Madison

Author's note: This article was originally prepared for Greenmaster, the official publication of the Canadian Golf Course Superintendents Association, and will run in their Fall 2022 issue.

Snow molds are one of the most important turfgrass diseases facing Wisconsin golf course superintendents, and the decisions made in controlling snow mold can have far-reaching consequences for the success of the facility (Figure 1). Complicating these decisions are the increasing unpredictability surrounding the changing climate, new products coming to the market, and old standbys being removed from the market. In this article, let's review some of our recent research on snow mold fungicide persistence, optimal timing for snow mold fungicides, and the use of iron sulfate for snow mold suppression.



Figure 1. This time series from our research facility in Madison, WI shows the snow mold damage that can still be present 6 weeks after snow melt. In fact, this site didn't fully recover until early July! Figure created by Kurt Hockemeyer.

Snow mold fungicide persistence

Sometimes I think that our expectations for snow mold fungicides are a little unrealistic compared to summer fungicides. We're happy if we get 14 to 21 days of control out of a dollar spot application in July, but we're frustrated if we don't get 6 months of snow mold control from an application during the winter! To better understand the factors that influence persistence of snow mold fungicides, we conducted a series of experiments in Madison, WI beginning in 2009 to test how snow cover impacted persistence of iprodione and chlorothalonil. We applied both fungicides shortly prior to permanent snow cover, kept certain plots free of snow and others covered in snow throughout the winter, and regularly sampled the plots to measure the concentration of both fungicides in the turfgrass leaves.

To our surprise, snow cover had very little direct impact on how long both fungicides persisted throughout the winter (Figure 2). The much larger factor that influenced persistence was winter rainfall or snowmelt events. Anytime a significant rainfall event occurred, or warmer temperatures led to a significant snow melt event, the concentrations of both fungicides plummeted, which led to increasing levels of pink snow mold when we inoculated them in the growth chamber. In Figure 2, multiple rainfall events occurred in mid-January of 2013 and led to the rapid decrease in chlorothalonil concentration.

However, this doesn't necessarily mean that fungicide retreatments are required any time it rains during the winter. In fact, in most cases they aren't required. The reason is that the most significant impact of your snow mold fungicide

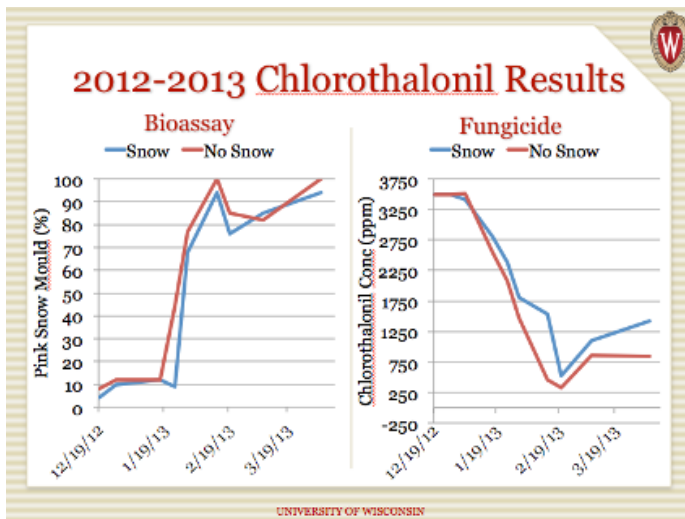


Figure 2. These results depict the amount of pink snow mold and the concentration of chlorothalonil present in plots that were kept covered in snow or free of snow during the winter of 2012-2013 in Madison, WI.

is at the time of application when it knocks back the snow mold fungi, not by persisting throughout the winter. The rare cases where a reapplication might be beneficial is when the rainfall or melt event occurs very shortly after the fungicide application, and/or if it occurs in regions where very heavy snow mold pressure is common.

Optimal snow mold fungicide timing

Professor Gayle Worf was the University of Wisconsin Turfgrass Pathologist for decades leading up to the 1980’s, and he always told Wisconsin golf course superintendents to have their snow mold applications down before they got in the deer stand. However, given all the changes in our climate over the past 30 years, it’s not clear if that’s still true.

My program initiated a study back in 2016 to investigate the optimal timing of snow mold fungicides, with the goal of creating a model that would predict the optimal timing based on the local environmental conditions so far that fall. The study is pretty simple: we just apply Instrata at 9.3 fl oz per 1000 sq ft once at 6 different timings throughout the fall based on when ‘traditional’ snow cover is for a particular location. The timings were 0, 2, 4, 6, and 8 weeks prior to traditional snow cover, and then we had a floating treatment that was intended to be applied as close to snow cover as possible that year. This study was conducted in northern Wisconsin (Timber Ridge GC in Minocqua), central Wisconsin (Wausau CC in Wausau), and southern Wisconsin (OJ Noer Research Facility in Madison) and the traditional snow cover dates chosen for each site were November 1st, November 15th, and December 1st, respectively.

The location in Minocqua has had the most consistent disease so I will focus on those results here. In each year, there was a date where a sharp cut-off from no control to good control occurred, though this date shifted from year

to year based on the conditions that fall. For example, in most years, the transition from no control to good control occurred between the October 15th application and the November 1st application, but in 2018-2019 the transition occurred between October 1st and October 15th due to a colder fall (Figure 3).

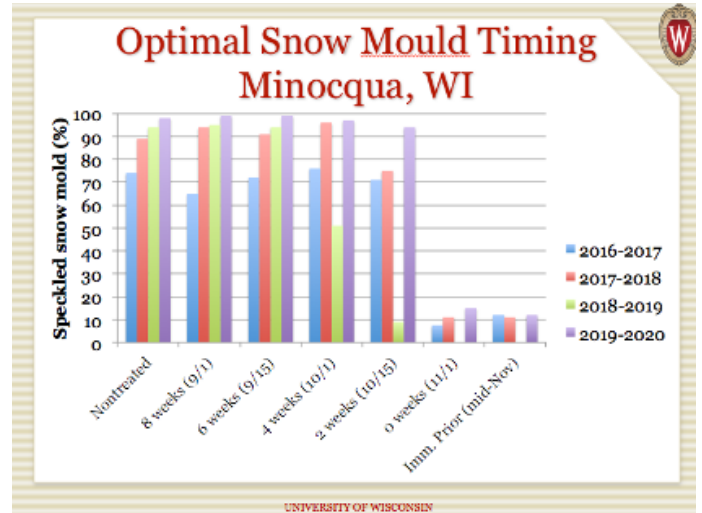


Figure 3. Snow mold development at Timber Ridge GC in Minocqua, WI following applications of Instrata made the previous fall at 6 different timings.

What this data suggests is that there is a ‘window of opportunity’ for snow mold control that is approximately 3-4 weeks long leading up to snow cover, and the decline in control at the front end of that window is very sharp. In 2019-2020, a difference of just 12 days in the application made the difference between a very effective application and almost no disease suppression (Figure 4). The likely reason for the decline in control on the front end is that the snow mold fungi are not yet actively growing at the time of



Figure 4. The cutoff between no snow mold suppression and excellent suppression can be very sharp, as evidenced by this picture from Timber Ridge GC in Minocqua, WI in spring of 2020

Continued on page 26

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application, and the product degrades by the time the fungi do start to grow. We are currently working with a number of environmental parameters to predict when this ‘window of opportunity’ will occur for any location in the world based on their environmental conditions that fall.

Iron sulfate for snow mold control

Due to the great work done by the Oregon State University team of Alec Kowalewski, Brian McDonald, Clint Mattox, and many others, we already know that iron sulfate can provide effective suppression of *Microdochium* patch in areas like British Columbia that have prolonged periods of cool, wet weather but that don’t experience long durations of snow cover. The lack of snow cover allows for regular reapplications of iron sulfate to occur throughout the winter, something that’s not possible in areas that experience significant snow cover. My program previously researched the ability of iron sulfate to control snow mold in areas with extended snow cover and found that one or two applications of iron sulfate made prior to snow cover didn’t provide any snow mold suppression. However, we hypothesized that perhaps if we made repeated iron sulfate applications throughout the fall, that would more effectively suppress the snow mold fungi prior to snow cover and provide disease suppression.

In 2019 we made six applications of Extreme Green 20 iron sulfate heptahydrate at the rate of 6 oz per 1000 sq ft to locations in northern Wisconsin (Minocqua), central Wisconsin (Wausau), and southern Wisconsin (Madison). We then came back and rated the plots for snow mold severity the following spring. The results from this study were very clear and indicated that no snow mold suppression was observed

at any of the three locations, even with 6 applications of iron sulfate made to each site (Figure 5). It also didn’t matter the type of snow mold, since speckled snow mold (*Typhula ishikariensis*) was observed in Minocqua, pink snow mold (*Microdochium nivale*) was observed in Wausau, and gray snow mold (*Typhula incarnata*) was observed in Madison. It’s not entirely clear why iron sulfate didn’t suppress snow mold, but it’s likely that any initial knockback of the snow mold fungi in the fall wasn’t sufficient to suppress fungal and disease development for the entire winter.

More snow mold resources

Changes in product and climate are making snow mold suppression more unpredictable, and it’s important to stay up to date with the latest research. We post all of our research, both for snow mold and summer diseases, at the Turfgrass Diagnostic Lab research webpage (<https://tdl.wisc.edu/results/>). I encourage you to visit the site and look over the research results for yourself to get a better understanding of the most effective products on the market and how best to use them. If you have any questions, please email me at plkoch@wisc.edu.

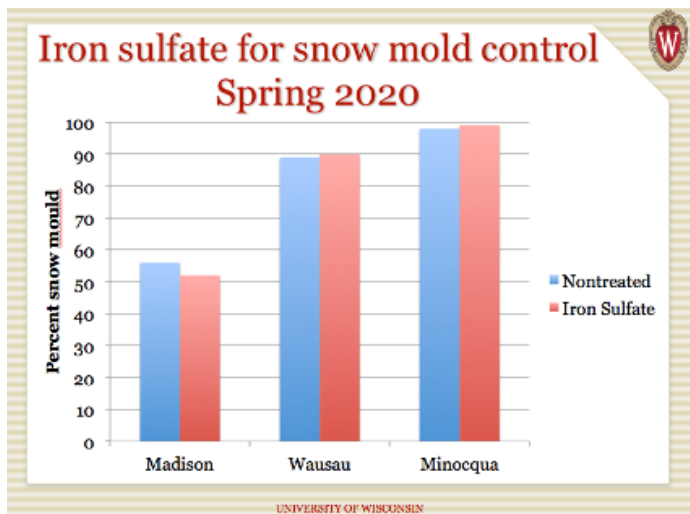


Figure 5. Not much ambiguity in these results. It didn’t matter the type of snow mold or the location, iron sulfate did not provide any appreciable suppression of snow mold in areas with extended snow cover.

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THE HOCKEMEYER SNOW MOLD PREDICTION MODEL V3.0: THE FOLLOW UP



Kurt Hockemeyer
608-845-2535
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tdl.wisc.edu

By: Kurt Hockemeyer, Turfgrass Diagnostic Lab Manager

In my last article for the Grass Roots magazine, I discussed my predictions for how severe snow mold damage would be at each of our research locations (8 studies at 6 locations). This is the 3rd winter season of me trying to make these predictions. I've also included Dr. Koch's predictions as well just as a fun comparison. We

look at all the environmental factors like snow depth, length of snow cover, temperature, etc. The snow has finally melted off all the plots and the data is finally in. Some locations behaved just as predicted and others were way off. As a reminder, my prediction scale is as follows:

Prediction Scale	Percent Snow Mold in Nontreated	Description
Snow Mold Utopia	75-100	Just about absolute perfect conditions for snow mold infection for a long time. Early snow cover, deep snow, all winter long.
That's a lot of snow mold	50-75	Might have been a short period where snow mold conditions were not ideal resulting in slightly less snow mold infection.
I've had better snow mold	25-50	Decent amount of infection, but Dr. Koch would not tweet a GIF of an excited puppy if he saw a picture of it on Twitter.
"Baby Bear" snow mold	10-25	Just the perfect amount of snow mold. Enough that you feel like your snow mold app was worth it, but not a single sclerotia more.
What's snow mo'uld?	0-10	So little snow mold infection you can't even spell it right.

Marquette, MI

Kurt's Prediction: Snow Mold Utopia (75-100% disease in nontreated plots)

Actual Disease: 94.5%-Correct

As I've said before, predicting a high level of snow mold infection (Figure 1) in Marquette, MI is like predicting that the Badger football team is going to run the ball a lot. No duh! A little surprising though was the fact that most of the snow mold damage was caused by the pink snow mold fungus. Normally we see one of the Typhula fungi. A later snow cover is the likely culprit.

Paul's Prediction: Snow Mold Utopia (75-100% disease in nontreated plots) Also correct



Figure 1. Plots in Marquette, MI on April 20, 2022. Many treatments worked well and nontreated areas were smoked.

Minocqua, WI

Kurt's Prediction: Snow Mold Utopia (75-100% disease in nontreated plots)

Actual Disease: 98%-Correct

Even when winter seasons seem mild, we can always count on this Minocqua location to give us great data (Figure 2). I believe the microclimate in this specific location is just perfect for snow mold infection. Deep in the trees on a north facing slope means snow collects there and stays there. But again, not surprising.

Paul's Prediction: Snow Mold Utopia (75-100% disease in nontreated plots) Also correct



Figure 2. Minocqua always gives us some incredible photos! These photos show that applying snow mold fungicides too early result in diminishing returns.

Wausau, WI

Kurt's Prediction: That's a lot of snow mold (50-75% disease in the nontreated plots)

Actual Disease: 50% and 1%- Half correct? 1 point and 0 points

We had two studies on the same fairway in Wausau. One study had exactly 50% disease (Figure 3) in nontreated plots, and the other study had almost no disease. This was a head scratcher as we really don't have any good ideas to explain the discrepancy. Lots of snow in Wausau this past winter should have given us decent disease pressure. It's just the vagaries of nature I suppose.

Paul's Prediction: That's a lot of snow mold (50-75% disease in the nontreated plots) Half correct as well



Figure 3. Wausau plots showing a moderate level of snow mold infection. Disease pressure in Wausau was inconsistent this year.

Continued on page 30

Continued from page 29

Madison, WI

Kurt's Prediction: That's a lot of snow mold (50-75% disease in the nontreated COVERED plots)

Actual Disease: 59.3%-Correct

This was specifically the study that we inoculate with the pink snow mold fungus and cover with insulation boards. This technique has been fairly reliable in allowing us to have snow mold pressure in Madison despite the weather not always cooperating.

Paul's Prediction: I've had better snow mold (25-50% disease in the nontreated COVERED plots) Missed it by that much....

Kurt's Prediction: I've had better snow mold (25-50% disease in the nontreated NONCOVERED plots)

Actual Disease: 2.5% - Wrong

I was a bit optimistic on natural snow mold infection in Madison this winter. We had snow cover for a long time, but towards the end of January that snow cover was pretty thin due to very little snowfall this winter. Apparently it was not enough snow to keep the soil surface insulated and the soil became too cold for snow mold disease to develop.

Paul's Prediction: "Baby bear" snow mold (10-25% disease in the nontreated NONCOVERED plots) Closer than me, but still wrong.



Figure 4. The covered plots in Madison once again delivered us some good snow mold control data. Natural infection on the uncovered plots was almost nonexistent.

Biwabik, MN

Kurt's Prediction: That's a lot of snow mold (50-75% disease in the nontreated plots)

Actual Disease: 46.7% Oh so close...do I get half a point?

We didn't have much data to go on when we made these predictions except for reports from the superintendent. Being in such a snowy location (Figure 5) usually makes for very high levels of infection. There was a decent amount of disease but just not as much as we thought.

Paul's Prediction: Snow Mold Utopia (75-100% disease in nontreated plots) Incorrect



Figure 5. It's a little difficult to rate your snow mold plots with several feet of ice and snow on top, but thanks to the superintendent and his crew we were able to get it done. Thanks Giants Ridge!

Brainerd, MN

Kurt's Prediction: "Baby bear" snow mold (10-25% disease in the nontreated plots)

Actual Disease: 27.5%-Close but no cigar. Another half point maybe?

Brainerd had lots of snow cover this winter but the location in which the trial was placed was high and exposed which probably resulted in less breakthrough than expected. One interesting point was that the main disease present at this site was snow scald (Figure 6), a rare and poorly understood snow mold pathogen. With this study though we know just a little bit more.

Paul's Prediction: I've had better snow mold (25-50% disease in the nontreated plots) Nailed it.



Surprised to see snow scald the predominant snow mold in our trial at Cragun's in Brainerd, MN. Traditional Typhula products like tebuconazole were ineffective, traditional pink snow mold products like iprodione were more effective @kurtaculous



Figure 6. Snow scald is rarely seen and most people don't even know it when they see it. It leaves behind sclerotia like Typhula, but they are more oblong and less spherical. Chemical control of this pathogen appears to differ from the Typhulas though.

“ So let's tally the score and see who wins the award. One point for each correct prediction. Beep beep boop beep.

Kurt: 5 points out of a possible 8

Paul: 4 points out of a possible 8

Surprise, surprise. Looks like I come out on top. Good thing I made the rules for this competition. Was I a bit generous in giving myself half points for my prediction being close? Maybe. Does anybody care? Besides Paul, probably not. There's always next year Dr. Koch!

Thanks for coming with me on this interesting ride. It's always fun (for me anyways) to see how our predictions are right or wrong. I like to think that by publishing these predictions that I am learning more every year. But now it's time to move on to summer diseases. But like Paul told me this week, it'll be snow mold season before you know it.

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A CAREER OF SERVICE AND COMMUNICATION:

David Brandenburg, Former Editor of The Grass Roots

By: Garrett Luck, Golf Course Superintendent, Hidden Glen Golf Club

“What I think is most important in our job today is communication. It is very difficult to be successful at being a manager of anything, not just golf, if you don’t like dealing with people.” These words are just as true today as they were back in 2002 when David Brandenburg made these comments in *The Grass Roots*. And, perhaps, there is no better person within our state and the WSGCA to speak these words. Always a gentleman and willing to help, David is a man who practices what he preaches. He currently lives these words in his job as General Manager at Rolling Meadows Golf Course in Fond du Lac and has as editor of *The Grass Roots*, a position he had held since 2008.

Prior his role as General Manager at Rolling Meadows, David first served as Golf Course Superintendent beginning in 1996. During his tenure at Rolling Meadows, he served as a WGCSA Board member from 2008 – 2021 and received the WGCSA’s Distinguished Service award in 2006. As any Superintendent or Assistant can attest, our jobs can be relentless and unforgiving at times. The ability to find time for one’s family and personal life is often challenging. Despite these challenges, David has made service a priority.

David’s perspective on service is refreshing. The fact that the WGCSA is a volunteer-run organization is not lost on David. In fact, it is a driving factor in his approach to service. His service began when he volunteered to serve on a committee. Ten years later, in 2002, he became the President of the GCSAA. Today, David continues to tout the benefits of voluntary service for the WGCSA. He recently remarked, “The greatest benefit of WGCSA involvement has been the relationships I built with so many other members and board members. I started on the golf and arrangements committee helping with event registration and getting to know members. The industry has changed substantially since I contacted then President Bruce Worzella to inform him that I would be honored to serve on a committee. But, I still believe that it is an association of the members, and any member who wants to serve on a committee or the board, can do so by just saying, I am willing to be involved. Every two years, Presidents are looking for committee members and nominating committees are looking for new board candidates. Being an association leader is an option for any member from any type of course or background. You simply need to volunteer. The WGCSA has had and continues to have a diverse board which leads to a successful organization and satisfied membership.”



David Brandenburg and family

David’s scope of work at Rolling Hills has changed many times over the span of his career due to retirements, industry related changes, and financial constraints. When he began his career as Superintendent, he did oversee the clubhouse operations, but was able to do so from the maintenance department. In 2019, his role expanded to include overseeing a golf shop and clubhouse without a golf professional, a change which required his move from the maintenance building to the clubhouse. “It is a different world in the clubhouse. I enjoy what I do, but I miss the solitude of mornings on the golf course when everyone is doing their tasks. I still change cups because I enjoy it and it offers me a chance to see the 240-acre property. I help with plant protectant applications and some odd irrigation things but am primarily inside.” Even though he spends most of the time inside these days helping the golf shop, entertaining golfers, working with leagues, outings and inventory and a never-ending amount of record keeping, you just might catch him on the course. “Once and a while, I go mow some rough or fairways.” Most Superintendents and maintenance team members can certainly appreciate the respite we receive by hopping on a mower and just heading out on the course. Without a strong team in place at Rolling Meadows, none of David’s clubhouse responsibilities would be possible. Especially important to the success of Rolling Meadows, David highlights James Juoni, Superintendent, and Jeremy Ruplinger, mechanic and assistant.

As a successful veteran of the golf industry, Dave has seen just about everything. And, for any aspiring superintendents or those new to our industry, David would point to personnel management and relationships as the most challenging part

of the job. As one might expect from a well-respected and humble leader, David's perspective to these topics rings true to who he is as a person. "The grass is the easy part, people are hard. Enjoy people and treat them the way you want to be treated. This goes for customers, members, vendors, and especially employees." This challenge does not go without reward. David mentions it is especially humbling when hears an employee who says that he or she enjoys working at Rolling Meadows because it is like family. As David notes, "Someday the robots may take over, but for now we need people and a lot of them, so treat them well." Sound advice to anyone in our industry.

Early in his years of WGCSA Board service, typical concerns of the day centered around restrictions on chemical and water usage. While these are still at the forefront today, Superintendents have become better stewards of the environment and have taken a proactive approach to resource management. David gives credit to the professors at The University of Wisconsin-Madison for their research and ability to share their knowledge with WGCSA members. "Through the research of Doug Soldat, Paul Koch, Kurt Hockemeyer and others before them, we have been taught that we do not need as many inputs as we thought to provide quality conditions. Over the past twenty years, most courses have reduced water use and chemical and fertilizer inputs. We have done this while providing even better playing conditions day in and day out." With that in mind, he sees the newly-created Wisconsin Golf Industry BMP's as a tool for chapter leaders to use to "build relationships with governmental leaders."

Now that David has "retired" from his job as editor of *The Grass Roots* and passed the editorship responsibility to Jake Schneider, he can focus his energy on his primary job as General Manager at Rolling Meadows. David became editor of *The Grass Roots* in 2008, succeeding longtime editor and Wisconsin Golf Hall of Fame member Monroe Miller. While early on there were other editors of *The Grass Roots*, Monroe certainly elevated our association's publication, a position that David was thankful to build on. In becoming editor, David remembers "Monroe made it easy for me. I just had to not mess up what he developed." Regarding only having the third editor of *The Grass Roots* in almost 40 years, David remarks with confidence, "I think Jake will do a great job as editor and he will be calling on many members

to write articles and submit pictures. Writing is easy. Pick a topic or highlight the details of a project and submit it with a few pictures. Our members have so many experiences that they could easily share." I'm sure that Jake will agree with this statement and looks forward to hearing from many of you.

Even though David's time as editor of *The Grass Roots* has come to an end, he is still very active within the WGCSA and a regular participant at monthly meetings. We are thankful for his many years of service to the WGCSA and *The Grass Roots*. Next time you happen to cross paths with David, take a moment to spend some time with him. A passing "thank you" will likely be shrugged off by the humble servant, but you just might pick up something in conversation that you can take with you for the rest of your career. 🌱

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NOER Facility Dedication Held During Field Day

The following article originally appeared in the August 1992 issue of The Grass Roots. We invite you to join the Wisconsin Turfgrass Association at their annual Summer Field Day on August 2 for a 30th anniversary celebration and to get the latest on the cutting-edge research taking place at UW-Madison.

By Monroe S. Miller

It seemed too good to be true, maybe because it's taken so long. But the dream of many Wisconsin golf turf people did come true on August 18th when the O.J. NOER TURFGRASS RESEARCH AND EDUCATION FACILITY was officially dedicated.

It was a perfect day for a ribbon cutting ceremony. The sun was shining, the temperature at the noon-time dedication was 75° and the breezes were light.

It seemed somehow appropriate that the research center was dedicated on the tenth anniversary of our field day—we celebrate a birthday and a birth at the same time.

And who could have lost sight of the significance of the presence of the new dean of the College of Agriculture and Life Sciences at the newest addition to

the CALS Ag Research Station system for such a ceremony.

Isn't it somehow appropriate that Dean Roger Wyse comes from a state (Rutgers University in New Jersey) where the largest agricultural crop is turfgrass?

The dream script was complete when Dr. Frank Rossi stepped in place with the other dignitaries. The NOER facility was important in keeping that position and in attracting Rossi to Wisconsin.

The official opening was also an appropriate time to honor Dr. Leo M. Walsh, who played a key role in bringing the NOER research facility into reality. Without some key decisions on his part, the project wouldn't have happened.

It was a great day to say thanks to Profs. Kussow, Koval and Newman. All were there and Wisconsin Turfgrass Association

president Gary Zwirlein emphasized their collective contributions in planning and building the new turfgrass research station.

Marcy Schultz Heim, CALS fundraiser in the UW Foundation, received praise for her role. Marsh Finner's tremendous leadership was key in finishing off final details of the NOER facility. We can take great comfort knowing that it will remain under his control, now that our work is done.

Finally, the dedication ceremony offered a time for all those in the Wisconsin Turfgrass Association to reflect back on and enjoy the fruits of several years of hard work and commitment to the NOER project. It was, really, a good old-fashioned grass roots effort.

What a grand day it was! 🌱



WTA president Gary Zwirlein made introductions and offered his thoughts at the official opening of the NOER facility. L to R are Wayne Kussow, Marcy Helm, Leo Walsh, Marsh Finner, Chuck Koval, Roger Wyse, Frank Rossi and Gary Zwirlein.



Marsh Finner and Gary Zwirlein handled official ribbon cutting duties!



Dr. Roger Wyse, new CALS dean, is keenly aware of the value of the turfgrass industry. He offered his support during his tenure.



Professor Chuck Koval spoke on behalf of the faculty at the UW-Madison.



Professor Marsh Finner has the important job of overseeing the operation of the NOER facility. He is director of the UW Madison's system of Agricultural Experiment Stations; the NOER facility is the newest addition to the system.

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Aerial photo during Am Fam Senior Golf Championship.

Registration information and additional details on adjacent page.
Go to www.wisconsinturfgrassassociation.org to register and pay online.

Field Day Schedule

- 8:00am – 3pm Trade Show Open
- 8:00am Attendee Registration and 30th Anniversary Celebration
- 9:00 – 9:30 Welcome Session & Honored Guests
- 9:30 – 11:00 Lawn Care & General Turf Tours
- 11:00 – 1:30 Trade Show Only time
- 12:00 – 1:15 Lunch
- 1:30 – 3:00 Golf Turf Tours

Lawn Care & General Turf 9:30 – 11:00

- Summer seeding strategies
- Lawn disease review
- Species germination demo
- Wetting agents for general turf
- Fine Fescue cultivar evaluation
- Clover and Kentucky Bluegrass mixes

Golf Turf 1:30 – 3:00

- Bentgrass evaluations (greens and fairways)
- Winter kill recovery, timing, cultivars
- Nitrogen apps on dollar spot and soil microbiome
- Plant-based fungicides for disease control
- Testing putting greens for organic matter
- Topdressing influence on firmness



O.J. Noer Turfgrass Facility Directions
 2502 S Pleasant View Rd / Verona / WI / 53593
 608-845-6536

From Madison Beltline US-12 & 18
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 Go West on Mineral Point Road 0.7 mile to Pleasant View Road roundabout
 Exit roundabout going South on Pleasant View Rd
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If using Google Maps, you must use the name OJ Noer Turfgrass.

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- *30th Anniversary Program
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- *Contact Audra for details or questions at audra.anderson@wisc.edu

Registration Form

Register online at www.wisconsinturfgrassassociation.org or mail check and registration form by July 26th to
WTA - O.J. Noer Turfgrass Facility / 2502 S Pleasant View Rd/ Verona / WI / 53593

Add \$5 per person after July 26th postmark.

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GRAND TOTAL			= _____



View from the Pro Shop

By: Chris Zugel, CGCS, Director of Maintenance, Blackwolf Run and Whistling Straits



Dan Hastreiter,
Head Golf Professional
Blackwolf Run



Chris Zugel, CGCS
Director of Maintenance
Blackwolf Run and
Whistling Straits

At Blackwolf Run and Whistling Straits, we have worked toward bringing the Golf Professional staff and the Golf Course Maintenance staff together. At the end of the day, we are both striving to provide the best experience for our guests, so why not work together? While the maintenance staff tends to be behind the scenes, the pro shop is often the face of the operation. Dan Hastreiter is the Head Golf Professional at Blackwolf Run, and he leads this customer-facing team. His respect for the Golf Course Maintenance profession is second to none, and our team appreciates his efforts to make us feel like part of the team. Dan, an accomplished carpenter, has even spent a few winters in our shop working on various projects. I sat down with Dan to ask him a few questions to see what makes him tick.

CZ: Weather delays are a pain for us, but I'm sure that during the summer when the course is busy it is no fun for a Golf Professional either. What are some challenges that you face during a weather delay that we may not be aware of?

DH: As we all know, the weather is unpredictable. Deciding exactly when to evacuate the course is the first challenge, followed quickly by preparing for the rush of golfers off of the courses. Accommodating up to 400 players and 150 golf cars returning to the clubhouse from three courses while trying to maintain organization for a restart of play later is a big challenge. In about 15 minutes, we far exceed the staff's capacity to service all our guests to our normal standards.

For all guests who have yet to tee off, a weather delay can mean a significant wait before the tee opens. On most days, this means that golfers who were originally teeing later may not finish their full 18-hole round before darkness. As many of our guests have traveled a long distance to play our courses, the thought of not being able to complete the full 18-hole round can be disappointing.

CZ: How important is green speed to the Golf Professional? Is faster always better?

DH: Faster is not always better. No golfer wants to be worried about three and four putting from 25 feet. Putting surfaces that roll smoothly and true are the most important thing for most golfers. Matching green speeds throughout the course also has a large impact on the perception of the quality of greens.

CZ: Golf Course Superintendents work long hours, but you guys aren't calling it in either. How important is work/life balance to you, and what have you found ensures you don't burn out?

DH: Late nights and early mornings are the norm, and it can be challenging to find a schedule that works with those of family members and friends. To avoid burning out, I try to unplug from work completely every day for at least a few hours in the mornings or evenings. Also, I've found it very important to set aside time to eat during the day, as it is too easy to keep working straight through the day.

CZ: The labor market is quite different than it was only a few years ago. What techniques and strategies have you found to be successful?

DH: It seems nearly all industries and professions are having challenges not only recruiting quality talent, but also retaining existing staff. Over the past two years, we have made the move to offer more competitive wages, improved the benefits and amenities that we offer for our employees, created new growth and advancement opportunities, and began working towards a more balanced work and home life schedule. The golf industry has largely lagged in many of these areas and now must catch up. Through discussions with other Golf Professionals, I can say that this is a common feeling through many golf operations teams around the country.

CZ: When you play a course, what makes it fun?

DH: To me, the most enjoyable aspect of playing a new golf course is the excitement of seeing a new design and seeing what challenges have been laid out for the player. There are many styles of golf course design and many different terrains that these styles have been implemented upon. On every course I have played, there has always been a distinctively unique hole or holes that cause me to stop and admire what was built. And of course, shooting a good score never hurts!

CZ: Along those lines, when you are competing in a tournament, what aspect of the course is the most intimidating to you?

DH: A few years ago, a friend and I were about to turn into the entryway of a course where we were playing a tournament that day. As we approached, we caught a view of the golf course. I mentioned to him that I could see a lot of out of bounds posts and that the trees bordering the fairways had not been trimmed up from the ground to allow for a player to make a swing from underneath. I told him that I did not think I was going to score well that day. We still laugh about it today, but to me, tight tee shots that do not allow for any type of miss is what intimidates me most. ✓





View of Westmoor

LEAVE NO TRACE



By: Patrick Reuteman, Golf Course Superintendent, Westmoor Country Club

When time allows, my wife and I enjoy spending time at State and National Parks. The phrase “Leave no trace” is often seen on signs throughout the parks. These simple words have helped guide visitors for a long time. This phrase can also be the backbone to golf course etiquette and overall enjoyment of the game. Below are the seven guiding principles accompanied by my golf interpretation.

1. PLAN AHEAD, KNOW BEFORE YOU GO

Check the weather before your round! We often focus only on the high temperature. The hourly temperatures are very helpful as we sometimes see over 20-degree temperature swings or pop-up showers throughout the day. The app, “Dark Sky” is very useful for hourly weather

conditions. Also, check with the pro shop or Foretees for any cart restrictions or other items to be aware of on the golf course.

2. STICK TO TRAILS

I have a minimalistic approach to golf course signage and stakes. With that said, when I do have them out, or an area blocked off, it is for good reason. Please, obey all stakes and cart signs as well as:

- Keep all four tires on the cart paths
- Keep cart traffic 30 feet away from the greens
- Stay out of the natural long grass areas

3. TRASH YOUR TRASH

This one is self-explanatory and one that we don't have an issue with. With over 20 garbage cans throughout the golf course, there is ample opportunity to throw items away. As a side note, we separate recyclables every day when emptying the garbage.

4. LEAVE IT AS YOU FIND IT

This may be the most important principle as it relates to golf etiquette. I will post more details in the locker room, but they can be summed up very simply:

- Fix divots. Exploding divots-use sand.
Traditional divot- replace.
- Repair ball marks
- Rake bunkers

5. BE CAREFUL WITH FIRE

I am stretching the comparisons with this principle. However, we do find cigarette and cigar butts on greens and tees every once in a while. Please dispose of these in the rough or long grass areas... when we aren't in a drought!


6. KEEP WILDLIFE WILD

Westmoor is a sanctuary for an abundance of wildlife species. It is important to be respectful of these species

except for geese. One animal that often needs assistance is the painted turtle. During their nesting period in May and June and the hatchling season in August and September, the turtles may get lost finding the ponds. Feel free to relocate them to the nearest pond or let a staff member know!

7. RESPECT OTHER VISITORS, SHARE OUR TRAILS, YIELD TO OTHERS

The majority of this principle is out of my jurisdiction. However, there is a component that relates to maintenance staff. Our main goal every day is to minimize player disruption, but some tasks require us to work near or ahead of golfers. Please, make sure you have our attention or we are out of the way before hitting.

One of my favorite parts about working at a club like Westmoor is the Members' great pride in the golf course. I am reminded of this often during networking events with other Superintendents both locally and nationally. The whole reasoning behind, "Leave no trace" is to leave the area the same or better than you found it. This not only is important for aesthetics but playability. By following these simple guidelines, the golf course will play the same from the first golfer on the tee sheet to the last. 

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Introducing the **NEW** UW-Madison Turfgrass Apprenticeship Program



Paul Koch, PhD



Doug Soldat, PhD

The UW-Madison Turfgrass Apprenticeship Program (TAP) is a 2-step program that consists of a 12-week, in-person educational bootcamp and a field-based apprenticeship at a golf course, athletic complex, or other turf facility. The program provides participants with the hands-on, real-world experience needed to succeed in the turfgrass industry. Successful completion of both the bootcamp and the apprenticeship is required to earn the Turfgrass Apprenticeship Program Certificate.

STEP 1: EDUCATIONAL BOOTCAMP

The educational bootcamp is a 12-week, in-person program run by UW-Madison professors Doug Soldat and Paul Koch that offers an applied turfgrass education in a compressed period without compromising the quality of the course content. The majority of classes will take place on the UW-Madison campus, though regular 'shop talk' visits will be made to local turfgrass facilities to gain hands-on education on a range of topics from practicing turfgrass professionals.

The bootcamp will take place over two 6-week terms during the late fall and winter that allows for working students to complete seasonal tasks in the field prior to starting class in the fall, and to complete classes in the winter prior to the

start of the following growing season. The fall term starts the first week of November and ends in mid-December, and the winter term starts the second full week of January and ends in mid-February. Each week will have class on Tuesday, Wednesday, and Thursday from 10 AM until 3 PM CST with a 1-hour break for lunch. This compressed schedule allows those that don't want to commute daily to book housing for only 2 nights per week. Regular attendance and completion of quizzes, projects, and exams will be expected of each student. There will be no class during the week of Thanksgiving in the fall term and during the GCSAA Conference in the winter term.

Tuition for the 2022-2023 bootcamp will be \$3500 for the entire 12-week program. This cost is the same for in-state and out-of-state students. Payment of tuition will be due by the end of the second week of classes in the fall term, and full refunds will be offered to any student that withdraws by the end of the second week of class. Contact Dr. Paul Koch or Dr. Doug Soldat for questions about program costs and payments.

The 2022-2023 UW-Madison Turfgrass Apprenticeship Program is as follows:

Term	Class	Time (CST)	Primary Instructor	Start Date	End Date
Fall	Introduction to Turfgrass Management	10:00 AM – 12:00 PM	Paul Koch	November 1st, 2022	December 15th, 2022
Fall	Introduction to Turfgrass Soils	1:00 PM – 2:00 PM	Doug Soldat	November 1st, 2022	December 15th, 2022
Fall	Turfgrass Irrigation and Drainage	2:00 PM – 3:00 PM	Doug Soldat	November 1st, 2022	December 15th, 2022
Spring	Nutrient Management	10:00 AM – 12:00 PM	Doug Soldat	January 10th, 2023	February 16th, 2023
Spring	Integrated Pest Management	1:00 PM – 3:00 PM	Paul Koch	January 10th, 2023	February 16th, 2023

Housing is not provided by UW-Madison during the bootcamp, but we will work to provide a number of affordable hotel options in the Madison area and coordinate hotel stays among the students so that most or all students who wish to stay in Madison can stay in the same hotel. We anticipate that hotel costs for two nights per week during the 12-week program will be less than \$2000, and those costs will decrease considerably for those students interested in a roommate.

There will be significant scholarship money available to support student tuition and housing costs from a variety of turfgrass associations, including the Wisconsin Turfgrass Association, Wisconsin Golf Course Superintendents Association, Wisconsin Sports Turf Managers Association, Wisconsin Sod Producers Association, among other sources. More information on scholarships and how to apply for them will be provided in the first week of class during the fall term, and all scholarships will be awarded at the Wisconsin Golf Turf Symposium in Kohler, WI in January. Please contact Dr. Paul Koch or Dr. Doug Soldat for more information on TAP scholarships.

STEP 2: FIELD-BASED APPRENTICESHIP

Students in the TAP will also be required to complete

a field-based apprenticeship at a golf course, athletic complex, or other turf management facility of their choosing. A list of tasks to complete during the apprenticeship will be developed in cooperation with associations in the turfgrass industry and will be ready in time for the 2023 field season. The student's field supervisor (superintendent, grounds manager, etc.) will sign off on each assigned task once they have deemed the apprentice proficient at the task. Students who complete the assigned tasks will be ready to assume a position as an assistant superintendent in the golf course industry or an equivalent position in the sports turf, lawn care, or sod industry. More details will be available on the apprenticeship in the fall and winter of 2022-2023.

HOW TO ENROLL IN THE TAP

To enroll in the UW – Madison TAP please email Dr. Paul Koch or Dr. Doug Soldat and indicate that you would like to enroll in the program. You will be added to the class list and receive regular email updates as the fall term approaches, including information on how to pay tuition for the program and guidance on housing and parking. Deadline for enrollment in the fall term is October 15th. ✓



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The 10th green at Theodore Wirth Golf Club.

GOING GREEN(ISH) IN MINNEAPOLIS?



By: Chris Aumock, Executive Director, Minnesota Golf Course Superintendents Association

Previously, Golf Course Superintendent for the Minneapolis Park & Recreation Board
Meadowbrook & Theodore Wirth Golf Courses

**Originally printed in Hole Notes, Nov/Dec. 2020 issue

I prefer to have the right tool for the job as most people do. However, I found myself on too many occasions this year using a hammer when I needed a screwdriver. Is that due to my own inadequacies? Very possibly, or is it that I don't have the full toolbox I need? It seems our non-golf communities believe that we hammer the problem instead of simply twisting the screw.

This makes me think of a time when I was working at a club in New Jersey. The other assistant and I had finished hand watering our greens, and we were good for the night. We decided to play a few holes. After teeing off on #1, we saw our young second assistant hand watering the 10th green. Knowing this was our wettest green on the property, we had to ask him what he was thinking. "Making it rain," he said! After a few laughs, we proceeded to teach him a few things

and had a new catchphrase for the season. This moment has stuck with me, though. I often think to myself: what do they know, what do I know, or what do they think I know?

This last question is the most relevant as all northern superintendents get the same question in the colder months: "What do you do in the winter?". No one ever asks: "What do you do in the summer?". People assume that they understand what we do, how we do it, and why we do it, but how many really understand? Unfortunately, when the community starts getting involved in policy discussions for golf maintenance, issues can arise from this misunderstanding, especially when it comes to chemicals. We are all acutely aware of the negative connotations they carry. During these discussions, I want to make sure that I'm not hammering a screw. Further applying my overused metaphor, how much longer will we have any of the chemical tools in our proverbial toolbox?

The idea of organic golf course management is intriguing. I can't argue that the idea doesn't sound great, and I would fully support the transition. Realistically, is this a viable option for fine turf management currently? The number of organic golf clubs is very small. Is it because it's too expensive, lack of resources, or is just plain ineffective? A lot of us are already improving our stewardship efforts including considering organic opportunities as they become available, but can we or are we even ready to be fully organic? This is a question that the Minneapolis Park and Recreation Board (MPRB) golf courses have been grappling with recently.

MPRB golf properties-Columbia Golf Club, Fort Snelling Golf Club, Francis A. Gross Golf Club, Hiawatha Golf Club, Meadowbrook Golf Club and Theodore Wirth Golf Clubs -are all older courses with mixed stands of turf. We have poa/bent greens and bluegrass fairways and tees with occasional bentgrass areas. They don't have new, disease-resistant



Hole 3 at Theodore Wirth Golf Club.

cultivars. These courses also operate with limited resources and staffing. Could re-grassing be the solution, or would we even be able to maintain our golf courses fully organically without additional funding? There are so many questions we could ask but what's more important is: what can we do right now? Where can we already make improvements? It is my opinion that we can improve our efficiencies and reduce our current chemical use by instituting a reduced-use approach to chemical applications.

In late 2018, MPRB passed a moratorium on the use of glyphosate and established a community advisory committee to discuss alternatives for glyphosate and other "toxic" pesticides. MPRB organized a Pesticide Advisory Board, where the discussion quickly transitioned to fully organic maintenance options. My predecessor,

MGCSA Executive Director Jack MacKenzie, was placed on this committee as a representative for golf.

Minneapolis considers itself a very progressive community. They demand environmental responsibility, and within this area, golf unfortunately shares the common misconception that we all face: we, as professional property managers, abuse and misuse chemicals. The biggest issue MPRB turf managers face is education: informing the public on what we do and how we do it. Throughout the Pesticide Advisory Committee discussions, my fellow turf managers and I, through live testimony, tried to explain that going organic is a good idea in the long term. However, the options available to us either do not support fine turf management upon our aged golf course properties, are equally hazardous chemicals, or are

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Dr. Paul Koch and Chris Aumock.

frankly cost prohibitive. We voiced our concerns that now is not the right time to go completely organic as the products available cannot support fine turf maintenance and create a viable product. We also shared that, until the day of 100 percent organic management comes, we can and will continue to improve our programs and efficiencies.

From these discussions, it was decided by the Pesticide Advisory Board that a 100 percent organic pilot program would take place at our Fort Snelling golf course. Without side-by-side comparisons, the city turf managers argued that this would not be an effective test, and we were eventually able to convince the committee to also introduce a reduced chemical use method (EIQ, hazard quotient, pounds of active ingredient) as a second alternative pilot program. Dr. Paul Koch from UW-Madison was retained, and it was decided that one of my courses, Theodore Wirth, would be an appropriate test site. The sample test project at Fort Snelling was instituted by an outside "organic" consultant with limited golf course experience and consisted of only a few small areas of the property. The Fort Snelling pilot was affected by several factors that year, including Covid, that affected the consultant's travel. This pilot did not provide meaningful results or data this year. Further organic programs and treatments continue to be tested at Hiawatha Golf Course.

At Theodore Wirth, I utilized the reduced chemistry use approach for my entire program. Theodore Wirth has an 18-hole championship course, along with a 9-hole par 3 course. The chemical program treats all holes equally. Overall, we treated 28 acres of fine turf.

The main ideas of the Theodore Wirth pilot were the following:

- Incorporate Smith-Kerns Dollar Spot Model into chemical program planning
- Maintain the existing standards of the golf course
- Operate within existing budget
- Reduce chemical use by analyzing metrics (Lbs. a.i., Hazard Quotient, EIQ)
- Incorporate iron sulfate into program
- Replace highly hazardous products with lower toxicity products
- Increase dew removal and rolling

Over the last few years, I had been working on making some of these changes already. Chlorothalonil had been replaced by Fluazinam throughout, and all tee and fairways applications were reduced to a single fungicide. All greens applications were also reduced to a single fungicide following the initial application of the season.

Dr. Koch reviewed and made tweaks in my existing chemical program. Basically, during the season, it was

a simple rotation of fluazinam & propiconazole on all turf areas. The first application of the season was Emerald on tees and fairways, and Posterity was added to fluazinam for greens. I did not make any applications on greens until May 27th with tees shortly thereafter. The first fairway spray of the season was not until June 24th.

As unique as this year was already, it was slightly more interesting for me as I was also overseeing a second golf course-Meadowbrook-and this "double duty" did complicate some parts of the pilot. I did mostly duplicate this reduced chemistry use approach at Meadowbrook with similar results. Check plots were established on a few tee and fairway areas. Unfortunately, as the season went on, I couldn't be assured that those remained unsprayed as I was unable to make all pesticide applications personally. Also, some of the reductions in applications were due to scheduling issues on my end. Apparently, I won't ever be a successful researcher.

Incorporating the dollar spot model was definitely different for me. I have been used to going out with an early spring app and a fall app on greens. It was interesting to work with Dr. Koch and rethink why we were making those applications. As I mentioned earlier, I did not make any applications until late May when the model finally broke our disease probability threshold (Greens 20%, Tees & Fairways 25%). With the initial applications, we were assuming full control of that product for the longest labeled interval. For Emerald and Posterity, we planned for 28 days of control, and I did not revisit the model until that time had passed. Even using the dollar spot model, greens were still treated roughly every two weeks through August with a final application of Posterity in mid-September.

The biggest difference that we saw with use of the model was on fairways-our greatest expense. We had planned for 5 fairway applications on 3-week

intervals. However, we ended up only making 3 applications this season. One of these missed applications was due to my scheduling issues. The model had passed the threshold on a Thursday, but we were unable to make the spray. By the time we became available, the model had dropped below the threshold. I chose to hold off on that application. Perhaps during another year that would have been made if I had been more readily available. This is also only one way to interpret the model—others may deem it to have reached the threshold and that planned spray was still applicable days later. We did see a slight outbreak of dollar spot during August which I attribute to these timing issues. However, disease was controlled by following spray. Turf conditions were never outside of expected course standards.

Dr. Koch had also hoped to include iron sulfate in the program for dollar

spot control. However, after the first attempt we realized that our spray equipment wouldn't work without a proper agitation system. Our sprayer was an older Multi-Pro 1250.

Some other large changes were replacing the herbicide we had been using—replacing it with a low use-rate post-emergent product and the elimination of the only remaining iprodione application from the snow mold program. In place of that, we included fludioxonil on greens.

We have had a roller at Wirth for a few years and roll at least 2x a week. In 2019, I had begun fairway dew dragging more and increased dragging again. We were more consistent, but on the weekends and shoulder months, dragging frequency did fall off slightly due to staffing limitations.

The fertility side of the program was retained from previous years with slight tweaks. Applications included



Check plot at Theodore Wirth Golf Club.

wetting agents and nitrogen regularly and phosphites when appropriate. There were also a couple granular applications made to each area with the only change being tee and fairways granular products were now organic-based formulations. There was a single

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The 15th hole at Theodore Wirth Golf Club.

insecticide application (Acelepryn), and a single herbicide application (Defendor) to tees and fairways. Plant growth regulators were removed from the program.

Further disclosure: this program was primarily developed for dollar spot prevention. I did have to include an application of azoxystrobin in July to knock back some brown patch. We also had minor incidents of leaf spot and anthracnose. However, Dr. Koch did not see any need for further additional applications outside of the developed program.

So, what does this all mean, and are we ready to go organic? I can say as the one who implemented and monitored the results of this pilot that we are not, but a reduced use approach is a very viable option. Course standards at Theodore Wirth were maintained to historical expectations. Our patrons were none the wiser to any disease issues on the golf course even after 35,000 rounds. Obviously, that is one of the larger considerations for other professional turf managers-my golf course standards versus yours. Coming from private

clubs, I have high standards that I usually can't achieve, but for what this golf course needs to be, and can be, we maintained the property to the established standards.

The big takeaway actually comes from reviewing the past 3 years. From 2018-2020, we have reduced chemical use from 53%-88% across all metrics as analyzed by Dr. Koch. Tees went down 53% in Lbs a.i., EIQ, and 75% in Hazard Quotient. Greens were reduced 80-88% across all metrics and fairways went down 75-80% in all categories. All this was achieved well within the existing budget. Using the newer products can be more expensive, but quantities were significantly reduced so overall the budget was consistent. This was not only good on paper, but great for someone like me who is making most of the applications. I can't complain about the reduced inputs into the tank or about the easier math when planning applications!

I hope that in Minneapolis, and as an industry, we can find biological solutions in the near future, and I would fully support a realistic organic approach

when it becomes available. I know Dr. Koch has done some work on biological fungicides and has found them to be largely ineffective during high stress periods. Hopefully these products will continue to improve and become more realistic options sooner than later for the turf managers at MPRB, and I'm sure other clubs, cities, and organizations will be having these conversations soon if they haven't already.

I think it's most important that we continually tell these groups that we support the intention, but we cannot support the current timeline for action. In Minneapolis, the Park and Recreation Board wanted to go organic very quickly, and perhaps Covid gave us a slight respite, but this discussion will be resumed someday soon. We, as golf course superintendents, are now fortunate to have this quantitative data from Dr. Koch to show what we can realistically implement right now.

This data is another tool in our toolbox. We can tell our boards, members, patrons, and communities that we can provide the same or similar expectations to our golfers while also reducing the environmental concerns of our communities. I think it's important we continue to educate people that we are professionals and that we take great pride in preserving these lands entrusted to us. I get tired of people asking what I do in the winter. I want people to better understand what we do in the summer. ✓

**An update from Chris: MPRB is still discussing organic products. Hiawatha Golf Course Superintendent Dan Ament is working on a fully organic approach this year (2022). Other facilities are working to adopt reduced use approaches.

Tee-rific Pesticide Applicators

By: Otto Oemig, Pesticide Programs Unit Supervisor, Bureau of Agricultural Chemical Management
Wisconsin Department of Agriculture, Trade and Consumer Protection

Golf course maintenance is one of the most important duties in owning a golf course. Many superintendents want weed-free turf with no pesky crabgrass shining through, but who can apply such pesticides and what certification and licensing do they need?

Applying general-use pesticides on a golf course requires no certification or licensing if the owner or the golf course employee are the applicators. As always, read and follow all pesticide label directions.

If your golf course begins applying any Restricted-Use Pesticide (RUP), pesticide applicator certification and licensing become required. For golf course applications of RUP's, certification in the 3.0 Turf and Landscape category is required. Certification is good for five years. Once certified, you would then need an Individual Commercial Applicators License (ICAL) Not-for-Hire. ICAL's have to be renewed annually and run from January 1st-December 31st.

While it is always a good practice, record keeping is not required in Wisconsin when applying general-use pesticides. However, when applying RUP's, record keeping is required, and you need to retain those records for 2 years. Application records must include:

- The first and last name of the individual making the pesticide application.
- Site the pesticide was applied.
- A specific description of the location of the pesticide application site. The description shall contain sufficient information and detail so that the location of the pesticide application site may be readily determined.
- The month, day, year, and approximate starting and ending time of the pesticide application.
- The brand name, or product name, or common chemical name, and the federal environmental protection agency registration number of each pesticide applied.
- The concentration and total quantity of each pesticide applied OR the amount of pesticide product applied per unit area and the total area treated.

When it comes to pesticide warning signs, golf courses must have a warning sign at each of the following locations:

- At or near the place where golfers register to play the course.
- At or near the first tee of every nine holes.
- At every point on the golf course boundary at which the non-golfing public is permitted to enter the golf course by means of a road, sidewalk, path or other established thoroughfare.

The warning signs must be 12 inches by 12 inches and contain the following statements in red letters not less than ½ inch high on a white background:

“Pesticides are periodically applied to this golf course. You may contact the golf course superintendent for further information.”

If anyone requests information about pesticide applications to the golf course, the superintendent must notify that person that the following information is available and, upon request, provide what products were used, where the products were applied, and a copy of the label. ✓

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questions, please see Chapter 9 – Responsible Pesticide Management in the WI GCSAA Best Management Practices guide, email lyncee.zuehls@wisconsin.gov or call (608) 224-4551.



Editorial Musings

By: Jake Schneider


I can't say that I subscribe to the motto that all things happen for a reason, but that thought certainly crossed my mind when I received a phone call from Garrett Luck on behalf of the WGCSA board on the last day of my failed experiment as a government employee. Turns out that they were looking for someone to fill the enormous shoes of David Brandenburg as the editor of this fine magazine, and my schedule had freed up tremendously that very day. I lost all negotiation power when I quickly answered that I was absolutely interested even though I had little idea about what the job entailed. I can't thank David and Brett Grams enough for their guidance in getting my feet beneath me for these first few issues.

I've always enjoyed writing, and for quite a few years, David gave me free rein to discuss just about whatever was on my mind in the Madtown Musings column. My wife, Melissa, who helps with proofreading, was occasionally baffled by the fact that some of my articles had very little to do with golf course maintenance, but I'm starting to realize that content is content, baby. It's been a pleasure to get to know David over the years; he's as good as they get and his service to the association has been truly remarkable. Past editors of The Grass Roots have seemingly been cut from the same cloth, and I'm humbled to follow in the footsteps of these industry titans. You'll get to learn more about David in this issue's feature by the aforementioned Mr. Luck.

One of my goals with the magazine going forward is to include a variety of voices throughout the issues, and the

response that I've received from those that I have pestered about possibly contributing has been quite refreshing. Within days of reaching out to the WPGA, Mike O'Reilly agreed to spearhead articles that focus on the ever-important relationship between the pro shop and the maintenance facility. Shortly thereafter, Brian Bonlender and his WGCSA events committee members divvied up coverage of the various association happenings throughout the year. These new contributors will provide fresh perspectives and keep the content interesting.

In this issue, you'll also find an article by Patrick Reuteman that he wrote for his club's newsletter. We suspect that many of you are in charge of doing something similar for your employers, and if you have anything that you've written that you think would translate well to a larger audience, please send it my way. And, if you're worried about your grammar or sentence structures, they pay me the big bucks to clean that stuff up.

When we moved back from our stint overseas, one of my hopes was to get reconnected with the Wisconsin golf industry that I hold in such high esteem, and I feel privileged to have this new role. But, remember that this is YOUR magazine, and if you ever have interest in contributing, have an update about someone or something in the industry, or just have a general comment, feel free to get in touch. I look forward to serving you and hopefully catching up at an upcoming event. 

Industry moves

Matt Statz was promoted from assistant to superintendent at Pleasant View Golf Course in Middleton. He had been the Assistant Golf Course Superintendent there since 2014.

Joe Deschler passed away. Joe was a long-time salesman for Horst Distributing. He was a champion of the smaller golf course operations and a friend to many who crossed his path. Joe was active with the NGLGCSA for many years, and he and his wife Patty seldom missed the WGCSA Dinner Dance and Couples Events each year.

Danny Quast retired from and sold DHD Turf and Tree Products.

After a long and successful career in the golf industry, Danny Quast decided to sell DHD Turf and Tree Products. This will allow him more time to enjoy with family, friends, and a bit more time playing golf.

He would like to thank his many customers for their loyalty and friendship to not only himself, but to DHD! Even though he has sold the business to Mike Akin, he plans on being involved in the continuing success of DHD Turf Products.

Mike Akin has been in the industry for 35 years plus, working for fertilizer blenders, control product distributors and owning a distribution business in Milwaukee. He focused on arborists, lawn care, landscapers, ball fields, and some golf courses. (Called on Danny at Milwaukee Country Club when he was superintendent quite some time ago.)

When Mike moved to Fox Lake he met up with Danny, as a customer, for products DHD was selling. After a few years of being a customer Danny asked Mike if he was interested in buying the business. After a couple of more years, Mike agreed to do just that.

As you can see there has been a slight business name change. The plan is to have the same great customer service and the knowledge to help customers deal with every challenge we face throughout the year. Danny plans to be back in the spring of 2022 and to help DHD Turf Products in whatever way he can to build on its accomplishments.

Thanks again to all the great customers and the continued success of DHD Turf Products!


Rod Johnson is transitioning to retirement at Pine Hills CC.

Per Rod: "I'm just moving towards a limited coaching role from the end of the bench. It is my plan to rediscover a golf game that at my advanced age will be a challenge. Alert everyone to please answer if my phone number shows up as an incoming call. I'll be looking for free golf. Also thinking about taking about taking up pickleball."

Tom Speltz is now the superintendent at Pine Hills. Tom came from The Golf Club at Cedar Creek in Onalaska.

Dave Busse is the new superintendent at The Golf Club at Cedar Creek. Previously, Dave was at Rock River CC in Waupun.

Gary Peters is now the superintendent at St Germain GC. Gary moved back to Wisconsin after being at Lake Monterey Golf Club in Dorr, Michigan.

Mitch Heckendorf is the new superintendent at Rhinelander CC. He came from LaCrosse CC where he was the assistant superintendent for four years. 

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CATCHING UP with Randy Witt

By: Garrett Luck, Golf Course Superintendent, Hidden Glen Golf Club



Give a brief background of your history in Wisconsin (are you originally from Wisconsin? If not, how did you end up here?):

I was born and raised on a farm in southern central Wisconsin until my parents moved to the LaCrosse area. I began my golf course career at the ripe old age of 14 at Maple Grove C.C. located outside of LaCrosse, WI. My career began with meticulously hand raking bunkers and push mowing around trees as string trimmers had not been invented yet. I eventually ended up at Penn State in their Turfgrass Management program under the leadership of Dr. Joe Duich. Fresh out of school, I was fortunate to be hired at Reedsburg C.C. which was the beginning of my career in Wisconsin with stops at Janesville C.C., Oneida Golf and Riding Club, and The Bull at Pinehurst Farms before moving onto the Hong Kong Golf Club.

Why would you ever leave Wisconsin and what have you been up to since you left?

I was presented with the opportunity to work internationally which led me to Hong Kong Golf Club in Hong Kong. This was undoubtedly the highlight of my career in the golf course business. I was fortunate to work at one of the top private clubs in Southeast Asia for 16 years. The club consists of 2600 members with 54 holes that are located 25 miles from the border with China as well as having a nine-hole course in the city of Hong Kong. The yearly highlight was hosting the HK Open which is a venue on the European Tour and the Asian Tour. The Club also hosted the Equestrian Events for the 2008 Beijing Summer Olympics. The equestrian track was constructed in two years over various parts of the three courses with Sam Bauer of U. of Minnesota fame being on staff and responsible for preparing and maintaining the track.



What is your favorite thing about your current job? (Or recent job in your case):

The challenge and satisfaction of maintaining 63 holes to an extremely high level with new and interesting challenges and experiences every day. Experiencing a new culture was rewarding and so interesting as was being able to travel extensively throughout Southeast Asia and Australia during vacations and holidays. Working and living in a totally different culture was interesting and rewarding. Preparing a warm season course 365 days a year took a bit of getting used to but being able to be in shorts and golf shirts 365 days a year was a good trade off! Understanding and appreciating that I could be gone for 2-3 weeks at a time on vacation and returning to courses that were in the same condition as when I left. Learning that superintendents do not need to be constantly tied to the course during the growing season.

What is the thing that you miss the most about Wisconsin?

Being a sports fan, I missed being able to attend Packers, Badgers, and Brewers on a consistent basis although I was able to attend some games when home on vacation. I was fortunate to have been able to set my travel schedule to be able to attend the first Packers home game of the season each year!

Have you been back to Wisconsin since you left? If so, what is the one thing that you most forward to doing upon your return?

I returned back to Wisconsin for good in the Fall of 2020 due to Covid and travel issues and feeling it was maybe time to go back to WI.

If a Wisconsinite travels to Hong Kong, what is the one thing they must do or see?

Seeing and experiencing Hong Kong the city and all it has to offer is a must. The harbor front at night with all the high rises lit up is beautiful. ✓





INTRODUCING

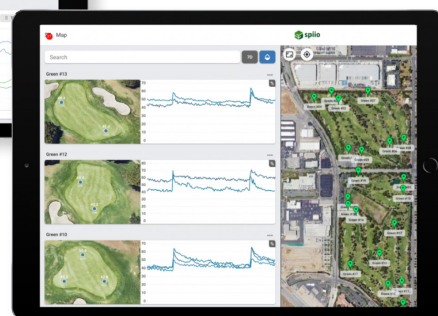
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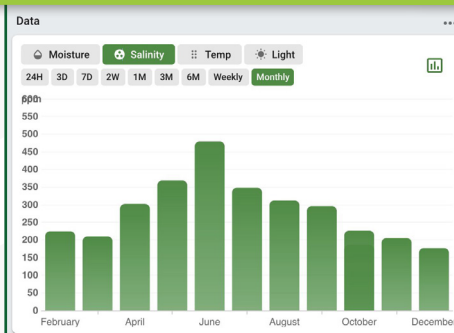
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