

THE GRASS ROOTS

56TH ANNUAL
WISCONSIN GOLF
TURF SYMPOSIUM

**Healthy Self,
Healthy Turf**

THE AMERICAN CLUB, KOHLER WI

JANUARY 11TH & 12TH 2023



**REGISTRATION
NOW OPEN**
WGCSA.COM



THE REINDERS DIFFERENCE

Contact your Reinders representative for more information



Reinders

Solutions & Supplies for the Green Industry

W227 N6225 Sussex Road,
Sussex, WI (800) 782-3300
www.reinders.com

CONTENTS

2022 WGCSA BOARD OF DIRECTORS

PRESIDENT

Jeff Barlow, CGCS - Waupaca Country Club
 1330 Ware Street, Waupaca, WI 54981
 Work: 715-258-5435
 E-mail: jj12barlow@gmail.com

VICE PRESIDENT

Scott Anthes - Brown County Golf Course
 897 Riverdale Drive, Oneida, WI 54155
 Work: 920-497-7819
 E-mail: scott.anthes@browncountywi.gov

TREASURER

Garrett Luck - Hidden Glen at Bentdale Farms
 778 Sherman Road, Cedarburg, WI 53102
 Work: 262-242-7019
 E-mail: gluck@hiddenglengolfclub.com

SECRETARY

Ben LaBarre - Westmoor Country Club
 400 S. Moorland Road, Brookfield, WI 53005
 Work: 920-483-0386
 E-mail: ben@westmoor.org

DIRECTORS

Timothy Schmidt - Butte des Morts CC
 3600 Prospect Ave, Appleton, WI 54914
 Work: 920-738-5541
 E-mail: tischmidt31@gmail.com

Brian Bonlender - West Bend CC
 5846 Hwy Z, West Bend, WI 53095
 Work: 262-338-0540
 E-mail: brian@westbendcountryclub.org

Adam Suelflow - The Wisconsin Club
 6200 W. Good Hope Road, Milwaukee, WI 53223
 Work: 414-897-2331
 E-mail: asuelflow@wisconsinclub.com

Tim Wegner - Brown Deer Park GC
 7835 N Green Bay Road, Milwaukee, WI 53189
 Work: 414-352-7502
 E-mail: wegnertim49@gmail.com

PAST PRESIDENT

Josh LePine, CGCS - Maple Bluff CC
 500 Kensington Drive, Madison, WI 53704
 Work: 608-249-3468
 E-mail: josh@mbcc1899.com

VENDOR REPRESENTATIVE

Rob Johnson - Waupaca Sand and Solutions
 E3481 Royalton St., Waupaca, WI 54981
 Work: 715-258-8566
 Email: rjohnson@waupacasand.com

CLASS C REPRESENTATIVE

Jens Arneson - Maple Bluff CC
 500 Kensington Drive, Madison, WI 53704
 Work 920-210-2112
 Email: jensoarneson@gmail.com

CLASS EM REPRESENTATIVE

Austin Wright - Sand Valley
 529 Sand Valley Trail, Nekoosa, WI 54457
 Work: 785-550-6603
 Email: awright@sandvalleygolfresort.com

ABOUT THE COVER Join us for the 56th Annual Symposium



THE PRESIDENT'S MESSAGE

Times Up.....4

EDITORIAL MUSINGS.....5

WGCSA/GCSAA

GCSAA Conference and Show Preview6

BMP

One of Our Most Precious Resources: Water8

WGCSA

56th Symposium Preview and Schedule 12

South Hills Shines at August Meeting 14

Teeing it Up at Pioneer Pointe 16

EM RECAP

Fall 2022 Equipment Managers Educational Session:

Grow Your Network & Mental Health 18

USGA DATA COLLECTION

Addressing Common Concerns About Putting Green Data Collection..... 22

JOB POSTS

Attracting Assistant Superintendents..... 27

MONROE MILLER LITERARY SCHOLARSHIP SUBMISSIONS

Nothing But a Summer Job 28

Oxalic Acid Degrading Bacteria are Present in the Turfgrass Phyllosphere and Soil 40

The Five Pillars of Making a Team..... 48

WISCONSIN PATHOLOGY REPORT

Reducing Pesticide Risk on Golf Courses..... 32

TURFGRASS DIAGNOSTIC LAB

Plant Pathology Snow mold Trials Preview 38

INDUSTRY PARTNERS

19th on the 19th..... 43

WISCONSIN TURFGRASS ASSOCIATION

WTA Fall Golf Classic 2022 is a Success 44

FROM THE ARCHIVES

Giving Back to the Industry 46

WGCSA

Badger State Turf Clippings..... 52

INTERVIEW

Catching up with Bill Stein..... 50

ADVERTISER INDEX..... 54

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.

GRASS ROOTS EDITOR

Jake Schneider
 grassroots@wgcsa.com - 608-530-4480
 4174 Cherokee Drive, Madison, WI 53711

WGCSA CHAPTER MANAGER

Jake Schneider
 jschneider@wgcsa.com - 608-530-4480
 4174 Cherokee Drive, Madison, WI 53711



Times Up

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

As I write my final message, I cannot help but to reflect on the last 10 plus years on the board. I remember driving into the office one morning and receiving a call from Brian Zimmerman asking me to serve on the WGCSA Board. At the beginning of the conversation, I told him I wasn't interested, didn't have enough time, and on and on. By the time we hung up the phone, he had convinced me to serve and here I am today--prepared to move into a director role as Past President. I am thankful for the persuasion, and although I can't quite remember what Brian said, I don't think he was hanging up the phone without a commitment.

As the Presidency gets handed over to Scott Anthes, I have no doubt the association will be in good hands. It has been a privilege and an honor to serve as the President the past two years. The current board consists of amazing individuals that continue to put the WGCSA members first and continue to do what is best for the future of the WGCSA. If there are any members that would like to get involved, please reach out to Scott Anthes as I am sure he could find a committee for you to serve on!

Thank you! Thank you to all the individuals I've had the privilege to meet and serve with. I've really met a lot of wonderful people along the way and looked forward to our meetings to see what new ideas, inspirations, and thoughts would be brought forward. To our industry partners--thank you for your continued support; you really provide a level of support that is amazing! To our members--thank you for being a part of this great association and remember to support the industry partners that support the WGCSA. To the entire University of Wisconsin Team--thank you providing much-needed research and providing us with ideas and solutions allowing us to perform our tasks easier.

In closing, I would like to remind everyone of the annual meeting December 14th 2022 and the Symposium on January 11th and 12th 2023. Hopefully, I will see many of you in Orlando for the GCSAA Conference and Trade Show in February. Have a safe and happy holiday season and enjoy this slower time of the year. ✓

Jeff

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.



Editorial Musings

By: Jake Schneider, Editor and Chapter Manager

What a year it's been! Golf in Wisconsin was gangbusters for another season, and while it was a little dry in the northern and central parts of the state, the weather was generally quite mild. It'd be hard to complain too much about how Mother Nature treated us this year. That being said, the challenges are plenty—staffing, prices, supply issues, too many golfers (?)—and I hope that you are able to recharge the batteries this winter. I'm looking forward to attending the Symposium in Kohler and the GCSAA Conference and Trade Show in Orlando.

While I'm biased, I think that we have terrific lineup of speakers coming to Kohler in mid-January. There's a nice mixture of golf course folks, academics, agronomists, and experts on mental health and leadership. Plus, the Wee One Foundation has generously offered to sponsor the Happy Hour after the first day of education to coincide with their fundraising auction. A special thanks to Jaime Staufenbeil with Milorganite for all the work that she does to coordinate the event. We really can't commend her enough for everything that she does, and between a first-class location and an agenda filled with interesting, pertinent talks, it should be a fun few days in Kohler.

And, if you're in the mood to escape for some warmth and sunshine, I suspect that the GCSAA Show in Orlando is going to be a good one. The facility tours that are being offered should be a hit, and the Wisconsin Room at Cuba Libre Restaurant and Rum Bar on February 8 won't be too shabby, either. Rob Johnson with Waupaca Sand and Solutions was a huge help with getting plans set for our annual night of networking. Thank you, Rob!

It's safe to say that there are a lot of other people that I need to acknowledge for getting me up to speed with both The Grass Roots and with the chapter manager role, and Jeff Barlow is certainly one of them. Jeff, your service to the WGCSA has been greatly appreciated, and enjoy the extra time in the woods chasing after the 30-pointer. Also on the list is Gene Haas who has graciously contributed caricatures to The Grass Roots for a long time. Earlier this year, I asked Gene if he would be willing to provide portraits of David Brandenburg, Rod Johnson, and Danny Quast (featured in this issue), and he had them to me within two weeks.

It shouldn't be news to any of you, but we are fortunate to be in an industry with so many great, generous individuals. When

the \$2 billion Powerball mania was going on, I commented to my wife that for the first time in my life, I wouldn't quit my job if we hit it big. It's apparent that, in my short time in these new roles, the WGCSA is being led by an ambitious, dedicated group of board members, and it's our goal to continue growing the association in 2023. We're determined to increase our membership, to get the Par4Research auction back to six figures, to expand our industry partnership recognition, and to give back more.

Although prices of just about everything else has gone up, the Board has decided to not raise dues or to increase the price of our partnership rates. With renewal season upon us, we hope that you decide to continue your membership and sign up a few new folks along the way.

Enjoy the colder months, and I hope to see you in Kohler, Orlando, or both! 🍀

The Turfgrass Information File Database

www.wgcsa.com/member_login.php

200,000+ searchable records!

Over 50% of TGIF Now Links to Full-Text!

GCSAA

Turfgrass Information Center

Twitter, Google+, Facebook

GCSAA CONFERENCE AND SHOW PREVIEW

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

I hope you all had a great Thanksgiving and that all is well as we move into December. After another tough year – Mother Nature, rounds, labor – all the credit to you and your team for getting to this point. Golf doesn't exist without your hard work, dedication, and commitment, and I hope you all had successful seasons.

As you begin to focus on the 2023 season, I hope you will include the 2023 GCSAA Conference and Tradeshow (CTS) in your plans. There are a lot of changes in store from previous shows which will only enhance your experience in Orlando.

Beginning with Monday, each day of the event encompasses its own theme. Kicking off the event, Monday's theme is Champions on the Course. With three different ways to earn education points on the day, there is something for everyone. Whether it's seminars and power hours, specific topic tracks or the ever-popular facility learning tours – of which, eight will take place on Monday – it's your choice on how you'll want to earn and learn. To wrap things up Monday evening, a reception at Aquatica Beach is set for you to enjoy time with friends and colleagues.

Looking ahead and building off Monday's education, Tuesday's Immersive Education theme offers additional opportunities for you and your team to earn educational points and bring real solutions back to your facility. Along with the fourteen educational tracks, there are additional seminar and power hours, along with six facility learning tours. Cap off Tuesday with exhibitor events and spend time with your friends and the industry partners.

Wednesday: Discovering Innovation. Where else can you start your day off with a Sunrise Celebration and see the latest innovations in the industry? The 2023 tradeshow floor will allow you to:

- Discover the solutions you are looking for from the hundreds of exhibitors who will be in Orlando
- Make connections with industry partners
- Save money with show-only specials to stretch your budget
- Visit the BMP Resource Center for info and vendors offering sustainable solutions
- Enjoy education and product launches on the spectacular grass stage

Thursday: It's all about celebrating you. The show floor turns interactive during Super Thursday at the trade show.

- Demo exhibitors' products and services
- Learn grinder best practices
- Test your skills with competitions like cup cutting, blade changing, mower obstacle course and more
- Improve your 'app'titude with app education

And as always, there are the special events taking place in Orlando as they have at previous shows:

- HEALTH IN ACTION 5K to benefit the GCSAA Foundation.
- SILENT AUCTION great deals for a good cause.
- GCSAA Annual Meeting, be there Thursday morning.

I hope to see you in Orlando or throughout Wisconsin! 🌱



KEEPING YOUR COURSE GREEN.

- Well Drilling/Well Rehab
- Irrigation/Turbine Pump Repairs
- Pumpstation Installation & Retrofits
- Pumpstation Service & Repairs
- Fountains & Aerators
- Preventative Maintenance

Pumpstation Professionals
A Division of Midwest Well Services, Inc.

800.383.7412
PUMPSTATIONPROFESSIONALS.COM

Full Service Provider for Watertronics,
Flowtronex & SyncroFlo Systems

EXPERTS IN THE FIELD

WITH PRODUCTS FOR THE PROS

Contact your Reinders representative for more information



Plant Food Co. - Platform Plus



TORO



Toro Infinity Sprinkler

MITCHELL PRODUCTS



Mitchell Products - Proactin

Underhill



Underhill Blue Hose Caddy and Trailer



Andersons Contec DG - 18-9-18

The Andersons

Wisconsin Chapter
GCSAA
Platinum Partner

W227 N6225 Sussex Road,
Sussex, WI (800) 782-3300
www.reinders.com

Reinders

Solutions & Supplies for the Green Industry
Sign up for a free **Reinders.com** account
and **save 1%** on every order

ONE OF OUR MOST PRECIOUS RESOURCES: WATER

Wisconsin Golf Industry Best Management Practices: Water Management



Wisconsin has 15,000 lakes, more than 12,600 rivers and streams, five million acres of wetlands, and 1,000 miles of Great Lakes shoreline. Wisconsin's waters extend over 330 watersheds and 32 basins, including the Great Lakes Basin and the Mississippi River Basin. We can minimize impacts to waterbodies from operations and help prevent nonpoint sources of pollution through effective utilization of best management practices (BMPs).

Protecting Surface Water and Groundwater Quality

The Wisconsin Department of Natural Resources (DNR) monitors and assesses the quality of the state's rivers, streams, lakes, reservoirs, groundwater, and sources of drinking water. Permitting, preservation activities, and compliance are enforced by the DNR; pursuant to Wis. Stat. s.283.83, the department establishes a continuing water pollution control planning process (CPP) resulting in plans for waters of the state, including:

- Adequate effluent limitations and schedules of compliance
- The incorporation of all elements of any applicable areawide waste management plans, basin plans and statewide land use plans
- Total maximum daily load (TMDLs) for pollutants
- Procedures for revision and intergovernmental cooperation
- Implementation procedures (including schedules of compliance) for revised or new water quality standards
- Controls over the disposition of all residual waste from any water treatment processing
- An inventory and ranking of needs for construction of waste treatment works



Our golf courses employ a variety of practices to protect surface water and groundwater quality.

These include nutrient management plans, integrated pest management plans, stormwater pollution

prevention plans, aquatic plant management plans, water quality monitoring plans (including sampling), and other protocols incorporating BMPs designed to protect and conserve water.

Wisconsin Golf Industry Water Management BMPs:

- Adhere to federal, state, and local water regulations
- Consult federal, state, and local water management agencies, and/or consult an approved management plan before performing construction activities, irrigation installation, integrated pest management, fertilization, or aquatic plant management
- Golf course management may be affected by TMDL, mitigation, and watershed basin management action plans; determine applicability through the DNR
- Wetlands are protected areas; consult the DNR and federal agencies before altering natural aquatic areas
- Studies of water supplies are needed for irrigation systems, including studies of waterbodies to properly design a stormwater system and water features
- The disposal of sediments from surface water ponds (stormwater detention) may be subject to regulation
- Golf courses must complete and submit monthly water use reporting to the DNR annually
- Golf courses must comply with state-required pesticide reporting and maintain a nutrient management plan consistent with NR 151
- Seek professional assistance from an environmental specialist to design a water sample collection strategy (i.e., sample water quality four to six times per year including field and lab analyses)



Stormwater Management

When properly designed, rain and runoff captured in water hazards and stormwater ponds may provide supplemental water necessary for irrigation, though backup sources may be needed during droughts. Stormwater capture is desirable where the lowest quality of water is needed to conserve potable water, maintain hydrologic balance, and improve water treatment.

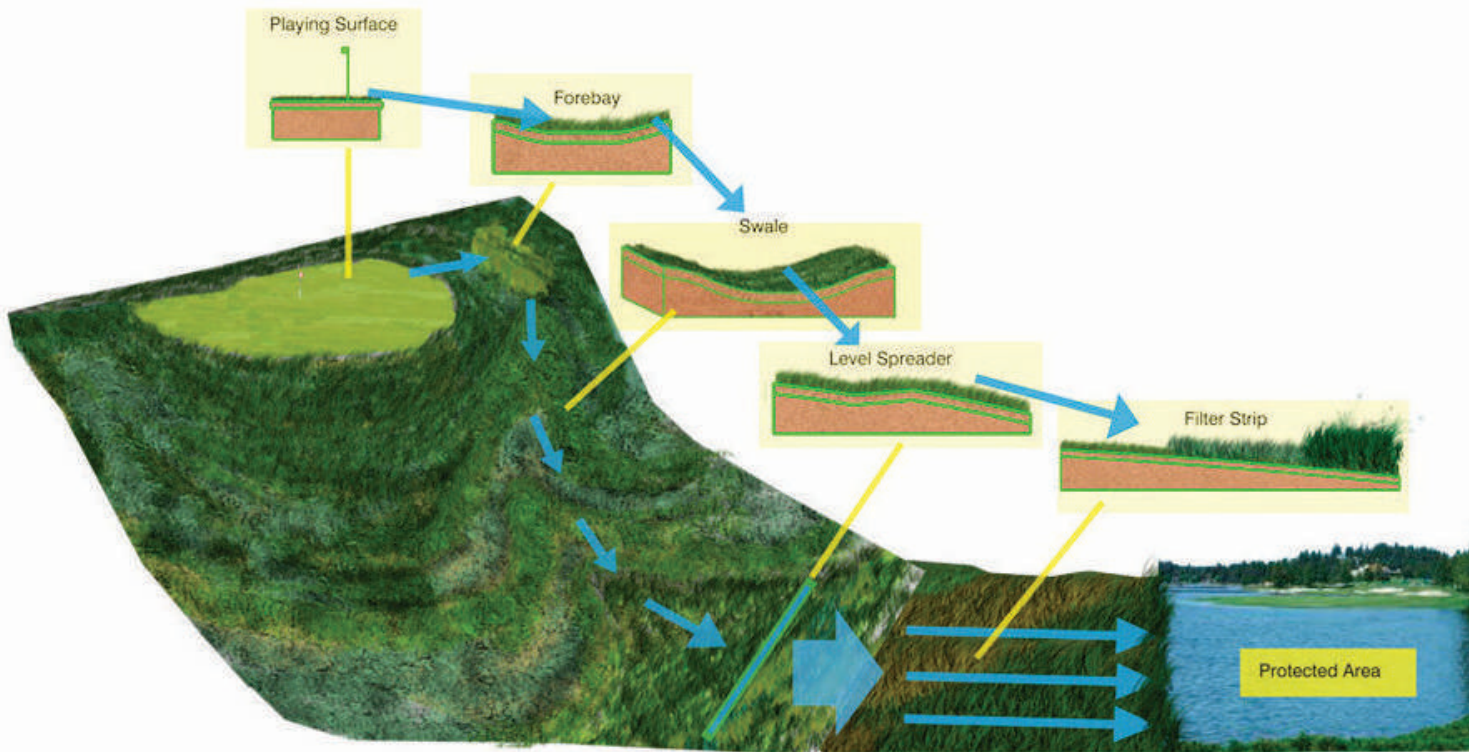
Stormwater is the conveying force behind NPS pollution. Stormwater may flow from adjoining lands, including residential or commercial developments. Pollutants commonly found in stormwater include oil; shingle particles; soap, dirt, and worn paint particles; leaves and grass clippings; pet and wildlife wastes; lawn, commercial, and agricultural fertilizers; and pesticides. The golf course serves as an important resource for filtration.

Stormwater control involves more than preventing flooding, it also includes storing irrigation water, controlling the amount and rate of water leaving the course, controlling erosion and sediment, and removing waterborne pollutants. Develop a stormwater pollution prevention plan (SWPPP), especially prior to initiating construction activities. Source control practices should prevent pollution by reducing potential pollutants at their source, which involves keeping a clean construction site. The SWPPP should establish water quality buffers and special management zones. If possible, construct ponds in a series, or “train”, to treat stormwater/site runoff. The first pond will catch the “first flush”, the second will provide additional filtering, and the third will filter and serve as a primary withdrawal pond for irrigation; infiltrating the first inch of stormwater helps to prevent water quality impacts.

A common treatment train includes turf swales on side slopes designed to filter and slow down movement of stormwater, the second car in the train includes a swale or main channel that directs stormwater to the final car in the train, often a constructed wetland.

Continued on page 10

Continued from page 9



A comprehensive systems approach uses a treatment train and the natural drainage systems to protect water quality at a high priority area.

Wisconsin Golf Industry Stormwater Management BMPs:

- Course site plan should maintain natural wetland and watercourse systems and buffers, plus locate stormwater management structures to upland areas to help maintain natural drainage patterns and allow for recharge
- Avoid direct discharge of stormwater runoff from parking lots, service areas, buildings and roadways into wetlands and watercourses
- Plant buffers with native species to provide water quality benefits, pleasing aesthetics, and habitat/food sources for wildlife
- Eliminate or minimize directly connected impervious areas
- Use depressed landscape islands in parking lots to catch, filter, and infiltrate water
- Reduce frequency of mowing at lake edges and collect or direct clippings to upland areas where runoff and wind will not carry them back

Buffer Zones

Buffer areas should be maintained along water edges above the high-water mark; widths should be a minimum of five feet but as wide as possible without impacting course difficulty, course design, or pace of play; these areas are critical in filtering overland runoff and reducing pollutants.

Extraordinary
is Your New Ordinary

For more information on the Bayer portfolio of products, contact your Area Sales Manager, Chad Hauth at chad.hauth@bayer.com (630) 945-2123

BAYER Stressgard®

ALWAYS READ AND FOLLOW LABEL INSTRUCTIONS
Bayer Environmental Science, a Division of Bayer CropScience LP, 5000 CentreGreen Way, Suite 400, Cary, NC 27513. For additional product information, call toll-free 1-800-331-2867, environmentalscience.bayer.us. Not all products are registered in all states. Bayer, the Bayer Cross and Stressgard are registered trademarks of Bayer. ©2019 Bayer CropScience ES-419-GLF-86-A-R2



As superintendents, we are responsible for the thoughtful management of water use and water quality. By paying mind to how we conserve and protect this precious resource, we are enabling a healthier environment not only for humans but for all living species. 🌱



WE'VE GOT YOU COVERED



Only **Aquatrols** offers users **Industry Leading Soil Surfactants** in combination with **nutritionals powered by RedoxTurf**. See the difference in overall turf quality when you implement our products on your greens or fairways this season.

John "JT" Turner
 North Central Territory Manager
jturner@aquatrols.com
 (630) 215 - 6110
www.aquatrols.com

56TH SYMPOSIUM PREVIEW

WGCSA SYMPOSIUM COMMITTEE

The Wisconsin Golf Course Superintendents Association is pleased to announce the 2023 Wisconsin Golf Turf Symposium on January 11th and 12th at The American Club in Kohler, Wisconsin. The annual Symposium is the pinnacle of local turf education in the state of Wisconsin and covers a wide range of turf, professional development, and health-related topics. The theme for the year, *Healthy Self, Healthy Turf*, will certainly resonate with attendees as we reflect on the many challenges that we all face in an ever-changing and stressful industry.

After President Anthes gives his opening remarks, John Fulling, Jr., CGCS, will deliver the keynote address. John is the superintendent at Kalamazoo Country Club in Michigan and was the GCSAA president in 2020. We're thrilled to have the former superintendent of Colonial Country Club in Texas, Don Armstrong, follow John's talk. Don is a leukemia survivor, motivational speaker, runner, and is still involved in the golf industry, too. Sheboygan's very own Adam Moeller, a UW turf graduate who is the USGA's director of Green Section Education will then discuss the latest in bunker renovations, and to wrap up the day, Hannah Keesler from Samaritan in the Fox Cities will talk about mental health.

After a hearty breakfast, day two will feature discussions about winter injury from both Dr. Eric Watkins from the University of Minnesota and our very own Dr. Paul Koch. On the EM side of things, our very own Austin Wright will be stopping in to discuss shop organization and efficiencies.


New this year will be inclusion of a Badger Power Hour. On day two, graduate students from UW-Madison will have

the opportunity to present their research projects to a room full of industry professionals. In prior years, these presentations would have been made at the Wisconsin Turfgrass Association's Winter Research Day, but the WTA and the WGCSA agreed to combine forces in 2023. We are excited for the partnership and look forward to donating any profits from the Symposium to the WTA for research at UW-Madison.

Prior to lunch on day two, Dr. Scott Allen who specializes in talent management consulting will discuss leadership, and before Drs. Watkins and Koch put a stamp on the day, Zach Nicoludis with the USGA will present the ever-popular *Year in Review*.

While the professional development, support of the turfgrass research, and camaraderie with other golf course professionals is certainly enough to make the 2023 Wisconsin Golf Symposium a can't miss event, the Wee One Foundation will also be picking up the bar tab and hosting and auction during the evening the reception on January 11th. The auction is a great way to purchase products that you are likely already using at your property while supporting a great cause.

As you can see, there is a little something for everyone, and we're sure that you'll leave with some ideas on how to improve both you and your property. Registration is live on the WGCSA website and can also easily be accessed by scanning the QR code on the front cover. Discounted rooms at The American Club and at the Inn on Wood Lake can be booked directly through The American Club by calling 1-877-418-5150 and mentioning the Wisconsin Turf Symposium.

We look forward to seeing you in Kohler for this event! 

WISCONSIN GOLF TURF SYMPOSIUM Healthy Self, Healthy Turf!

The American Club • Kohler, Wisconsin • January 11-12, 2023

JANUARY 11

11:30 – 12:30	Symposium Registration
12:30 – 12:45	2023 WGCSA President-Scott Anthes Welcome - Opening Remarks
12:45 – 1:30	John Fulling Jr.- GCSAA Past President Keynote
1:30 – 2:15	Don Armstrong Stop Standing There - One Step is All it Takes
2:15 – 2:30	BREAK
2:30 – 3:15	Adam Moeller-USGA Director of Education Bunker Construction
3:15 – 4:00	Hannah Keesler MS, LPC — Mental Health
4:00 – 4:15	Q&A
4:15 – 5:30	Reception & Wee One Auction

JANUARY 12TH

7:00 – 8:00	Breakfast Buffet
8:00 – 8:45	Eric Watkins, University of Minnesota Winter injury
8:45 – 9:30	Austin Wright, CTEM Sand Valley Golf Resort Shop Organization & Efficiencies
9:30 – 9:45	Q&A
9:45 – 11:00	UW Presentations-Badger Power Hour
11:00 – 11:45	Dr. Scott Allen — Leadership
11:45 – 12:00	Q&A
12:00 – 1:00	Lunch
1:00 – 1:45	Zach Nicoludis, USGA Agronomist Year in Review
1:45 – 2:45	Interactive Winter Injury Discussion Dr. Paul Koch, UW-Madison & Eric Watkins, U. of Minnesota

**When it comes to
topdressing,
you're in good
hands with
Waupaca.**



Waupaca Sand & Solutions
715-258-8566 - www.WaupacaSand.com



"The fairways are immaculate!"



"It was like playing on carpet."



"The course is in amazing shape."

When you can protect your fairways like your greens, you'll get rave reviews.

Golf's leading fungicide, Secure[®], is now even better. New Secure[®] Action[™] fungicide now includes a boost of *acibenzolar-S-methyl* (ASM), giving turf abiotic benefits such as increased drought tolerance, heat tolerance and quicker recovery. The enhanced formulation also offers improved dollar spot performance, including an increased control interval of 14-21 days.

Visit GreenCastOnline.com/SecureAction to learn more or contact:
Phil Spitz | 414-429-2015 | Phillip.Spitz@Syngenta.com



syngenta[®]

[@SyngentaTurf](https://twitter.com/SyngentaTurf) #Time4SecureAction

©2019 Syngenta. Important: Always read and follow label instructions. Some products may not be registered for sale or use in all states or counties. Please check with your state or local extension service to ensure registration status. Action[™], Greencast[®], the Alliance Frame, the Purpose Icon and the Syngenta logo are trademarks of a Syngenta Group Company. Secure[®] is a trademark of Ishihara Sangyo Kaisha, LTD. All other trademarks used herein are the property of their respective owner. MW 9LGG00526 02/19

SOUTH HILLS SHINES AT AUGUST MEETING

By: Jake Schneider, Editor and Chapter Manager

Sunny skies and perfect temperatures greeted a solid contingent of golfers at the August WGCSA/Northern Great Lakes GCSA Member-Guest at South Hills Golf and Country Club in Fond du Lac. Despite managing to unfortunately dodge most of the rain drops throughout the summer months and having to deal with the heavy clay soils of the area, host superintendent and past WGCSA president, Jim Van Herwynen, and his crew had the course in terrific condition. It was especially enjoyable to see all the renovation work that recently took place at South Hills.

To start the day, Jim gave a brief, informal talk about the improvements that were made, and after that, we were off to the course for the two-person best ball event. Prizes were awarded in gross and net divisions as follows for first and second places and for a random place.

Gross

1st – Matt Lindgren / Emmet Riley

2nd – Durrell Naquin / Jordan Mock

Random Draw – Todd Marten / Brent Johnson

Net

1st – Mike Bremmer / Garrett Luck

2nd – Phil Spitz / Tom Speltz

Random Draw – Jeff Barlow / Greg Blonde

Thanks to the entire staff at South Hills for an outstanding day and to our terrific industry partners who really make these events so successful--Advanced Turf Solutions, Waupaca Sand and Solutions, Syngenta, Clesens, Reinders, Horst Distributing, Revels Turf and Tractor, Milorgonite, National Golf Graphics, Pendelton Turf Supply, Premier Golf and Utility, and BASF. ✓



Host superintendent Jim Van Herwynen discussing the recent construction project that they undertook at South Hills.



Jim with a token of appreciation from the WGCSA.



Bob Lohmann, Jim Lohmann, and Scott Anthes getting ready to tee it up.

CONNECT TO

Upcoming technologies

Simplified upgrades

Forward thinking design with the IC System

THE FUTURE

We know there's a lot riding on your turf. Your professional success relies on your ability to maintain healthy grass and top playability. As the only manufacturer committed exclusively to irrigation, Rain Bird designs fully-integrated end-to-end solutions to address the challenges of maintaining healthy grass and top playability on the golf course. From water-saving nozzles to highly efficient pumps to leading-edge Control Technology, Rain Bird products make the most of every drop, delivering superior results with less water. Keeping the world and your golf course beautiful.

That's The Intelligent Use of Water.™



CLESENS

Wisconsin Rain Bird Golf Distributor

Contact Dustin Peterson or Adam Lesmeister for further information and assistance with all of your irrigation needs.

Dustin Peterson

(309) 314-1937 | dpeterson@clesens.com

Adam Lesmeister

(320) 287-1720 | alesmeister@clesens.com

RAIN BIRD®

TEEING IT UP AT PIONEER POINTE

By: Jake Schneider, Editor and Chapter Manager



Our runners-up for the day, Dr. Doug Soldat and Durrell Naquin

After a chilly weekend when four inches of rain fell in the Madison area, the skies were clear and the temperatures were perfect for the Assistant Superintendent/Equipment Manager Outing at Pioneer Pointe Golf Course on September 13. Host Superintendent, Neil Radatz, CGCS, had the course in fantastic condition especially considering all the recent rain, and based on the how well the turf was grown in, you'd never know that the course just opened for play in 2022.

The 13-hole, par 40 course that was featured in the last issue of *The Grass Roots* proved to be the perfect venue for the twenty-seven attendees. Nearly every group that finished had the same comment—that was a really fun golf course that I'd play again in a heartbeat. After the two-person scramble wrapped up, we reconvened at the maintenance facility for some networking and lunch. Neil graciously volunteered to cook burgers and brats for everyone, and it's safe to say that no one left hungry. A special thank to you to Gabe Lopez with Irrigation Protection Services and to Mike Bremmer with Revels Turf & Tractor for sponsoring the lunch. We greatly appreciate the extra support!

Prizes were given out to the first and second places along with one random draw. The Sand Valley crew of Tristan Wood and Frank Martisovic took the honors with a 37, and they were followed by Dr. Doug Soldat and Durrell Naquin from Pendelton Turf and Supply with a 39. Our random winners were Matthew Radatz, CTEM at Hawks Landing and Pioneer Pointe and Brad Young from West Bend Country Club. Brad and Matt also each one a hole prize with Matt coming closest to the pin on hole 7 and Brad draining the longest putt on hole 12. Dr. Soldat was our final hole prize winner when his very first shot of the round settled within three feet of the second hole.

To wrap up the day, we had a special raffle of autographed Packers memorabilia courtesy of Mike Bremmer and Revels Turf & Tractor. Patrick Bastron from Kenosha Country Club and Tristan Wood were the lucky winners of a football that was signed by Eric Stokes and a mini-helmet with Rshan Gary's autograph.

Thanks to all of the industry partners who make these events very affordable: Advanced Turf Solutions, Waupaca Sand and Solutions, Syngenta, Clesens, Reinders, Horst Distributing, Revels Turf and Tractor, Milorganite, National Golf Graphics, Pendelton Turf Supply, Premier Golf and Utility, BASF, and Irrigation Protection Services.

The WGCSA also recognizes Jens Arneson (Class C committee chair) and Austin Wright, CTEM (EM committee chair) for their work in organizing the successful event. Neil Radatz and the entire staff at Pioneer Pointe also went above and beyond, and we can't thank you enough. ✓



All three of the WGCSA's Certified Turfgrass Equipment were in attendance—Justin Prescott from Kenosha CC, Matt Radatz, and Austin Wright from Sand Valley.



Committed to Excellence for Over 60 Years

Revels Turf and Tractor is your new John Deere dealer! We are pleased to announce new service areas in Northern IL, Northern IN, Eastern WI, Northern Ohio, and all of Michigan. As one of John Deere's largest golf distributors worldwide, Revels has the products and service to help you keep your golf course in pristine condition year-round.



CALL TODAY
1-800-849-5469



JOHN DEERE



www.revelstractor.com



revtrac@revelstractor.com

Fall 2022 Equipment Manager Educational Session: Grow Your Network and Mental Health plus Much More!

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

It is always a great feeling when Equipment Managers and Technicians are able to get together to share stories, shop talk, and simply catch up with one another. The WGCSA & MAGCS joint Equipment Manager event at Kenosha Country Club was just that and more.

Presenter

We were extremely lucky to have an industry leader as our presenter for this session. Trent Manning, CTEM is the Equipment Manager at Ansley Golf Club in Ansley, Georgia, from which he oversees two facilities in the Atlanta area. Trent was one of the first Equipment Managers in the world to earn the Certified Turf Equipment Manager designation. Trent has been a huge part of the growth of the Equipment Manager role by working with the GCSAA and serving on the EM task group for many years. He also won the 2018 GCSAA's Most Valuable Technician award presented by Foley. Trent also hosts a popular Equipment Manager podcast called 'Reel Turf Techs'. He has found a way to highlight the careers of the Equipment Managers all across the world! If you are a fan of the golf industry, make sure you check out the podcast. You will truly enjoy it.

SEMINAR HIGHLIGHTS

Grow Your Network

The Equipment Manager educational session was broken down into a few sections: Grow Your Network, Grow Your Mental Health, EMCPs/CTEM Overview, and bonus Shop Tips & Tricks. Networking is extremely important to everyone's success in the golf industry, no matter if you are a Superintendent, Equipment Manager, Sales Representative, Golf Professional, or Manufacturer. The golf industry is much smaller and tightly knit than you would originally think. The ability to create, maintain, and grow your networking can be directly related to your success throughout your career. The most important part about creating a networking is to start small and meet your neighbors. On the equipment side of the industry, no matter the brand or color of equipment, we all tend to see similar issues and work on like machines. You never know when your friendly neighbor can aid with diagnostics, needing a part, or even borrowing equipment.

As Trent guided everyone through the networking session, we discussed various topics and ideas that benefit the

Equipment Manager as their networks grow. In your network or your shop team, different sets of skills are crucial to overall team success. Get to know the skills of the other EMs in your network and build a team around their skill sets. Remember to never be threatened by people that are more skilled or experienced than you! Everyone has strengths and weaknesses. We want everyone to succeed and learn from each other; that is one of the amazing, unique parts of the golf industry. We want everyone to strive to be the best they can and learn from everyone around them. Take advantage of all the opportunities that are out there to learn and grow. If you have been an Equipment Manager for many years, this might be a great chance for you to help mentor the next generation. You might be surprised how much both of you are able to teach each other.

"Get out of your comfort zone. Network and connect with as many people as you can in this industry" – Trent Manning, CTEM



Trent Manning, CTEM discusses the importance of networking.

Grow Your Mental Health

We began to dive deeper into the mental health awareness portion of the educational session. It is comforting to know that a leader in the industry like Trent is willing to speak on

mental health. Our side of the golf industry can be extremely stressful at times. It is important to know that you are not alone and your network is always here for you and willing to help anyway possible. The golf community cares about you so be willing to share your struggles. You never know when simply talking to someone could end up helping both of you. As Technicians, we tend to be the problem solvers of the operation and put others in front of ourselves. That being said, we also put up a shield and have the "it'll be ok" mentality. We need to remember that it is actually a **strength to ask for help!** A few important mental health warning signs to look for with yourself, crew members, friends and family are mood swings, changes in appetite or sleep, helplessness, relationship struggles, and feeling numb. If you or anyone you know are experiencing these in their life, please reach out to them and let them know you care. There is no right thing to say so simply provide encouragement to receive professional help.

Mental health is not the most fun topic to discuss, but it is crucial to your overall success at the course and at home. We all strive to be the best we can every day, mentally and physically. I always think of the saying from Friday Night Lights, "Clear Eyes, Full Hearts, Can't Lose." If you can keep your mind sharp and healthy and your passion burning bright, your team will be successful no matter the task at hand.

GCSAA EMCP/CTEM Overview

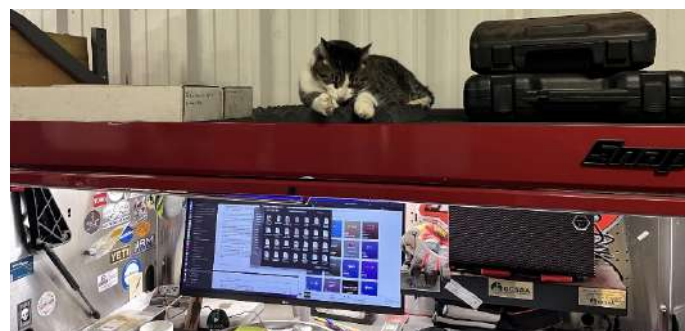
With the recent launch of the GCSAA Certification for Turf Equipment Managers, it was important for us to discuss what it takes to pass the EMCPs and lead into CTEM. The Equipment Manager Certificate Program consists of Level 1 and Level 2. Level 1 has eight exams; cutting units, drivetrain systems, electrical systems, engine technology, hydraulic systems, metalworking and fabrication, spray systems, and fundamentals of turfgrass operations. Once you complete all of Level 1, you are able to move onto Level 2. Level 2 makes up one large exam that digs deeper into Level 1 categories which additional questions related to administrative management and best management practices. Once EMCP level 1 and level 2 are completed, you would be eligible to begin the CTEM process. All the information for EMCPs and CTEM can be found at gcsaa.org in the education section.

GCSAA has provided Equipment Managers a platform for success and to better the golf industry locally and national with the EMCPs and CTEM. Within the state of Wisconsin, we have six individuals that have passed EMCP Level 1 and Level 2 with only three that have achieved the CTEM designation. Let's all work together to get more Equipment Managers and Technicians involved with the GCSAA. Wisconsin is known as a golf mecca of the US consisting of amazing courses of all levels. Let's help our Wisconsin Equipment Managers and Technicians to become more skilled, more passionate, and better their entire facility.

Tips & Tricks and Shop Tour

Prior to the shop tour, Trent went through a quick presentation of facility tips and tricks from Equipment Managers across the nation. It is so much fun to see custom creations that Technicians fabricated to make their jobs better. Some tips are as simple as a parker o-ring size gauge, transfer punches for metal working, and labeling breakers to match electrical outlets. Some other tricks were custom fabricated bucket wash racks, aerification tines/turf-guard

Continued on page 20



Continued from page 19

holders, and a cutting unit dolly. Every shop has their own tips and tricks they use every day, they just may not know it.

Like I say every time, the shop tour of the Equipment Manager session is the best part. Justin Prescott, CTEM is the Equipment Manager at Kenosha Country Club that was the host and provided the facility tour. Justin showed the attendees the details of his operation from shop setup, parts storage, safety procedures, to equipment storage. Justin has done a fabulous job with organizing the shop area. I appreciated all the cabinets that serve various purposes but leave everything looks clean and organized. Justin even displayed a couple the Kenosha CC's own tips and tricks with ball mark repair tool holders on the mower buckets and custom wall hangers for mower buckets. Little tricks like that keep the machines safe and clean. One of the most unique parts of the Kenosha CC facility is Toro, the shop cat. He is the coolest cat in the business and has his bed right on top of the toolbox keeping an eye on everything.

“This was the first event I have hosted and it was a great experience. Not only was it an excellent discussion, but I also finally got to have “my friends over to my house” and gain some great feedback and insight into our operation.” – Justin Prescott, CTEM

I want to thank Trent Manning, CTEM for coming all the way to Wisconsin to speak to our group. It was a great time and we truly appreciate everything Trent does for the golf industry. A special thank you to Justin Prescott, CTEM and the Kenosha Country Club staff for being gracious hosts. Lastly, thank you to all the attendees that came to the WGCSA Equipment Manager session. This event could not have been successful without amazing people like all of you. I look forward to working with the WGCSA Equipment Manager Committee to provide fun and in-demand education to better technicians and facilities alike. Be on the lookout for our next Equipment Manager event in the spring of 2023. ✓



Justin Prescott, CTEM at Kenosha Country Club leads a shop tour.

Daconil Action™ Fungicide, A New Era in Turfgrass Management

The power of the active ingredient contained in Daconil® fungicide combined with a revolutionary Turf Protein Booster results in longer, more efficient, and broader spectrum turfgrass disease control.

- Boosts turfgrass natural defense proteins (PR proteins)
- Enhances overall plant health
- Increases tolerance to environmental stresses, like drought
- Suppresses activity of fungi, bacteria, viruses, and abiotic diseases

To learn more about Daconil Action, visit DaconilAction.com or contact:

Phil Spitz
Cell: 414-429-2015
phillip.spitz@syngenta.com



©2011 Syngenta. Important: Always read and follow label instructions before buying or using these products. The instructions contain important conditions of sale, including limitations of warranty and remedy. Daconil Action is not currently registered for sale or use in all states. Please check with your state or local extension service before buying or using this product. Daconil®, Daconil Action™, the Purpose icon and the Syngenta logo are trademarks of a Syngenta Group Company. Syngenta Customer Center: 1-800-SYNGENT(A) (796-4368).

LF550/557™, LF570/577™



LIGHT ON TURF, HEAVY ON PRODUCTIVITY

The LF550/570™ and LF557/577™ lightweight large area reel mowers offer industry-leading productivity and functionality. The combination of Jacobsen Classic XP™ Reels and SureTrac™ 4WD System allow you to achieve the precision you demand, even on slopes and hills. With the InCommand™ Control Console, everything you need is at your fingertips, including programmable mowing and transport speeds and full text diagnostics. Designed with ease of maintenance in mind, the series features automatic wet parking brakes, hard tubing, and easily accessible routine service items.

ADAPTI-THROTTLE
AUTOMATIC ENGINE
SPEED CONTROL

37 OR 50 HP
DIESEL ENGINE

UP TO
11 MPH

UP TO
139"
CUTTING WIDTH



444 N. Madison St.
Chilton, WI 53014
(920) 849-2341
www.horstdistributing.com

HORST DISTRIBUTING, INC.

Request more information or schedule a demo today!

SALES PRESIDENT
Grant Mortimer
gmortimer@horstdistributing.com

TERRITORY SALESMEN
Dennis Robinson Greg Kallenberg
(920) 901-2124 (920) 858-9276



Collecting and recording data like clipping volume and putting green speed allows superintendents to measure how different maintenance practices and inputs impact putting green performance.

Many superintendents are finding data collection invaluable, yet some have reservations. Exploring the most frequently asked questions reveals why a little data will do you good.

ADDRESSING COMMON CONCERNS About Putting Green Data Collection

By: John Petrovsky, manager, Green Section Education, September 2, 2022

I remember the first time I saw a moisture meter on a golf course. As a seasoned hose dragger, I was particularly curious and pondered its potential to make my life easier. Still, I was skeptical about this new technology – after all, a quick look at our typically dry greens sometime around lunch seemed to work fine for letting us know if it was time to start hand watering. It wasn't until I gave it a try as part of our moisture management program that I realized the value of this new tool. This sentiment about the now-ubiquitous moisture meter is not unlike skepticism

occasionally heard today about measuring clipping volume and other forms of putting green data collection. What will I do with the data? We don't have time to collect data. My greens are great, why change anything? These are valid considerations, but the trend certainly seems to point toward increasing use of data collection and analysis in golf course management. Superintendents that commit to data collection preach the return on investment from spending just a little extra time and effort collecting putting green management data like green speed,

KEY TAKEAWAYS

- An increasing number of superintendents are incorporating data collection into their putting green management program.
- There are some misconceptions about the time and effort involved with collecting and recording putting green data and the value of the data for improving management decisions and playing conditions.
- Superintendents have found that data collection takes minimal effort and adds very little time to the daily routine.
- For superintendents who collect data, the information gained is a critical tool for managing greens and communicating with golfers and decision-makers.
- A comprehensive data collection program may not be practical for some courses, but quantifying key aspects of putting green performance has proven well worth the effort for those who give it a try.

clipping volume, firmness and percent organic matter. So why is there still resistance in the industry and can we address some of those concerns?

Our USGA agronomists recently asked some superintendents who haven't considered data collection, or were hesitant to give it a try, what their reasoning was. Some responses were expected and some were slightly surprising, but it also became apparent that there are misconceptions about what is required to gather meaningful data and the potential impact this information can have on putting green management. We heard several of the same questions and concerns repeatedly and our hope is that by highlighting and addressing them, we can provide some insight into the process of data collection and analysis and explain the potential benefits. Let's look at some of the key issues that are keeping superintendents from collecting data for putting green management and see if we can put some of those concerns to rest.

I just don't have time

In today's world of labor shortages and packed golf courses, most maintenance teams are already stressed for time, so hesitation about adding data collection into the mix is understandable. This was by far the most common concern so it's crucial to delve into the time commitment involved with data collection.

Jared Nemitz, director of golf course and grounds at the Ford Field and River Club in Savannah, Georgia, started collecting and analyzing putting green surface management data over 14 years ago on ultradwarf bermudagrass greens. He emphasizes how it wouldn't be possible without the maintenance team's cooperation. Nemitz explained

that, "When you create the process, you get the whole team involved and it takes very little time at that point. Everybody on staff knows their role. The mowing team measures the clippings and relays the data to our first assistant who plugs the numbers into the spreadsheet, adds a few notes – like how many times did you cut it – and it's done."

A key reason why many superintendents worry about data collection involving a significant time commitment is the misconception that you need to measure something like clipping volume every day from every green to obtain useful information. You can certainly do that, and it's interesting to see that data, but a daily process on every green may not be practical for some courses. Collecting clipping volume or green speed from select greens on certain days to observe trends in putting green response to

Continued on page 24

Leibold Irrigation, Inc.

Complete System Installation
Construction & Renovation Projects
Irrigation System Evaluations
Sprinkler & Control System Updates
Drainage Systems

Pump Station Sales, Repair & Upgrades
Spring Start-up and Winterization
Central & Satellite Diagnostics
Weather Station & Sensors
GPS Mapping & As-built Development



18950 County Hwy 5 West East Dubuque IL 61025 Office (815) 747-6024 www.li-inc.com

	<p>Jim Boyer Sr Operations Mgr (563) 213-0810</p>	<p>Kevin Stieneke Construction Supervisor (563) 564-9333</p>	<p>Mike Skopik Service Mgr (563) 564-6908</p>	<p>Mike Woolcock Pump Station Sales (563) 213-0822</p>
---	---	--	---	--

Continued from page 23

various practices and inputs can still be extremely valuable and it will require less time. A common approach is to collect data from one or more “average” greens along with the best- or worst-performing greens, or even just from a green close to the shop to make it easier to record the data.



Collecting and recording putting green data adds very little time to the morning routine once a program is implemented.

Nemitz has noticed that it becomes second nature for staff to record clipping volume for their allotted greens. “They do it themselves – they’re mowing the greens and dumping baskets anyway, so it adds very little time,” he said. In over a decade of data collection Nemitz has never found it burdensome. He reports that the whole process takes from five to 10 minutes per day – time that he has found to be well worth it for the valuable information generated. Skipping unnecessary practices or applications adds up to significant time savings, especially when the maintenance team is already stretched thin. The time invested in data collection pays for itself quickly considering the time and money that is saved on labor, fuel and other inputs that aren’t providing any significant benefits.

What will I do with all that data?

This question came up often among superintendents who aren’t currently collecting putting green management data. When addressing it, it’s important to keep in mind that there’s no standard method for collecting data. Some superintendents collect lots of data while others focus on one or two key metrics – it all depends on priorities. A useful way to get started is to think about what’s important to you and your golfers. Is trying to save time and money the primary concern? Are you looking to achieve certain playability goals? Answering these questions will allow you to focus data collection on your most important management considerations.

Beyond helping superintendents make decisions and refine their management plan, one of the most important

benefits of data collection is improved communication. “Superintendents have a lot of pressure on them to justify costs – the economics of greenkeeping,” said Nemitz. Trying to identify what can be cut or what maintenance a course can do without is a popular exercise in green committee or stakeholder meetings at courses everywhere – a point Nemitz also emphasized in a panel discussion on data management at the 2022 Golf Course Superintendents Association of America Conference and Trade Show. Superintendents are also continually trying to make improvements in their operation, which sometimes means asking for additional investment from the facility. These conversations are much more productive when they’re guided by data. “When you come to a meeting with all your data – exactly how many times you cut and rolled greens, clipping volume, how much sand you put on, cultural practices and how much each cost – it no longer becomes a guessing game,” said Nemitz. “When you have numbers and you can show exactly how much each practice or input costs, and the direct impact it has on putting green performance, it makes it a lot harder on them to take things away from you.”

This information also makes it much easier to explain the potential benefits of investing in new equipment, additional staffing or infrastructure improvements. Showing the time, money and playability metrics associated with various practices and highlighting the potential savings or improvements that could come with changes is a powerful tool. It takes the complex world of agronomy and golf course management and puts it into terms that golfers and facility managers can readily understand and relate to.



Superintendent Nathan Hagel has found clipping volume and other putting green data collection to be a critical tool for managing the mixed bentgrass and Poa annua greens at Mount Paul Golf Course.

Nathan Hagel, superintendent at Mount Paul Golf Course in Kamloops, British Columbia, is relatively new to data collection, but measuring clipping volume each morning has already had an impact on how he manages the mixed bentgrass and *Poa annua* putting greens. “We have limited fungicides and plant growth regulators available to us in Canada, with more on the chopping block, so managing putting green growth and plant health through nitrogen applications is necessary. Collecting clipping volume daily is how we do it,” explained Hagel.

Like many other superintendents, he took part in casual data collection by looking in mower baskets, but two years ago he decided to take a formal approach. He uses an Excel spreadsheet that tracks clipping volume and estimates the amount of nitrogen removed via clippings. “I’ve found targeting nitrogen rates that replace what’s removed by clippings works well for us,” Hagel said. Clipping volume data has given him insight into how nitrogen application rates and timing affect his putting green growth and helps him achieve more consistent growth with less inputs. The biggest impact has been on nitrogen applications. “I’ve reduced the amount of nitrogen I apply by nearly 50%, but we’ve also reduced *Poa annua* populations significantly and lowered disease pressure – all with no negative impact to putting green quality,” said Hagel, a self-described “modest-budget superintendent.” With current fertilizer, chemical and labor costs the positive impact on Mount Paul’s maintenance budget can’t be overstated.

My greens are fine, why change anything?

One comment we often heard from those with reservations about data collection is that their greens are doing just fine and they don’t know if the benefits will be worth the time and effort. Our answer would be that there is always the possibility your greens can be even better, or you might be able to achieve the same putting green quality with less inputs. One of the primary reasons superintendents stick with data collection is because it improved their putting green performance and/or maintenance efficiency – even if they weren’t sure it would help at first.

Jared Nemitz isn’t alone in observing meaningful playability benefits from data collection. Many other courses that are pleased with their putting green performance are collecting data and find it worthwhile, especially for improving maintenance efficiency. At Cascata Golf Club in Boulder City, Nevada, director of golf course maintenance Scott Delpiere already had his bentgrass greens in great shape when he began collecting data. At certain times, it seemed that time-consuming maintenance practices and costly inputs weren’t significantly improving playability, so he sought a

way to quantify putting green growth and performance. He now relies on green speed and clipping volume data to make better-informed maintenance decisions. “I can skip a mow, a roll or even both and still get the same putting quality and green speed as if both practices had taken place together,” said Delpiere. Clipping volume and green speed data help him decide whether to mow or roll with complete confidence. Cascata is also not immune to the labor and material cost challenges facing the industry and skipping unnecessary maintenance allows Delpiere to redirect resources to other tasks. It also reduces unnecessary wear and tear on equipment and putting green turf, which can lead to better playing conditions and lower maintenance costs.



Measuring clipping volume helps determine how fertilizer and plant growth regulator inputs affect putting green growth, and how turf growth influences green speed.

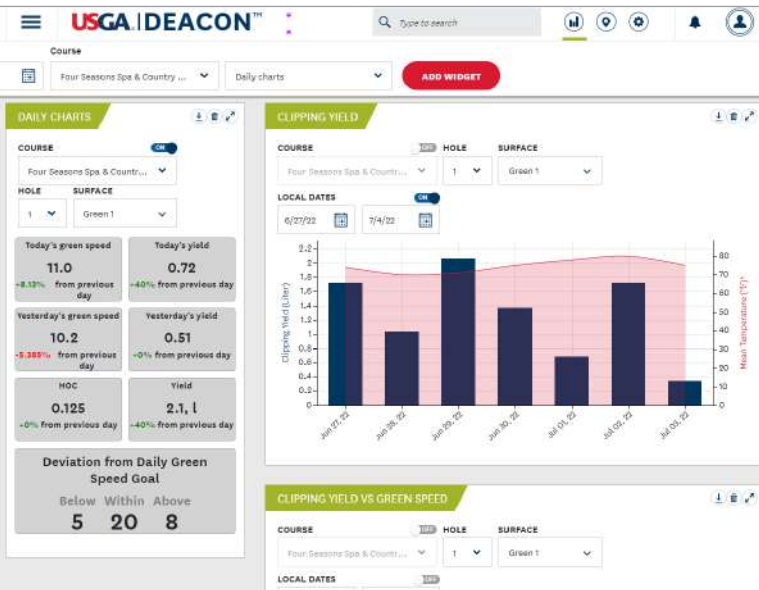
Green speed isn’t my highest priority

While the exact green speed number on a given day might not be of particular concern to many golfers, regular players at a course likely notice inconsistencies in speed and variations in putting green performance. They may also be aware of how the greens at your course compare to others in the area and they almost certainly notice what they pay for a round and whether putting green maintenance disrupts playability or access to the course. Some level of golfer awareness regarding green speed, firmness and trueness is a reality that most golf courses have to accept and maintaining the best conditions possible within the budget should be something all courses are striving for, regardless of the resources available. Measuring clipping volume, green speed and other characteristics offers an objective way to consistently provide the putting green conditions and speed that are ideal for your golf course and budget. This information can also help you field questions about green speed should they arise – and they inevitably do.

Continued on page 26

I’m not a data person

Getting started with data collection doesn’t involve buying a new computer or learning statistical software. Most superintendents use some form of spreadsheet program to track their budget or other aspects of the management operation already, so the foundation for collecting and analyzing putting green data is likely there. A productive way to start is by collecting clipping volume or other basic putting green surface measurements and entering the data into whatever spreadsheet program you are familiar with. As discussed earlier, you may already be collecting data without knowing it. For example, many courses check green speeds from time to time, even if they aren’t entering the information into a spreadsheet. The same is true of monitoring data from putting green soil tests. Formalizing the process using some basic software allows you to visualize the data and identify trends or issues – which ultimately leads to making better decisions.



New tools like the USGA DEACON platform allow superintendents to easily record and track putting green data and visualize how maintenance practices impact the golfer experience.

At Mount Paul, Nathan Hagel got started using Excel spreadsheets built by a fellow superintendent. “It really is a simple process – the greens mower measures the clippings in liters, puts the number on a clipboard and they enter it into a spreadsheet when they get back to the shop,” said Hagel. Data collection is made even easier with new programs like the USGA DEACON™ platform, which allows you to quickly enter surface measurements on a mobile device and automatically uploads data so you can see trends in clipping yield, green speed and other metrics in real time. You can also create presentation-quality figures that are invaluable for communicating with decision-makers, golfers and other departments at your course.

Greenkeeping is more art than science

Imagine for a moment you’re at a conference listening to an esteemed plant pathologist present findings from a new fungicide trial. Now imagine someone asked how they knew the product worked and the scientist answered: “Listen, I’ve been doing this a long time, I get out on those research plots and take a look around – I can just tell this product works better than all the other treatments – next question.” Not only is this turf professor’s tenure in jeopardy, their argument isn’t credible without good data.

There are some aspects of putting green management that may always skew toward art rather than science, but in cases where you can put a number on something it usually ends up being beneficial. Every superintendent has looked in a mower basket to judge clipping volume, but there’s a decent chance that your visual assessment won’t match your assistant’s or the mower operator’s, so when you talk with each other about clipping volume you might not be speaking the same language.

Tracking clipping volume and other data collection doesn’t necessarily mean setting “target” numbers and it shouldn’t be the only factor in a superintendent’s decision-making process. The real value is developing a way to consistently and objectively measure how aspects of your program are working, and being able to put that information into terms that people on your team and at the facility can all understand. Take advantage of being able to quantify anything that helps you better manage your greens. Science and data elevate the art of greenkeeping.

Final thoughts

As more superintendents incorporate data collection into their putting green management program, the process will only get more and more user-friendly. One day, mowers may even measure and report clipping volume automatically. There was skepticism and uncertainty about the moisture meter when it debuted 15 years ago and the same was true of many other practices and tools that are commonplace today. It’s likely that in 15 years we’ll be looking back at putting green data collection in much the same way.

Making evidence-based, data-driven decisions on inputs and cultural practices can take putting green conditions and maintenance efficiency to new heights. If you still have reservations, perhaps the topic is best summed up by renowned 19th-century physicist William Thomson: “When you can measure what you are speaking about, and express it in numbers, you know something about it. When you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind.”

John Petrovsky is a manager in the Green Section Education program and a former golf course superintendent.

Attracting Assistant Superintendents: Today's New School is Tomorrow's Old School

By: Adam Suelflow, Golf Course Superintendent, Wisconsin Club

A hot topic on Twitter and other social media platforms this year was the difficulty of hiring assistant superintendents. From countless hours spent reading and commenting on posts regarding assistant superintendents, it's obvious that there are two polarizing arguments. I will generalize these as old school and new school. The old school superintendent might argue "assistants need to work 7 days a week, 12 hours a day until they earn their superintendent role like the we did" or "if an assistant can't work long days, they'll never make it as a superintendent." On the other hand, the new school superintendent might argue "the new generation doesn't want to work long days or weekends, so we must pay top of market salaries and give them a Monday-Friday schedule" or "not every assistant wants to be a superintendent so why are we forcing them into that role and pushing them out of the business."

As with most debates, the truth probably lies somewhere in the middle. When posting an assistant opening this Spring, I took feedback from these Twitter debates and was certain that the driving force to get applicants would be pay. I posted a top of the market salary and waited for the resumes to come flying in—a week passed and no resumes. I went back to the drawing board and thought

I would try to modify the work-life balance side of the equation. My solution was to schedule one assistant Sunday-Thursday and the other Tuesday-Saturday. There would need to be some exceptions to this schedule, but it would be key to limit those exceptions to our biggest invitational and our aeration week. Within a week of this change, I had 12 solid resumes on my desk. For the first time as a superintendent, I was able to schedule multiple interviews and ultimately had to make a difficult decision on which candidate to hire. This philosophy and post led to hiring two new managers with turf degrees each fitting into different roles throughout the season—it was a success for me. The verdict is out if it will be successful long-term, but I feel I am in a much better position going into 2023 than I was 2022 and only time will tell.

At the end of the day, there is no golden rule to finding an assistant—different clubs, management styles, and budgets will require different solutions. What worked for me might not work for the next club down the street. The most important realization I had in this process is that there is no one size fits all model. Likewise, what works today probably won't work for the next generation; today's new school is tomorrow's old school. ✓



NORBY GOLF COURSE DESIGN

Phone: 952.361.0644
 Email: kevin@norbygolf.com Web: www.NorbyGolfDesign.com



Nothing but a Summer Job

By Brady Mandella, UW-Madison, Turfgrass Student,

This article is eligible for the Monroe Miller Literary Scholarship

Ever since I was very little, I've played many sports. The first and my most favorite was baseball. I know what you might be thinking though, "Isn't this article supposed to be about golf course management?" Trust me, we'll get there. I played at the local baseball field complex in my hometown of Glendale, WI. The complex featured four fields: one High school/college field, and three smaller fields. I had played baseball at these fields from when I was three years old all the way up to high school. The complex's name when I was playing there was the Glendale Little League Park; now they are called the Arnis Vecitis Fields. This is where my journey in the turf industry began. Little did I know that, at these Little League baseball fields, I was going to grow such a passion for this incredible industry.

It all started the summer going into my freshman year of high school. I wanted to make some extra cash, and while I played at the fields, I always noticed the grounds crew and thought how fun of a job that would be. My best friend and I both applied at the same time and got the job. I started by indulging in the most basic tasks such as weeding, picking up garbage and learning how to open and close the fields. At this point, I had no idea how much work goes into managing baseball fields or any type of turf for that matter. I was at the lowest of lows in terms of my knowledge and experience

in this industry. After some time though, I started to really get into it, and I fell in love with it. I loved the idea of being outside every day and one of the exciting things is every day is different. This is how it went for the rest of my summer. Early mornings, grinding on the fields and getting the fields prepped for games every night.

My plan from the beginning was not to go into the turf industry though. As I stated earlier, I played a lot of sports growing up, and I was a very active kid. My career goal was to become a physical therapist. I loved to stay fit, and I thought this was where my path was in life. Fast forward to my senior year of high school, I was still working at the Little League fields and developing more knowledge and experience with new equipment. I had started to learn the basics of turf fertility and pesticide application. Topdressing, irrigation, and aeration were also among the many tasks I was also becoming more experienced with. I gained experience with all the mowers we had and with creating the crazy stripe patterns you see on the MLB fields. But I still wanted to become a physical therapist and so I applied to the University of Wisconsin-La Crosse and was accepted.

After my first year of college was done, I continued to work at the Little League fields, and at this point, it was my fifth year working there and I had moved up in the ranks. Different

crew would come and go each year, but I was one of the few who stayed. I had more of a supervisory role, but still did the basic tasks that I did from the start, just more efficiently. There was something about this job that kept me coming back each year—I just didn't know it yet. I started paying attention to the small details and was coming up with ways to work smarter, more efficiently, and safely of course. In my younger years of this job, I didn't even know you could do this type of work professionally on golf courses or other professional sports fields, so I kept the physical therapy fantasy alive. This was the year covid also hit, and along with school and my summer job, the stressors of the pandemic were getting to me as they did to all of us.

My second year of college went by even quicker than the first. My entire school year was online, and I lost a lot of motivation for school and a lot for physical therapy. Along came the summer and I went back to the Little League fields for the sixth year in a row. This year was different though. I was the only who returned. Everyone else either graduated college or found other jobs summer jobs that paid better. I didn't care about the money; I had developed a love and passion so deep for this type of work all the money in the world couldn't convince me to work somewhere else. This is all I knew, and it was where my love for turf developed. I was promoted to the head supervisor role, and I had a crew

of ten workers under me, and each and every day I would construct a systematic plan to get all the necessary tasks completed in a safe, efficient, and fun manner.

This was the summer that changed me. I realized how good of a leader I was and how dedicated I was to make these fields look better than they ever had before. My passion for the turf industry is what motivated me to work harder every day and push past all the obstacles you face while in this industry. As the summer was nearing its end, I started to think about what I really wanted in my life and if the path I was on was really going to make me happy.

My uncle is a superintendent of a golf course located in Milwaukee and so I called him and started asking about his job, what it entails, and basically if he loves what he does. I remember him saying, "Dude, I love it, I get to be outside every day and do the work that makes me happy. Every day is different, and you run into obstacles daily, but that's the fun part. You always have something to do whether it's an irrigation problem or something as fun as cutting cups." And that's when I decided to make the switch.

I knew the University of Wisconsin-Madison has a phenomenal College of



Continued on page 30

Pendelton Turf Supply

PENDELTON TURF SUPPLY



Amino-Phyte 11-0-0 with Added Amino Acids

- Amino acids help with photosynthesis to ensure quality growth of a plant
- Increases nutrient absorption
- Reduces stress related issues like high temperatures, low humidity and much more!

Redox TURF



- 100% Penetrant with 10% Added Microencapsulated Calcium
- Reduces water surface tension while delivering calcium and water throughout the soil profile



- Par Aide is your one stop shop for all your tee and green needs this season! Contact one of our sales rep for more information.



Durrell Naquin
durrell@pendeltonturf.com
(608) 228-1782

805 Ela Ave.
Waterford, WI 53185
Phone: (262) 534-3334
Email: office@pendeltonturf.com

Kristin Witkowski
kristin@pendeltonturf.com
(414) 640-2241

Continued from page 29


Agriculture and Life Sciences and I could further my passion for the turf industry there. At the end of the summer that year, I applied to transfer to the University of Wisconsin-Madison and with much luck, hard work and determination, I was accepted! I finished up my last semester at UW-La Crosse in the fall and in the spring was when I started at UW-Madison. I decided to major in Soil Science with a specialization in turf and grounds. Every step of this process was so nerve racking, but it was exciting as well. Never once did I question if what I am doing for my future career is the right thing or not. I know I am in the right place here at UW-Madison, and I couldn't be happier. It was a much bigger change than La Crosse, but I had a huge support team in the Department of Soil Science here at UW. A lot of my friends from high school also go here so it was nice to link up with them again.



My first semester at UW-Madison was great, I had the opportunity to meet some of the amazing professors who specialize in the turf management program and had been offered numerous scholarships to help me along the way. I finished up that spring semester with a smile on my face and I was ready for the next challenge ahead. After my talk with my uncle, I thought I should give the golf course management industry a shot. I applied for an internship at the Brown Deer Golf Course located next to my hometown in Milwaukee, and I got the job! Although golf course management is a lot different than baseball field management, a lot of the repetitive tasks such as fertilization, aeration, irrigation,

topdressing, and mowing were similar. Mowing at lower heights was a change for me and I soon began to love it as I learned a lot about reel mowers. Although this is an obvious statement, the size difference between a golf course and a baseball field was much different. Larger and heavier equipment was involved as well as a wide variety of more fertilizers I had never heard of before. The superintendent of this course was an incredible mentor as he threw me into every single task you could do on a golf course from raking bunkers to cutting greens, fairways, tees, and cups to spraying fertilizer and dealing with irrigation problems. Whatever the task was, I was happy to do it. The early morning hours was also a change, but I honestly didn't mind it that much; the sky was always so beautiful early in the morning.

As my time went by that summer, I grew an even deeper appreciation for the turf industry. A lot of information I was taught at UW-Madison was applicable on the course, and I was able to make connections and solve problems with the help of the superintendent along my side. I always had a love for the outdoors and with a job in the golf course management industry, I can fulfill my love and passion for this amazing industry.

My time in the golf course management industry has just begun and I will continue to grow my passion and strive for success as I learn more here at UW-Madison and whatever golf course I end up working at. As my knowledge and experience for this industry has grown exponentially within the past year, I finally understand why I kept going back to the Glendale Little League fields. I kept going back because deep down I knew what path I should take in my life, and I didn't want to sacrifice that for something I didn't love--physical therapy. After all this time, that summer job is what pushes me to achieve more and more every day in not only the golf course management industry, but in life as well. I think about working on the Glendale Little League baseball fields every day and something I'll always remind myself is that it was nothing but a summer job. 





INTRODUCING

EXCLUSIVELY FROM



CLESSENS

IN GROUND WIRELESS SENSOR
MEASURES RECORDS MONITORS

- MOISTURE** **SALINITY**
- TEMPERATURE** **LIGHT**

10 MINUTE INSTALLATION



Sensor	Temperature, Light (FC/Lux), Salinity (EC) and Soil Moisture Sensor
Battery	Average 5 year battery life with standard usage. Free replacement of unit when battery dies.
Connectivity	Cellular 3G/4G - provides hourly data
Min and Max Operating Temperatures	-4 to 170° F soil temperatures
Bury Depth	1 inch to 2 feet (can easily be moved anytime)

Monitor data from your mobile device or desktop in real time via cellular networks.

Scan QR Code with your phone camera for Spiio installation and use video.



REDUCING PESTICIDE RISK ON GOLF COURSES, A MINNEAPOLIS CASE STUDY



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

Author's Note: Portions of this article were previously published in the September 2022 edition of Golfdom under the title 'For snow mold, the future is pink.'

Representatives from the Minneapolis Parks Board contacted me in the fall of 2019 to provide a presentation on how to reduce pesticide usage and their non-target impacts on golf courses. A pilot pesticide reduction program was initiated at Theodore Wirth GC in Minneapolis as a result of that presentation, and the primary objectives of the pilot program were to:

1. Significantly reduce pesticide active ingredient and pesticide impact compared to past pest management programs.
2. Eliminate the use of pesticides that are labeled as:
 - a. Highly Toxic to Bees (as defined by the Environmental Protection Agency)
 - b. Have toxicity signal words of Warning or Danger (Caution is the least toxic signal word)
3. Use disease-predictive modeling and implement additional science-based integrated pest management strategies to ensure pesticides are only being used when they are required for proper pest management.
4. Keep program costs in line with the Minneapolis Parks Board budget.
5. Provide course quality that meets the expectation of the local golfing clientele.

In my opinion, all of these objectives were successfully met in this pilot program at Theodore Wirth GC and below is the evidence in support of each of these objectives.

Objective 1: Significantly reduce pesticide active ingredient and pesticide impact compared to past pest management programs.

The most important objective of this pilot program was to reduce the amount and non-target impact of pesticides on Theodore Wirth GC. Total pesticide use was calculated by summing up the total amount of pesticide active ingredient used over the entire golf course. Pesticide impact is more difficult to measure, and there are multiple models that exist to estimate pesticide impact. Each model has their benefits and drawbacks, so I decided to use two different models to estimate pesticide impact. One model was the Environmental Impact Quotient (EIQ), which attempts to provide a holistic assessment of pesticide impact by incorporating numerous factors related to human exposure, persistence in the environment, and toxicity to non-target organisms. The EIQ can either be presented on a per acre basis or as EIQ Acres, which incorporates the number of acres sprayed at each application. The second model was the Hazard Quotient (HQ), which simply estimates the acute toxicity impact based on the rate of the product and the acute mammalian LD50 (Lethal Dose to Kill 50% of the population).

Table 1 provides a complete summary of the pesticide active ingredient used and pesticide impact in 2018, 2019, and 2020. I included 2018 in this analysis because Theodore Wirth GC superintendent at the time, Chris Aumock, began to reduce pesticide use on his own accord in 2019 (Chris has since moved into a position as the executive director of the Minnesota Golf Course Superintendents Association). Reductions in the 2020 program are then compared to both 2018 with no pesticide reductions in place and 2019 with Chris Aumock's reductions in place.

Table 1. Pesticide active ingredient (AI), Hazard Quotient, and Environmental Impact Quotient summaries at Theodore Wirth GC from 2018 to 2020.

	2018	2019	2020	Percent Reduction from 2018 to 2020	Percent Reduction from 2019 to 2020
Lbs AI					
Greens	178.35	178.57	25.98	85.43	85.45
Tees	28.56	23.48	13.50	52.72	42.49
Fairways	352.21	199.1	64.18	81.78	67.77
Hazard Quotient					
Greens	39822.59	37912.08	7802.30	80.40	79.42
Tees	14395.66	9840.94	3500.46	75.68	64.43
Fairways	19473.53	12605.09	2629.30	86.50	79.14
Environmental Impact Quotient (per acre)					
Greens	1494.73	1497.6	170.26	88.61	88.63
Tees	263.85	233.61	121.55	53.93	47.97
Fairways	531.83	252.58	88.02	83.45	65.15
Environmental Impact Quotient Acres					
Greens	5978.91	5990.39	681.05	88.61	88.63
Tees	791.55	700.84	364.65	53.93	47.97
Fairways	11168.38	5304.14	1848.34	83.45	65.15

The goal was to significantly reduce pesticide use and pesticide impact on Theodore Wirth GC, and by every metric tested there was at least a 50% reduction on each major area of the golf course. In many cases, reductions were far more significant, reaching nearly 90% reductions in AI and EIQ on the putting greens. By any measure, these reductions are significant.

Objective 2: Eliminate the use of pesticides that are highly toxic to bees and have signal words of warning or danger.

All pesticides are required to undergo analysis of their acute toxicity to bees as well as a mammalian acute toxicity test referred to as the LD50 (lethal dose to control 50% of the population). Pesticides that are determined by the EPA to be highly toxic to bees must include additional information on the pesticide label and carry additional rules to prevent exposure to sensitive pollinator populations. The EPA uses signal words to give the applicator a quick and simple manner to determine the acute toxicity of the pesticide, and these signal words must be placed in big, bold letters on the front of the pesticide label. A signal word of ‘Danger’ signals the most toxic pesticides and should be used with extreme caution. A signal word of ‘Warning’ signals elevated toxicity and extra care should be taken to avoid incidental exposure.

A signal word of ‘Caution’ is the lowest level of toxicity and signals that routine care should be taken to limit unnecessary exposure. In certain very rare cases, some pesticide lack any signal word at all due to their extremely low mammalian acute toxicity.

Table 2 shows the signal word and pollinator warning status of all the pesticides applied at Theodore Wirth GC in 2020. None of the pesticides were rated as highly toxic to bees. Of particular note is that Acelepryn, which is a highly effective insecticide and doesn’t carry a pollinator toxicity warning, replaced imidacloprid, which is known to be highly toxic to pollinator populations. Acelepryn also has no signal word, signaling an extremely low acute toxicity. Seven other pesticides had a signal word of Caution, indicating the lowest level of acute toxicity. The only fungicide with a signal word of Warning was the fungicide Emerald, which was sprayed once on tees and fairways. What is confounding about this signal word is that Emerald is also registered with the EPA as a ‘reduced-risk’ fungicide, indicating that the EPA found it to have significantly lower risk for mammalian and environmental contamination when compared with other standard products on the market. Since there are numerous effective alternatives to Emerald currently on the market, I would recommend the removal of Emerald from the fungicide program in 2021 and beyond.

Continued on page 34

Continued from page 33

Table 2. Signal words and Pollinator Toxicity status of all pesticides used at Theodore Wirth GC in 2020.

Product	Signal Word	Highly Toxic To Bees
Acelepryn	No signal word	No
Defendor	Caution	No
Emerald	Warning	No
Fairview Select	Caution	No
Nivales T	Caution	No
Posterity	Caution	No
Propiconazole 14.3	Caution	No
QP Fluazinam	Caution	No
Strobe 2L	Caution	No

Objective 3: Use disease-predictive modeling and implement additional science-based integrated pest management strategies to ensure pesticides are only being used when they are required for proper pest management.

Pest management decisions should be made based on environmental factors and sound data collected from the field, not based on the date on the calendar. The Smith-Kerns Dollar Spot Prediction Model is a prediction tool that can be used to more accurately time pesticide applications targeting dollar spot. Dollar spot is the target of more fungicides than any other turfgrass disease, so reducing fungicides targeting dollar spot can significantly reduce overall fungicide usage. I talked about the Smith-Kerns Dollar Spot Model with Chris Aumock in the spring of 2020 and the following strategies were implemented to correctly use the model:

- Become familiar with the model by visiting the following webpage: <https://tdl.wisc.edu/dollar-spot-model/>
- Assign a specific staff member to record the model output every day. Start with a model threshold of 25% and adjust as needed based on the conditions present at the course.
- A dollar spot application should be made the first time the model exceeds 25% and subsequent applications should be made when the model output is above 25% and the recommended reapplication interval has expired.
- Additional resources exist for tracking the model but one of the more effective ones is the 7-day model forecast provided by the Greenkeeper App (<https://www.greenkeeperapp.com/home.php>).
- While it's impossible to determine exactly how effective implementation of the Smith-Kerns Dollar Spot model was, it was clear on my trips to Theodore Wirth GC during the summer of 2020 that there was much more dollar spot in the non-treated check plots compared to surrounding areas treated based on data collected from the disease predictive model (Figure 1).



Figure 1. This non-treated check plot on the 13th hole shows the level of dollar spot pressure that would be present over most of the golf course if a preventative program were not in place.

In addition, we also worked to implement disease-suppressive cultural practices like regular dew removal and applications of iron sulfate. Extended leaf wetness can increase severity of dollar spot and other diseases, and daily removal of the dew on greens, tees, and fairways by mowing or dew chains can decrease dollar spot severity. The removal of dew by chains or mowing was done on a very regular basis throughout the season and likely contributed to the excellent disease control at Theodore Wirth GC in 2020. I strongly recommend regular dew removal continue as a means to reduce reliance on fungicides in future years.

Iron sulfate can have significant suppressive activity against dollar spot that results in fewer synthetic fungicide applications. In my own research, iron sulfate at rates of 3 to 6 oz per 1000 sq ft at reapplication intervals of 7 to 14 days provided the best dollar spot suppression. However, the lack of proper equipment and staffing prevented Chris Aumock from implementing a regular iron sulfate program. Future use of iron sulfate on a regular basis can provide very effective control of dollar spot and further reduce fungicide usage at Theodore Wirth GC.

During my first visit in May we also discussed the potential use of biological fungicides as a means to reduce reliance on synthetic fungicides. While the concept of biological control is highly appealing as a reduced-toxicity way to manage golf courses, to date the commercially available products on the market fail to provide acceptable disease control under heavy disease pressure. My program recently evaluated a host of biological fungicides for dollar spot control in turfgrass over a 2-year period and found that many provide modest levels of disease control under low to moderate pressures, but succumb when disease pressures increase in late summer. While the occasional use of biological fungicides may provide efficacy in certain conditions, I don't recommend they form the backbone of a disease management program in turf at this time given their high cost. The technical summaries of our biological fungicide research can be found here (<https://tdl.wisc.edu/summer-2018-turfgrass-pathology-research/>) and here (<https://tdl.wisc.edu/summer-2017-turfgrass-pathology-research/>). The full, peer-reviewed publication that details this research can be accessed in *Agronomy Journal* (<https://access.onlinelibrary.wiley.com/doi/10.1002/agj2.20407>).

Objective 4: Keep program costs in line with the Minneapolis Parks Board budget.

Many golf facilities walk a fine line between profit and loss, and this especially true at many public and municipally owned facilities. Given this narrow margin for financial success, it's important that any program put into place by the Minneapolis Parks accounts for the potential financial impact. The cheapest pesticides on the market also tend to be the oldest, which also tend to have higher levels of toxicity and non-target impact. In addition, many commercially available biological and organic pest management products are prohibitively expensive for most budget-minded facilities.

Table 3 provides the costs of each pesticide applied at Theodore Wirth GC in 2020, which were provided by Superintendent Chris Aumock. While I don't have knowledge of the pest management budget at Theodore Wirth GC, the total application cost of the fungicides listed in Table 3 (\$15,261) is an extremely competitive price point compared to other golf courses in the Midwest. According to the Golf Course Industry '2019 State of the Industry Survey', the average respondent spent over \$41,000 annually on fungicides alone, and over \$57,000 on all pesticides combined (<https://www.golfcourseindustry.com/article/state-of-golf-industry-2019/>). Based on marketing data provided to me by a pesticide manufacturer, the average golf course in the Midwest spent about \$15,000 annually JUST to control dollar spot. This \$15,000 number doesn't take into account the myriad other disease, weed, and insect pests

that every golf course has to compete with. In short, the money spent on the pilot pest management program at Theodore Wirth GC not only significantly reduced total pesticide usage and non-target impact, but also was also successful from a financial perspective.

Table 2. Signal words and Pollinator Toxicity status of all pesticides used at Theodore Wirth GC in 2020.

Product	Cost per acre (\$)	Total Application Cost (\$)
Acelepryn	91.64	3793.13
Defendor	23.04	1104.00
Emerald	105.35	2528.40
Fairview Select	72.37	1736.79
Nivales T	333.51	1337.70
Posterity	126	1001.70
Propiconazole 14.3	18.56	655.60
QP Fluazinam	59.59	2705.31
Strobe 2L	102.82	398.93
Total	932.88	15,261.56

Objective 5: Provide course quality that meets the expectation of the local golfing clientele.

The conditions at Theodore Wirth GC during my three site visits in 2020 were consistently good despite numerous challenges related to the weather and heavy golfer traffic. This is first and foremost a testament to the hard work of Superintendent Chris Aumock and his crew. This isn't to say that conditions were perfect as there were a number of relatively minor issues that arose during the season. This is also expected given the limited resources provided for course maintenance. Issues ranged from localized dry spot and scalping related to excessive thatch (Figure 2) and to minor disease outbreaks of brown patch and anthracnose. Cultural practices such as regular

Continued on page 36

greenjacket
TURF COVERS

PROVEN BY 25+ YEARS OF SUPERINTENDENT SUCCESS.

- Patented **IMPERMEABLE** Reinforced Winter Cover Turf Protection System.
- PERMEABLE** Lace Coated Grow-In Covers increase healthier turf growth.

Find out how the GreenJacket System can make a difference for your golf course.

Call 888-786-2683 or Email info@greenjacket.com
See Research at GreenJacket.com

Non-retouched client photo
GreenJacket system coming off in the spring

Continued from page 35

aerification, verticutting, and traffic management can help limit the development of these issues in the future without heavy reliance on pesticide applications.




Figure 2. Excessive thatch in certain areas led to 'puffiness' that resulted in scalping in isolated areas of the golf course in mid-summer. Targeted aerifications reduced the thatch and the affected areas recovered within a few weeks

No formal assessments were performed to measure course quality and compare it with past years. However, in my own tours of the golf course during my site visits and in discussion with Chris Aumock, it was quite evident that course quality was on par if not improved from recent years. While this is likely due to a number of factors, it's

evident that the reduced-risk pest management program put in place for 2020 at the very least did not lead to a reduction in overall course quality.

Conclusion

The pilot program at Theodore Wirth GC in 2020 set out a number of aggressive goals to reduce the amount of pesticide used, maintain adequate playing conditions, and maintain a similar budget to previous years. There was, on average, a nearly 80% reduction in pounds of pesticide applied, an 80% reduction in pesticide impact according to multiple metrics, costs well below the average golf course in the Midwest, and no drop in overall course conditions. Given these facts, I believe the pilot program largely succeeded on all fronts at Theodore Wirth GC and can serve as a template for other golf courses around the Midwest to develop a similar program to reduce pesticide usage and pesticide impact. Every golf course has unique challenges, and alterations to the Theodore Wirth program will need to be made to account for those unique challenges. But, what worked at Theodore Wirth can be successful at other sites as well.

If you have any questions about this work or the research we have conducted to support other reduced risk initiatives on golf course, or you're interested in initiating your own reduced risk management plan, please don't hesitate to contact me at plkoch@wisc.edu. 

GOLFCREATIONS

18250 BECK RD, MARENGO IL 60152 815.923.1868
GCBA Certified ~Better Billy Bunker Certified



ROADKILL HOLE 11 275 YDS

Pioneer Pointe Middleton, WI



NORTHERN GREEN

JAN. 10-12, 2023

WHERE GREEN INDUSTRY PROS...



EXCHANGE IDEAS



EXPAND KNOWLEDGE



BROWSE & BUY



CREATE CONNECTIONS

SEE YOU THERE!

 Minneapolis Convention Center

 info@NorthernGreen.org

 www.NorthernGreen.org

 651-633-4987

GENEROUSLY SUPPORTED BY:





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

PLANT PATHOLOGY SNOW

By: Kurt Hockemeyer, Turfgrass Diagnostic Lab Manager

Yesterday, Dr. Koch, I, and three other members of our lab made the final applications of snow mold treatments to three studies in Wausau, WI. With Wausau finished, that leaves only one more study to be done here at the OJ Noer Research Station. That study will get done sometime before Thanksgiving, but the vast majority of the snow mold research has been put to bed. We can only hope for lots of snow, and therefore lots of disease. By getting lots of disease on our research trials, we can get data. When we get data, we can glean information from that data. We then try to pass that information on to the members of the turfgrass industry who need it, so that they can control snow mold in the most effective manner. This year had quite a large number of submitted treatments. Let's talk about our snow mold trials for the winter of 2022-2023.

The Monstrosity Trial-Marquette, MI and Wausau, WI

This large trial is one that we conduct every year. Chemical companies submit protocols to us for testing and sometimes we throw in our own treatments when we have something that fits the study parameters. Because there is always some ebb and flow in how many companies submit treatments, the number of treatments in this trial can vary widely from year to year. This year, this trial sits at the largest it has ever been since I've been here, and I think also the largest Dr. Koch has ever done: 126 treatments!!! Monstrosity is most definitely an apt descriptor of this trial. This trial is replicated in Marquette, MI and Wausau, WI. The Marquette applications went down a few days before Halloween. Unfortunately, I had to miss this trip. My wife and I had just welcomed our second child into the world (Figure 1). It was the first major snow mold trip that I had to miss since Dr. Koch hired me, but I feel like I had a good reason. Luckily, Paul and the other lab members were able to pick up the slack.



Figure 1. Evelyn Jane Hockemeyer striking her best superhero pose! Up, up, and away!

The Snow Mold Timing Model Trial-Minocqua, Wausau, and Madison, WI

We've been talking about this trial for quite a few years now, but this year, we've finally moved on to the next stage. We have been able to take the results from previous research (Figure 2),



Figure 2. The timing trial in Minocqua, WI spring 2022. The timing of your snow mold fungicides can have a major effect on overall efficacy.

throw it into a computer, and the computer has spit out a prediction model. This is our first year of testing the prediction model and as such, it will probably undergo changes over the next few years before we roll it out to the public. But, definitely keep an eye out for updates on this trial as we start to test the new model.

MOLD TRIALS PREVIEW

The Minnesota Trials-Biwabik, MN and Brainerd, MN

We've teamed up with researchers and the University of Minnesota to get a couple of Minnesota locations in our snow mold research. The UMN crew lays out the trials and makes the applications in the fall. Then, Dr. Koch and I rate the plots in the spring and write up the results. This is only the third year of us teaming up with Minnesota, but we have already collected interesting and different data from our Gopher neighbors (see snow scald report from last season).

WinterTurf Project-Worldwide

This is a large collaboration between universities and turf researchers worldwide. As part of the large collaboration, there are several studies we are running that are looking specifically at snow mold. The first is looking at how different rates of nitrogen and potassium during the growing season affect snow mold severity the following winter. The second is looking at how the timing of fall nitrogen and potassium applications affect snow mold



Paul Koch
@uwtpaul

Our tree leaf mulching study is now set up and ready to go. Part of the @USDA funded #WinterTurf project, we'll see how different depths of mulched vs unmulched leaves impacts snow mold, turf quality, and soil health over the next couple years @kurtaculous



4:30 PM · Nov 1, 2022 · Twitter for iPhone

Figure 4. Leaf mulching study tweeted by Dr. Koch.

severity. And, the last is geared towards homeowners, and how different leaf mulching techniques and depths affect snow mold severity (Figure 4).

Pink Snow Mold-Madison, WI

This study is done in Madison, WI. Unfortunately, we don't always get winters that give us disease pressure. So, we have techniques in place to try and ensure we get disease pressure every year. Covering the plots with insulation frames and then covering with a tarp helps to mimic the insulating properties of deep snow cover (Figure 5). This way we can more consistently get disease in Madison every winter.

Hopefully we can get another year of great data from these trials. Watch out for the reports on these trials come spring. Enjoy your winter! 🍀



Figure 5. Pink snow mold study uses custom made insulation boards to mimic the insulating properties of deep snow cover.

Oxalic acid degrading bacteria are present in the turfgrass phyllosphere and soil, which plays a potential role in dollar spot suppression

By Daowen Huo, PhD candidate, Department of Plant Pathology, University of Wisconsin-Madison

This article is eligible for the Monroe Miller Literary Scholarship

1. Abstract

Dollar spot is a foliar disease of golf course turfgrass and caused by the fungus *Clariireedia jacksonii*. Oxalic acid (OA) is an important pathogenicity factor in related fungal plant pathogens, and the role of OA in pathogenicity in *C. jacksonii* is less clear. Current dollar spot management can require upwards of ten fungicide applications per year, which has resulted in the development of widespread fungicide-resistant fungal populations. To improve and develop sustainable disease management for turfgrass, more research on *C. jacksonii* and OA in dollar spot disease development are needed. Here, we hypothesize that OA is an important virulence factor for *C. jacksonii* and using OA-degrading bacteria control will reduce dollar spot disease effectively. We isolated OA degrading bacteria from the phyllosphere and soil of turfgrass in 2021 and 2022 at the OJ Noer Turfgrass Research Facility in Madison, WI. Of the many isolates collected, few bacterial isolates were consistently found to degrade OA. Further identification of 16S rRNA gene sequence and growth chamber experiments were performed to test their efficacy. OA degrading bacteria isolates may impact the pathogenicity of *C. jacksonii* by interfering with OA in the phyllosphere and soil, thus providing a biological dollar spot management strategy.

2. Introduction

Dollar spot is the most common disease of golf course turfgrass in North America, caused by the fungus *Clariireedia* (Salgado-Salazar et al., 2018). On cool-season grasses in temperate climates such as in Wisconsin, the dollar spot is caused by *C. jacksonii* (Crouch et al., 2021). Dollar spot is a foliar disease that causes severe blighting of the foliage in roughly circular infection and the fungal mycelium will spread to a nearby healthy plant and cause disease dispersal (Smiley et

al., 2005). Looking from the field, this disease has white to straw-colored patches with spots that are similar in diameter to a silver dollar--hence named dollar spot. The average U.S. golf course uses 5% of its total budget on fungicides and an average of \$36,000/year on suppressing dollar spot (Townsend et al., 2021)(Townsend et al., 2020)(Townsend et al., 2020). However, the intense fungicide applications have been developing fungicide resistance in the field. Research found that high levels of fungicide resistance in dollar spot isolates are emerging from many golf courses (Sang et al., 2015). To reduce potential environmental contamination, reduce human exposure to repeated pesticide applications and save golf courses from economic loss, there is a strong need to develop a sustainable IPM, non-chemical strategy for controlling dollar spot.

In the phylogenetic tree, *C. jacksonii* is close to *Sclerotinia sclerotiorum*, the pathogen of white mold, and originally, the dollar spot pathogen was classified as a species in the *Sclerotinia* (Salgado-Salazar et al., 2018). Due to the genetic similarity of these two fungal pathogens, the virulence factor of *C. jacksonii* is likely to be similar to *S. sclerotiorum*. Recent research reported that oxalic acid (OA) is a key virulent factor for some plant disease development and that OA plays roles in multiple necrotrophic fungi, such as *Sclerotinia sclerotiorum* by manipulating the host redox environment (Williams et al., 2011). Therefore, *C. jacksonii* is likely to use OA to induce dollar spot disease on turfgrass. However, the OA role in *C. jacksonii* is less clear. Venu et al. (2009) observed *C. jacksonii* can produce OA and the amount of acid production appeared to be dependent upon the environmental pH (Venu et al.,). Townsend et al. (2020) found that increases in OA production are associated with *C. jacksonii* symptom development and OA production by *C. jacksonii* is reliant on the ambient pH of the foliar

environment (Townsend et al., 2020). The previous study in Dr. Paul Koch’s lab found a higher abundance of OA-degrading bacteria in high nitrogen soil community than in low nitrogen soil community in the turfgrass field, and high nitrogen treated turfgrass also had lower dollar spot disease compared to a low nitrogen soil plot. This research implied that OA-degrading bacterial population in the microbial community affects dollar spot disease in the field. These research findings indicate that OA likely plays an important role in dollar spot development, but more research is needed to solve the precise mechanism of OA in *C. jacksonii* pathogenesis to explore the potential for OA as a target of a novel, non-chemical dollar spot suppression strategies.

3. Hypothesis and Objective

In this project, we hypothesize that OA is an important virulence factor for *C. jacksonii* and targeting OA in *C. jacksonii* will help dollar spot disease control effectively. The objective is to screen biocontrol bacteria agents that could degrade OA. These agents will be isolated from turfgrass soil and phyllosphere to control dollar spot. The results gained in this research will clarify the role of OA in *C. jacksonii* and promote the development of novel dollar spot disease control on turfgrass.

4. Methods and Results

This research focuses on understanding 1) how OA-degrading bacteria from the phyllosphere and soil interact with OA content and dollar spot pathogen and 2) developing biological control on dollar spot disease by reducing OA content in turfgrass. First, soil and phyllosphere samples were collected from turfgrass fields in 2021 and 2022 at the OJ Noer Turfgrass Research Facility in Madison, WI, and the samples were cultured on OA-based media (Schoonbeek et al., 2007). The colony with the degrading zone was screened and the single bacterial colony was isolated on the Nutrient Agar plate. The pure bacterial culture was re-plated on OA-based media, and we again selected the isolates that had an OA-degrading zone.

In 2021, from 55 single isolates, three bacterial isolates from the phyllosphere sample have been found to have their OA-degrading activity. In 2022, two bacterial isolates from the phyllosphere and soil were found to have OA-degrading activity. More samples from 2022 are still in the screening process. These OA-degrading bacterial isolates were identified based on the 16S rRNA gene sequence (Table 1) and showed an antagonism effect against *C. jacksonii* (Figure 1).

From bacterial isolates in the phyllosphere and soil samples of turfgrass, we found that most isolates came from the phyllosphere and these bacterial isolates showed OA-degrading activity and antagonism against pathogen *C. jacksonii*. These bacteria belong to the genus *Rhodococcus*, *Brevundimonas*, *Burkholderia*, and *Stenotromonas*. Previous research reported that bacterial species of the genus *Rhodococcus* can degrade a variety of hydrocarbons and are widely used for the bioremediation of polluted environments (Kuyukina and Ivshina, 2010). Also, some species of *Rhodococcus* are plant growth-promoting bacteria and metabolize Abscisic Acid (Yuzikhin et al., 2021). These imply that *Rhodococcus* might be a key candidate for our biocontrol strategy against dollar spot disease. Future experiments are needed to identify the species of bacterial isolates using whole genome sequencing, measure bacterial isolates’ OA-degrading activity on *C. jacksonii* growing media, and test in planta for bacterial isolates’ efficacy on control dollar spot disease.

Continued on page 42

Table 1. The identification of OA-degrading bacteria

Phylum	Genus	Species	Source
Actinobacteria	<i>Rhodococcus</i>	unclassified	2021 Phyllosphere
Proteobacteria	<i>Brevundimonas</i>	unclassified	2021 Phyllosphere
Proteobacteria	<i>Stenotrophomonas</i>	<i>maltophilia</i>	2021 Phyllosphere
Pseudomonadota	<i>Burkholderia</i>	unclassified	2022 Phyllosphere
Actinobacteria	<i>Rhodococcus</i>	<i>sp. MN4-1</i>	2022 Soil

HELP MOTHER NATURE WAKE YOUR GREENS

Help your plants recover from cold, wet weather by optimizing their own natural health defenses with ENC® and Renova®.

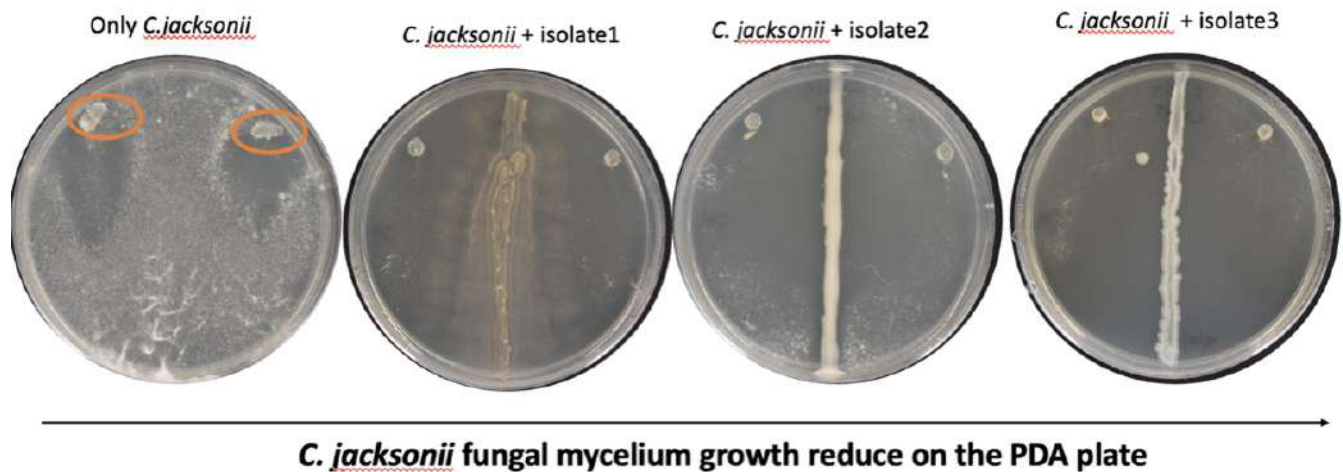
Contact your local Helena representative or visit HelenaProfessional.com for more information.

ENC **Renova**

Nutritional **HELENA**

Always read and follow label directions. Helena, ENC, Ele-Max, Precision Nutrition and People... Products... Knowledge... are registered trademarks of Helena Holding Company. Renova is a registered trademark of Valagro SpA. © 2019 Helena Holding Company. HPG0319P

Figure 1. The antagonism effect of OA-degrading bacteria against *C. jacksonii*



5. Summary

To reduce potential environmental contamination, reduce human exposure to repeated pesticide applications, and save golf courses from economic loss, dollar spot disease management in golf courses needs a novel and sustainable strategy. This research proposes to use OA-degrading bacteria to control dollar spot disease. From the current progress in this research, we found that OA-degrading bacteria could inhibit *C. jacksonii* and at the same time, more research is ongoing to answer how OA-degrading bacterial community in the phyllosphere and soil responds to different dollar spot severity. Overall, this research project can help us to understand dollar spot disease development and provide a novel strategy for dollar disease control. ✓

References:

- Crouch, J.A., L.A. Beirn, M.J. Boehm, I. Carbone, B.B. Clarke, et al. 2021. Genome Resources for Seven Fungal Isolates That Cause Dollar Spot Disease in Turfgrass, Including *Clariireedia jacksonii* and *C. monteithiana*. *Plant Disease* 105(3): 691–694. doi: 10.1094/PDIS-06-20-1296-A.
- Kuyukina, M.S., and I.B. Ivshina. 2010. Application of Rhodococcus in Bioremediation of Contaminated Environments. In: Alvarez, H.M., editor, *Biology of Rhodococcus*. Springer Berlin Heidelberg, Berlin, Heidelberg. p. 231–262
- Salgado-Salazar, C., L.A. Beirn, A. Ismaiel, M.J. Boehm, I. Carbone, et al. 2018. *Clariireedia*: A new fungal genus comprising four pathogenic species responsible for dollar spot disease of turfgrass. *Fungal Biology* 122(8): 761–773. doi: 10.1016/j.funbio.2018.04.004.
- Sang, H., J. Hulvey, J.T. Popko, J. Lopes, A. Swaminathan, et al. 2015. A pleiotropic drug resistance transporter is involved in reduced sensitivity to multiple fungicide classes in *Sclerotinia homoeocarpa* (F.T. Bennett): The role of ShPDR1 in sensitivity to fungicides. *Molecular Plant Pathology* 16(3): 251–261. doi: 10.1111/mpp.12174.
- Schoonbeek, H., A.-C. Jacquat-Bovet, F. Mascher, and J.-P. Métraux. 2007. Oxalate-Degrading Bacteria Can Protect *Arabidopsis thaliana* and Crop Plants Against *Botrytis cinerea*. *MPMI* 20(12): 1535–1544. doi: 10.1094/MPMI-20-12-1535.
- Smiley, R.W., P.H. Dernoeden, and B.B. Clarke. 2005. *Compendium of turfgrass diseases*.
- Townsend, R., M.D. Millican, D. Smith, E. Nangle, K. Hockemeyer, et al. 2021. Dollar Spot Suppression on Creeping Bentgrass in Response to Repeated Foliar Nitrogen Applications. *Plant Disease* 105(2): 276–284. doi: 10.1094/PDIS-05-20-1031-RE.
- Townsend, R.V., R.A. Rioux, M. Kabbage, C. Stephens, J.P. Kerns, et al. 2020. Oxalic Acid Production in *Clariireedia jacksonii* Is Dictated by pH, Host Tissue, and Xylan. *Front. Microbiol.* 11: 1732. doi: 10.3389/fmicb.2020.01732.
- Venu, R.C., R.A. Beaulieu, T.L. Graham, and A.M. Medina. DOLLAR SPOT FUNGUS SCLEROTINLAHOMEOCARPA. : 9.
- Williams, B., M. Kabbage, H.-J. Kim, R. Britt, and M.B. Dickman. 2011. Tipping the Balance: *Sclerotinia sclerotiorum* Secreted Oxalic Acid Suppresses Host Defenses by Manipulating the Host Redox Environment (B. Tyler, editor). *PLoS Pathog* 7(6): e1002107. doi: 10.1371/journal.ppat.1002107.
- Yuzikhin, O.S., N.E. Gogoleva, A.I. Shaposhnikov, T.A. Konnova, E.V. Osipova, et al. 2021. Rhizosphere Bacterium *Rhodococcus* sp. P1Y Metabolizes Abscisic Acid to Form Dehydrovomifoliol. *Biomolecules* 11(3): 345. doi: 10.3390/biom11030345.

19th on the 19th

By Luke Cella, Wee One Foundation



On September 19, 2022, the Wee One Foundation hosted its 19th Annual Fundraiser at Pine Hills Golf Club in Sheboygan. You know it's a great weather day when most players show up in shorts and always included is the exceptional hospitality we continually


receive by the staff at Pine Hills. Though many aspects of the day did not change (brats on the frontside and tacos on the back with plenty of cold drinks), one new change was the host superintendent: Tom Speltz. Tom took the reins from longtime superintendent, Rod Johnson, CGCS Retired, and welcomed the Wee One Foundation without missing a step. Thank you to Tom and his key staff members, Todd Marten and Brent Johnson, for hosting us once again. The course is a treat to play.

Two hundred players returned to Pine Hills to celebrate another golf season and to support the Wee One Foundation. Over \$50,000 was raised at the event through generous sponsorship, raffles, registration, and donations.

Many were playing when they heard the roar and immediately knew someone scored an ace on the 9th hole. Those in the group with the shot maker are still trying to fathom how Jim Van Herwynen, CGCS of South Hills Golf and Country Club, knocked it in for a cool \$10K! Any hole in one is a great shot, but when there is a payout...let's just say it helps to cover the bar tab and then some! Jim wasn't the only winner with his shot; the Wee One Foundation was paid \$5k from it as well. Great shot, Jim!

In addition to the hole-in-one winnings, immediate GCSAA Past President Mark Jordan and retiring COO Bob Randquist presented a check of \$15,000 to the Wee One Foundation as part of the national association's commitment to supporting the Foundation.

The event has become a tradition for many; more importantly it is the cornerstone fundraiser that allows the Foundation to continue to provide funds for those in need. In the coming weeks, the Wee One will gift its two millionth dollar, and it all started at Pine Hills 19 years ago. It's fun to think what our namesake, Wayne Otto, would say about that!

Thank you to all who attended and supported the event. As always, if you know someone who needs help, please visit weeone.org to request assistance. 



Host superintendent Tom Speltz looks on as players get ready to take the course.



Jim Van Herwynen was all smiles after hitting a hole-in-one and collecting a nice check to boot.



WGCSA board members, Adam Suelflow and Jens Arneson, heading out to tee off (after stopping at the taco stand first).



The undulating greens, natural topography, and fast and firm conditions make Pine Hills a fun test of golf.



A view of the 18th green from the clubhouse.

WTA Fall Golf Classic 2022 IS A SUCCESS



By Bruce Schweiger, Superintendent, O.J. Noer Turfgrass Research & Education Facility

On October 10th, 2022, the WTA Fall Golf Classic was held at Oneida Golf and Country Club in Green Bay. This outing is typically played on the first Monday in October, but this year, we had a scheduling issue and chose the second Monday in October. Early October weather can be an issue, but with the opportunity to play such a special course, we took the gamble. The Monday before the event, the weather was great in Green Bay and doubt began to surface about what the next week would bring. It brought a near perfect day—mostly sunny, a high temperature of 65, light winds and 100 golfers. When you add the great weather and a very special golf course, this might have been the perfect fall day for golf!

The WTA Fall Golf Classic is one of the WTA's largest fundraisers. The attendance at the event was 100 players. When this event moves north, the attendance can dwindle, but not this year! This was the largest turnout in seven years and the highest turnout at a northern location since 2005 when the WTA played at Whistling Straits. This is a tribute to how special it was to play at Oneida Golf and Country Club.

Oneida Golf and Country Club rolled out the red carpet. I cannot say thank you enough for all they did. As expected,

Mark Storby and Brian Kindle had the course in impeccable shape. As the day wore on, I was very happy that Mark and Brian set the course up objectively and did not use what could have been some very difficult pin placements. The discussions with players after the round were all great. The one common thought was that the greens baffled many groups, especially mine.

The entire clubhouse staff also brought their "A" game. General manager Kevin Betts was extremely helpful and made it a very low stress day. Mr. Betts and his staff went well beyond expectation with their food service. The pro shop staff organized the outing flawlessly and even introduced me to a scoring app. Okay, Dave Marach used the app and he said it was easy to do. I heard no complaints and only rave reviews about the entire day. To feel so welcome and valued should make all turfgrass professionals proud.

The golf event was a four-person scramble. This year the event recognized three winning teams: first place with a score of -13 was Peter Meyer, Scott Anthes, Alex Benson-Crone and Dan Vater. Each player from this team received a \$100 pro shop credit. The next two winning teams each received \$50.00 pro shop credit. The team members who took ninth place with a score of -7 were Aaron Hansen, Greg Gage, Nick Peinovich, and Kristin Witkowski. The third team was Brian Haag, Dan Prochazka, Justin Mottl, and Ethan Rosenberg.

The event had five flag events, each worth \$57.00 in pro shop credit. The two closest to the pin events were sponsored by Aquatrols/Redox and our friend John (JT) Turner.

Closest to the pin #8 was Alex Beson-Crone; closest to the pin #17 was Dan Vater; long drive male Ben Story; long drive female Kristin Witkowski; long drive senior (over 60) Bradd Bucks.

In addition to all the golf registration we had numerous hole sponsors:

- WSTMA
- Insight FS
- Irrigation Protection Services
- National Golf Graphics
- Waupaca Sand and Solutions
- Advanced Turf Solutions
- BASF
- The Andersons
- Syngenta
- Reinders, Inc.
- Landmark Seed
- NuFarm
- SiteOne
- Helena
- Aquatrols/Redox
- Corteva
- Wausau CC
- Pendelton Turf Supply
- South Hills CC
- Midwest Turf
- The Club at Strawberry Creek/Matt Kregel
- Dr. Koch
- Clesen
- Maple Bluff CC
- Stihl, USA
- Amguard

This year we had two companies add extra support to the event, Reinders, Inc. and Aquatrols/Redox. Aquatrols/Redox sponsored closest to the pins on #8 and #17. Reinders, Inc. made a large donation toward the cost of lunch and hors d'oeuvres. I would like to give them a special thank you for their outstanding support!

The WTA Fall Golf Classic always ends with an all-inclusive raffle. The goal of the raffle is that everyone leaves with a prize. When the event is being planned, this is a very high goal. I am willing to admit that the week before the event I thought this might be the first year that everyone would not get a prize. Audra kept telling me not to worry because we have the best supporters in the industry and they will come through. Boy was she right! The number of people and companies that arrived at the registration table with prizes for the raffle was staggering. Please thank these individuals and companies when you see them (if I omitted someone I apologize): Gabe Lopez/Irrigation Protection Services, four flashlights; Shawn Hilliard/Helena, air pods pro; Mike Upthegrove/VanDiest, jacket; David Louttit/The Andersons, 2 dozen golf balls, 2 hats; Beth Duschack/Corteva, umbrella, 2 jackets, backpack, 2 headlamps; David Marach/Northbrook G C, foursome with carts; Scott Anthes/Brown County G C, foursome with carts; Dan Harrier (WTA board member)/SiteOne, 4 golf shirts and muckboots; Matt Kregel/The Club at Strawberry Creek, foursome with carts, 2 sweatshirts and 2 hats; Phil Spitz/Syngenta, stocking hat, vest, buck knife; Peter Meyer/National Golf Graphics, Journeyman Distillery




Players getting ready for the round on the putting green.



Mark, Brian, and the rest of the Oneida crew relaxing after the outing with Rob and Scott from Waupaca Sand and Solutions.

Whiskey and 12 pack Leinenkugels; Scott Bushman/Fox Valley Golf Club, foursome with carts, hat and golf shirt; Jim Van Herwynen/South Hills Golf & C C, foursome with carts; David Rutz/SafePlay, 6 golf shirts. A special thanks to the extra effort donors: Jon Hegge/Evansville C C, Badger basketball tickets, Badger hockey tickets, New Amsterdam vodka, Red Moscato, Moscato Dash, Effen cucumber vodka, Drink Wisconsibly brandy; Kristin Witkowski/Durrell Naquin/Pendelton Turf Supply, 2 golf shirts, 2 large Yeti cups, 2 - \$25 Home Depot gift cards, 2 - \$25 Lowe's gift cards; Ryan Menken (WTA board member)/Jasperson Sod, 2 stocking hats, 6 pack Leinenkugels Toasted Bock, 6 pack Spotted Cow, cooler bag; Scott Verdun/NuFarm, pullover, 6 spray pitcher calibration kits, pen, ball markers, belt clip, 2 notebooks.

As you can see by all the people and companies, this was a great Fall Golf Classic. Thanks to Monroe and Cheryl Miller for keeping Audra and the registration desk organized. Most of all, thank you to all those who took the time out of their busy schedules to play golf and have some fun for a good cause. The 2023 WTA Fall Golf Classic will be hosted by Jim Van Herwynen at South Hills Golf and CC in Fond du Lac. We will announce the date as soon as we get one selected. I am looking forward to another great event in 2023. 

Giving Back to the Industry

By Lori Ward Bocher

Congratulations to Danny Quast on his retirement from DHD Turf and Tree Products. Please enjoy this article from The Grass Roots March/April 2004 issue.

Seems like Danny Quast has a long history of giving back to the golf/turfgrass industry. So much so that the GCSAA honored him with its Distinguished Service Award at its annual conference in San Diego on February 12. And, fortunately, he's not planning to stop giving back now that he's won his award. He has more plans for the future.

Born and raised in Ohio, Danny's career path has twice brought him to Wisconsin. From 1973 to 1989 he was superintendent at the Milwaukee Country Club. He left Wisconsin from 1989 to 2001 to serve as superintendent of the three 18-hole courses at Medinah Country Club in Illinois, but Wisconsin still claimed him as one of its own. Then in 2001 Danny returned to Wisconsin to jump full-time into his business, DHD Tree Products.

Danny learned that he would receive the GCSAA Distinguished Service Award back in December when the president of the organization called him. "I could hardly believe it when I first heard it," he recalls. "It set me back. I just couldn't believe that I was the one who was chosen."

The GCSAA listed several reasons why Danny was chosen for the award, and he elaborated on some of those points in a recent interview.

1. Served as superintendent at two highly regarded golf courses - Milwaukee Country Club and Medinah Country Club. And at both courses, Danny left his mark by making vast improvements. "The highlight at Milwaukee was updating the course to today's golf game," he points out. "I enjoyed the opportunity to work with Robert Trent Jones over most of those 15 years. We made a few changes each year."

He also enjoyed the challenge of improving the courses at Medinah. "When I first went there to interview, we toured the courses and I could see that there was a great opportunity to make improvements," he recalls. "Two of the three courses had been neglected. And nobody seemed to know how to make them better. So that was one of my main goals when I went there, and I feel I left a nice mark there."

He also started a tree program while at Medinah by hiring an arborist, Randy Miller, and giving him the equipment and people that he needed to get the job done. "The trees were a mess when I started there," he points out. "Over the years, I felt that we created the best golf course tree program in the country."



Danny admits that he likes the challenge of improving courses. "I see it as an opportunity to make a noticeable difference," he says. "And I believe we did. I had some great people working for me. I couldn't have done it by myself."

The two courses were worlds apart, according to Danny. "The Milwaukee Country Club is the most exclusive, private golf course in Wisconsin. It has a small membership and the amount of people who play each day is limited," he says. "Medinah is a private course, too, but it relies a lot on guest fees. And there are 650 family memberships. That translates to a lot of traffic on the course."

The two courses are also managed differently, according to Danny, partly because Milwaukee has one 18-hole course and Medinah has three. "At Milwaukee, we never had a green committee meeting - we just met with the green chairman," he says. "At Medinah, we had many, many committee meetings. When I went to Medinah I realized that I had to change the way I did things. It had to be a well-run organization to be successful because there was so much more to manage."

2. Has been a mentor to numerous individuals in the turfgrass industry. "The most gratifying part of my job at both Milwaukee and Medinah was being able to work with superintendents who interned under my management and now have their own courses to manage," Danny says. "I am very proud of their successes and I consider them my extended family - 18 fine gentlemen in all." Danny is able to name all of them and tell where they went after working for him at either Milwaukee or Medinah. "I always hired students out of college and the first year would be for placement and training. Then they'd be promoted to superintendent on one of the three courses with the idea that they would stay three or four years and then move on to their own positions," he explains. "Of course, Medinah was a great venue for doing that because it had three golf courses." While many superintendents want to keep good help, Danny had his reasons for setting up this system. "When you present somebody with a future, they are motivated to do a good job," he says. "The student employees behind the three superintendents knew that they would move up to superintendent and then eventually go out on their own. And I was motivated to help them find a good job when they left me because that made the good students eager to come and work for me. It really was a beneficial cycle for all."

3. Successfully hosted the U.S. Open in 1990 and the PGA Championship in 1999. "I went to Medinah in 1989 and we hosted the U.S. Open in 1990," Danny recalls. "I went there knowing I'd have to get the course ready for the Open. But I really went there for the long term, not just for the Open."

When the PGA Championship came in August of 1990, it was a hot summer. "Because of the weather and some other issues that the club wouldn't face, we had our problems. But, all in all, we got through it quite well. I look at it as a great experience and felt it was a success."

4. Founded The Grass Roots, the official publication of the WGCSA. "When I came to Milwaukee from Ohio in 1973, there wasn't any association newsletter. And the association was also short of funds," Danny points out. "I suggested that a newsletter would not only be a good way to communicate, but also a good way to raise some funds through advertising."

He also volunteered to start up *The Grass Roots*. "It was nothing elaborate like it is today," he says. "Monroe's passion is writing and he got 20 straight awards at the national level and deserved them. I'm not even trying to compare what I did to what he's doing now. But it was a way to get something started for the association and a way to get a little income."

Danny recalls how the paper was put together in those early years. "I'd call Wayne Otto and Bill Douglas and buy some beer," he explains. "We'd come to the office to fold the newsletter and stuff it into envelopes and mail it. As the organization grew, it got to be more and more work. After doing it for five or six years, it was nice to be able to hand it over to Monroe."

5. Advanced the Turfgrass Information File at Michigan State University. "When O.J. Noer passed away, he left his collection of turf literature to Michigan State University," Danny explains. "They started a turfgrass library there. And Dr. James Beard, one of the foremost authorities in the country, categorized the information and put it into data form so it could be accessed by computer. That was called the Turfgrass Information File."

"The USGA had funded this project for many years, but they were getting frustrated because nobody was using it and they were going to give it up," Danny continues, adding that this was back in the era before the Internet was commonly used. "I thought this was crazy, so I volunteered to do anything to help save the TGIF." With others, they raised enough money to keep the project going over the years. Now the information is easily accessed via the Internet.

"It's especially useful for graduate students who are working on research projects," Danny points out. "They can go to the TGIF and look up previous work. The TGIF keeps people from doing duplicate research." 🌱



Danny Quast received the GCSAA Distinguished Service Award from John Maddern.



FRS Design Group

Dan Feick, PLA

P 608-588-7888
C 608-963-2262
frsdesign.com

**Irrigation Consultants
Irrigation Designers**

167 S. Lexington Street . PO Box 748 . Spring Green, WI 53588



The Five Pillars of Making a Team Work

By Ethan Bublitz, Student, UW-Madison Turfgrass Apprenticeship Program

This article is eligible for the Monroe Miller Literary Scholarship

Humility, Passion, Unity, Servanthood, and Thankfulness were the five focal points of the college basketball program I was fortunate to have been a part of for five years. As I have transitioned into the workforce, I have taken those five words and sculpted my life around them. Five simple words, but words that are pillars in what makes collegiate programs, businesses, and yes, even golf courses successful. I was introduced to these five pillars, familiarized myself with what each one meant, and learned how to parallel them to my academics, basketball career, and everyday life.

I was to be expected to practice these five pillars every day throughout my years at the University of Wisconsin – Stevens Point (UWSP). In the context of how these five pillars came to be, they rooted themselves onto the Steven Points campus in 1976 when Dick Bennett took over the program as head coach. Dick is notably more recognized for his time as the coach of the Wisconsin Badgers when in 2000, he led the #8 seed Badgers to a Final Four. Nineteen years later, his son, Tony, did the same thing. Only, Tony's success was found at the University of Virginia. In 2019, I had the privilege to tour the basketball facility at the University of Virginia. Just as found at UWSP, a poster hung in the men's basketball locker room,

listing the five pillars. The relevance of this comparison is meant to shed light on the fact that two successful basketball programs crediting their achievement based on these five words at hand is no mere coincidence. I believe these five words hold merit to successful outcomes.

Sure, the five pillars undoubtedly sound inspirational and look well on a locker room poster. However, the underpinning for what they provided for my college experience and career was profound. Profound not only because they had set the tone of what was to be expected out of me as a student-athlete, but because they were significant factors that are now being recognized and staying with me post-college. Not only for my future career as an aspiring golf course superintendent but as for what sort of person and boss I strive to be. In this particular lens of understanding, the five focused words are explained and described in how I currently apply them to golf course management.

HUMILITY

Humility is not something that most people would initially think of when working in the golf course industry. Most people might not have humility in this business due to them wanting to be the face of success at their course. I have

learned first-hand from my boss that humility might be the most important, unspoken characteristic a manager can possess. Garrett Luck, Superintendent at Hidden Glen Golf Club, is always the first one to receive a compliment on the beauty of the course. Instead of acting like he is the sole reason, Garrett will quickly credit his staff as the reason for the course being in exceptional shape. Being able to give your employees high praise for doing an excellent job or giving significant effort goes a long way with employees in making them feel appreciated. Without the employees, the course would not be able to sustain its continuous beauty.

PASSION

Passion is one of the pillars that I see the most. In attending events through the WGCSA, it is quite clear that superintendents have a great passion for their jobs. As an assistant, coming into work with a great attitude and being excited about caring for the course is a big focus of mine. If employees can see you genuinely caring for the course and truly showing up every day, it can be a contagious phenomenon and a trend that allows the opportunity for the employees to have a tangible passion for their jobs, too.

UNITY

Unity is the most important pillar of all. Having a staff that is comfortable with everyone will give you the best results. The staff at our course come from diverse types of backgrounds. So, an effective way to unite everyone is to partake in team bonding activities. As you commonly know, achieving unity and creating morale in the workplace can be conducted in many ways. Activities that I have seen and been a part of include cookouts, bag games, and even soccer matches. Another example I have implemented into my managing approach is having employees work in groups. I quickly find out who can work together and get a job done correctly while enjoying each other's company and those who cannot work together. This method stems back to my days of being on the summer crew. I enjoyed days where I was working with someone new. It would break up the days and gave me someone to relate to while doing a job. Telling staff that they matter is one thing, but showing them that they are far more than just means to getting the course looking nice is everything.

SERVANTHOOD

Servanthood is much like humility in the terms of being selfless but requires more physical effort. It is easy to get into the habit of just telling others what to do all the time. As management, there are times you need to roll up your sleeves and do the dirty work yourself. Frequently I find myself jumping in a bunker to help rake or push sand to the correct location. In a perfect world I wouldn't have to do these things, but sometimes this little action shows the employees that you are paying attention to their hard work and willing to do the same jobs they are completing. Not due to staff being incompetent, but under the premise of earning and sustaining your title. As I have learned in the past, when you see your boss doing the

dirty work, you simply gain respect for them. I want my staff to see that I have earned my place in management, not only due to credentials but through servanthood.

THANKFULNESS

Thankfulness is a simple characteristic that will create a better relationship with your staff. There are countless ways to show thankfulness toward your staff. It can range from being a simple "thank you" or being a reward of some sort. A common token of gratitude at our course is shown by providing staff doughnuts to those who work on weekends. Although providing pastries is not an extravagant way to express our thankfulness for the many hours of laborious work the staff performs, it allows for the management to express a simple thank you to those who come in. Although it is not a major incentive, it helps staff know they are appreciated for those early Saturdays and Sundays at the course.

Admittedly, looking back at my time at UWSP, I was ignorant and objectively saw the five words as only that, just words. Fortunately, with time and found maturity, I have realized that these five words do, in fact, have depth to them. I have realized the words are not just hollow letters put together on a poster or seen as some cliché idea preached by coaches. The five words serve a greater purpose than just inspiring young players to fulfill their roles on a team. *Humility, Passion, Unity, Servanthood, and Thankfulness* parallel to achieving greatness and setting the foundation for growth in anything you find yourself involved in. In my case, it turned out to be golf course management. Without these words, I believe that the transition to an assistant superintendent would have been much more difficult. Having such a strong foundation from these "five pillars" allowed for a holistic approach to management. Coach Bennett planted the words onto a college campus, and my intention is to do the same in my work. These five words not only encourage and aid in accomplishing goals from season to season, but also deter complacency. They hold me accountable and create a sense of continuous want for improvement in not only being an assistant superintendent, but in the work environment, the wellness of staff, and what experiences guests have when they step foot onto our course. 🌱



CATCHING UP WITH BILL STEIN

By: Garrett Luck, Superintendent, Hidden Glen Golf Club



Minocqua Country Club

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

I am originally from North Dakota. I grew up working on our farm and it was also where I got my first job on a golf course. The work came pretty naturally and was enjoyable and that took me down the golf course maintenance road which ultimately led me to Minocqua CC where I accepted the Superintendent position in 2008.

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

It was a difficult decision to leave, but it became obvious to me the more time that I considered it. I had been asked to return home to help my family with their agricultural seed business. It was also a family and lifestyle change that we were looking forward to. My wife, Michelle, really likes a rural setting and we were expecting a second child. The flexibility for me to be more involved with our growing family was

necessary. Aside from our existing seed business, we have now built a fertilizer plant, are providing crop protection products, and have put the people in place to make it all run. I also get to help on the farm, too, you could say recreationally, when there is a need for extra help. I enjoy this a lot even after swearing off farming when I was young.

What is your favorite thing about your current job?:

What I really enjoy most is having something for yourself. I always had pride and sense of accomplishment in golf, but you never truly owned it. You were subject to the pressure of others which, at times, led you away from what you truly believed could be the best.

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

We lived a much more active lifestyle when we were in Wisconsin. We just took it all in from silent sports, hunting, music events, food events and the places that being golf



Stein Seed Farms

Bill and his family

course superintendent took you. You name it, we tried to do it all. There was always something to do and it was also nearby. In North Dakota we have some of these same opportunities, but plan on traveling a LONG distance to take part.

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?

We have not returned since we left. Without a doubt, the top of the list is to tour the course. MCC still has a very special place in my eyes. I'd look back on it so fondly as to say "those were the good old days". My assistant, Sterling Solberg, is the Superintendent and I'm pretty sure I could get a tour around. I'm very happy for him. I hope he's enjoying it as much as I did, I miss it every day. There's an "old timer" that lives on the course and I'd go visit with him about dogs and bird hunting, catch up with Peter Nomm at his new distillery location that he built in Minocqua, and also see if some of the old maintenance crew was anywhere to be found.

If a Wisconsinite has to travel to North Dakota, what is the one thing they must do or see?

Tough question... Honestly my very favorite thing about ND was growing up where I did, how I did. We learned how to work hard and it seems like that's been a foundation for so many other things. I have some of the best life-long friends and experiences you could ask for and that all came from growing up here. This is why we were excited to move back and try to provide some level of the same for our three children. If you had to come to ND to experience one thing-come in the Fall during harvest. Jump on a combine or in a truck with a complete stranger, watch and ask questions. I bet you'd both have a great time and probably connect with

another great human. Harvest in ND is one of the greatest things in the state and probably the world and to see it and visit with the people is really something special. The passion just can't be matched. ✓

Frost Inc
Spray Technology Products

The best combination for your next sprayer.

KUBOTA
RTV-X1140
+ NINJA GPS

GPS ACCURACY.
DUAL NOZZLE PRODUCTIVITY.
KUBOTA RELIABILITY.
SUSPENSION COMFORT.

Learn about GPS spray control equipment on our website!
WWW.FROSTSERV.COM

BADGER STATE TURF CLIPPINGS

WELCOME TO OUR NEWEST MEMBERS:

- **Kelly Reilly** - Westridge Golf Course Superintendent
- **Brent Graybill** - Milwaukee CC Assistant Superintendent
- **Shania Lancour** - Student at Madison College pursuing an Equipment Manager track
- **Ryan Fritsch** - Bullseye CC Superintendent
- **Nick Adell** - Devils Head Resort Superintendent
- **Matthew Uselman** - Student in the UW TAP program
- **Andrew White** - Blue Mound Golf and Country Club Equipment Manager

INDUSTRY NEWS:

- **Brian Placzkowski** has accepted the Reinders Golf Territory Manager position for Southeastern Wisconsin. Brian has spent the last 8 years as their Golf Territory Manager in the Southern Chicago market. Brian holds a Bachelor of Science degree from Southern Illinois University Carbondale, where he majored in Plant and Soil Science and specialized in Turf Management. Prior to joining Reinders, he spent 4 years at Royal Melbourne as the assistant golf course superintendent. He served as Infantry Team Leader in the U.S. Army from 2000-2004 which included 6 months in Afghanistan under the 82nd Airborne Division. Brian, along with his wife Emma and son Franklin reside in Johnsburg, Illinois which makes this an ideal territory for Brian to cover. Brian's hobbies include golfing, hunting, and motorcycles. If you would like to reach out to Brian, his cell number is (815) 347-3888 and his email address is bplaczkowski@reinders.com.

DON'T SPRAY BLIND!

Become a Turfgrass Diagnostic Lab member today and know what's affecting your turf...BEFORE you spray.



THE UNIVERSITY
of
WISCONSIN
MADISON

tdl.wisc.edu/contract-membership

608-845-2535

INDUSTRY NEWS CONTINUED:

- **John Rautmann**, former assistant superintendent at Brown Deer Golf Course, is now the superintendent at Fire Ridge Golf Club in Grafton. Hope that the new role is going well for you, John.
- Congratulations to **Josh LePine** (Maple Bluff CC) and **Chris Zugel** (Kohler courses) for recertifying their CGCS status.
- **Jens Arneson**, formerly the assistant superintendent at Maple Bluff CC, is the new superintendent at Hawks Landing Golf Club. **Neil Radatz**, CGCS, will is now the Director of Grounds for Hawks Landing and Pioneer Pointe Golf Course. Congratulations to both Neil and Jens!
- **Mike Bremmer** is now a Territory Manager for **Midwest Turf Products**. Good luck with the new position, Mike!

- **Nick Schroeder** (The Legend at Bristlecone Pines) and **Christopher Zemlicka** (Wisconsin Club) have both attained their Equipment Manager Certificate Program Level 2 status. Well done, gentlemen, and go get that CTEM designation now!

If you have any news to share, please let Jake know at grassroots@wgcsa.com

IT'S ALL ABOUT PLAYABILITY...



At Midwest Turf Products, we don't just help people grow grass, but offer innovative products to help you exceed your **PLAYABILITY** goals



midwestturf products

Nick Baker 630 ♦ 621 ♦ 5826
Dave Radaj, ccgs 847 ♦ 366 ♦ 5802

turfventures.com

Our own line of wetting agents:





**SUPPORT OUR
ADVERTISERS.
THEY SUPPORT US.**

FULL PAGE AD Page

Advanced Turf Solutions	BC
Clesens Pro Turf	31
Horst Distributing, Inc.	21
National Golf Graphics	IFC
Northern Green	37
Rainbird	15
Reinders	7, IFC
Revels	17

HALF PAGE AD Page

BASF	54
Lohman Golf Creations	36
Midwest Turf Products	53
Pendelton Turf Supply	29
Redox Aquatrols	11
Syngenta	13, 20
TDL	52
Waupaca Sand	13

THIRD PAGE AD Page

Norby Golf Course Design	27
--------------------------	----

QUARTER PAGE AD Page

Frost	51
Pumpstation Professionals	6
TGIF	5

EIGHTH PAGE AD Page

Bayer	10
FRS Design Group	47
Green Jacket	35
Helena	41
Leibold Irrigation, Inc.	23



BASF
We create chemistry

TRY EASIER.

Our turf management solutions bring peace of mind to the grind of course management. We make controlling disease a breeze with the #1 DMI in golf that powers **Maxtima**[®] fungicide and **Navicon**[®] **Intrinsic**[®] brand fungicide. Spray on any turf, in any temperature, anywhere on your grounds. It's one less thing to worry about during your high-demand season.

Ready to **#TryEasier**? Contact your BASF representative **Andy Morris** at andy.morris@basf.com or **309-264-9942**, or visit betterturf.basf.us to learn more.

Maxtima[®]
Fungicide

Navicon[®]
Intrinsic[®] Brand Fungicide

Always read and follow label directions. Intrinsic, Maxtima, and Navicon are registered trademarks of BASF. © 2022 BASF Corporation. All rights reserved.



**GOLF COURSE SIGNS | TEE MARKERS | YARDAGE MARKERS
SPRINKLER HEAD YARDAGE CAPS | FLAGS | ACCESSORIES**

www.NationalGolfGraphics.com
Call Peter Meyer 877-710-9363

ADVANCED TURF SOLUTIONS®

We are your one stop shop for
fertilizer, chemical, and seed
solutions for your golf course.

Ask your sales rep about our current offerings!



Todd Fregien

tfregien@advancedturf.com
(414) 949-1089
@ToddFregien_ATS



Jeff Leuzinger

jleuzinger@advancedturf.com
(815) 213-2858
@Tallturfjeff



Rusty Stachlewitz

rstachlewitz@advancedturf.com
(630) 779-0761
@RustyStack



Mike Werth

mwerth@advancedturf.com
(608) 214-7011
@werthashot

Madison, WI Location

2556 Advance Road, Unit C
Madison, WI 53718
(608) 709-1331

advancedturf.com

   @AdvancedTurf

ADVANCED
TURF SOLUTIONS



Your golf
course will
never look
better.