

# Hole Notes

**The Official Publication of the MGCSA**

**Vol. 56, #4 May 2021**



**Featured in this issue:**

**Leaf spots, PGR's and pink spots**



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### Editor

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COM





# Presidential Perspective

by Scott Thayer, Legends Club

What a great spring we have had in Minnesota this year so far. Yes, we have had some roller coaster temperatures and it is a bit dry, but overall a great spring. Did I say a bit dry? Yes, very dry throughout the state and I have been watering like it is mid-June rather than early May. This is the first year, in as long as I can remember, I had to turn our well on to feed my irrigation pond this early in the golf season. Hoping for some rain, but with the ground so hard we need an all-day soaker, but I am sure it will probably be hard fast thunderstorm. We are all resilient with how the weather affects us and know we will do whatever it takes to keep the golf course the best it can be.

I have heard from those who attended The “Carnival”, that it was a huge success on a beautiful

day. Thank you to all the vendors and members that were able to visit TPC Twin Cities and enjoy the new event. Unfortunately, I couldn’t attend because I had 4 cases of Covid that went through my maintenance staff, as well as my youngest son’s hockey team getting shut down from multiple cases. I didn’t want anyone to get exposed if I was carrying this stupid virus that has caused so much havoc in all of our lives. I am fully vaccinated which was not a fun experience to say the least! I received the Moderna vaccine and on my second shot, I got really sick, aches, pains chills and a headache for about 2 days. Maybe I had the virus, maybe I didn’t, but being that sick really sucked and I am glad that is over.

Lots going on with the MGCSA over the month of May with the Carnival and the upcoming “Talk about” at Midland Hills. I want to thank Mike Manthey in advance for



hosting and showing members of the MGCSA the restoration project at this spectacular club. I know that Midland Hills and Mike's staff have put a lot into this project and are very proud of how they have restored the club to its old form with a modern feel to it.

The Don White Match Play event has started up again this year: another great event to get to see some of our members throughout the summer! It is a fantastic time to be a part of the MGCSA. I hope everyone has a great Memorial day and rest of their Spring.

*A thought about organizations and their goals:*

To accomplish great things,  
we must not only act, but  
also dream; not only plan,  
but also believe.

-Anatole France

## ***The “Turfgrass Talk-about” concept***

***Cool project? Unique design? Under construction or reconstruction? Class Member or Affiliate, if you know of something unique or interesting that our gang , “has got to see”, please bring it to the MGCSA Arrangements Committee or Jack’s attention. Sharing professional insight is critical to progressing our industry. The “talk-about” is easy to accommodate, requires limited logistical planning and can be a great way to network amongst our peers.***

***Rain or shine, everyone likes to hike on a golf course.***

***Metro or out state, public or private, nine or eighteen hole, let’s hook up for more “Turfgrass Talk-about”***



**Thank you Midland Hills Country Club Turfgrass Talk-about coffee break sponsors. This event was a HUGE success. Read more about it in the June Hole Notes.**



# ***The Turfgrass Diagnostic Lab: Not just for Sconnies!***

**By Kurt Hockemeyer, Turfgrass Diagnostic Lab Manager  
Department of Plant Pathology  
University of Wisconsin-Madison**

The Turfgrass Diagnostic Lab at the University of Wisconsin-Madison exists to serve the needs of turfgrass managers in need of some diagnostic help. I receive samples from all over the Midwest mostly, but also from all over the country. Figure 1 is a map of where in the US samples were submitted from in 2020. Larger circles mean more samples came from that area. Minnesota has always made up a decent chunk of my sample submissions (10% in 2017, 13% in 2018, and 15% in 2019 and 2020). Most of the time the samples sent into the lab are properly collected from the problem areas, the submission forms are properly filled out with sufficient information, and photos of the field symptoms accompany the sample. All these

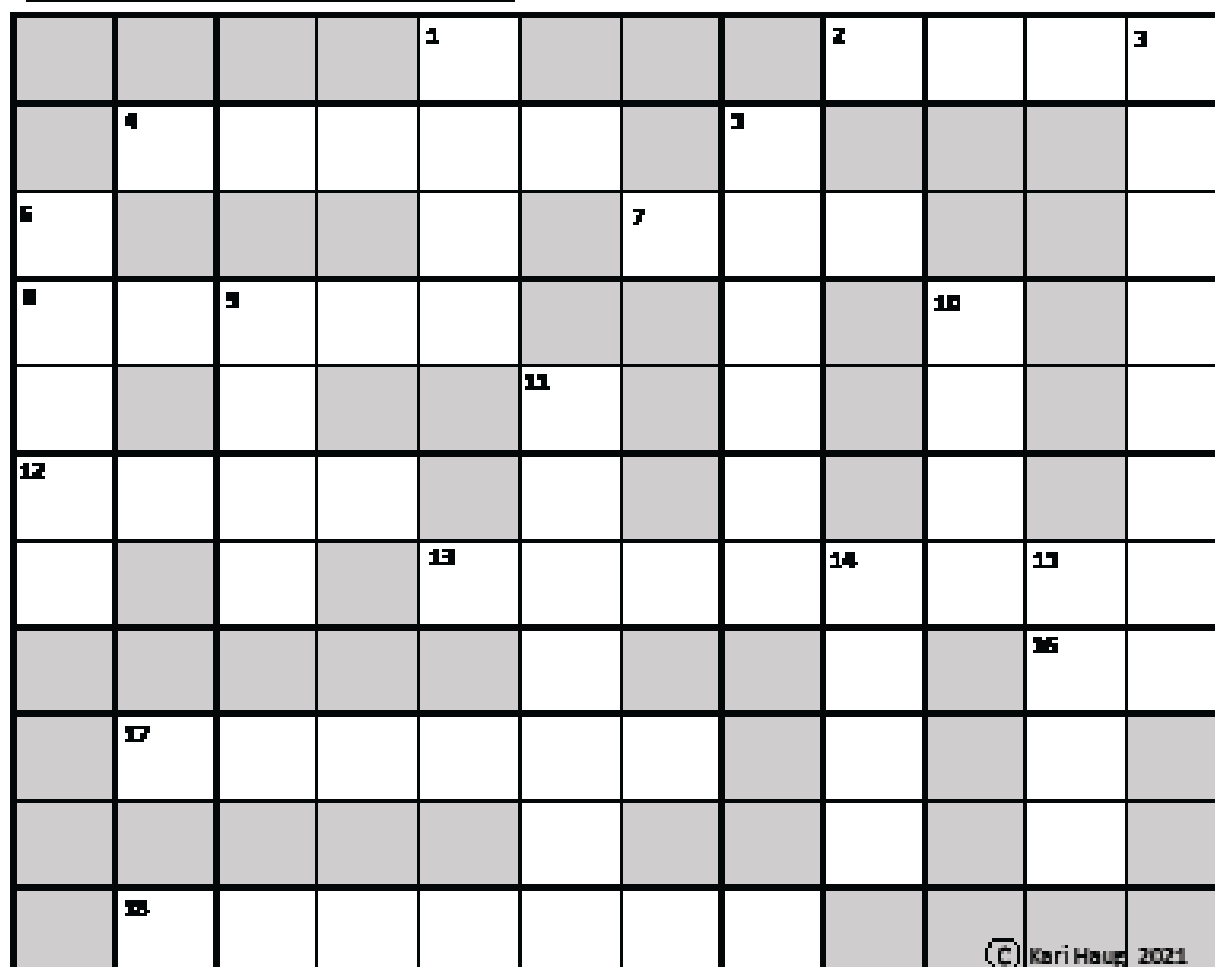


Figure 1. A graphical representation of where in the US each of the TDL samples came from in 2020. Larger circles mean more samples came from that area.





## Kari's Quick Golf Crossword The 2021 Masters



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### ACROSS

2. Spaniard that shot final round of 66
4. A Masters favorite jacket color
7. The number of times Jack Nicklaus won The Masters
8. Masters month (usually)
12. The famous corner
13. 2021 Augusta National Women's Amateur Champion
16. Zach Johnson's home state abbrev.
17. Winner's cabin
18. Masters host course

### DOWN

1. Name of the famous par 3: Golden \_\_\_\_\_
3. Name of the fifth hole at Augusta
5. First name of the 2021 Masters Champion
6. 2021 Champion's home country
9. Famed Hole 12 hazard: \_\_\_\_\_ Creek
10. Tournament at Augusta immediately preceding The Masters abbrev.
11. Flowering shrubs commonly associated with The Masters
14. Eisenhower that was felled
15. Carolina Cherry is the name given to Hole \_\_\_\_\_

things combined give your diagnostician all of the relevant information that they need to efficiently and accurately diagnose the issue affecting the turf. But oftentimes, one or more of these things is lacking or missing. This causes time to be lost when the diagnostician is trying to collect the missing information that can help them to diagnose a sample. This article is a kindly reminder of the things that you can do as a submitter to help your friendly, neighborhood diagnostician.

***1. Collect samples from an area where the turf is actively being affected.***

By pulling samples from the transition area between healthy and affected turf, you give your diagnostician the best chance to find what's wrong (Figure 2). In terms of fungal diseases, this is the area where the fungus is actively growing and infecting. If a sample were to be pulled from an area of completely dead grass, the only thing that would be found on the turf would be saprophytes, organisms that

feed on already dead plant material. But by pulling from the transition zone, the pathogen can often be seen growing and moving on the turf from an already infected area to a healthy area. Same goes for insect problems. By pulling from the transition area, this is usually where the insects are actively feeding and causing problems, and therefore they can be found and diagnosed. Also, it's usually best to pull the sample before a fungicide or insecticide has been sprayed. By delaying the spray for only 5 min-



*Figure 2. A sample that was properly pulled from the transition area between healthy and affected turf plants.*



utes to pull a sample, you can avoid the risk of your pesticide application completely inhibiting a pathogen or insect from showing up in the lab.

**2. *Fill out the submission form with as much information as possible.***

The submission forms help to keep track of who has submitted a sample, but they also ask many relevant questions that can help a diagnostician. Sometimes these questions are ignored or only briefly answered because they don't seem relevant to the submitter. But all those questions are on that form for a reason. Describing the symptoms in detail, when they appeared, getting worse or better, etc. is often the section that gets ignored. If all this information is present right at the beginning of receiving a sample, this can help the speed of the diagnosis go much faster.

## **DON'T SPRAY BLIND!**

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### **3. *Send photos of the problem***

Photos of the field symptoms are extremely helpful. By giving the diagnostician some idea of what the problem looks like, they may be able to narrow down the list of possible causes and this can sometimes speed up the diagnosis. If photos are not possible, then a very detailed description on the submission form would be helpful.

The Turfgrass Diagnostic Lab website ([tdl.wisc.edu](http://tdl.wisc.edu)) contains a lot of great information about submitting samples. It even allows you to pay by credit card right on our website. By submitting samples early in the week, you can insure that you will get a response that same week. This also avoids the problem of samples sitting in shipping over a weekend where they can become completely degraded and it becomes very hard to diagnose anything at that point. A cup cutter size sample that includes 2-3 inches of soil and roots is usually sufficient. Soil probe samples are too small. Once the proper sample is pulled, you can wrap it in foil to allow the sample to breathe while in ship-

ping. Fill your shipping box with old newspaper or bubble wrap so the sample does not shift during transit. Ship however you want to the following address:

Turfgrass Diagnostic Lab  
2502 S Pleasant View Rd  
Verona, WI 53593

Include a submission form along with your sample, putting the form in a plastic bag to avoid the paper from getting dirty or wet. Or you can fill out the submission form directly on our website and submit electronically. This electronic form goes directly to my email and gives me a heads up that a sample is coming from you. Once I receive a sample, I may contact you for more information. But I will always try to contact you within the first 24 hours of receiving your sample. Either with the final diagnosis, or with my preliminary diagnosis.

Costs for professional sample submissions start at \$100 for just a diagnosis. For a full written report with photos (Figure 3) and recommendations, the cost is \$150. We also have a special contract mem-





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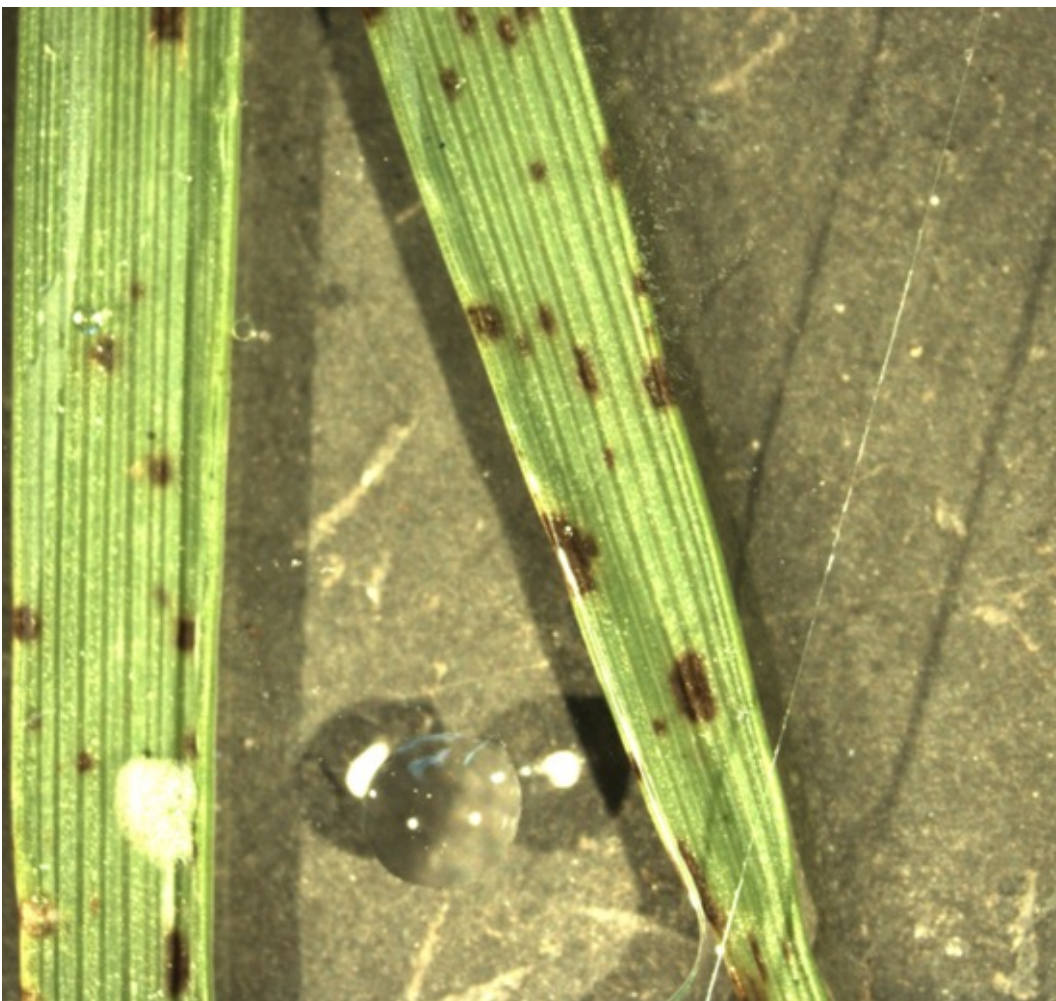




ber status. You can buy a certain number of diagnoses at a discounted rate at the beginning of the season, and throughout the season you will receive our bi-weekly TDL Newsletter detailing everything we are seeing the lab, forecasting certain issues based on upcoming weather patterns, and our thoughts on the growing season. We sell contracts starting at \$100, at \$100 increments, all the way up to \$1000. Each \$100 increment entitles you to one full written report with photos and recommendations, which is discounted from the nor-

mal \$150. A \$1000 level contract gives you unlimited sample submissions throughout the summer. If you are interested in becoming a contract member, please contact me. Also, if you have any other questions, or just want to chat, feel free to do so. Thanks, and good luck this growing season.

Kurt Hockemeyer  
Turfgrass Diagnostic Lab Manager  
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tdl.wisc.edu



*Figure 3. An example of a microscope picture in a full report. These photos are often helpful to show members or crew members interested in learning more about turfgrass management.*



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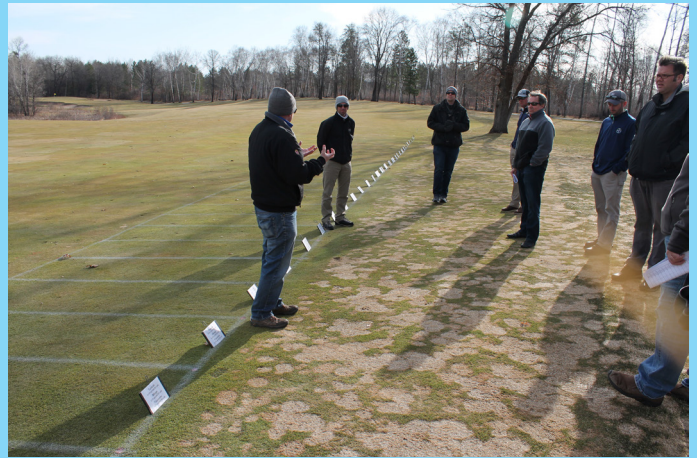


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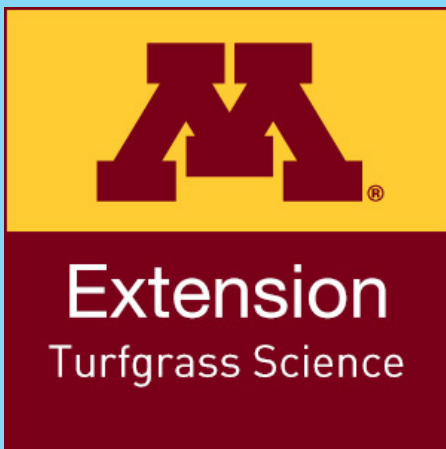


# ***2021 Snow Mold Evaluation Trials at Cragun's Legacy Course***

***Thanks Host Superintendent Matt McKinnon***







+



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***Equals a great partnership.  
Thank you UMN and UW Turfgrass  
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# What is Your “WHY” Question?

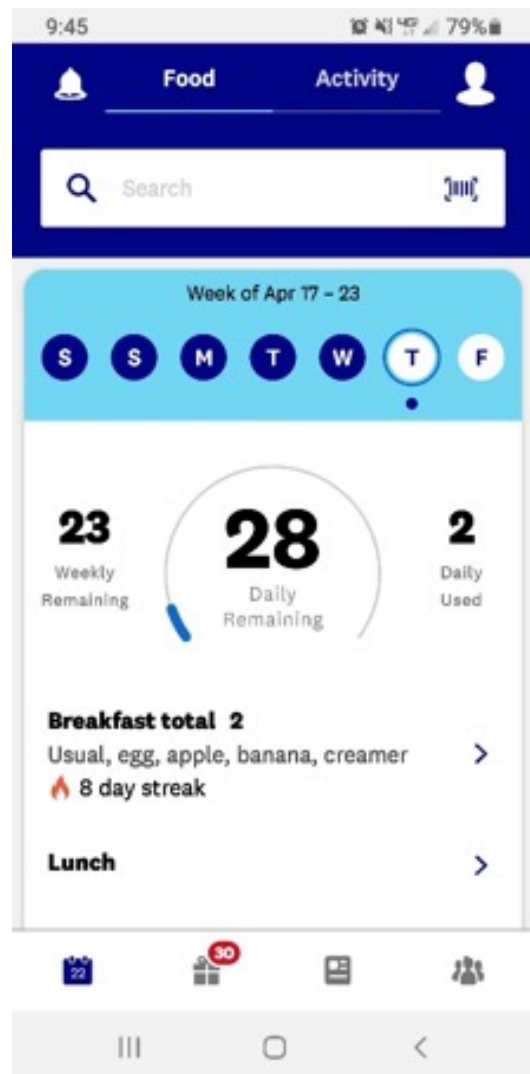
*By Brian Brown, Superintendant at Chisago Lakes Golf Club and Graduate Student at Hazeldon Betty Ford School of Addiction Studies*

## *What is Your “Why” Question?*

Last Monday night I was asked this question during a Zoom meeting that I was attending. The zoom meeting was one that I have attended for the past couple of months. You ask, what zoom meeting would that be? It is called the Weight Watcher-Bro’s group. This is an “unofficial” Weight Watchers group, comprised of forty guys, that meet to talk about their lives, in particular their weight, health and food. I have attended a lot of meetings as the only guy with many women at other Weight Watcher groups. It has been comforting to find a good group of men that belong to a women’s majority program.

Our group is led by Rich, a retired Army Veteran from South Carolina. This past week when the “Why-WW” question was asked, it hit me surprisingly hard. I have been “lifetime” (which means

having reached goal weight and maintain it for 6-weeks) for a year yet have been struggling on the maintenance side. I have stayed within 5 pounds of my goal weight but have been challenged to keep tracking my eating and staying on “program.” Like most things in life,



*My cool Weight Watcher app*





### ***My heaviest weight, over 210 pounds at the age of 35***

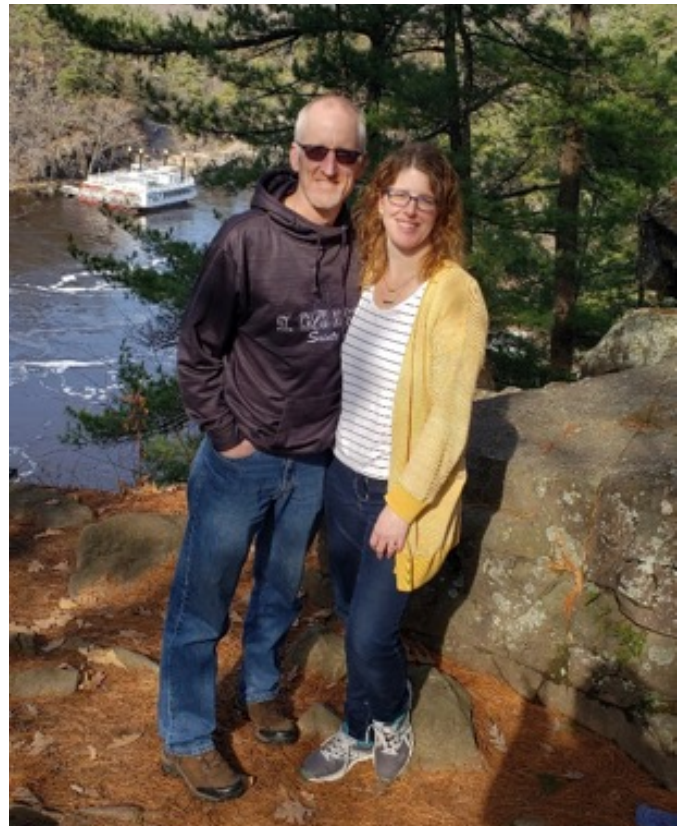
when a person has issues in one area of their life, there are probably other areas that have problems also.

My current journey difficulties started a few years ago. I am now 51-years old and will start my story from 4 years ago. My mom died in 2017 from COPD. She was a great mom, but she struggled throughout life. For her entire adult life, she lived with co-occurring disorders, both bi-polar 1 and alcohol use disorders. She became somewhat of a recluse in her later years, living on assistance in a low-cost apartment. Outside of trips to Walmart and

Doctor's appointments, she rarely left her apartment. A year later my father passed from major neurocognitive disorder-Lewy Body Dementia (a form of Alzheimer's). Coming up on 50 I knew that I did not want to finish my days on the path of my parents. Thus, answering my Why, "To finish the race well".

So, what does it mean to finish the race well for me? My first "Why" was health. I think most people who know me would never say that I was heavy. At 6-foot tall, with my heaviest weight at 210 pounds, I think that I hid it well.

I lost some weight shortly after my parents passing, but could not keep it off. On January 1, 2019, I made a commitment to reduce my weight from 190 pounds. On January 1, 2020, the scale still said 190 pounds. I signed up for Weight Watchers and in about 3-months I reached my goal weight of 165, dropping to 160 pounds. I have struggled as of recently but have maintained within 5-pounds of my goal weight. Weight Watchers is based on tracking points. This has become much easier with the mobile phone app that is utilized. The program utilizes scientifically researched data in the field of weight reduction. The points that are allocated are based on variables such as: sex, height, weight, activeness, and goal weight. The participant can choose three different programs that show up on the app as green, blue, or purple. In each program, there are a list of free point foods that do not count against the daily points. I am on the middle blue plan that allows me over 200 free point foods and 30 daily points. While I tried not to use them, exercise give points that can be used for more food. The



***My wife Penny and me on a hike.***

free point foods include items such as: fruits, vegetables, eggs, chicken breast and fish. Additional weekly points are allocated that can be used on any day. The key to Weight Watchers is to track everything that goes into your mouth and not be hungry. You can eat anything, but foods high in sugar, carbohydrates, starches and calories will use up a lot of the allocated points. Along with points tracking, the app is loaded with a social media page, recipes, blogs, etc.

“Why’s” should also include tangible goals. My tangible goal of



knowing that my “Why-health” is in a good spot is: one, run 4-miles without walking, two, 40 push-ups without stopping and three, 10 pull-ups. As of this week, I have reached these goals. The 10-pull ups were the last goal to be reached, but I hit it yesterday, though the last one was ugly. As someone who is competitive, maintenance is much harder for me than losing weight. Without in-person accountability meetings, this past year has been difficult. That is why my Monday night group session with the WW-bros has been so beneficial for me.

Personal health is great for oneself, but I asked myself, “is that all that I am living for-myself?” I saw both my mom and dad live for themselves, but what did that do for them? Do not get me wrong, they were great people, but they were consumers and not contributors. I have a fabulous life with a fantastic wife of 25-years and three great children. I have a wonderful job as a golf course superintendent that I have been at for the past 18-years, get paid well, and enjoy the work and people. But, is that enough and does that answer the question, “Why”?

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# ***Leaf spot, PGRs, and pink spots***

***Turfgrass Pathology Reflections by Paul Koch, PhD  
Department of Plant Pathology, UW Madison***

Different seasons bring different management programs, and I'm guessing many of us can guess the season based purely on the application of certain products. For example, if a police detective came to me and said the only thing he knew about the murder of a superintendent is that he was spraying Instrata at the time the deed occurred, I could pretty confidently say the murder occurred during late fall or early winter in preparation for snow mold (this time range would be wholly unhelpful in an actual investigation). Conversely, if some-

one just said Subdue MAXX it's likely they're applying that in July or August. While plant growth regulators (PGRs) are applied throughout the entire season, if someone said 'Proxy/Primo' that person is probably talking about seedhead suppression in the spring. However, PGR use in the spring can cause discoloration based on the type of grasses present and the environmental conditions during and shortly after the application. This discoloration is often pink or red in color and can be mistakenly diagnosed as leaf spot (Figure 1).

**Author's Note: This article originally appeared in the March/April 2020 issue of The Grass Roots magazine and is being reprinted here with their permission.**

**Thank you Dr. Koch for your continued support of turfgrass pathology and the Minnesota golf course industry through the publishing of relevant information golf course superintendents can use on their courses.**





***Figure 1. Irregular patches of discolored turf in the spring are often mistakenly diagnosed as leaf spot, but in many cases are cold-temperature responses to PGR applications.***

Before we talk about how PGRs can lead to mistaken cases of leaf spot, let's quickly review leaf spot diseases on turf. There are many different types of leaf spot, but on golf course turf the primary leaf spots are Drechslera leaf spot and Bipolaris leaf spot. These two

were formerly grouped together as Helminthosporium leaf spot, and both can cause circular or irregular pink or reddish discoloration that may eventually lead to turf thinning (Figure 2). Drechslera leaf spot typically occurs on bluegrasses (both annual and Kentucky), perennial





***Figure 2. Bipolaris leaf spot occurring on an older stand of vegetative bentgrass following warm and humid conditions during the summer.***

ryegrass, and fine fescues. *Bipolaris* leaf spot on cool-season turf mostly occurs on creeping bentgrass, especially older varieties of bentgrass (the old Washington and German vegetative bents are particularly susceptible). In addition, *Drechslera* typically likes cool and wet conditions (59-64°F), while *Bipolaris* typically prefers hot and wet conditions (85°F and higher). As you might expect, *Drechslera* is more commonly observed in the spring and fall while *Bipolaris* is more commonly ob-

served in the summer.

It's actually pretty rare for us to see leaf spot on bentgrass during the spring, but every season we get numerous reports of leaf spot on bentgrass in April and May because of circular pink or red-colored patches of turf. In nearly every one of these cases when a sample is submitted we can't find any evidence of leaf spot (which is not typically a hard disease to diagnose microscopically because of their characteristic spores [Figure 3]) on





**Figure 3. Leaf spot diseases are typically rather easy to diagnose when a microscope is available because of their characteristic cigar-shaped spores, such as this *Bipolaris sorokiniana* spore.**

the symptomatic turf. In addition, these red-colored patches almost always appear on greens that have recently received one or more PGRs targeting annual bluegrass seed-heads. Also, there is typically a drop in temperature with overnight lows dipping close to or below freezing in the week following the PGR application. Finally, the greens in question are almost always an older cultivar (i.e. Penncross).

So if leaf spot isn't the

problem, what is causing these circular patches of red-colored turf? Though I haven't conducted a research study on the topic, I believe that the discoloration is a PGR response to cold temperatures that only affects certain segregated clones of older bentgrass cultivars. It's common for older cultivars like Penncross to segregate out into individual circular clones, and these clones can be remarkably different in the cases of disease resistance,



***Figure 4. Numerous ‘clones’ of bentgrass are often present on a putting green, especially older cultivars such as Pennncross. These clones are most visible in the spring and fall following frosts and large swings in temperature, but they also demonstrate unique responses to a number of different biotic and abiotic stressors throughout the season. This picture is from a blog post by Dr. Peter Dernoeden for Genesis Turf on February 4th, 2016 (<https://www.genesisturfgrass.com/news-event/view/>***

traffic tolerance, color, and growth rate.

To summarize, I believe the pink/reddish color is due to PGRs applied in cold temperatures that severely limit the growth of certain clones. This causes them to turn a pinkish color that is oftentimes mistakenly identified as leaf spot.

The good news is that I’ve never seen any long-term damage from these pink clones during the spring. Once the temperatures warm back up the plant metabolizes the PGR, regains its normal growth pattern, and the pink color rapidly dissipates.





Photo courtesy of the Minneapolis Golf Club

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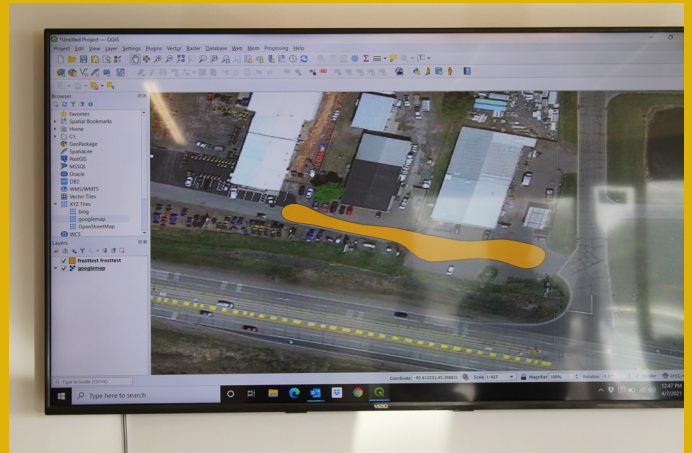
# Spring Field Trip: Frost Inc


Thank you host Ken Rost

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# ***Get to Know 'em***

## **Superintendent Kyle Kleinschmidt The Bridges Golf Club**

by Hole Notes Editor, Joe Berggren



### ***FACILITY INFO***

**Golf Course:** The Bridges Golf Club  
Winona, MN

**Public or Private:** Public

**Number of Holes:** 18

**Full time employees:** 3

**Seasonal employees (not including full time):** 9

**Number of employees of entire facility at peak season:** 25 including Pro-shop Staffing

**Types of grass:** Tee-Green(Pennncross/Poa), Rough(Blue/Rye)

**Total course acreage:** 140 Acres

**Greens acreage:** 3 Acres

**Tee acreage:** 2 Acres

**Fairway acreage:** 29 Acres



**Rough acreage: 60 Acres**

**Driving range acreage: 4 Acres**

**Range tee acreage: .5 Acre**

***Personal Turf Facts:***

**How many years have you been in your current position? 8**

**How many years have you been in the turf industry? 18**

**Where else have you worked?** Intern Winona Country Club, Assistant Superintendent Deer Trace Golf Club, Trappers Turn, The Bridges Golf Club, Head Superintendent Willow Run Golf Club, The Bridges Golf Club



**Turf School Attended (if any)?** RCTC, Rochester

***Industry thoughts***

**What is one “master plan” thing you would like to change at your golf course?** Drain tile additions, and up sizing our current drain tile in some existing areas.

**What concerns do you have about the turf business and the future of golf?** Up until this past season I would say the amount of growth in players, however this season with Covid, I feel a lot of players rejoined the game as an outlet for getting out of the house and getting exercise. Now the question is can we keep them on the golf courses moving forward..

**What is needed to bring more young professionals into the industry?**

I would just say more exposure to it at a younger age. I don't feel too many youth are aware of the career opportunities unless they have a family member in it or close family friend. I'm sure others are like me, and when people ask you what you do for a living, it's shortly followed by how the heck did you get into that? Is there actually schooling for it?





**What piece of equipment do you want? Not a need, a want.**

Mini-excavator, I just feel there are a lot of projects it could speed up, and allow me to pick away at them easier without worrying about renting one in and getting as much use out of it as possible while on property.

**In terms of industry costs (equipment, pesticides, labor, etc.) are they too low, too high or just right?** I feel they're getting a little out of reach in certain areas, however a lot of the increases seem to relate to equipment development that saves you labor, fuel, or cost of maintenance.. Pesticides and fertilizers that have longer durations of effectiveness at lower rates. Play supply that should hold up to the elements for more seasons, etc.

### ***FUN FACTS***

**Have you ever met a celebrity? Who?** Just a lot of professional golfers in passing at tournaments, but never much of a conversation.



**What is your favorite vacation spot?** Not too picky as long as it involves golfing, fishing, or waterfowl hunting.

**What is your favorite memory of starting your turf career?** Probably just how quickly I gained responsibilities from my managers, and got to constantly grow and learn new things. Along with the fact that I'm an outdoorsman and loved the work environment.

**What is your favorite job on the golf course?** Topdressing or Cutting Cups with my favorite Assistant Suzy Q(my yellow lab)



**What is your least favorite job on the golf course?** Would have to say irrigation repair, it's always a love/hate... love it when it's working properly, hate it as soon as you have to make repairs... which always come up at the least opportune time.

**Have you played any famous golf courses? Which ones?** I've been lucky to play a lot of great courses that include Pinehurst, Torrey Pines, Aviara,



TPC San Antonio, TPC Sawgrass, etc. My favorite to date would have to be Tobacco Road though with a group of close industry friends on our way to Pinehurst.

### **Who is your dream foursome?**

My Dad, Jack Nicklaus, Tiger Woods

### **2020- What a year! Would you like to comment on it?**

2020 was our 100 year Anniversary here at The Bridges(formerly Winona Country Club, and it definitely is one that won't be forgotten! From having the course ready to open, and not be allowed to.. to watching 4 carts at a time on each tee box... not being allowed to have normal play supply on course... it was interesting for sure! At the end of it though it was a great season, with many new faces playing which lead to a successful season. I'll never forget our 100 Year Anniversary this way, it'll always stand out as the year of Covid.







**TPC Twin Cities  
Superintendent  
Mark Michalski hosts  
first MGCSA Spring  
Carnival and Affiliate  
Appreciation Social  
Event!**

**Outstanding  
participation and sure  
to grow, this event  
featured a “farmer’s  
market display” of  
our vender member’s  
goods. Individual brick  
oven pizzas made for a  
delicious lunch. Games,  
skill contests and fun for  
everyone!!  
2022 event won’t be the  
same without you!!!!!!**





# ***2021 Spring Carnival at TPC Twin Cities***

## ***Thank you host Superintendent Mark Michalski for the idea and outstanding venue***



**[Check out ALL the pictures at MGCSA facebook page](#)**



# Getting the Most Out of Your Internship

By MICHAEL J. BROWER

*Superintendent, Minnesota Valley Country Club*

It's that time of the year again when both Superintendents and turf students are looking to fill their internship positions. For all of us, it's an exciting time, putting together or joining a team of workers that will undoubtedly, have a lasting effect and impression on our careers. In the space that follows, I'd like to offer some insight into the internship concept and methods of getting the most out of your internship.

Much of our lives we are working with others, working out arrangements and, developing procedures for our mutual benefit. This fittingly describes what all of us should be focused on as we develop, implement and participate in internship programs at golf courses. Both the Superintendent and the intern should have an understanding that the relationship is developed to be mutually beneficial. An internship position can often lead to a more permanent full-time position at the club where a student completes an internship. Currently at Minnesota Valley Country Club, one of our assistant positions is held by a former intern at the Club. Throughout the dozens of internship relationships that I've been involved with, the focus has been on developing the intern's skills so they are prepared for an Assistant position once they complete their degree program.

My involvement with student interns has made me a better manager and has developed many lasting relationships. If your club has not established an internship program, now is a good time to start. An intern program benefits students, and will also benefit your club, your staff and the profession.

Developing or attaining a quality internship requires us to evaluate how we could best benefit from the experience.

Outlining your goals before you begin an interview process would be a good way to start. As you prepare these goals, don't expect your first draft to be your final draft. Make it detailed, make it complete, and make it challenging. Remember, the

This brings me to a point that I must bring to light. I speak to many prospective interns that have a limited understanding of the skills they need to advance to the next level in their careers. For the majority of interns, that next level would either be

a full-time spray technician position or a full-time Assistant position. If you're unsure of what you need to develop, find people in the profession that will share with you the written job descriptions for those positions at their club. It would be helpful for any prospective intern to discuss these skill sets with the Superintendent during the interview, and as Superintendents, we should be willing and able to shed light on this subject with the person we're interviewing.

Be on the level here also, as a student applying

for an internship, don't exaggerate or make-up skill levels. The same is true for the Superintendent conducting the interview; don't mislead students into thinking they have the skills needed when they truly do not. This truthful exchange of information will most often lead to the two parties working out a better internship arrangement that is mutually beneficial, an arrangement that allows the students to develop the skills that they need to move to the next level. Even if you've made the decision not to hire someone, give them the insight they need to be more successful in their next interview.

You've heard it before, and you'll hear it again here, good communication is the foundation of good professional relationships. Acknowledge this and practice it throughout the internship and it will be more meaningful and successful. Aside from being a good turf manager, communication is the most important skill that

*(Continued on Page 7)*



*Minnesota Valley Country Club Superintendent Michael Brower next to the annual historical equipment display during MVCC's Heritage tournament.*

experience will in one way or another, for both employer and employee, leave impressions, impact the business and shape your careers.

For Superintendents, the process should involve your full-time staff and the General Manager. Gather input from them as to how your facility can benefit from an internship program. Involve all of them from the start and establish methods for their involvement in the program. This will maximize the benefit for both the club and the intern.

For the prospective interns, the process should begin with an assessment of their current skills and education in turfgrass management. Identify your strongest and weakest skill sets, and create a list of goals for an internship that will help you build new skills. Then search for an internship that will allow you to reach those goals. A prospective intern arriving at the interview with a list of goals and skills they would like to develop makes a good first impression.





*Minnesota Valley Country Club's Assistant Superintendents, Troy Lang, on tractor, graduate of Western Iowa Technical College, and Brady Scott, graduate of the University of Massachusetts, stripping sod on a tee renovation project.*

## Internship—

(Continued from Page 6)

you can possess in life. In any internship, the Superintendent and the full-time staff become teachers. We can set the tone for the learning environment with effective communication. On the flipside, the student also needs to seize the opportunity by interacting with staff and starting dialogue. After all, how can anyone expect to develop a good relationship without communicating? So, let's make sure that we're all on the same page and communicate.

Now that we've presented some fundamentals for establishing an internship, let's look at it in greater detail. Let's examine what can and should be learned in a golf course management internship. As I've mentioned, each intern is coming into the workplace with different levels of skills. Knowing what they are will help the Superintendent and the Assistant Superintendents determine what types of jobs to assign to interns and the duration of work needed to attain a desirable skill level. In no special order, the following is a list of the skills that I believe are most important to develop during an internship.

**Pesticide Applications:** Arguably the most important, since this is one of the first job responsibilities listed on Assistant Superintendents job descriptions. If you haven't done it, and learned it, how could you properly supervise the activity? I always have on hand several copies of the MDA Pesticide Applicators Training Manuals to lend to interns. I tell them to

study it and take the exam, otherwise they won't get the experience and probably won't get to the next level as soon as they expected. We pay for the testing fee and the license for them. It's well worth the small investment.

Start interns out with another experienced applicator, as the hose man or just following in their shadow. Be sure that interns become familiar with the material they're applying and why they're being applied. Remember, this goes both ways, interns need to dedicate themselves to a detailed knowledge of the materials, rates and the chemistries of the products, not just applying the material as instructed. I realize it's uncomfortable and time-consuming at times, but do not cut corners on safety, PPE, and proper records. If you don't have this skill when applying for top Assistant jobs, how could you expect to get the job?

**Fertilizer Applications:** Ditto here! Start interns out with something easier, like the practice tees and range, where a small mistake could be tolerated. Move on to rough and tees, then fairways and greens. Don't just send them out with a rate and a product, spend plenty of time with them and insist on extreme accuracy. Show them the small things that result in a good application. Between this and pesticides, there's a large amount of the budget going down on the course, so it better be right. Again, another skill that is required for Assistant positions.

**Flowers and Gardening:** Most courses don't have the luxury of having a full-time gardener. You need to have the knowledge and skill to succeed here. To some of your

members, this is more important than the grass. Even if you do have a gardener, how could you supervise those activities properly without knowledge of them? Spend a day or two working with and getting to know the annuals, perennials and other ornamentals on the course. As you go about your other job duties, don't just drive by them, observe them throughout the summer and learn their traits.

**Topdressing, Seeding, Aeration, Spiking, Verticutting:** Be ready willing and able to learn these important cultural practices; there may be a limited amount of opportunities in the time you're at the course to learn these jobs, so be sure to speak up, volunteer, ask questions, analyze the process and take notes on it. Keeping good notes on equipment settings, timing, course conditions, recovery, etc. could really come in handy at your next job or the next season. Superintendents, it's not always easy, but find a way to fit interns into these procedures, since they can bring you to another level if done properly and at the right time.

**Irrigation Operation and Maintenance:** We all know that this is a skill that must be learned first hand. Watching it being done is nothing like doing it. It shouldn't be hard to find components of your system that need upgrading or additions so that interns can learn first hand in the field. At a minimum, interns should fix a pipe break or two, repair and replace a sprinkler, be introduced to the inside of a satellite, tour and learn the pump station and learn about the computer software that runs the system. Take the opportunity to come to the course in the evening to watch the irrigation run, watching the pump station operate, and watching how various areas of the course react to watering.

**Construction Projects:** Somewhat difficult work experience to obtain since most of this is done in the fall and early spring, however, it's great to have. Don't be too concerned about what job task you're assigned on the site; rather, be happy being a part of the project. Remember, each and every job is important on the project and factors into the end result. Observe the big picture while you work on the job site. Ask the Superintendent for a copy of the Long Range Plan for the Golf Course if there is one, and strike up a conversation with the construction contractor and architect at the end of the day. Remember about communication and dialogue.

**Green Committee Meetings:** Attending just one Green Committee meeting is great for an intern. Simply observing how the

(Continued on Page 35)



## Internships—

(Continued from Page 7)

meeting is run and what's on the agenda is a great learning experience.

**Course Setup:** This is an extremely important work skill for interns to develop. I'm still surprised at the lack of interest in doing this by some interns. To me, it's the best job on the course every day, for sure. And much of the time, it's the most important one. Cutting cups and setting markers has a huge effect on the presentation of the course. The best course set-up people are the ones who know and play the game, so learn and play the course. It's best to place an intern on this job assignment for a minimum of two consecutive weeks. It takes that amount of time to get the hang of it, fine tune methods and learn about traffic and wear patterns. This is an area that the Superintendent and Assistant should spend a good deal of time on with interns if they need it. You won't be a great Assistant or Superintendent without knowing this job inside and out.

**Scouting the Course:** Often done in conjunction with course set-up, and part of any successful golf course management program. Many courses develop and maintain a daily log to make scouting more routine and useful. Interns would be wise to keep their own journal or daily log. Superintendents should provide staff and interns with a microscope and diagnostic tools to use on their own time.

**Assigning Jobs and Supervising Staff:** This is a full-time job in itself at most golf courses, typically the responsibility of the Assistant or First Assistant. Create an opportunity for the intern to run the job board for a day or two, or shadow the person responsible for it for a day. This is another job skill that employers look for when hiring Assistants. This is an eye opener for any intern, and a valuable experience.

**Equipment Maintenance:** Pick a few days when there's a good amount of mower set-up going on, and have the intern spend them in the shop with the Equipment Manager, participating and learning about mower set-up and anything else that may arise during the course of the day.

**Day-to Day Maintenance Activities:** A good worker realizes that each job and every detail on the course is important to the overall success of the golf course. Any intern will be expected to do each and every job on the golf course and in the maintenance facility, and the person

responsible for assigning jobs should see to it that the intern does each and every job duty several times. You do what needs to be done when it needs to be done, no eyebrows raised!

### **Audubon Cooperative Sanctuary**

**Program:** I've never met an employee that didn't enjoy working with activities involving this program. It's a great program, and one that nearly every prospective intern asks me about in an interview. It thrills me to see the interest in this great program, and interns should have an opportunity to be involved in it. Last year we involved our students with work at the local elementary school that we've adopted through the program – another great learning experience for all involved.

### **Practice Facilities Maintenance:**

Practice facilities often require different methods, frequencies, and timing of maintenance activities. Interns need to be involved for a time preparing these highly used areas.

### **Turfgrass Nurseries and Research:**

Challenge yourself and the intern by conducting some type of research at your golf course. It can be something very simple like monitoring soil temperature and comparing that with root depth. Last year we had our interns involved in an addition to our bentgrass green nursery. We're currently arranging research with an intern dealing with our naturalized, no-mow area, and we'll be working with students to establish a 20,000 square foot grass research site this year.

**Soils and Soil Analysis:** Much of our success on the golf course revolves around our soils and the roots that grown within. Learn and teach about the soils that you cross each day on the golf course. Develop a soil analysis schedule and have interns do the work and study the reports.

**Greens:** Some emphasis should be placed on learning about the greens. They're the bread and butter of courses. Learn the grass, the soils, the height of cut, the cultural practices and requirements. Learn the differences between green sites, and how that's managed. Tissue sampling from greens provides a benefit to the Superintendent, and also provides an intern with a great research project.

### **On Your Own Time Reading, Etc.:**

Sure, you work a lot of hours at the course. But don't think the learning has to stop once you punch out each day. Read and reference textbooks in the evening.

My advice to students is, always try to arrange an internship at the type of golf course that you eventually would like to be the Superintendent at. Establish early

on what type of club you would like to work at, and seek that level of maintenance and work experience from the start. Get your foot in the door as they say, do the dirty work, put the long hours in, all the while you're learning, and it will pay off in the end. If your desire is to work at a well-known, big-name club, then go there and work now. Build that resume starting now.

When an internship comes to an end, do some things to make the experience even better. Some schools require an in-depth, written and well-presented reports, others require little more than a few notes jotted down on some forms that the school gives them. I prefer the former, a well written, in-depth report on the internship. Cover all of the skill areas listed, and add sections on each of the golf course features such as greens and tees. Do one regardless of what's required by your school. It will do several things for you. It will be a lesson in writing, it will require you to record the things you saw and learned, and your report can be used by you for future reference. Give a copy to the golf course you worked at, and give a copy to your school advisor. Immediately upon completion of your internship, handwritten thank you cards to everyone that you developed a relationship with at the club, from the Golf Professional to the Mechanic. This will set you apart from the rest of the pack.

For students participating in any internship, it's very important to remember that you are beginning to establish your image in the profession. Keep this in mind at all times from this point forward. A good professional image begins with the way you look and act, so begin to dress, groom and act like a professional. This is all very dependent on the attitude you bring to the job in the morning. As a Superintendent, I expect interns to be a cut above the rest of the staff, with regard to attitude and performance. So stay positive, and be thinking and learning each step of the way during your internship. And as Superintendents and Assistants, we need to develop superior learning arrangements for students, and set the tone for the learning environment with effective communication.

*(Editor's Note: Michael Brower is the Golf Course Superintendent at Minnesota Valley Country Club in Bloomington, Minn., He is a graduate of the Turfgrass Management Program at Pennsylvania State University, and has been a member of the MGCSA and the GCSAA since 1988. He can be reached at, mbrower@mvcgolf.com)*

## Kari's Quick Golf Crossword Solutions - The 2021 Masters

				<sup>1</sup> B				<sup>2</sup> R	A	H	<sup>3</sup> M
	<sup>4</sup> G	R	E	E	N		<sup>5</sup> H				A
<sup>6</sup> J				L		<sup>7</sup> S	I	X			G
<sup>8</sup> A	P	<sup>9</sup> R	I	L			D		<sup>10</sup> A		N
P		A			<sup>11</sup> A		E		N		O
<sup>12</sup> A	M	E	N		Z		K		W		L
N		S		<sup>13</sup> K	A	J	I	<sup>14</sup> T	A	<sup>15</sup> N	I
					L			R		<sup>16</sup> I	A
	<sup>17</sup> B	U	T	L	E	R		E		N	
					A			E		E	
	<sup>18</sup> A	U	G	U	S	T	A				

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*Thank you Kari for your creative idea and contribution to the MGCSA Hole Notes magazine. We really are better working together.*



# ***Preliminary data from Winter Turf sensors deployed on golf course greens***

**By Maggie Reiter, Dr. Eric Watkins and Brian Runck  
University of Minnesota, Turfgrass Research Team**

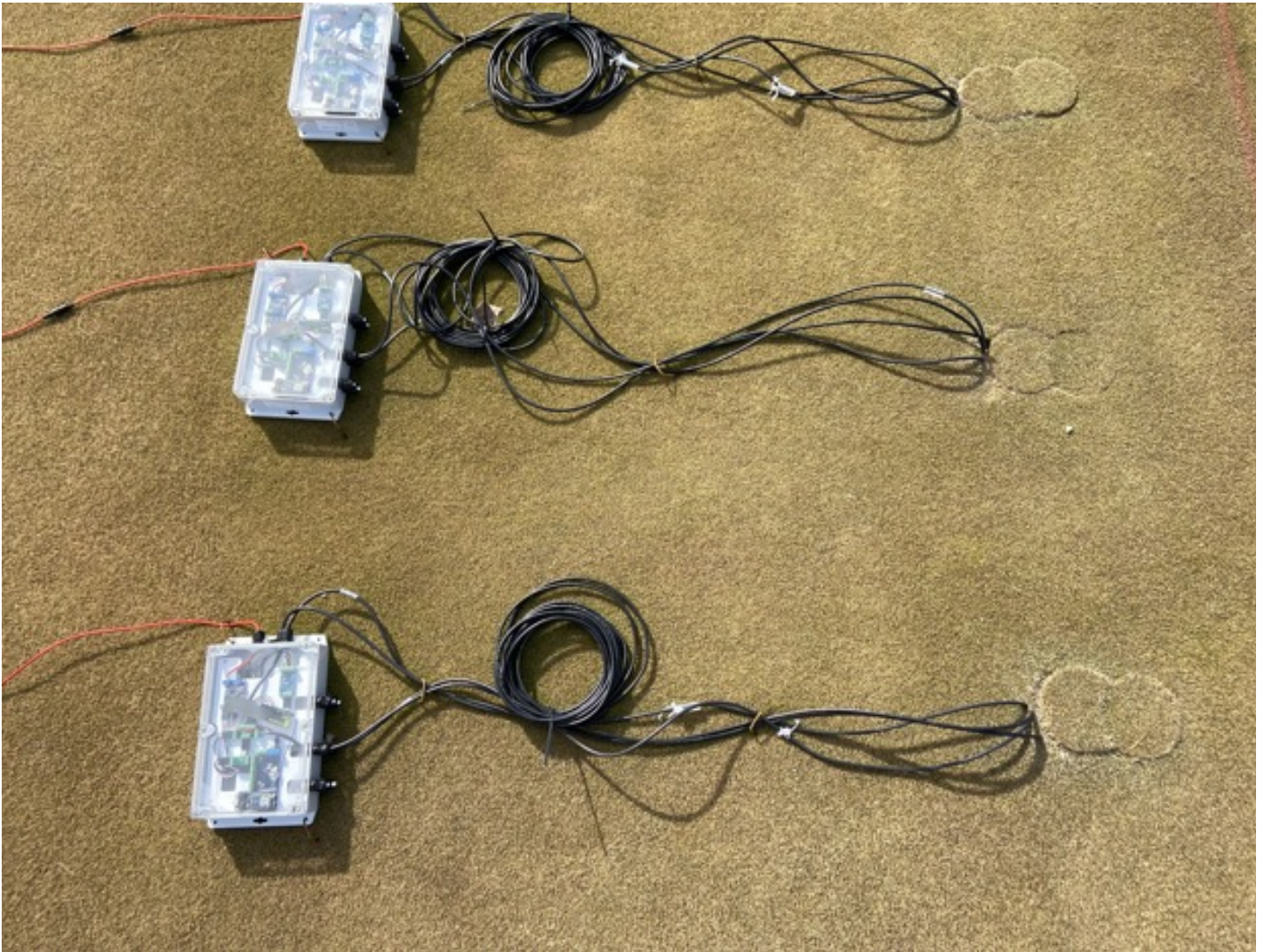
## ***Understanding winter injury***

Improving winter hardiness has been a cornerstone of the University of Minnesota Department of Horticultural Science for over 150 years. Within our turfgrass research group, winter injury continues to be a major focus and is still the number one concern for golf course superintendents across much of the northern US. To build on previous work and elevate our approach with modern technologies, we recently pulled together an interdisciplinary team of scientists and turf managers to understand winter injury. We call this new initiative WinterTurf.

One objective is to adapt new technology to more precisely measure and predict winter stress damage. To accomplish this, we partnered with remote sensing and computer science researchers to create



environmental sensing nodes that can measure variables like temperature, humidity, oxygen, carbon dioxide, and light, both at a putting green surface and in the soil (Figure 1). Data from each individual sensor is collected every 15 minutes and then uploaded to a database through a cellular network every hour; in addition, all data is stored



***Figure 1. Three sensors installed on a green.***

### ***What was done this past winter***

We piloted a few of these new sensors over this past winter to help figure out the best design and placement. We placed 10 sensors on golf courses in Minnesota (funded by MGCSA), 6 in Michigan (funded by the Michigan Turf Foundation), and one in Norway. Sensors were installed in November and removed in late March. Additionally, a few sensors were set up at our



TROE center on the St. Paul campus, where we deliberately encased some in ice to learn more about the environment turfgrasses experience when encased in ice (Figure 2).

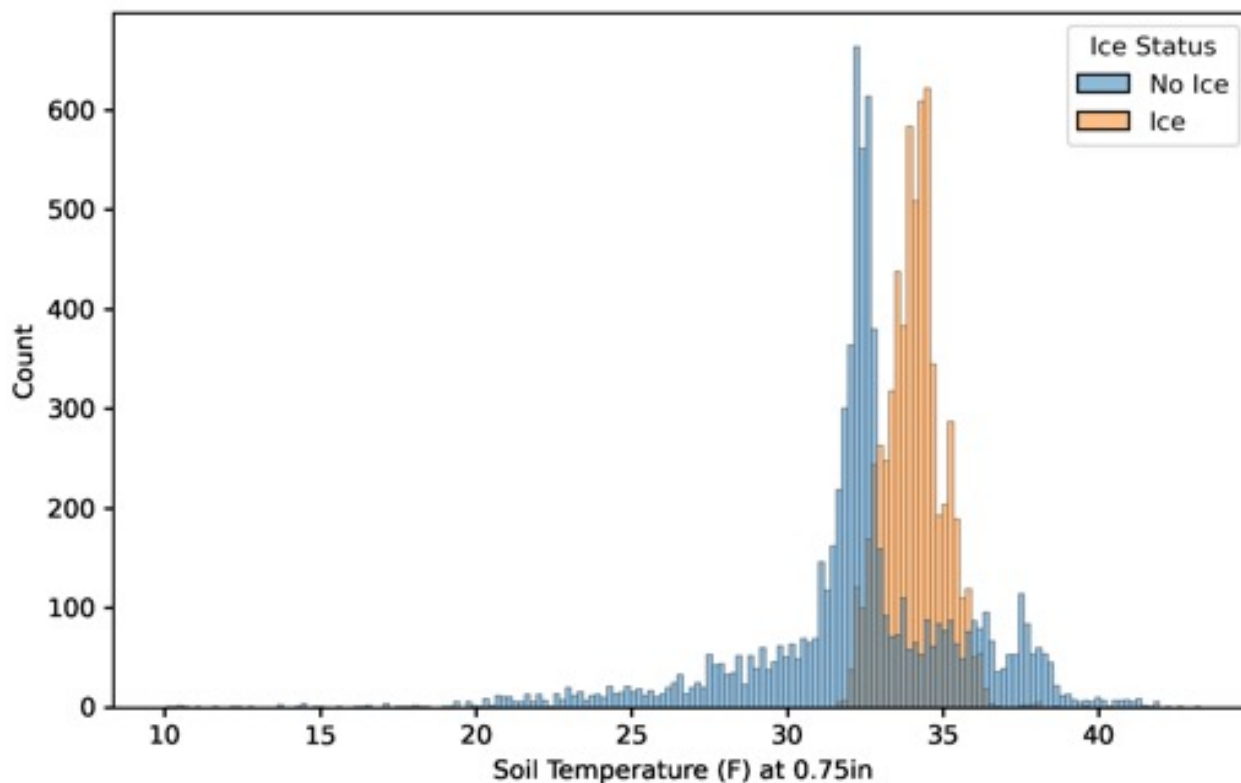


***Figure 2. Sensors set up in St. Paul where they were deliberately encased in ice.***

### ***Summary of data collected***

Figures below are from side-by-side sensors installed at TROE in St. Paul, with 1 encased in ice all winter and 1 under typical snow cover. The figures include all the data collected during the winter of 2020-2021. Soil temperature between these 2 microclimates is different, and it appears soil stays slightly warmer under ice (Figure 3). Oxygen (O<sub>2</sub>) gas levels are

also different depending on ice cover (Figure 4). The oxygen levels seem slightly higher when encased in ice; however, we need to further analyze these data to determine at which time points these differences were most prominent before coming to any preliminary conclusions.



**Figure 3. Soil temperature data collected 0.75 inches deep. Blue represents a sensor under snow, and orange represents a sensor encased in ice.**



## ***Superior Tech Products***

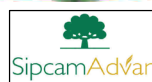
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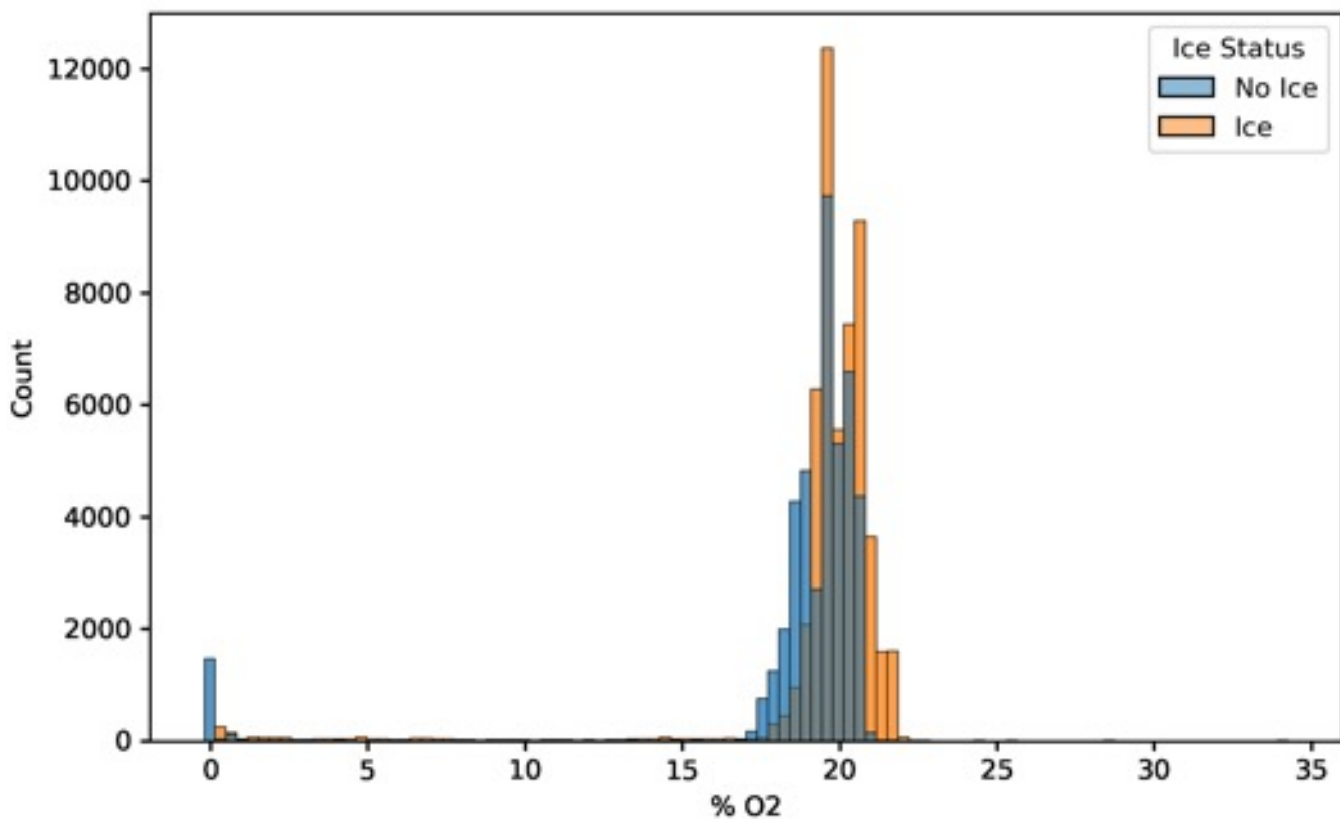
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**Figure 4. Oxygen (O2) data collected at the turf surface. Blue represents a sensor under snow, and orange represents a sensor encased in ice.**

**Next steps**

Our pilot study has generated over 3.4 million data points from golf course greens through the winter. It will take time to consolidate data from all sensors with our data scientist collaborators. Support from the MGCSA for preliminary work on this project has allowed us to seek additional funding. We were recently informed by the United States Golf Association that they will fund our proposal to build, test, and deploy an additional 40 sensor units (20 each of the next 2 winters) in the Upper Midwest. We are also preparing a grant proposal for the USDA Specialty Crop Research Initiative program that would allow us to expand our sensor network throughout the northern US and into Canada and northern Europe.

## Acknowledgements

We would like to thank the Minnesota Golf Course Superintendents Association and the Michigan Turfgrass Foundation for supporting this research. We would also like to thank the Minnesota golf course superintendents who let us place sensors on their courses: Norma O’Leary (Silver Bay); David Phillips (Golden Valley); Corey Heasley (Fox Hollow); Jeff Simondet (Giants Ridge); Brant Belanger (Les Bolstad); Nikk Dickerson (Owatonna); Matt Cavanaugh (Rush Creek); Matt McKinnon (Legacy); Scott Thayer (Legends). Finally, thank you to Bobby Schultz and Andrew Hollman for their work on development and assembly of the sensor nodes, along with Gary Deters and Ryan Schwab for installation and removal of the on-course nodes.



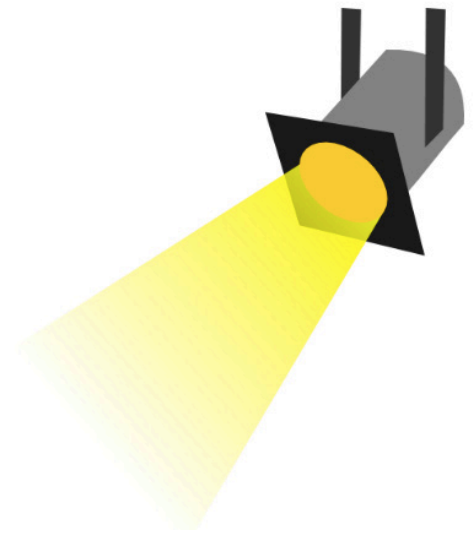
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# Affiliate Spotlight



*Frost* Inc.



## *Spray Technology Products*

Starting as a part time venture for founder, Ken Rost, in 2006, Frost Inc is now a nationally known company for spray technologies and spray equipment located in Saint Croix Falls, Wisconsin.

Frost has been an affiliate member of the MGCSA almost from the start and the staff at Frost value their relationships with MGCSA members.

The mission of Frost Inc is to use the best technologies to solve problems for customers. This is

done by listening to the people involved and recognizing the issues that can be improved. All of Frost Inc's featured products have been developed in this manner.

Frost started in 2006 building foam frost protection equipment for high value crops, such as berries and nursery propagation beds. It was even tested on putting greens to mitigate desiccation damage to turf during cold weather without snow cover.

Frost also introduced the

BunkerBlaster bunker pump to the golf market, as well as air induction technology spray tips in the early years.

Next was the development of the Ultimix. Many sprayers had poor agitation and getting some turf care products into solution was problematic. The Ultimix was designed to pre-mix difficult solutions in an aggressive agitation system before being loaded into the sprayer tank. The result was better mixing, safer mixing, and faster spray jobs. Faster, because the sprayer can be out spraying instead of waiting in the chemical bay to do the mixing.

A large step in the world of

spray technology was taken by Frost in 2012 with the introduction of the Seletron GPS guided spray system with individual nozzle control.

This amazing technology turns on and off nozzles individually and automatically as the sprayer goes over areas that have already been sprayed. This takes the burden of controlling full boom sections away from the operator and allows for more accurate, faster and efficient applications. Frost was one of the first of just a couple companies offering this technology in 2012 and the features of this system still have competitive advantages over other systems that have entered the market more recently.





Along with GPS spray control comes the need for developing maps to allow operators to specifically define intended spray areas and rates. Dr. Kirk Stueve joined Frost to train staff on the mapping process and the use of vegetative Index image analysis as a tool to help in the agronomic decision process. However, even with these powerful tools, there is a resistance to change in the golf industry regarding spray applications. For this reason, Frost has partnered and provided

equipment to leading Universities around the country to research how GPS maps and sprayers can reduce input costs and lower the environmental impacts. Cornell has studied and reported the input savings and the environmental impact, University of Nebraska Lincoln has studied precision application relative to over application of PGR's and collar/ approach decline from over suppression. Texas A&M is studying the relationship between NDVI/ NDRE imagery and true turf health.



***Owner Ken Rost provides the “low-down” information about spray technologies during an educational seminar hosted at FrostServ in St. Croix Falls, Wisconsin***

And the University of Minnesota uses Frost technology at the Troe Center for a variety of current studies.

Frost has also been transformed in the past few years with professional staff using Computer Aided Design (CAD) and updated fabrication tools. This has led to the ability to mass produce sprayer frames to have a more consistent product line. The Ninja Kubota sprayer is an example of success using these modern manufacturing tools. The Ninja sprayer is a turn-key machine ready for use with GPS control, 4-wheel independent suspension, optional auto-steer and sonic boom leveling. It is a 'dream' sprayer designed and built by a sprayer focused company. Another recent innovative project was developing a spray attachment for the Toro Outcross machine. The Outcross platform was designed for versatility and Frost jumped at the chance to develop a sprayer attachment for it. The 300 gallon sprayer attachment balances out the machine and it has a 20' or 30' spray boom with GPS spray control. With the 30' boom, three swipes of most fairways and you are done!



After spraying, the boom can be detached and the tank system can be used for special irrigation, or the tank can be removed, too, in a matter of minutes.

The next steps for Frost will be peering into the future of drone spraying. In addition to the normal regulatory agencies overseeing spray applications, spraying with drones involves the FAA as well. Frost has satisfied the requirements to spray with drones and will be working with high value crops such as pumpkins, vineyards, cannabis, and others. Frost will be listening to see if there are opportunities to spray on golf courses as well. Not always do problems need to be solved with high technology. Sometimes it is as simple as changing to a better spray tip to make an improvement in spray performance. Or maybe it's a



change of tank agitators to a more efficient style. Whether it is a need for improvements to an existing sprayer or a need for a whole new machine, the professionals at Frost are willing to help. Their experience with spray technology is available to you, to help improve your spraying experience.

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# In Bounds

by Jack MacKenzie, CGCS



The three-legged stool is very difficult to tip over. In fact, it takes quite a bit of force to send it tumbling off. The original definition references retirement security. However, the concept of building a strong three-legged stool can be applied to many areas of life: health, relationships, management and even the success of the Minnesota Golf Course Superintendents Association.

Our stool is solid with three principles we strive to build upon for even more strength: advocacy, education, and research. The model has served our association well and dedicated service from the Board of Directors has kept the “seat” of the stool flat and stable. Sidebar here, how about an ‘atta boy for those who invest their time in the MGCSA? I’m “just saying”.

Although Advocacy has been challenged by the limits imposed

by the pandemic of 2020-21, your association has continued to flex its muscle upon the Capitol campus. In fact, through diligence we were able to get a irrigation water assurance Bill introduced in both the House and the Senate with the help of the Legislative Sub-committee on Water Policy. Unfortunately, all the legislation promoted by the Sub-committee didn’t move due to complicated verbiage. Lesson learned.

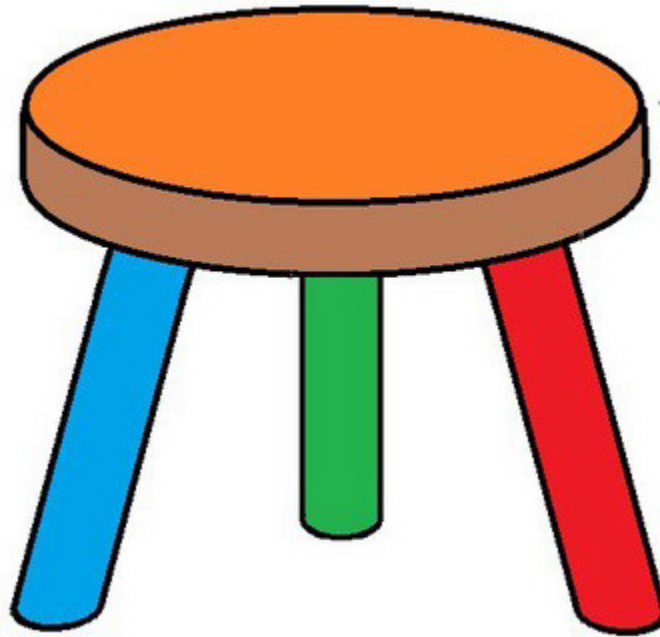
The MGCSA also continues to participate, remotely in agency meetings such as the MDA Pesticide Review Committee and DNR Northeast Groundwater Committee. While we may not be terribly vocal during these discussion sessions, our presence speaks volumes.

Education continues to be a focus of the MGCSA education and Conference Committee. Although in-person meetings were tabled during the typical education season of the Association, many opportunities were available to the MGCSA members from the Conference Comes to You series, the virtual Northern Green and Golf Industry Shows. If you wished for education and didn't mind the "zoom" presentation, there really was enough great material for everyone.

The MGCSA also distributed three Great Lakes School of Turfgrass Science Scholarships which were made possible through the PBI Gordon Companies. This education was available on-line and satisfied the participants. In 2021 the scholarship sponsor will also be

FMC as their premium promotion program generated an additional \$750 for scholarship.

Leg "two" of the three-legged stool, education, is as solid as ever.



However, the third leg, Research and UMN support, has shown quite a bit of pandemic related fatigue. The "killer crunch" was caused by the NON-generation of

research funding typically injected to the UMN following the Northern Green Expo. The usual MTGF return of \$120K was basically nonexistent due to the cancelation of the in-person NG. Also, and very unfortunately, in recent years MGCSA members have begun to question their "return on investment" through attending the annual program.



Well, here is the simple fact: if the MGCSA does not participate at the Northern Green, you might as well kiss research at the University of Minnesota “good-bye” as the funding will dry up. Combined, your MGCSA research ‘check-off’ dollars, member driven research support and Rounds Fore Research Initiative just isn’t going to keep the doors open at the TROE for many more years.

Oh yes, I have heard the complaints, “it is too expensive (and who really paid for your continuing education?)... nothing for me at the state show (how hard did you look? Talk to any peers? Visit with a vender?)... I have too many on my crew (and such a wonderful opportunity to treat them to lunch at Ping’s or Britt’s. How awesome for them to be invited with enthusiasm to the local BIG SHOW)”. Excuses run a dime a dozen, but the bottom line is without your interest and financial support we should pave the TROE over for Bell Museum parking.

And for those who reminisce about, “in the old days...”, well guess what, I participated in the old conferences, and can tell you a few stories. My take is that the Northern Green is what you make it. But if you don’t participate, please don’t wonder when the TROE Center is black with macadam.

The Research leg is our weakest stool support. Dr. Brian Horgan laid the framework of a fine destination for turfgrass research at the TROE Center and many, many research projects have led to great information you can use on your course. Please visit the UMN turf website for more details. And Dr. Watkins continues the research tradition by recruiting fine turfgrass scientists to learn and apply their craft. The beauty of the destination/faculty support system is that the UMN is ready to research at the drop of the hat.

Our greatest risk of withholding funding of the UMN turf program

is going to be felt when current staff is dismissed due to non-support, and a new super-relevant turf management concern develops. When that happens, the UMN must restart at “go” and will require generating staff funding, recruiting/hiring/training competent faculty and the build-up of assets necessary for the research to move forward. The interesting paradigm is that YOU know exactly how this works if you have ever lost key team players due to budgetary constraints or personnel movement.

Right now, your Board of Directors is in discussions about how we can create support for the UMN turf program during the MTGF shortfall. Maybe it is time the MTGF begins a membership fee program as a contingency plan, should the NG tent fold up. Your Board is also considering mechanisms to create a more secure income stream so the UMN can continue to provide our Minnesota golf industry relevant information and study turfgrass in

our back yard.

If you have any ideas on how to crack this nut, please reach out to President, Scott Thayer, and share them. He will be happy to listen and be more than pleased that the membership is willing to step up and help support the association’s three-legged stool. Equally important, if you DON’T WANT to support turfgrass research, please give a call and we can discuss the advantages of having turf studies done at the University of Minnesota.

This column isn’t intended to bitch about member apathy or event participation. Nor is it designed to instill fear that the TROE Center has an expiration date. It is intended to solicit introspection on how we continue supporting the institution that supports us. Together, we can continue to strengthen our three-legged stool, that was built when the MGCSA was established on April th, 1928. It will take member participation.