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complicated; it satisfies the soul and frustrates the intellect. It is at the same time rewarding and maddening - and it is without a doubt the greatest game mankind has ever invented.

By American Professional Golfer Arnold Daniel Palmer, 1929-2016

This quote by Palmer can remind us how special this game and our careers are.

THE GRASS ROOTS

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

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PRESIDENT'S MESSAGE

This One is for You, Honey...Thank You!

By Jim Van Herynen, Certified Golf Course Superintendent, South Hills Golf and Country Club

I don't think anyone could argue the fact that being a Golf Course Superintendent or an Assistant Golf Course Superintendent is a demanding and challenging profession. For those of you who are married the responsibilities of the job can be daunting and strain relationships over the years.

I personally have had very good, if not, best friends in the profession seek guidance in their marriages and unfortunately for some, the end result was not what they had hoped. I am one of the fortunate ones who dated my wife for many years during my college days and she has seen the entire process unfold as I progress through my career, others are not so fortunate.

I cannot say the last 31 years with my spouse have always been easy. At times, I have had to forfeit many family functions for work related issues, not to mention, justifying simply taking some time off to nurture a relationship. I have written about that topic in previous articles and this one is to thank those spouses or future spouses for putting up with our insatiable appetite to provide the golfing community with the best condition made possible with the resources given to us to work with.

From what I have heard over the years the grass is not always greener on the other side of the fence and sometimes simply putting down some roots and making the best of your situation is the best solution.

The following are some thoughts that I have had while preparing for this article.

Thank you for understanding:

- ► That it is difficult for me not to cut our home lawn varying straight up, side to side, right to left and left to right.
- ► That I have to rent an air compressor in July for the November irrigation blow out or I may not get one.
- ▶ If you help me with my laundry you will find grass and sand in all pockets which I am still not sure how it got there.
- ▶ My socks will have black stains on them from not taking my rubbers off my shoes for potentially months.
- ► This is not out of disrespect, but I may respond 10-4 when you ask me something.
- ▶ It is nearly impossible for me to take a weekend morning off and have coffee with you and not wonder how much grass "their"
- ▶ It is simply habit when I triple rinse the ketchup bottle before
- ► That I watch the weather channel for lengthy periods of time and when you ask me what the weather is going to do I respond

by saying the local will be on, on the eights.

- ▶ I wear golf shirts for everything and just need to be reminded I do have other clothes in my wardrobe.
- ► Sometimes I need to explain better our world of acronyms i.e., WGCSA, GCSAA, CGCS, PGA, WSGA, USGA, CMAA, GCOW, ASGCA, EIFG, BTA and EAB to name a few.
- ▶ That Canadian Geese, Woodchucks and Muskrats are not
- ► It is O.K. to take a nap.
- ▶ That when around other couples in the profession it is hard not to "Talk Turf".
- ▶ Unless I am on a beach in February I really dislike temperatures above 80 degrees especially with wind.
- ▶ I go into panic mode when we receive rain in December, January, February or March on frozen soil.
- ▶ I know what a meat thermometer is.
- I would never cut anything with a scissors unless it was paper.
- ▶ I simply cannot understand that, like children, golf carts always find the puddles.
- ▶ I am seemingly in a better mood in October and November.
- ▶ Ultimately that from open to close I live, breathe and sleep golf course maintenance and try hard to separate when not at work.

I can honestly say for me I have picked a profession that I truly love and would not want it any other way, although frustrating at times. We most likely all have a little, or more, OCD (another acronym) at times than we realize but I think to be successful one must possess that trait. The morale of the story is, and you have heard this for years, "Behind every great man is a great woman" and that could be said the other way around. Thank your partner for understanding your passion and help them understand the trials and tribulations we face but as important listen to their needs as well and I am guessing you will have a healthy relationship in all areas of your life which makes everything a little easier to take. If you have not taken your significant other to our WGCSA Couples Dinner please consider doing so this year on November 5th at the Wisconsin Club - City Club in Milwaukee. If you did not read this until after this fun event please consider next year, and if nothing else take some time, listen, and have some fun.

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WISCONSIN ENTOMOLOGY REPORT

2016 National Turfgrass Entomology Workshop and Pollinator Summit

By Dr. R. Chris Williamson, Department of Entomology, University of Wisconsin-Madison

Tearly 60 people including university research scientists and extension specialists, graduate students and Green Industry constituents from across the United States convened in Sheboygan, WI on August 21 and 22, 2016 at the Blue Harbor Resort and Conference Center for the 2016 National Turfgrass Entomology Workshop and Pollinator Summit. The Turfgrass Entomology Workshop is typically held every other year, give or take a few months, at various locations across the United States. The meeting had previously been held in places such as Geneva, NY, Columbus, OH, Gainesville, FL, Boise, ID, Phoenix, AZ and Omaha, NE to name a few. This meeting is an excellent opportunity for fellow entomologists that work on turfgrass insect pests to get together to discuss respective insect issues and exchange ideas. In addition, it is also an invaluable venue for graduate students to present their research to other university faculty and graduate students.

The 2016 National Turfgrass Entomology Workshop was quite unique this time as it also included the 1st National Pollinator Summit in turf. The objective of the pollinator summit was to discuss and dialog the latest issues regarding protecting pollinators in turf with the ultimate goal of developing a best management practices (BMPs) document for protecting pollinators in turf. Participants had the opportunity to hear Dr. Jonathan Larson (University of Nebraska) give a presentation on his



Chava McKeel, GCSAA Director of Government Affairs addresses the group on the improtance of BMP (Best Management Practices) to protect pollinators in turf. (Photo by Dr. Frank Wong)

research findings in mitigating the risk of insecticide exposure to pollinators when applied to turf. His work is the first of its kind in turf and will provide invaluable insight in the development of the BMPs for protecting pollinators in turf. Dr. Rick Fell (Virginia Tech) gave an excellent presentation on the various factors that play a role in bee health and colony decline. Dr. Fell outlined multiple factors affecting honey bee decline including parasitic mites (especially Varroa mites), pesticides (insecticides, fungicides, miticides and herbicides), pathogens (viruses, bacteria and fungi), queen failure and colony stress- movement (migratory stress), poor nutrition

and environmental factors (cold temperatures). In addition to these outstanding presentations, Dr. David Held (Auburn University) moderated much of the pollinator session, he was instrumental in facilitating and creating an outline of the various factors and issues that will be included and addressed in the BMPs document. Several key factors were identified and discussed, and important gaps in research related to pollinators in turf were also recognized. Excellent dialog and exchange occurred among attendees, thoughts and insights were openly conveyed furthering discussion regarding the development of BMPs for protecting pollinators in turf.

A small cohort of attendees agreed to spearhead the initial draft of the BMPs document that will be shared with all attendees interested in providing their input and feedback. An early January 2017 goal (deadline) was set for the publication of the BMPs document, the document will be likely be published in the respective Regional IPM Centers (https://nifa.usda.gov/regional-integrated-pest-management-ipm-centers) located regionally across the United States (Northeastern, North Central, Southern and Western).



Turfgrass and Ornamental Entomology



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How Does Your Practice Facility Stack Up?

By David A. Otis and Todd Lowe, USGA Green Section, Northeast Region Director

"This article is reprinted from the Volumn. 54 (13), July 1, 2016 of the USGA Green Section Record. Copyright United States Golf Association. All rights reserved."

Practice facilities are important and play a valuable role at golf facilities. Many courses have invested in practice facility improvements, expansions, and upgrades in recent years. Are you wondering whether improvements to your practice facilities would be worthwhile? Have you considered all the different options? Learning about the history of practice facilities and the importance of design, use, and maintenance will help you create a safe and fun area where players can work on their game.

PRACTICE FACILITY HISTORY

In the early 1900s, golf instruction was enerally given in the form of playing lessons and little thought was given to practice facilities. Perhaps the earliest recorded history of practice facilities in the United States was at Pinehurst Golf Resort in North Carolina in 1913 when Donald Ross designed a practice area by relocating the first, second, and 18th holes of Course No. 1. The practice area was an

immediate hit and eventually earned the nickname Maniac Hill, presumably in reference to the numerous golf addicts who tried to hone their skills there.

In 1926, Maynard Metcalf, a Chicago-area golf course superintendent, bemoaned the lack of adequate practice facilities in an article he wrote for the *Bulletin of the Green Section of the United States Golf Association:*

"Practice ground of sufficient size and proper character for driving, for short and long approaching by run up, pitch and run, or dead-stop shots, for shots out of sand traps and out of rough and for putting should be provided in connection with every course which is designed to train good golfers; and ground for lessons with open-front rain shelters for instruction should also be provided."

Metcalf understood the importance of practice facilities long before most others. However, it took many years before golfers realized the potential value of practice facilities and began investing in them. Early practice facilities were neither elaborate nor large, and they received minimal maintenance, likely adversely affecting

their popularity and usage. These facilities typically consisted of a putting green, possibly a chipping green, and a field or driving range where golfers could hit their own practice balls. Caddies often gathered the balls for their employers, sometimes using baseball mitts to catch balls hit to them. Later, courses began selling practice balls by the bucket or bag. Practice facilities did not seem to receive concentrated and thoughtful innovation or intensive maintenance until much later. In the early 1980s, USGA Green Section National Director Al Radko stated:

"Practice ranges at golf courses are often an eyesore in an otherwise plush setting. The range, a most desirable facility, is too frequently neglected in the budget and is given little incentive or improvement."

In a 1982 USGA Green Section Record article, agronomist William Brewer wrote that 4,500 square feet of practice teeing area might be enough for some courses, but others might need five times that amount. In a modern context, even the higher number would be woefully inadequate at many courses. What caused such a dramatic shift in the popularity of practice?

Several key changes occurred that sparked a tremendous increase in the popularity of practice. The surge prompted many to place much greater emphasis on having good practice facilities where golfers could work on all facets of their game.

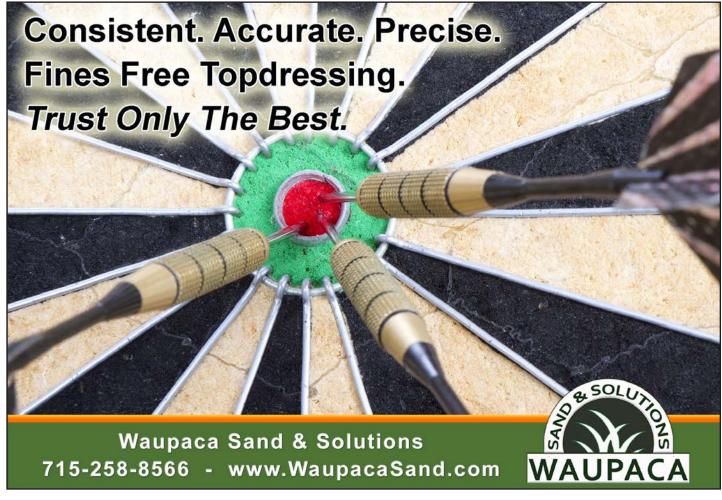
UNLIMITED RANGE BALL PROGRAMS

For years, it was customary for courses to sell practice balls by the bag or bucket. As a result, golfers hit fewer practice balls. Recently, golf courses have started charging for range balls on a yearly basis, rather than by the bucket, causing a profound effect on golfer practice habits. Driving range use sharply increased at courses that initiated unlimited range all programs. Golfers who once hit a small bucket to warm up before a round of golf suddenly began hitting buckets of golf balls.



Unlimited range ball programs sparked a tremendous increase in practice. As a result, practice tees have been expanded to accommodate the extra wear and tear.





INCREASED EMPHASIS ON PRACTICE

Golfers have long realized that improving their game requires practice. Golf instructors and pupils need areas to teach, learn, and practice the game. While many golfers are satisfied with simply hitting a few golf balls to warm up before their round, others want better, larger, and more varied practice facilities where they can spend time hitting balls and working on different aspects of their golf game.

LIMITED FREE TIME

For many, the increased popularity of practicing is partially due to a lack of free time. The time that it takes to play a round of golf and busy personal schedules can make it tough for golfers to play nine or 18 holes. Practice facilities provide a great opportunity for players who have limited free time.

ADJUSTING TO THE DEMAND

Golf courses recognize that good practice facilities are an attraction for many golfers and can serve as an effective marketing tool. Practice facilities also are ideal areas for introducing new golfers to the game.

Unlimited range ball programs stimulated a surge in practice that quickly laid waste to driving range tees everywhere. Many courses responded by expanding driving range tees, and some courses began experimenting with artificial turf surfaces. More than a few courses have expanded driving range practice tees multiple times in an effort to keep up with the dramatic increase in practice.

Having a practice tee with enough hitting area to maintain reasonable turf conditions is an important starting point, but today's golfers want to do more than just hit balls on the driving range. In response, courses have installed practice bunkers, elaborate short-game practice areas, and par-3 courses to meet those desires. Innovative teaching aids such as video equipment, golf simulators, and launch monitors also are being incorporated into practice facility design.

Clearly, there are many good reasons to develop bigger and better practice facilities, so why don't all courses have them? The most common answers are simple: lack of space and/or funding. In addition, maintaining heavily used practice facilities requires labor and resources that are unavailable to some courses. However, given the popularity of practice, many courses would be wise to consider investing in their practice facilities.

PRIORITIES

In a perfect world, every golf course would have a large driving range with plenty of hitting area, a par-3 course, a shortgame practice area, and one or more practice putting greens. In reality, golf courses have to do the best they can with their available resources, starting with a sound design that maximizes the available space.

DESIGN CONSIDERATIONS

A large practice tee with plenty of hitting area is ideal, but how big should it be? Determining the amount of hitting area needed can be difficult to calculate because it depends on several factors. Golfer profile, proximity to the pro shop and clubhouse, climate, and the periods of peak activity are just some of the factors that influence how heavily a range is used and how much hitting area is needed. Turf conditions also influence usage — better turf conditions often result in heavier use.

Paul Vermeulen, former director of the North Central Region



The best way to take divots on a practice tee is in a linear pattern by placing the ball on the turf immediately behind the receding divot. Following a linear pattern, each swing will take less turf than a full divot. The resulting narrow lines heal more quickly than scattered or otherwise consolidated divot patterns.



Netted facilities can provide an excellent practice experience at golf courses where there is not enough room for a full-sized driving range. When the ceiling net is angled upward, golfers can watch the trajectory of their ball flight.

of the USGA Green Section, developed a useful formula for determining adequate practice tee size. However, a sound motto for practice tee size is, "Bigger is better." It is difficult to build a practice tee that is large enough to handle today's intensive practice. In fact, some courses that expand their practice tee fail to see a major improvement in turf quality because use increases along with the expansion. Nevertheless, a large practice tee will support better turf conditions and may require lessintensive maintenance if wear can be effectively distributed.

When considering practice tee size, it is important to be aware that tee width can be as important as depth. Wider tees allow more golfers to practice at the same time, an important feature for courses where heavy play and shotgun starts are common.

Wide tees also allow practice stations to be shifted laterally as well as forward and back, helping to spread the wear. It is critically important to maximize the amount of usable teeing area when building new or expanding existing practice tees. The most efficient use of space dictates that large, single-level designs be utilized, but they may not be practical where elevation changes are severe. Multilevel designs help a tee fit more naturally into a steep site and can help golfers see the landing zone. However, valuable teeing space is lost to grade changes between levels, so, when space is limited and usage is heavy, the use of multilevel tees should be minimized. Getting golfers to and from the practice facility without causing concentrated wear is another important design consideration. Golfer traffic patterns should be carefully studied and the practice facility design adjusted to minimize wear problems. Providing ample room for parking, foot traffic, and maintenance access will improve how a practice facility functions.

TURF SPECIES SELECTION

The unfortunate reality is that most courses have limited area, and range tees usually are smaller than ideal. Courses must be mindful of their turf species, climate, and usage patterns to maximize practice tee performance.

Warm-season grasses grow rapidly in hot, sunny weather but go dormant in the winter. Less teeing area may suffice during the summer when recovery is rapid, but significantly more area is needed during winter when growth and recovery are slow or suspended. If the primary playing season is winter, far more teeing area will be needed.

In areas where cool-season turf is grown and use is heavy, courses usually need one or two acres of usable hitting area to maintain reasonable turf quality without relying on artificial turf surfaces.

Courses that experience heavy range usage may require even more area. Kentucky bluegrass and perennial ryegrass are the preferred species for practice tees in cool-season climates where usage is heavy. Bentgrass is only suitable for large and gently used practice tees because divots tend to be larger and recovery is slow.

Courses in the transition zone are increasingly maintaining practice tees with both warm-season and coolseason turf. Players practice on the cool-season turf areas during spring, fall, and winter, but they use the bermudagrass areas during the hot summer months when bermudagrass quickly recovers and cool-season grasses struggle. Golfers may want the turf on the practice tee to perfectly match the fairways, but this may not be practical and it could result in slow recovery depending upon the turf species.

GOLFERS CAN HELP

Golfer behavior can have a major impact on how a practice tee performs during the season. Patterns of use must be carefully managed to maximize teeing space and uniformly spread wear. Using ropes to define hitting areas is very helpful for guiding golfers.

How golfers practice also affects practice tee performance. For years, golfers took divots on the practice tee without much giving much thought to the turf. Worse yet, some golfers were encouraged to concentrate divot patterns to conserve turf. Concentrating divot patterns reduces the amount of turf being damaged, but the damage is so severe that the increased time and labor needed for recovery negates any benefits. A linear divot pattern, where each shot is struck from immediately behind the previous divot, is the best way to minimize damage and promote recovery. Educating golfers and monitoring their activity is an important part of practice facility management. Teaching golfers to Practice Like a Pro will result in less wear and faster recovery on your practice tee.



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MAINTENANCE

Maintenance strategies have a tremendous impact on how much use a practice tee can withstand. Effective and aggressive management programs, combined with golfer cooperation, can have a hugely positive impact on conditions. Frequent fertilization, divot filling, seeding, and periodic resodding are practices that help maintain turf on heavily used practice tees. Irrigation systems designed to match wear patterns also can be an invaluable tool for promoting recovery.

Northern courses typically seed practice tees with perennial ryegrass because of its rapid germination and ability to tolerate traffic. However, perennial ryegrass does not form thatch, which is needed for surface strength and resiliency. Kentucky bluegrass forms thatch and tolerates traffic well, but it is extremely slow to germinate and establish. Therefore, a common technique is to sod practice tees with Kentucky bluegrass and then seed divots with perennial ryegrass. After a few years of heavy use, most of the bluegrass will be eliminated and there will only be a thin turf of perennial ryegrass. Once this stage is reached, it is time to start the process over again by resodding the practice tee.

Regardless of the species, it is important to allow time in the fall for recovery. For warm- and cool-season species, this means closing the practice tee in time for the turf to regain full coverage before growth slows down and dormancy sets in. Some southern golf courses overseed bermudagrass practice areas with perennial ryegrass to provide color and turf recovery during the shoulder seasons when bermudagrass recovery is slow. However, non-dormant bermudagrass practice facilities are used throughout the year in many southern regions.



Above: Artificial turf gives golfers a place to practice while grass tees recover. This is essential when space is limited and practice facility use is heavy.

Right: Canopies protect golfers from the elements and can be used in combination with artificial turf.

WHEN THE TEE JUST ISN'T BIG ENOUGH

No matter how large and well-managed a practice tee is, most courses still require players to use artificial turf when the grass tee needs time to recover. Often, courses with undersized practice tees need to use artificial surfaces during the growing season to prevent excessive wear on grass tees. In both northern and southern climates, using artificial tees during the shoulder seasons is an excellent strategy for avoiding damage and aiding recovery. Also, artificial tees should be used during periods of wet weather when the grass tee is softened and damage is magnified. An added benefit of artificial tees is that shelters can be constructed over them to give golfers protection from the sun and rain without limiting turf growth.

COMMON MISTAKES TO AVOID

Improving or maintaining the practice facility at the expense of the golf course is an egregious mistake. Practice facilities are wonderful, but the golf course should always come first. When a course has limited acreage, slight changes to a hole or two may be worthwhile to create room for a practice facility, but this should be done with the greatest care. More than a few courses have ruined good golf holes just to squeeze in a practice range.

Another common mistake is having too many target greens on a practice range. Target greens and yardage markers are worthwhile practice aids for golfers. Three to five target greens is sufficient for small- to medium-sized ranges, while longer ranges may benefit from one or two more. It is important to locate targets in the middle portion of the range to minimize the risk of miss-hit shots leaving the range. Locating target greens near the outer perimeter of the range should be avoided.



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Elaborate target greens complete with real or artificial bunkers can be very attractive, but they require added maintenance and make retrieving balls more difficult and expensive. Turf damage caused by ball-retrieval equipment is magnified by sharp turns and steep topography. Furthermore, balls must be retrieved manually from bunkers. The visual benefits of bunkers must be weighed against the increased labor and potential traffic damage. Artificial bunkers created by removing sod and replacing it with a hard-packing sand or aggregate can create the illusion of a bunker without the associated turf damage and increased labor. However, hard materials can scuff practice balls, shortening their useful life.

Practice tees can be equipped with a host of accoutrements, and golf bag stands are particularly popular. Purchasing bag stands, club cleaners, yardage signs, and clocks is the first step in a chain reaction of expenses. Practice facility accessories must be frequently moved to avoid turf damage and periodically cleaned and repaired, costing time and money. Range tee accessories are nice additions, but when bor and budget dollars are tight, leave out the extras and focus resources on turfgrass management.

OTHER OPPORTUNITIES FOR COURSES WITH LIMITED SPACE

There are plenty of options for providing meaningful practice opportunities at courses that do not have enough room for a large practice facility. Limited-flight golf balls and nets allow golfers to practice safely in smaller areas. Some facilities allow golfers to see the takeoff trajectory of their shots by angling the netted ceiling. These popular facilities require much less space than a



typical driving range and still offer a valuable practice experience. Consuming less space with a driving range may also leave room for other types of practice areas, such as a short-game area or practice bunkers.

SUMMARY

Practice facilities that are well built and well maintained are popular and valuable components of a golf facility. They provide a place for players to warm up before their round, fine tune their skills, or receive instruction. They also give beginners a place to learn the game. Therefore, practice facilities deserve the same thoughtful consideration as other parts of a golf operation.

Hopefully this article has provided you with some ideas about how to improve your practice facility. The next step is to speak with a golf course architect and weigh all the varied options. For years golf courses have developed master plans to chart out programs for making architectural improvements; practice facilities deserve the same thoughtful consideration. Make no mistake, practice is popular and courses should do all they can to capitalize on that popularity.

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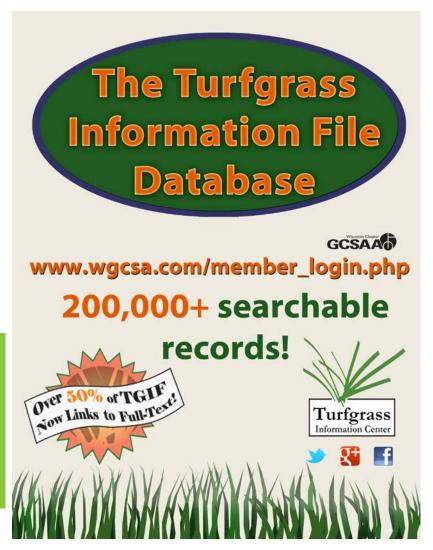
DAVE OATIS is the regional director of the Northeast Region and TODD LOWE is an agronomist in the Southeast Region.

Editors Note: Articles like this along with most turf publications can be found and are searchable at the Turfgrass Information File Database (TGIF) through the WGCSA or WGCSA Websites.

The OJ Noer photo collection can also be found and is searchable.



Ball-retrieval equipment can damage turf, so be sure to consider traffic patterns when designing your driving range.

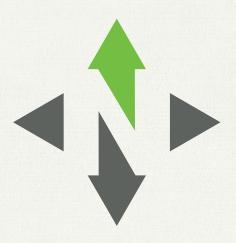


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MADTOWN MUSINGS

Controlling the Uncontrollable

By Jake Schneider, LMD Production Manager, The Bruce Company

Tuesday, September 13, 2016, started off on a seemingly positive note. The rain that was expected to hit the Madison area arrived earlier than anticipated in the overnight hours and all forecasts pointed to the storm's remnants staying south for at least the morning. After double-checking the radar as crews were heading out at 7 am, not much had changed, but we had to redirect our weeding crew from going to Janesville due to an imposing band of rain in that area.

As a department that makes margins on labor (landscape construction also gets a profit from materials), we're always trying to minimize travel time and make our operations as efficient as possible. With morning departure preparations taking 15-30 minutes per person, we really need the crews to produce 2+hours of actual work to make it worthwhile for them to travel to and from the site. Accordingly, mornings with forecasted rainfall make for sleepless nights and frequent radar checks, and in this regard, the golf and landscape worlds align.

Fast forward to 7:45 am, and as I settled into my morning routine of time approvals and emails, the skies outside of my office opened up with a depression-inducing downpour. After letting a few four-letter expletives fly through the halls of The Bruce Company, I pulled up the radar to confirm that it, in fact, was pouring outside. The southern storm exploded to the north, and the rains had unfortunately returned. I shouldn't have been surprised.

To say that it has been a wet summer would be an understatement. As of September 17, Madison's official rainfall since July stands at 17.51 inches. The normal over this same stretch is 10.3 inches. In completely related news, I'm ready for a late-season drought. Aside from a brief dry stretch in early July, it has been an ideal growing season in this neck of the woods and summer dormancy for non-irrigated turf lasted but a fleeting moment.

From the outside looking in, you might think that this is great problem for a landscaping company that prides itself on maintaining high-end properties, and in some regard, having everything look emerald green is positive. However, when you 1) sell seasonal contracts that pay the same regardless of services and 2) mow most properties once per week, we secretly root for dry conditions. It turns out that Mother Nature doesn't always cooperate.

Between the aforementioned growing conditions and labor issues that most of us are dealing with, it's been a slightly more stressful stretch than normal, and several of our mowing crews have been putting in 60 hours on a weekly basis. Although this is great for their paychecks, copious overtime hours aren't great for our labor-based budget. All in all, my fellow managers and I have been ready for the cooler nights that are finally upon us for quite some time. A lot of complaining, I know.

I reached my tipping point at quarter to 8 on September 16. Although I do my best to not let the uncontrollable dictate my emotions, I was fed up with the constant struggle to get



Watching the radar has seemed to be a daily occurance for turf managers in the Midwest for the 2016 season.

through the work week with any sort of normalcy. Between the often-mentioned weather, employees, golfers/customers, and plants that can't speak, so much of what we do is directly impacted by factors outside of our control. While my own job is much-more office-based than my prior life on the golf course, I often wonder what it would be like to not worry about these variables, but I suppose that each job has its own unique headaches.

As it is, these are the gigs that we signed up for and some of the challenges that we face. As leaders, we try to maintain even, positive attitudes and make the best decisions with the information available. But, some four-letter expletives can be therapeutic when these plans go awry.



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GUEST COMMENTARY

A Little About "The Wee One"

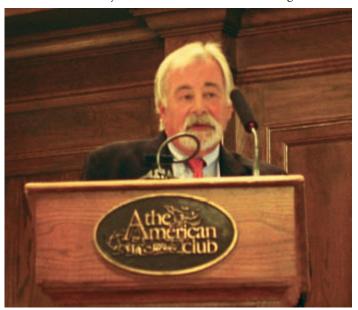
By Stuart Lindsay, Principal, Edgehill Golf Advisors

Editors Note: This article first appeard in the Summer 2016 issue of <u>Course Conditions</u> the publication of the Michigan Golf Course Superintendnets Association and is used here with permission. The authur Stuart Lindsay is a lifelong Milwaukeean, has made a career of a seemingly thankless task: Helping businesses and individuals understand the inner workings of the golf industry. He began delving into golf course economics while with Deere & Co., and continued after founding Edgehill in 1989.

My initial education into the real world of golf course maintenance came from Wayne Otto in 1977 – I would learn later how well respected and admired he was and how lucky I was to get some of his time. All I knew then was that I was researching the commercial turf market for John Deere in advance of their entry into that market and a family friend arranged a meeting with Wayne to help me get a handle on the golf segment of commercial turf equipment.

One of the first things he told me was that his mission in life was to "deliver consistently good playing conditions for the members at our Club." I would also learn later that "good" to Wayne meant excellent and/or outstanding. Not only was he generous with his time, but he also agreed to use an experimental Deere tractor and provide me with feedback.

In spite of the fact that the XR-500 blew a hydraulic seal and killed a strip of grass on his second fairway, we remained friends until his untimely death in 2005. Even today, when I do an operations review, one of my first questions to a superintendent is to tell me what his job is. If the answer is something similar to



Stuart Lindsay as Keynote speaker at the 2009 Golf Turf Symposium.



#9 Milwaukee Country Club by Paul Hundley - 2008 "Not a drop of white paint" for USGA 1988 Senior Amateur

Wayne'mission in life, chances are much better that I will find the superintendent's performance satisfactory.

After I left Deere and got more involved in the wholesale and retail of Ag and outdoor power equipment; I would run into Wayne through his work on behalf of the Wisconsin Turfgrass Association. Every time we would talk, I got a better perspective of how hard it was to deliver his mission – being a golf course superintendent is not as easy as he made it look.

One of my long term clients is Pellucid Corp., a leading golf market research and insight provider. Pellucid has done customer satisfaction surveys measuring responses from 100s of 1000s of golfers and the number one measure of customer satisfaction is always golf course condition. Wayne taught me early on that golfers really don't universally understand golf course conditions the same way. Older players want firm and fast fairways to cover their loss of distance as they age. Better golfers want their shots to stay where they hit them. And, he warned me, you can get another set of comments from the same players the day after Ladies Day.

The lessons continued after I accidentally got sucked into the golf business. One of my first projects involved looking at the maintenance budgets of 20 private clubs in Milwaukee. Wayne's course (Ozaukee CC) was always considered to be one of the best conditioned courses in the area along with Milwaukee CC that was kept up by his longtime friend Danny Quast. There was also a full blown rivalry between them, even though they readily shared equipment and knowledge. To give you an idea of their standards, when Danny Quast and Milwaukee CC hosted the US-GA's 1988 Senior Amateur, there was not one drop of white paint on the course – no course hosting a major USGA event had ever achieved that before and Mike Davis of the USGA commented at the 2008 Mid-Am that it hasn't happened since.

GUEST COMMENTARY

The most interesting thing about my study was that Wayne and Danny's budgets were virtually identical. More importantly, their budgets weren't even close to being the highest in the district – in fact, they were 35% below the highest and in the lower quartile of all the budgets. When I asked him how he did it, he gave me some key points:

- 1. A healthy stand of turf is the best deterrent to weeds and disease and healthy root structure is more important than what's above the ground. If I do a good job of maintaining the first 4 inches of soil where 90% of the microbial and bacterial activity takes place; I'm way ahead of the game.
- 2. I take extra time to train my staff to do the job right and let them know I'm paying attention to when they do it right through positive reinforcement. They also know that it takes 15 "attaboys" to make up for one "dumb s%^t".
- 3. I know how long it should take to do every task and how many hours of labor I need to budget for. My extra staff training also helps achieve those numbers.
- 4. We're all effectively using the same equipment equipment maintenance is part of the process, but without a solid agronomic base and good staff training; the best equipment in the

world can produce below average results.

He also knew that managing air and water were the keys to healthy root growth. He also taught me that this is where the "art" comes in because roots require some stress and all 4 inches of the soil activity to stay healthy. I think Wayne was more a soil psychologist who truly understood just how much stress his millions of patients could stand.

When word of Danny Quast's turf achievements at the Senior Amateur got out, he got hired to get Medinah in shape for the 1991 PGA Championship. What happened to Danny when he delivered the fast greens the PGA demanded and Mother Nature dealt him several days of 180+ heat/humidity indices is another story; but the net result was Milwaukee CC needed a new superintendent. It is considered bad form to openly pirate another club's personnel; so a Board Member and wellrespected USGA Greens Section lifelong volunteer asked me to quietly ask Wayne if he was interested. I knew Wayne had already turned down an opportunity to interview at Augusta National; so I wasn't surprised when he said no, but his reasons did. He wasn't afraid of meeting millions of new patients and he would have welcomed the challenge of continuing his friend's superb work; but he valued his friendships with many of the MCC members and was scared that those relationships would change.



GUEST COMMENTARY

If you're wondering what the relevance is in talking about a couple of old time turf farmers; it's because the golf industry faces many challenges and superintendents are going to be a key factor in dealing with them.

Your first challenge is that the 2015 GC-SAA study on golf course profitability showed over 60% of the reporting courses were breaking even or losing money. While the number of profitable courses did improve over the study from 3 years earlier, it still means the majority of golf courses are under some financial stress. I probably don't need to tell you that your budgets are under a whole lot more scrutiny today than they were a decade or two ago.

So your second challenge is how to deliver quality conditions with budgets that are not keeping pace with rising costs. As we said earlier, course conditions are the primary factor in providing a good customer experience – golfers may not share all the same opinions or standards; but they will notice when conditions are deteriorating.

Pellucid was the first to point out the dropping golf participation among people

aged 20 – 40 and the golf industry is now buzzing about how to attract "Millenials". All the market research emphasizes that this age group is obsessed with their "experiences" and readily share their opinions, good and bad, on an ever expanding universe of social media platforms.

I realize we live in a world of growth regulators, greens rollers and increasingly technical water management systems. But I can't help but look back and wonder what we can learn from a couple of old masters – they delivered some incredible playing conditions on relatively modest budgets without slowing photosynthetic activity and squeezing air out of the root zone. I would suggest their true artistry was in staff training and motivation, along with the ability to manage a solid agronomic basis for healthy turf. Those lessons should be timeless.

This simply reinforces the need to provide good course conditions for all ages at a time when 70%+ of golf is played by "experienced" golfers over the age of 50.

Probably the question we get asked the most is what we see in our crystal ball. We have seen about 1000 golf courses close (net of openings) over the last decade; and based on the financial conditions noted above, course closures will continue into the foreseeable future. We also tell our clients that maintaining quality conditions will be critical to a course's survival; but it will be the superintendents who can produce the best results with increasingly limited budgets that will eventually determine which courses survive and even prosper.

I realize we live in a world of growth regulators, greens rollers and increasingly technical water management systems. But I can't help but look back and wonder what we can learn from a couple of old masters – they delivered some incredible playing conditions on relatively modest budgets without slowing photosynthetic activity and squeezing air out of the root zone. I would suggest their true artistry was in staff training and motivation, along with the ability to manage a solid agronomic basis for healthy turf. Those lessons should be timeless.





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Fall Activity at the Noer

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

s I write this fall has officially arrived. The time is now for projects to commence at golf facilities around the Midwest. I know many of you have already aerified greens, tees and fairways and are well into other projects. Here at the OJ Noer we are not so lucky. This year was a very busy one for research and product testing protocols. The applications and data collection are still ongoing. We have targeted the Wednesday October 12 as the big day. If weather is cooperative we can aerify, topdress and drag all the putting green surfaces in one day, that is of course if everyone does not take the day off. Besides the aerification we will be verticutting all out fairway plots that week and repeating that process at least one more time before the snow falls. The other fall project that I have to tackle is weed control on putting greens. No they are not that bad but for research purposes they are very lean and if a treatment does not control the intended disease, the plot can be over run with disease, thus opening up the surface to weed infestation. All season long we mark our plots corners with white paint dots and by the end of the year those dotted areas are dead can be perfect site for many weeds to invade the putting green. Next year count the number of painted dots on the greens here at the Noer.

This year, Tom Schwab's last he renovated 18-20 plots. I was very thankful that he decided to do that renovation during the summer season when we had staff. A few times in the past he has undertaken plot renovation after September 1 and that left a crew of three or four people, Tom, myself, maybe one other person and Walter our retiree. We always got it done but it was much more enjoyable with college student doing the heavy lifting. Speaking of summer staff, I have to



send a huge thank you to the staff at the Noer this year. My staff (nick and Jake) and Tom's staff (Bennett) were fantastic. They pulled together and did whatever was sent their way and took great pride and responsibility for their work. Unfortunately it looks as if none of them will be returning next year.

As we move into the fall the lab will see a decline in sample submission from the local area. The samples from areas that stay warmer will continue well into October. This summer there were a few days when there were as many at 13 samples on my lab bench waiting for my attention. As I finish this article there are four samples on my lab bench and four more schedule to arrive today, looks like a fun Friday. This summer has been very busy, but I will not breakdown the year until the next Grassroots when I do my "TDL year in Review".

By the time you read this all your snow mold purchases will possibly be done and you will be in the midst of the Plant Protectant Early Order Program buying season. Before you make the easy decision to just buy what you did last year, I hope you will take a few minutes to reflect on 2016 and the previous years. Over the last two growing seasons the weather has been very conducive to growing grass and a few of our normal disease have been rarely seen. Basal Anthracnose (BA) has been on the rise over the last two years. I assume the cause has been un-timely rainfall all year long has provide the perfect conditions for BA to become an issue in lower lying areas or drainage areas. If you are one to the lucky few that has fought this battle over the past few years, remember as you make out you Plant Protectant Plant to begin control of this disease well in advance of when the symptoms have appeared. This disease will infect the crown area of the plant

(Creeping Bentgrass) up to a month or more before the symptoms. Adjust your plan accordingly with systemic products that are watered in to deliver the active ingredient to the roots and crown of the plant.

This will be the last article I will write before my good friend and cohort Tom Schwab retires. We all know Tom and I have the pleasure to say he and I were classmates at the UW. We have been friends for all these years but the last four years, I have come to know him much better while working with him daily at the OJ Noer. I never realized all he does for the entire Green Industry until I started the TDL Manager position. Tom is a very unsung hero to our industry and I truly hope that after he retires we all continue to remember all he has done for all of us. I wish him all the best and I am very proud to say I consider Tom a great friend. Tom, enjoy your retirement you have earned it and remember since you live so close retirement does not mean you have to quit taking me out for breakfast once and awhile.

CONGRATS TOM everyone will dearly miss you!

WELCOME NEW MEMBERS 2015 to January 2016

Class A Superintendent Members

Kevin Clunis, Luck GC, Luck Steven Blake, The Creeks at Ivy Acres, Hortonville Jim Wallace, Deleware CC, Muncie, IN

Class SM Superintendent Members

Patrick Connaughty, Windwood of Watertown, Watertown Anthony Hudzinski, The Oaks GC, Cottage Grove Allen Oliver, Decature Lake GC, Brodhead Daren Rose, The Oaks GC, Cottage Grove Michael Stein, Milwaukee County Parks, Milwaukee Ben Zawacki, Whitnall Park GC, Franklin

Class C Assistant Superintendent

Zac Bergemann, The Ledgend at Bristlecone, Hartland Alex Beson-Crone, Erin Hills GC, Hartford Andy Brownlow, Sand Valley GR, Nekoosa Ethan Dempsey, Legend at Bergamont, Oregon, WI Aaron Hansen, Wausau CC, Schofield Nathan Holmstrom, Oconomowoc GC, Oconomowoc Casey Kopf, Fox Valley GC, Kaukauna Tyler Mentz, Edelweiss Chalet, New Glarus Chris Nicholas, Blackhawk CC, Madison James Windsor, Oliphant Golf Mang, Beloit

Student Members

Nicholas Gmeinder, UW Madison **Dustin Schneider, UW Stevens Point**

Class D Associate Member

Tim Snell, Jacobsen / Textron

Class E - Affiliate Members

James Lindmeyer, Sure Cut LLC, Hutchinson, MN Mark Frever, Dry Ject Great Lakes, Jackson, MI Tim McCarthy, McCarthy Well Co, Shakopee, MN Corey Mogren, Mogren's Deep Tine, Oak Park Heights, IL Ken Rost, Frost Inc, St. Croix Falls, WI Eric Spong, Intelligrow, Normal, IL Mark Thurow, Water Well Solutions, Oconomowoc Scott Verdun, Burris Equipment, Waukegan, IL Mike Witaker, Ferguson Waterworks, Blaine, MN Dan Wubbels, National Golf Graphics, Madison

WGCSA MISSION STATEMENT

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

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

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

Joint August Meeting at Thornberry Creek

By David Brandenburg, Editor, The Grass Roots

The 2016 joint meeting with the Wisconsin Golf Course Superintendents Association and the Northern Great Lakes Golf Course Superintendents Association was hosted by Golf Course Superintendent Steve Archibald and Thornberry Creek at Oneida in Oneida right outside of Green Bay.

Established in 1994 and designed by architect Rick Jacobsen the course is on spacious property just west of Green Bay. We played the Legends Championship Course and the venue is "The Official Course of The Green Bay Packers".

The facility also offers their original layout the Iroquois 9 hole course. The par 36 course offers 4 sets of tees along with 2 levels of PGA Family Tees. Uniquely the course features 2 greens on each hole.

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When I arrived a crew was putting finishing touches on landscaping around a new parking lot and I was immediately impressed by the huge clubhouse and surrounds.

Visible from the clubhouse was a new practice area with putting and chipping greens along with a new driving range and tee. All these areas had seedlings up and were being grown in.

As soon as I got out of the car one of the staff was there to welcome me and take my clubs up to the clubhouse.

The clubhouse was very nice as I worked my way from a expansive golf shop to the bar and into the room for our education and lunch.

Dr. Paul Koch, Assistant Professor in Pathology at UW-Madison was our morning speaker with a talk titled 'The Common Ground Initiative" Dr. Koch was quick to add this disclaimer: "I am not advocating the elimination or reduction of pesticides on turf."

However he does want to change the way we talk about pesticides. He reminded us that RISK = Hazard X Exposure. To reduce risk we can reduce exposure or reduce the hazard.

Using the Smith Kerns dollar spot predictor model reduces exposure because in most years less fungicide applications are made. On the other hand using reduce risk pesticides reduces the hazard.

Paul along with the team at UW Madison is working to develop the "Common Ground Initiative" to help address concerns surrounding pesticide usage on turfgrass in Wisconsin. The voluntary program will provide incentives to pivot from older pesticides with a greater environmental impact to newer ones with a lower impact to the environment.

It is not a cost reduction program as the newer chemistries are usually more expensive than the older ones however if predictive modeling is used it will reduce the number of applications in most years.

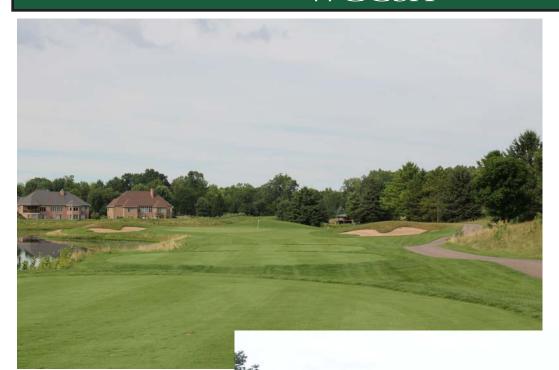
The UW Turf team is working to establish the average level of pesticide usage in the golf and lawn care industries. From those results the will establish a target reduction in pounds of active ingredient used over a year along with a target reduction in Environmental Impact Quotient (EIQ) relative to the statewide average.

A course that meets the target reduction would then be a certified participant and could use the initiative to promote their sustain ability efforts to their membership, players or the general public.

There were a few questions and you could sense the apprehension among turf managers who were not eager to put their programs on display for the world to see.

Dr. Koch reminded us that the public already thinks the worst about the products we use and it will be to our benefit to educate them.

At this point the turf team is looking from feedback golf course superintendents to share their thoughts and ideas.



Above: The par-3 8th hole plays 107 to 190 yards.

Right: The par-4 1st hole plays 305 to 428 yards downhill with a dog leg right. Note the Packer logo painted in the right rough.

Below: The par-4 16th is well protected by bunkers and plays 289 to 385 yards.



Right now the team is collecting data on our current product use and hope to use 50 courses this fall to have target parameters ready by spring. Work with those courses will start in summer of 2017 and the goal is to start enrolling courses in the program in the winter of 2017 / 2018.

After a nice lunch we were able to head out to the for our shotgun start. The Legends course is somewhat unique in that it does not return to the clubhouse after 9 holes. I was paired with Dr. Koch and we both thought we had left the property before we reached the 12th tee.

Given the long route I am sure superintendent Steve Archibald has a set route for his staff to follow around the property and employees plan ahead to take every tool they may need. The layout had a great mix of open holes with water and sand along with tight holes where trees or the abyss comes into play for errant shots.

Many of the holes had beautiful homes along them and our group was successful at keeping our shots away from them.

I would like to report that Paul and I played our best and won the event but that did not happen. However others played their best and the results are to the right.

2 Person Best Ball - Event Results

Gross Winners

1st - Scott Anthes and Jim Walenski 70

2nd - Shawn Savel and Jay Pritzle 71

3rd - Dan Wubbles and Jim Hartman 71

Net Winners

1st - Tom Wentz and Fred Anderson 57

2nd - Randy Malman and Lary Lennert 62

3rd - Ben Larsen and Nich Bannach 62

(ties were decided by scorecard playoff)



Left: The new chipping and putting greens.

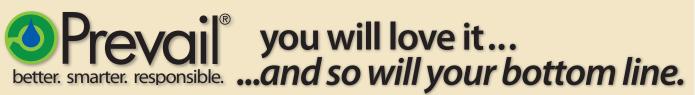
Below: The new driving range and tee





Above: Shane Conroy, GCSAA Great Lakes Field Representative, Steven Archibald, Golf Course Superintendent at Thronberry Creek, Dr. Paul Koch, UW Madison Department of Pathology, Rafael Barajas, GCSAA Board Member and Certified Golf Course Superintendent at Bocca Grove Plantation and CC in Bocca Raton, FL.

Right: Your Presidents: Kevin Henrickson NGLGCSA and Jim VanHerynen WGCSA.





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Above: The par-4 7th plays between 288 to 383 yards. From the rear tee sets players pick how much bunker, native grass and water they want to cut off.

Below: The approach to the 7th hole is well protected by water left.



After golf we were treated to Hors D' Oeuvres and provided updates on 'The National" from GCSAA Board Member Rafael Barajas and Great lakes Field Representative Shane Conroy. They started by reminding us to consider a \$95 GCSAA membership for our Equipment Technicians as the group joined GCSAA over a year ago.

In the 2015 member needs survey education was the number one concern while superintendents believe their recognition both at the local club and throughout the industry has increased.

Rafael touched on We Are Golf and their work promoting the game and the impact of our \$70 billion dollar industry. It is important to keep the message on the benefit of golf to the economy, the environment and individual players lives.

Shane and Rafael finished with a quick discussion on the new overtime rules coming from the labor department along with other new regulations in water use. Participating in and understanding the results from the GCSAA nutrient use and water use surveys is important to us as individuals and the industry as a whole.

Overall it was a great day at a impressive club. Thank you to Golf Course Superintendent Steve Archibald and the entire staff at Thornberry Creek for their hospitality.



Above: The par-3 2nd hole plays between 97 and 169 yards to a well guarded green.

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WISCONSIN PATHOLOGY REPORT

The Benefits of Fall Disease Cleanup

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

We often talk about fall as being a time for recovery and preparation. Recovery from the brutal conditions of summer, where high temperatures and heavy golfer traffic has oftentimes bent our turf to the breaking point. Preparation for the stressful winter ahead, where fluctuating temperatures, heavy snowfall, and ice cover can wreak havoc. Preparation also extends beyond that to the following growing season, as projects completed during the fall can set us up for continued success when the summer stresses several months later.

We usually think of fall recovery and preparation in the form of fertility and cultivation. Aerifcation will promote root recovery, topdressing can promote surface smoothness and organic matter dilution, and heavier fertilizer applications will promote turf growth during optimal temperatures. But fall is also an important time for disease management. Dollar spot, leaf spot, Microdochium patch, take-all patch, and of course snow mold are all diseases that need to be managed for in the fall.

Dollar spot

Dollar spot is the most sprayed-for disease on midwestern turf, and though severity lessens during the fall we can see severe dollar spot outbreaks into November in certain years (Figure 1). But fall dollar spot applications do more than just clean up the remaining disease from summer, it also can lower the initial disease you will see the following spring. We conducted a trial back in 2009 and 2010 looking at the impacts of various fungicide timings on dollar spot control and found that fall dollar spot 'cleanup' applications using Emerald[®] could significantly decrease dollar spot the following spring (Koch and Kerns, 2013). Adding this cleanup application was more effective then just one fall application targeting snow mold (Table 1). The impact of fall applications were less significant then spring applications, and tended to wear off by mid-July relative to non-treated turf, but the impact was clear.



Figure 1: Prolonged leaf moisture present during cool and wet fall periods can lead to significant dollar spot outbreaks, such as this one at the OJ Noer center in October of 2008.

WISCONSIN PATHOLOGY REPORT

		2009			2010	
Treatment	22 Jun	6 Jul	27 Jul	28 Jun	8 Jul	2 Aug
NTC	70.5a	106.5a	104.8a	88.3a	142.8a	110.8a
LF	61.5ab	69.3b	86.5ab	75.0a	25.3bc	24.0b
LS	23.8cd	27.0cd	73.0abc	30.3bc	40.8bc	15.3b
LF/LS	11.3def	7.5cd	60.8abc	20.3bc	46.3b	31.0b
EF/LF	42.5bc	39.8bc	78.0abc	46.5b	8.0c	22.5b
ES/LS	2.0ef	5.5d	46.5abe	7.0c	29.5bc	28.0b
All	0.8f	2.8d	29.8bc	5.3e	14.5bc	24.5b

Table 1: Mean number of dollar spot foci per plot on the putting green plot at the OJ Noer Turfgrass Research Facility in Madison, WI during the summer of 2009 and 2010.

Disease severity values were subjected to analysis of variance and means separated using the Waller Duncan k-ratio t-test (k=100). Early fall (EF) and late spring (LS) applications consisted of Emerald and were made in late October and early May, respectively. Late fall (LF) and early spring (ES) applications consisted of Chipco 26GT + Daconil WeatherStik and were made in late November and early April, respectively.

Reproduced from Koch and Kerns, 2013.

Cover	Fungicide Timing ^z	Snow Mold ^y	Turf Quality ^x
No cover	No fungicide	30.0a	4.5c
	Early	9.40b	5.6b
	Late	1.30b	6.9a
	Early + Late	1.30b	6.9a
Permeable	No fungicide	35.7a	4.4b
	Early	26.3ab	4.8b
	Late	0.65c	7.8a
	Early + Late	3.75c	6.7a
Impermeable	No fungicide	75.7a	2.4c
	Early	23.15b	4.8b
	Late	6.30bc	7.2a
	Early + Late	0.00c	8.0a

Table 2: Typhula blight severity and turfgrass quality on creeping bentgrass under a permeable, impermeable, or no cover at Antigo Bass Lake Golf Course in Antigo, WI during the winters of 2011-2012 and 2012-2013. Plots were rated on March 19th, 2012 and May 8th, 2013 and results from both winters were combined. Reproduced from Koch, 2016.

WISCONSIN PATHOLOGY REPORT

Snow mold

Timing snow mold fungicide applications is a point of debate seemingly every year. Some like to apply rather early to allow absorption of systemic materials into the plant, while others like to apply as late as possible to prevent as much degradation from occurring as possible. We can discuss the merits of each strategy in another article, but from some of our other research it is clear that early fall applications can also have a significant impact on snow mold development. In a WGCSAfunded study investigating the impacts of winter green covers on snow mold development, we inadvertently observed that these early fall applications do significantly decrease snow mold the following winter (Koch, 2016). The theory is similar to that of an early spring dollar spot application, where the fungicide is applied well before any symptoms will appear but can still come in contact with the fungus and significantly stunt its growth. In our study at Antigo Bass Lake in 2011-2012 and 2012-2013 under the impermeable Green Jacket® cover, an application of Interface® + Triton Flo® in early Octoberreduced snow mold severity to 23% (Table 2). While no one would argue this is an acceptable level of control, it's also true that no one can argue that those earlier applications have no impact.

Take-all patch

Arguably the most difficult aspect of managing take-all patch is properly timing the fungicide application. The take-all fungus is growing most actively at 2-inch soil temperatures between 55 and 65°F. Most take-all applications are targeted for the spring when the soil is warming up, but applications can also be made once or twice in the fall as the soil is cooling down. Much the same as dollar spot and snow mold, applications targeting take-all in the fall will kill the fungus back, both improving plant health now and likely lessening the amount of fungus present to infect in the spring. If the money exists to spray only once I think that the spring is the better bang for your buck, but applications in the fall will undoubtedly help suppress take-all development the following year.

Conclusion

Despite the benefits of fall disease suppression, there is no need to stay on a rigid 2-week spray interval right up until the snow falls. My recommendation would be to stay on a fairly tight spray schedule based on the environmental conditions through September, then make 1 or 2 timely applications targeting the aforementioned diseases in early to mid October. Use products, or at least mixtures of products, that will give you a broad range of control. For instance, using a DMI such as propiconazole in early October will give you activity against dollar spot, leaf spot, and snow mold. Or, mixing a great dollar spot product like Emerald* in with a great leaf spot product like Chipco 26GT* would also be another effective strategy. Note, however, that applications targeting take-all patch must be watered in and that may lessen their efficacy against certain foliar diseases. While fall is definitely a great time to take a breath from the chaos of summer, it's not the time to go to sleep for winter quite yet!

References:

Koch, P. L., Kerns, J. P. 2013. Impact of Spring and Fall Fungicide Timings on the Development of Typhula Blight and Dollar Spot on Golf Course Turfgrass. *International Turfgrass Society Research Journal* 12: 97-102.

Koch, P. L. 2016. Optimal Fungicide Timing for Suppression of Typhula Blight under Winter Covers. *Agronomy Journal* 108(6). Doi: 10.2134/agronj2016.04.0241.





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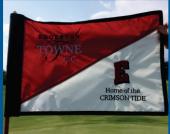
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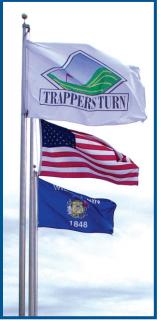












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2016 WGCSA Legacy Scholars

By Josh Lepine, Certified Golf Course Superintendent, Maple Bluff Country Club

The WGCSA Legacy Scholars Program was developed to recognize outstanding students and offer educational aid to children/stepchildren/grandchildren of active class A, B, C, Class A retired or class AA WGCSA members. Starting in 2016, the WGCSA Board of Directors budgeted additional funding for our Legacy Scholars program. We are now offering two scholarships in the amount of \$1,000 each. In order to improve eligibility for high school seniors, we moved the application deadline to May 1st. Since we did not have a J.R. Love scholarship recipient in 2016, your WGCSA Board of Directors approved a third Legacy scholarship for this year only.

Congratulations to our three 2016 WGCSA Legacy Scholars.

Brandon Johnson

WGCSA Member Relation: Son of Steven and Jennifer Johnson. Steven is the Class A, Certified Golf Course Superintendent at Voyager Village in Danbury, WI

Educational Status: Brandon is a 2015 graduate of Webster High school and currently enrolled at the University of Wisconsin Eau Claire studying Organizational Communication.

Achievements and Extra-Curricular Activities: English Teachers Aid, Writing and editing school grant application and school newspaper articles. Attended Wisconsin Writers Convention. Created media for several projects at Voyager Village. Volunteer for "Fall Fest" and Arts and Craft Show.

Quotes from Application Essay: "There are a multitude of attributes that make my father such a success in his field; to only highlight one truly doesn't do him justice. There are so many things that make him a great boss and an even greater person, but if there was a single word that is forefront in my mind whenever I picture my dad, it is commitment.....Being able to see such devotion firsthand has left a lasting impression with me. I am committed to my education because my father has proven it to me that developing that attitude now will prepare me for my future."





WGCSA

Taylor Luck

WGCSA Member Relation: Daughter of Garrett Luck. Garrett is the Class A Superintendent at Hidden Glen at Bentdale Farms in Cedarburg, WI

Educational Status: Taylor is a 2016 graduate of Wisconsin Lutheran High School and currently enrolled at the University of Wisconsin Eau Claire.

Achievements and Extra-Curricular Activities: Drama, Basketball, Soccer (Captain two years), Student Council, Agents of Change, Mission Trip.

Quotes from Application Essay: "A key characteristic to my father's success in the Golf Course Superintendent Profession is his determination.....Watching my father work with different people has inspired me to make sure that I always hear the opinions of others as well, even if I may not agree......Growing up and watching my father in the Golf Course Superintendent Profession has taught me great determination and effective communication skills that I plan on using when pursuing my future education."



Abigail Sann

WGCSA Member Relation: Daughter of Scott and Sara Sann. Scott is the Class A, Certified Golf Course Superintendent at Greenwood Hills Country Club in Wausau, WI

Educational Status: Abigail is a 2016 graduate of Wausau East High School and currently enrolled at the University of Wisconsin-Madison studying Environmental Sciences.

Achievements and Extra-Curricular Activities: National Honors Society, Full IB Candidate, State Silver Medalist in Forensics, State Qualifier in Cross Country, Track and Field, Drama, Key Club, International Club, Student Council, Bike Club (founder/president), Aspirus Volunteer, Neighborhood Catholics in Service Counselor, Rainbow's End Volunteer, Women's Community Volunteer, Jubilee House Volunteer.

Work Experience: Server/ Hostess: Greenwood Hills Country Club. Sales Associate: Trek Bike Store of Wausau.

Quotes from Application Essay: "An attribute that I admire about my father is his passion for the industry....I find this characteristic about my father's work ethic to be the most inspiring because it has encouraged me to pursue a career that aligns with my passion in life which is environmentalism. Throughout my life, my father has instilled in me the value of working hard for something you care about.



Register at: http://z.umn.edu/2017glts



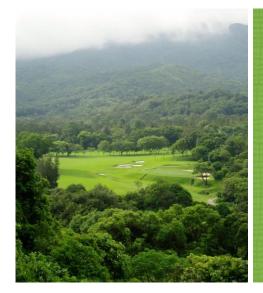








2017 Great Lakes School of Turfgrass Science Online (For Professionals)



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Questions about the class? Contact: Sam Bauer (sjbauer@umn.edu, 763-767-3518)

Class fee: \$495.00/person

Registration deadline: Friday, Dec. 23rd 2016

Register at: http://z.umn.edu/2017glts

Register at: http://z.umn.edu/2017qlts

2017 Great Lakes School of Turfgrass Science Instructors

Without question, the strength of this new online school lies within the depth and experience of the turfgrass faculty. This program allows for extensive interaction with researchers and educators having national and international recognition.



Sam Bauer, M.Sc. Assistant Extension Professor Extension Agriculture, Food and Natural Resources University of Minnesota-Twin Cities



Paul Koch, Ph.D.

Assistant Professor

Department of Plant Pathology
University of Wisconsin-Madison



Dave Chalmers, Ph.D.
Professor and Extension Specialist
Emeritus
Department of Soil and Crop Science
Texas A&M AgriLife Extension



Aaron Patton, Ph.D.
Associate Professor and Extension
Turfgrass Specialist
Department of Agronomy
Purdue University



Kevin Frank, Ph.D.

Associate Professor and Extension
Turfgrass Specialist
Department of Crop and Soil
Sciences
Michigan State University



Frank Rossi, Ph.D.
Associate Professor and Extension
Turfgrass Specialist
Department of Horticulture
Cornell University



David Gardner, Ph.D. Associate Professor Department of Horticulture and Crop Science The Ohio State University



Doug Soldat, Ph.D.
Associate Professor and Extension
Turfgrass Specialist
Department of Soil Science
University of Wisconsin-Madison



Brian Horgan, Ph.D.

Professor and Extension Turfgrass
Specialist
Department of Horticultural Science
University of Minnesota-Twin Cities



Chris Williamson, Ph.D. Professor and Extension Specialist Department of Entomology University of Wisconsin-Madison



Ed Nangle, Ph.D. Assistant Professor Horticulture Technologies The Ohio State University



Eric Watkins, Ph.D. Associate Professor Department of Horticultural Science University of Minnesota-Twin Cities













Register at: http://z.umn.edu/2017glts

2017 Great Lakes School of Turfgrass Science

Live sessions will be held on Wednesday nights from 6:00pm to 8:00pm (Central Standard Time).

Participants will have the option to view the live or recorded sessions.

School format:

Participants will work through a total of 12 sessions during the 12-week program. Each session will include readings, a 2-hour recorded lecture, a live 1-2 hour discussion with 3-4 instructors, quizzes, and a final test. Participants completing all sessions will receive a certificate of completion for the 2017 school. The required work can be completed beyond the 12-week school period.

Sessions include:

- Turfgrass identification, physiology and growth
- Soil science and management
- Selection and establishment
- Nutrition and fertility programming
- Mowing and additional cultural practices
- Abiotic stresses
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Sam Bauer University of Minnesota

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EDITOR'S NOTEBOOK

The Reports of Golf's Death Have Been Greatly Exaggerated!

By David Brandenburg, Editor, The Grass Roots

Many years have passed since Mark Twain exclaimed the reports of his death were an exaggeration. Historians argue his exact words but the meanings are the same... Mark Twain was alive and well.

I think the same can be said for the game of golf. In the past year there have been plenty of headlines hoping to draw readers announcing the death of golf. "Rounds are down", "courses are closing", "people are leaving the game faster than they join" etc. etc..

Nike and Addidas are getting out of the hard good side to focus on apparel and Golfsmith's near closing are just some of the recent stories. I did a quick Google search using "decline of golf" and wow! The results were surprising as I saw nearly every major magazine and paper has had a article on the decline of the game.

The millennials and their lack of commitment to the game are blamed for part of the games decline. I believe millennials and a lot of golfers are in a time crunch more than a money crunch and that is what has led to the loss of players.

As more time is spent on social media and many people live their lives through others experiences and not their own many activities are seeing a decline.

Theater attendance is down, malls are dieing, the local softball league is struggling to get players while many schools are combining with neighbor schools to field teams in once popular sports. Golf is not alone.

In our clubs core golfers I have seen many grandparents spend more time at their grandchildren's activities than they have in the past. Golf was a key activity in their lives, declined when their own children were in school and sport activities, returned while those kids were grown and now golf is taking a back seat again. They still play often but just less often than they used to.

The game has less core golfers today than 20 years ago but the truth is 24 million Americans still play the game and golf remains a \$69 billion industry and employes nearly 2 million people with a total wage income of 55.6 billion.

Golf generates \$3.9 billion for charitable causes each year during the thousands of fund-raisers held at courses across the country.

Our industry has it's challenges and although our many associations are doing what they can to promote the game and its benefits it really comes down to individual clubs to survive.

Make golf enjoyable for your customer base and show that you appreciate them. Many surveys have shown the golf course and its conditioning are key to player satisfaction. That statement shows that our positions as golf course superintendents are very important to our clubs. Be sure to use facts from Golf 20/20, National Golf Day, We Are Golf and GCSAA to toute the benefits and successes of the game in club newsletters, websites and social media avenues.

Spread the word to your friends and family or anyone who will listen. Talk about events or projects at your course. There is a lot of good going on in the game and it is up to us to get that word out.

Is your club ready for the new overtime rules? On December 1st employees making less than \$47,476 no matter what their responsibilities are will no longer be exempt from overtime pay for over 40 hours of work.

The U.S. House passed H.R. Bill 6094 to delay implementation of the rule from the Department of Labor until later in 2017. However as of today (Oct 4th) the senate does not intend to vote on the issue until after the November election making chances of a delay less than positive.



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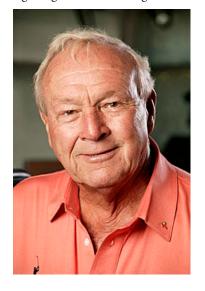
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EDITOR'S NOTEBOOK

Because this is a rule, not a law the overtime rules were never voted on by congress. The Department of Labor works under the guidance of the President's administration and has the authority to issue rules similar to this.

The U.S. Chamber of Commerce and numerous other organizations have joined to together in a lawsuit to block the rule from taking effect. If the rule is put on hold it will give congress more time to act or perhaps a change in President will change the rule.

The golfing world lost a legend recently



when Arnold Palmer passed away. Superintendents considered him one of our own in part because he helped his father Deacon while he served as golf professional and superintendent at Latrobe Country Club. He was a spokesman for Pennzoil and who doesn't remember Arnold with the Toro General tractor.

Of course Mr. Palmer was not just ours but he belonged to and was respected by everyone, golfer and non golfer alike. Not only was he respected for his bold style of golf, but for being a gentleman on and off the golf course.

Arnold was the first recipient of the GC-SAA Old Tom Morris Award in 1983 and was a lifelong friend of the superintendent. He will be missed.

The 2017 Golf Industry Show and GCSAA Conference in Orlando is fast approaching. Registration for events and housing is now open on the GCSAA website.

Orlando is a great site for everyone but from the Midwest it is a short trip and can be a economical one in comparison to our other venues. It is also a natural draw for bringing the family to the many attractions in the area.

I learned last show not to wait to book housing or flights so I will pass that advice to you.

GCSAA offers you a few opportunities to showcase your golf skills with the National Championship and Golf Classic held February 5th and 6th or the Four-Ball on Saturday Feb. 4th and for a more casual game the Shamble on Sunday Feb. 5th.

All the events are in the Orlando area and allow attendees to get back for education on Tuesday.

Congratulations to Captain Davis Love III and team USA for their huge win in the recent Ryder Cup at Hazeltine National Golf Club in Chaska, MN.

Golf Course Superintendent Chris Tritabaugh and the staff there prepared a incredible golf course for the games best players.

It was fun not only to follow the matches on television but Tritabaugh is very active on Twitter allowing those of us not lucky enough to be on site to feel involved. Congratulations to Chris and the entire staff and team of volunteers for a great presentation.

In 4 short years the Ryder Cup will be coming to Whistling Straits.

Here we are nearing the end of the 2016 golf season. To me it feels like the season just started and should be long over at the same time.

I regret I missed the Wisconsin State Open at Blackwolf Run and the LPGA Symentra Tour PHC Classic at Brown Deer Golf Course in August. I had hopes of making it to Hazeltine for the Ryder Cup but sometimes work and life get in the way of hopes.

Next year we will be on top of the golf world with the US Open coming to Erin Hills, hopefully the Symentra Tour returning to Brown Deer and the LPGA hosting the Inaugural Thornberry Creek Classic in Green Bay in July.

I was going to print some of the weather maps but I could just as well put a picture of a puddle or bucket of water as most golf courses in Wisconsin have had plenty of moisture the past month. From flooding in the west to an abundance of steady rain in the east and central parts of the state farmers and golf course staffs are waiting some sunshine to finish the year.

Our course has irrigated once since labor day and that was more to get the stale water out of the pipes.

By the time we meet again we will have a new President on the way. The candidates are a little "different" this year but it is our right to study the issues and cast a vote for the one that is going to best guide our future.

Good luck as you blow out your systems, finish up projects and prepare your clubs turves for winter!

Event Schedule!

November 5th, Saturday - Couples Dinner - Wisconsin Club - City Club, Milwaukee

November 30 - December 1 - Wisconsin Golf Turf Symposium - American Club, Kohler

February 4-9, 2017 - Golf Industry Show, Orlando, FL

March 1, 2017, Wednesday - NGLGCSA Spring Education Conference, (Location TBD)

March 15 & 16 - Reinders Green Industry Conference, Waukesha

All Smiles

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

All our golf shots were different at the 2016 WTA Golf Fundraiser at Butte des Morts CC. One constant was the smiles everyone had on their face. What a fun golf course to play!!! Superintendents Tim and Steve Schmidt had the course in such fun playing condition that you couldn't help but have an enjoyable time. Then the perfect weather in the mid 60's, hospitality and service from everyone at Butte des Morts, great door prizes, and friendly attendance sealed the deal. I'll let the pictures tell the rest of the story.

A special thanks goes to the many donators of door prizes that allowed every attendee to go home with more than golf memories. Many of those door prizes were worth more than the cost of registration. Thank you, thank you donators. You really are appreciated.

Many attendees also went home with golf skill and other prizes. One of those other prizes was the annual drawing for an Apple iPad that was won by Chad Grimm from Blackhawk CC. Chad was also in the winning foursome for the day with a 2-underpar score for the 4-person best ball tournament. His winning teammates included Aaron Goninen, Todd Martin, and Nick Strain. This is coincidental, but I just realized that the winner of last year's iPad drawing, Todd King, was also in the winning foursome when the WTA was held at Blue Mound CC. Sorry for getting off subject.

Another winning foursome for the day was for a randomly chosen place of 11th. That went to Jon Hegge, Joe Knudtson, Terry Allen, and Denny Reese. Then the hardest working winning

foursome went to Bruce Worzella, Tom Bottensek, Mark Kienert, and Greg Kallenberg.

Congratulations to all the skills events, door prize, and random drawing winners. The day was surely a treat for everyone, and for the WTA. The WTA will continue to further its valuable research and education with the money raised. A special thanks goes to all the participants, door prize donors, hole sponsors, and volunteers. Other thanks go to the golf course, clubhouse, and pro shop staff, and the members of Butte des Morts Country Club who graciously gave up their course for a day. The WTA was very fortunate to have everyone pull together to make this event a resounding success.

WTA GOLF FUNDRAISER SKILLS EVENTS

Longest Putt #1 – Jeremy Dahl Longest Drive #6 – Joe Knudtson Closest in one #11 – Rick Weiterman Longest Drive #11 – Donna Wilson Longest Putt #15 – Steve Tatro Closest in one #17 – Jon Dippel

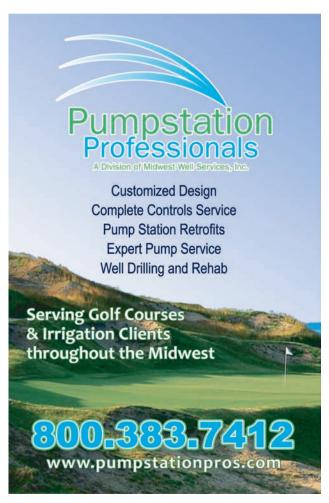
Our hosts Tim and Steve Schmidt enjoying the round with friends Rod and Brent Johnson







The par-4 ninth hole plays 352 yards to a well protected green in front of the 36,000 sqft clubhouse.



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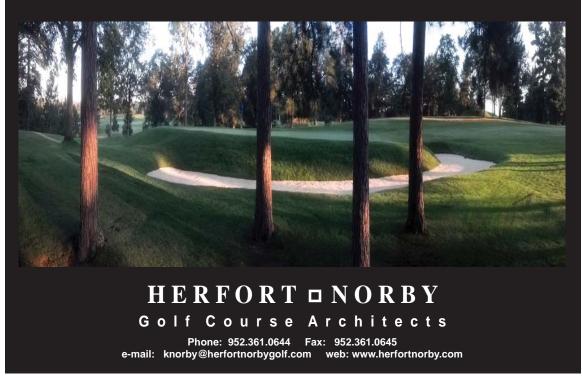
Left: Dan Quast being tested on the lightning fast greens of Butte Des Morts.

Bottom Left: Aaron Goninen exhibiting his winning form on the uphill lie.

Bottom Right: Peter Meyer preparing to let one sail









Left: All Smiles from Tom Wentz, Terry Kurth, Michael Ryan and Mike Skenandore.

Below: More smiles from Tom Wentz, Terry Kurth, Michael Ryan and Mike Skenandore.

Bottom: The Par-3 Seventeenth hole only plays 120 yards but is anything but easy.











Top: Par-3 seventh hole from the tee left and the challenging green right.

Right: Par-5 sixth hole plays 572 yards to a elevated green

Bottom: The Par-4 thirteenth plays 402 yards uphill after a challenging tee shot.







51ST Wisconsin C ANNUAL Symposium Wisconsin Golf Turf



WHEN

November 30th to

December 1st

WHERE

The American Club Kohler, WI

Registration packets are included in this issue of Grassroots. You can also register for the symposium at www.wgcsa.com

