

# Hole Notes

The Official Publication of the MGCSA

**MGCSA Sets an  
Example During  
National Golf Day**



Vol. 53, No. 4 May 2018

# Thank You 2018 Annual MGCSA Sponsors

*Platinum Podium and Event Sponsor*



*Gold Tee Prize and Event Sponsors*



Plaisted  
Companies  
INCORPORATED



Science For A Better Life



*Silver Tee Sign Event Sponsors*



VERSATILE VEHICLES

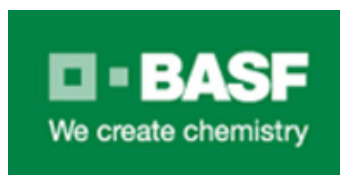
*Superior Tech Products*



*For the Strongest Turf*



TWIN CITY SEED COMPANY.





Need tools fast?

Same day shipping on over 80 tools and accessories at [Miltona.com](https://www.miltona.com)



800-456-4351



**Outstanding Informational  
and Picture Spreads:**  
Legacy Scholarships pages 16 - 18  
Reel Grinding Technology Education page 19  
The Appreciation Golf Event page 26

**Mark Your Calendars:**

June 18, North West Exposure, Wildflower at Fairhills Resort  
Host Tim Halvorson

July 18, South East Exposure, Valley View Golf Course  
Host James Bastys

August 9, UMN Field Day, TROE Center  
Host Dr. Brian Horgan, Dr. Eric Watkins and Sam Bauer

August 20, The Championship at The Jewel  
Host Doug Mahal



## ***Superior Tech Products***

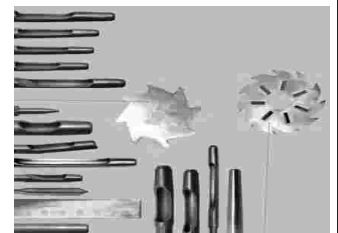
Leading Edge Turfgrass Solutions  
Golf Courses | Sport Fields | Parks

952-546-3678

[www.stproots.com](http://www.stproots.com)  
[stp@stproots.com](mailto:stp@stproots.com)



- \* Liquid & Granular Fertilizers
- \* Organic Fertilizers
- \* Post Patent Pesticides
- \* Aerification Tines & Bedknives
- \* Natural & Artificial Turf grooming equipment.



**Feature Articles:**

<b>thick-skinned: Aaron Johnsen, Winfield United</b>	<b>pages 20 - 25</b>
By Matt Cavanaugh, Assistant Superintendent Rush Creek GC	
<b>Equalfooting</b>	<b>pages 28 - 36</b>
By Kari Haug, Kari Haug Planning and Design	
<b>UMN On-Sight Research Member Driven Initiative</b>	<b>pages 37 - 39</b>
By Sam Bauer, UMN Extension Educator	
<b>MGCSA Marches On Washington DC</b>	<b>pages 40 - 53</b>
By Various Participating MGCSA Members	
<b>SDHI Resistance: Coming Soon to Your Course</b>	<b>pages 54 - 59</b>
By Dr. Paul Koch, UW Madison	

**Monthly Columns:**

<b>Presidential Perspective</b>	<b>pages 6 - 8</b>
By Brandon Schindele	
<b>In Bounds</b>	<b>pages 10 - 13</b>
By Jack MacKenzie, CGCS	

**EDITORIAL COMMITTEE**  
 JAMIE BEZANSON  
 JAMIE\_HONDA@YAHOO.COM  
 JESSE TRCKA  
 JATRCKA@WAYZATACC.COM  
 LIZA CHMIELEWSKI  
 LIZA@GERTENS.COM

***On The Cover:***  
***Eric Ritter CGCS deep tines the National Mall in expert fashion during the We Are Golf, National Golf Day Event***

Hole Notes (ISSN 108-27994) is digitally published monthly except bimonthly in November/December and January/February by the Minnesota Golf Course Superintendents' Association, 10050 204th Street North, Forest Lake, MN 55025. Jack MacKenzie CGCS publisher. Please send any address changes, articles for publication, advertising and concerns to [jack@mgcsa.org](mailto:jack@mgcsa.org).



# Presidential Perspective

by Brandon Schindele, Superintendent Edina Country Club

The season is underway!! Better late than never is a phrase that would most accurately describe the start of the 2018 golf season. I am sure everyone's members and patrons are as excited to get out and hit the links as mine are and now I am just hoping to work our routine into a little bit of normalcy; however, I do not see that happening in the very near future. My Lead Assistant, Jeff Mold will be leaving Edina Country Club as he will be the new Golf Course Superintendent at the Braemar Golf Course. I am extremely proud of Jeff and excited for him as he sets off on his journey of becoming a Superintendent and finishing up the large construction project and grow-in of the 18-hole golf course there.

As Jeff prepares to leave Edina Country Club, the entire staff, the

membership and I thank him for his contributions since 2004 to the course and membership experience here at ECC. Thank you Jeff, for everything that you have done since you started here. I could not have asked for a better first Senior Assistant Superintendent when I began my Superintendent journey in 2011.

How often do you thank people that are involved in your professional life? Your staff? Colleagues? Vendors? Everyone that you interact with that helps you do your job better every day is a key to your success. Last week the Appreciation Golf Event was held at Highland National Golf Club in St. Paul and a portion of the Affiliate membership showed up for an update on the Association, a BBQ, and nine holes of scramble golf. I want to say, again, to all those in attendance and to all the Affiliate members

that were not able to be there, THANK YOU!!! Thank you for supporting the MGCSA. Without every one of you endorsing the events, the education, and all the MGCSA's endeavors we would not be able to have such a great Association. So once again, Thank you to our Affiliate membership and thank you for everything that you do to help all of us Superintendents, Assistants, and Equipment Managers, we would not be able to do our jobs without you.

What else is going on in the MGCSA as we all quickly get swallowed up by the duties of maintaining our respective golf courses now that the pins and tee markers are out?

The On-Sight member research program is live, and Sam Bauer at the University of Minnesota would love to get some

involvement from us as members. If you have an idea for something to try at your golf course, whether it is a new product or a new seed mix in a difficult area, get a hold of Sam through the U of MN Turfgrass website or email him and he can help you get a trial started on your golf course that can benefit not just your facility but the entire MGCSA membership.

# *Thank You* **MGCSA** *Affiliates*

Speaking of the University of Minnesota, everyone should mark their calendars for the morning of Thursday August 9th. The biennial Turfgrass Field Days will be conducted at the TROE center and this a great way to catch up on the latest studies that we, as an association, are helping to fund at the U. It is a great way to catch your breath before all your summer help leaves to go back to school and do a little networking as well before we all start on the final

push of the season into fall. Please try to come out and support the University and maybe even offer a Thank You to the University staff that does all the research.

Many us have kids at one age or another and will most likely try to send them to some type of post-secondary education opportunity. The MGCSA offers scholarship opportunities to our members for their children. All they need to do is apply. As recently as the last Board of Director's meeting, prior to the Affiliate meeting, there were zero applicants!!! June 1st is the deadline, please encourage your kids to apply. If there are any questions please reach out to our Executive Director, Jack MacKenzie.

As I continue my monthly theme of Thank Yous, I think it is important to bring up an event that was designed around the staff member that at times does not get nearly enough thanks for the work that they do.... our

Equipment Managers. On May 14th at Olympic Hills golf club an event was held that dove into the important process of reel mower setup. Jim Nedin was brought in by Jake Schmitz to do some consultant work at OHGC and it turned into a great way to offer some tremendous education for our EM class of members. I attended the event with my Equipment Manager and I found it extremely valuable and should help my club elevate our Reel Mowing Operation. A big thanks to Jake, MTI Distributing, Chad Braun from Prestwick Golf Club, and Jack MacKenzie for pulling this event together. I think everyone in attendance was able to pull get their value out of the \$30 attendance fee.

Thanks everyone for reading through my article and best of luck to everyone as we all find our ways into the summer groove of things!!



Reelmaster 3555

**TORO**<sup>®</sup>

Performance you expect,  
in a size you didn't



4830 Azelia Ave. N Suite 100  
Brooklyn Center, MN 55429

Tel. 763-592-5600  
Fax: 763-592-5700  
[www.mtidistributing.com](http://www.mtidistributing.com)



# In Bounds

by Jack MacKenzie, CGCS

*Just a few short weeks ago, my father passed away after 89 spectacular years as a proud American citizen. Sorting through his desk, I came across this column that I had written ten years ago. Learning that he saved it to peruse upon occasion brought tears to my eyes. The content made me weep openly. Please read this passage and consider reaching out to the remarkable heroes in your life, those whom through their unselfishness have made our lifestyle possible.*

God bless America. Indeed, God bless America, land of the free and home to the brave. And God bless those who put themselves into harms way to allow me the opportunity to prosper in a safe environment that I often take for granted. Thank you to all the

soldiers in our country and abroad. My future is bright, due in part, to your courageousness and self-sacrifice. My past is built upon those whose heroism paved a road of liberty and freedom upon which I travel.

Memorial Day will soon be here.

As a youth I marched down Mahtomedi Avenue surrounded by my Boy Scout peers and carried the flag of the United States of America. That Memorial Day in 1971 was long ago, but I remember the enthusiasm of the moment well. Smiling gaily for our “moment in time”, many of my gang were attired in oversized military garb handed down from their fathers, toting BB guns and acting proud for the onlookers. It was thrilling to be a participant, have my picture taken and carry a blister from the wooden staff, but sadly I was utterly clueless about the cause I was parading to.

Memorial Day, the day we honor those who have died for our liberty, our freedom, our American way of life.

On a ride back to college, my father and I listened to the reports of a failed hostage rescue attempt in Iraq. With ignorant contempt for our country, I remarked how terrible it was that we were always forcing ourselves upon the will of other nations and that the crisis in the Middle East was retribution for our stupidity and cavalier attitude. Then I made a grave mistake and announced I would, “Never serve in the military and would rather spend time in Canada than fight for our way of life”.

On that day in 1980, I was fortunate to have been wearing a seatbelt, or I surely would have been propelled through the windshield as my father, a decorated Korean War veteran, a Marine Captain charged with field artillery, brought the car to an immediate stop. The look on his face, one of shock, then bitterness

and finally just plain sorrow, eroded my postulation and silenced me for the rest of our drive to school.

Since that time I have grown up. My eyes have been opened by real life, oh so much better than reality shows; graduation, marriage, children, travel, employment, vacations, tragedies and happiness. The experiences I have enjoyed allowed me to appreciate the freedoms I so often take for granted. Speech, ideology, religion, politics and the ability to pursue my desires uninhibited by a repressive government are not universal freedoms.

However in our country they have been purchased and continue to be paid for by gallant volunteers who continue to be placed into harms way in order for us to enjoy our comfortable lifestyle.

Memorial Day, a day that I now celebrate as I understand it; for those who died for my freedom, Jack MacKenzie's. However, on this day I also think about those

who are still alive and who have lost friends and relatives through conflicts in a self-sacrificing effort to make our United States the wonderful country it is today.

Listen up Conly, as you hear my words in heaven! My father-in-law adjusted his identification papers so he could sign up for the Navy at the tender age of 17. His transportation into the theater of war in 1945 was the USS Bunker Hill, cutting her way across the Pacific Ocean to deliver the death blow to Japan in an effort to end World War II. Thanks to you Con, and your fellow crewmen and women, for being my heroes and fighting for my freedom. I know through our visits you often thought of friends and relatives who did not return back to the country whose freedom they fought so hard for.

Hey 'Big Guy', a name that has stuck upon my father for many years, thanks for your participation in providing me with the finest life possible. I am sorry about your friends who lost their lives upon that mountain in Korea during your

deployment, the days of which placed you directly on the front lines as a forward observer. And it breaks my heart when I think about the memories you have and will always carry for the rest of your life created by many months in close combat. Your valor and that of your fellow Marines entitle you to be my heroes. I appreciate all you have done for me and the lifestyle you helped to maintain.

The Air Force sponsored my brother-in-law Jim during the Vietnam War. As a jet jockey he spent many hours protecting those on the ground and flying special missions. Regardless of the politics involved in this fight, Jim, you and your flyboys deserve kudos for putting it on the line for me. It saddens me your welcome home was limited by a confused country, one that didn't understand that although they may not support the cause, the freedom fighters who were willing to give their lives must be carried high upon their shoulders. Thank you Jim, your heroism is noted and very much

respected.

In more recent years we have all been impacted directly or indirectly by the wars in Iraq and

Afganistan.

Regardless of the arguments American's have, whether for or against the wars, the real heroes, my heroes, are the ones who have voluntarily put themselves on the line for me. Literally thousands Americans have died for my freedom and hundreds of thousands have sacrificed

a part of their lives in exchange for the American way of life.

more than commemorate those who have died. I will pray for those who survived and will live with the memories of war, the death of their comrades and loss of time at home.



Unfortunately, my words are inadequate for the sacrifice you and many others have made. I am thankful that through your valiant deeds we can all share together the bounty our country has to offer. I wish for each of you prosperity as you see it. God bless you and the country you have

helped to create, our United States of America, the home of the free and the brave.

On this Memorial Day I will do

# MGCSA North Western EXPOSURE Golf Event



**Monday, June 18, 2018**

**AWESOME VENUE:**

## **Wildflower at Fair Hills Resort**

**Registration with coffee and donuts between 9:30 and 9:50**

**Shotgun Start, mixer, two-man scramble, at 10:00/ lunch at the turn**

**Host Superintendent: Tim Halvorson**

***\$25 per player includes lunch, golf, cart and prizes***

***RSVP NEEDED by June 12***

***MGCSA and Non-MGCSA Area Superintendents  
and staff are welcome and encouraged to attend this event***

**Contact Jack MacKenzie, Executive Director MGCSA**

**jack@mgcsa.org**

**651-324-8873**

**Please use Registration Form available at: mgcsa.org**

***It wouldn't be the same without you***



Photo courtesy of The Minikahda Club

## Lush, Colorful Gardens Start with the Soil Mix

A colorful splash of flowers around the clubhouse, tee boxes and other strategic sites can make a course more memorable and provide an outlet for your creativity and imagination.

For flourishing gardens, assess the soil conditions before planting. Plaisted Companies offers a full line of horticultural products to keep your gardens blooming longer. Ask our Soil Specialists to help you choose the right mix for your plantings, whether gardens, bushes or trees.

*Premium Garden Mix • Compost • Soil Amendments • Black Dirt*



**Plaisted  
Companies**  
INCORPORATED

Elk River, MN • [plaistedcompanies.com](http://plaistedcompanies.com) • 763.441.1100

# 2018 Legacy Scholarships

## Deadline for Application: June 1st, 2018

The Program: The Minnesota Golf Course Superintendents' Association offers a scholarship program designed to assist children and grandchildren of Class AA, A, B, C, D, EM, Associate and Affiliate members. The MGCSA provides scholarships to students attending college or vocational programs at any accredited post-secondary institution. The program is independently managed by Scholarship America, a national non-profit student aid service organization. Awards will be granted without regard to race, color, creed, religion, sex, disability, national origin or financial need.



The Joseph S. Garske Legacy award, named after the founder of Par Aide Products Company, Joe Garske, is committed to further the education of children and grandchildren of

MGCSA members through financial contributions. This is the 22nd consecutive year for these awards. Par Aide is located in Lino Lakes, Minnesota and owned by Steve Garske, son of Joseph.

The late Mr. Garske, who died at the age of 76 in 1982, started Par Aide in 1954 with plans to make a "good" ball washer. A foundry man and avid golfer, he knew little about



the golf business, tried to sell his ideas for design and tooling to two accessory companies, was turned down by both and so began Par Aide Products Company. Steve Garske started The Legacy Scholarship in his father's honor in 1996.

Selection of Recipients: Scholarship recipients are selected on the basis of academic record, potential to succeed, leadership and participation in school and community activities, honors, work experience, a statement of education and career goals and an outside appraisal. Selection of recipients is made by Scholarship Management Services.

In no instance does any member of the MGCSA play a part in the selection. Applicants will be notified by the end of July whether they have been awarded or denied a scholarship.



Eligibility: Applicants for the MGCSA Legacy Scholarships must be: children/grandchildren of Class AA, A, B, C, D, EM, Associate or Affiliate members who have been members of the MGCSA at least five years; High school seniors or graduates who plan to enroll or students who are already enrolled in a full-time undergraduate course of study at an accredited two- or four-year

college, university or vocational-technical school, and under 23 years of age.

Awards: Three awards will be given to children and grandchildren of Class AA, A, B and C members. One award of \$1,500 in the name of Joseph S. Garske

will be given to the highest evaluated applicant. That award will be renewable for one-year contingent upon full-time enrollment and satisfactory academic performance. One other \$1,000 award will be given

to other qualified applicants from this group. One \$1,000 award will be available to children and grandchildren of Class D, EM, Associate and Affiliate members. These awards are not renewable. However, students may reapply to the program each year they meet eligibility requirements. Awards are for undergraduate study only.

Obligations: Recipients have no obligation to the MGCSA or its members. They are, however, required to supply Scholarship Management Services with current transcripts and to notify Scholarship Management Services of any changes of address, school enrollment or other relevant information. Except as described in this brochure, no obligation is assumed by the MGCSA.

# *Apply Today*



*Quality since 1971...*

**HARTMAN**

Golf Course Construction  
& Renovation

*Specializing in...*

Bunkers • Tees • Laser Leveling • Green Drainage • Irrigation • Design • Pump Station Upgrades

8099 Bavaria Rd.  
Victoria, MN 55386  
952.443.2990

info@hartmancompanies.com  
www.hartmancompanies.com

*2018 Reel Mower Technology at Olympic Hills Golf Club. Thank you host Jake Schmitz, instructor Jim Nedin and lunch sponsor MTI Distributing*





# aaron johnsen winfield united

interviewed by matt cavanaugh

*adjective*

insensitive to criticism or insults.

“you have to be thick-skinned to work in the turf industry”

synonyms: insensitive, unfeeling, tough, hardened, callous.

Do animals give opinions and if so what does it look like? Is it the reason a llama spit in my face at a family petting zoo? Is the process of spitting like saying “Hey Matt, how can you even stand on those chicken legs?” Is it the real reason that my childhood cat pooped on my face while I was sleeping? Was she actually providing a fecal attempt at letting me know “Hey, I don’t like the look of your face.” Unlike humans, animals don’t have the ability to speak and therefore their opinions (in my world) are actually just uninformed judgments. Unfortunately, we humans often act like animals and provide uninformed judgements instead of informed opinions. Because animals can provide very little information for us as humans to understand, much of their actions are taken out of context. In the world of social media it is very easy to rush to judgment and take things out of context. We may think we know what a few tidbits are trying to convey, but the fact remains, we don’t know what we don’t know and you may need to be thick-skinned to hear it.

## **The one simple thick-skinned question:**

Aaron, you visit with and have many conversations with golf course superintendents and assistants. Based on the current facts, research and knowledge, what is one thing you see that

we as turfgrass managers could change to help improve turfgrass decisions?

**Aaron:** *“As an industry we love to share information and social media has become a big part of this sharing, but this is an area we should be a little more cautious. An example, is posting pictures of products we apply or applications we are making. In the turf bubble these pictures are not a problem, however, we no longer live in a bubble. Putting these pictures on social media puts them out there for everyone to see and the issue becomes that these pictures provide no context and the viewer only sees that a product is being applied. Generally, very little is stated on what prompted a product application so it is up to the imagination of the viewer on why it is being applied. I think the perceived benefits of putting this type of information out on social media are too little compared to the potential negative impacts. The critics will only hone in on what they want to target our industry on. I don’t see much benefit from posting these kind of pictures.”*

**thick-skinned:** Do you know of an instance where a product picture on social media has become an issue?



**Aaron:** *“I’m not aware of a specific instance where a product picture on social media has become an issue. But I really think it is a matter of time before this is part of an exhibit in the push for a bill around pesticide use at a local, state, or federal level. I’m aware of several incidents on courses where onlookers have raised questions about applications and even passed blame for personal property damage just by seeing a sprayer go by.”*

**thick-skinned:** To the layperson, product application (or even water use) is certainly up to “the imagination of the viewer” as you stated. I showed the above tweet to three individuals outside of the industry. I simply said, “I’m going to show you a Tweet, give me your first impression.” Here are the responses I received:

Dan: *“Why are you spraying so many chemicals on your tees.”*

Bob: *“Looks like you are going to build a bomb.”*

Jason: *“Spraying tees and killing wildlife one tee box at a time.”*

As an industry, we should assume this type of reaction is the norm to any kind of product or application tweet we may put out there, “as an industry”. This has held true even outside of the social media platform. There was one such case at a Minnesota Golf Course where a homeowner saw a spray application in progress at this course. The layperson watched and determined that this activity was wrong and called the EPA without having any facts. The county health administrator was

then diligent and made a visit to this golf course. I don't think it is much of a leap to say this could happen based on a social media picture as well.

**thick-skinned:** Do product companies have a responsibility in this?

**Aaron:** *"I think companies absolutely have a responsibility in this. I'm aware of companies paying for tweets in one way or another. Something as simple as "show us how you use XXX to be entered in a prize contest" contributes to this problem. Unfortunately, for companies, it is a no win situation at this time. If companies take the high ground, then no one will be talking about their products and they miss the opportunity to influence a potential customer. But if they go for the promotion, then they are contributing to the problem."*

**thick-skinned:** Do you see a better way for end-users to "advertise" product application on social media?

**Aaron:** *"It's hard within 140 (or for some special individuals 280) characters or a picture alone to explain what is happening. Does anyone really think that taking a selfie of them driving a fertilizer spreader is communicating something of value? I guess it proves that you were working. I think videos with a little planning is the solution to this*



*problem. Instead of the selfie, what if someone shot a video where they showed a highlighted soil test indicating a deficiency, then panned to a product label where the specific deficiencies mentioned were going to be addressed and then cut to a spreader with specific technology to only apply product where it is needed. That right there is stewardship at its finest. That level of detail shows a potential naysayer why our industry is great and why people should trust us and believe us when we say we are doing what is best for the environment. A lot can be explained in a video.”*

**thick-skinned:** Let’s extend this out a little, what if I was to post a picture with the caption, “Product XYZ has dramatically increased the length of my roots” or “I’ve had no dollar spot since spraying product ABC wall to wall on my fairways.”



**Aaron:** “Those kinds of posts make me shake my head every time I see them. I always think to myself, I could have done the same thing if I had done ABC or DEF or GHI... I consider those posts worthless because of that. Referring back to Sam Bauer’s Thick Skinned Article... where is your check plot? If you tweet a picture with a side by side to a check plot or better yet with a check plot and the “industry standard” for comparison then that communicates some value to the practice you are promoting. I’ll reiterate what Sam said, ‘you always need a check plot.’”



**thick-skinned:** I'm a big believer in being informative and not smart. In a situation like we have been discussing with product applications or really any golf course maintenance task, being informative is a much better decision. Being smart often does not take the audience into account and you are often talking over your audience. Always assume your audience does not know what you are trying to convey with a social media post. Social media has been a great tool for all of us to learn more about our industry. You will continue to make this happen by being informative with your social media posts. Social media is a great way to learn, but it can also be fuel for individuals that do not understand what we do for a living.



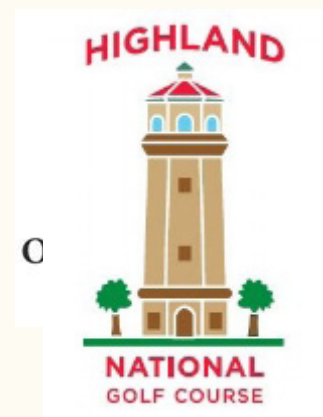
Aaron Johnsen is a Director of Regional Sales and Proprietary Products at Winfield United. Aaron can be reached at [arjohnsen@landolakes.com](mailto:arjohnsen@landolakes.com) or [@Turfintel](https://twitter.com/Turfintel) on Twitter. If you can't reach Aaron, he can be found putting the moves on a bluegill.



Matt Cavanaugh is an Assistant Superintendent at Rush Creek Golf Club in Maple Grove, MN.

# *2018 The Appreciation Event at Highland National Golf Club.*

*Thank you host  
Jamie Bezanson*





## One Cause. One Goal. One Percent.

*One Cause: Help golf course management professionals and their dependents that are having trouble paying medical bills due to the lack of comprehensive insurance or adequate financial resources.*

*One Goal: Raise \$10 million in 10 years to support these families.*

*One Percent: Donate 1% of your 2014 revenue, maintenance budget, or salary over the next 10 years in 10 payments.*

---

### Example Contribution:

2014 Salary = \$70,000

1% = \$700

---

Donation = \$70 per year for 10 years

---

To learn more about One for the Wee One,  
visit [weeone.org/onepercent](http://weeone.org/onepercent) or call (630) 457-7276.

**wee one**  
foundation



A woman with blonde hair, wearing a red polo shirt and dark pants, is captured in the middle of a golf swing on a green field. She is holding a golf club with a white ball on the club head. The background shows a line of trees and a cloudy sky. In the top left corner, there is a horizontal bar with a blue section on the left and a yellow section on the right.

# Equalfooting

by Kari Haug MLA, EIGCA

*A golf course architect offers 12 teeing ground tips for superintendents, green committees, women golfers and golf course owners.*

***Unfortunately, the forward tee is frequently located downhill from an elevated back tee, diminishing a thrilling view or visual access to the hazards that lie ahead.***

***RIGHT: Sometimes, women's tees are overlooked during course improvement projects and have settled and become lumpy over time. Photos courtesy of Kari Haug***

Over the years, I have often heard my women golfing partners comment about the poor condition of our teeing grounds. The dismay usually is related to an excessively offset tee that is small in size, has a poor angle to the landing area in the fairway, has poor turf conditions or simply sets the hole up to play too long.

While we know there are many really great superintendents caring for our courses, sometimes the women's tees are overlooked. These tips are intended to be a hopeful reminder to help golf course management make improvements that will produce a better golf experience for women

### **Location, location, location**

In addition to simply being a poor golf course design, a tee that is offset excessively to the far edge of the fairway is offensive to women. In a game that is loaded with psychological nuances, a tee that is pushed off to the side (often with an incorrect angle and/



or distance to the landing area) is a dismissive non-verbal message that pushes women to the side in more ways than just physical location. It also sets us up for failure on the golf course, making the game much more difficult than it would be if the teeing grounds were properly designed.

While some offset might be appropriate in some cases, extremely offset tees should be corrected as soon as economically feasible.

### Size matters

The teeing ground is where everyone is supposed to get an equal footing to start each hole, equally maintained, leveled and appropri-

ately sized. A teeing area that is too small limits choices for tee shot setup and limits turf recovery from wear and tear. This is not the intended starting condition for a golf hole.

Since more divots are taken on the teeing ground on a par-3, a larger tee size is required for turf recovery than the tee size on par-4s and par-5s. Women's tees have historically been underbuilt, and are in critical need of expansion in many cases.

A larger tee will increase choice in regard to finding a level stance and setting up a tee shot, will facilitate mowing, and will allow for turf recovery and improved turf health on the teeing grounds.



*Many women's tees are underbuilt. The photo on the left shows a tee that is only 6 feet wide. The two tees in the photo on the right share fewer than 200 square feet.*

## Do you see what I see?

Elevated tees are more important for women than men since we are on the average about 5 to 6 inches shorter than men. The visibility of golf hazards that stir emotions is just one of the psychological attractions of the game of golf. Unfortunately, the forward tee is frequently located downhill from an elevated back tee, diminishing a thrilling view or visual access to the hazards that lie ahead. An unseen hazard does not stir the emotions like a visible one. This robs women of some of the excitement of playing the game and may be just one

element that contributes to the high attrition rate among women golfers.

The solution: elevate the forward tees as much as possible while still harmoniously integrating them into the landscape. This may mean choosing a tee location at a higher elevation or disturbing more area during construction of the tee, but it will be worth the effort for the women.

Not only does elevation affect visibility, so does lateral location (offset) of the tee. Make sure the driving angle allows clear visibility to the intended landing area for both right- and left handed golfers.





*Overhanging tree limbs block shots and visibility of the green.*

### **Add sunlight, then water and drain well**

Tees that are located way off to the side of the fairway are often plagued by overhanging tree limbs that block sunlight to the grass, which impairs the health of the turf on the tee surface. Tree limbs also block shots, visibility, or otherwise limit access to the fairway. Think about your left-handed women as well as your right-handers. Please contact your forestry service, or better yet, rebuild those tees in a better location. Additionally, women's tees historically were sometimes constructed in the "push-up"

style, meaning the native soil was pushed up, leveled off and turfed with minimal irrigation or drainage installation.

A worse situation is where tees were simply mowed into the fairway. These types of tees are very difficult to maintain to standards equal to the back tees. New forward tees should be "constructed" with appropriate soil, turf, and sufficient irrigation and drainage. They should not just be pushed up, or worse, simply mowed into the fairway.

A temporary tee will get you temporary members and dissatisfied women golfers.



## **Hire a qualified EIGCA or ASGCA architect**

In-house construction of a tee is quite possible, but in-house design is sometimes a disaster. In-house design choices made by superintendents, course owners, the club pro or women's club members are often regretted.

Professional tee design is not expensive and well worth the money in the long run when done by designers who thoughtfully consider play from the women's tees.

## **Gimme a break (please?)**

Benches, ball washers, hole signs and trash cans are generally standard equipment on most tees. However, when women's tees are located moderately ahead of the men's tees, there is rarely a bench in sight.

With a little design creativity, these on-course amenities can be easily integrated in a minimalist manner in order to preserve harmonious views from the back tees. Amenities are not needed on every tee, but a few rest areas would be greatly appreciated. On the other

side of this coin are the amenities that crowd the tee.

Just because amenities are requested, that doesn't mean we want the bench and the ball washer on the actual teeing area or crowding what little space we have.

## **Ensure a proper angle to the landing area**

Proper angles are particularly important on dogleg holes. Hint: The inside of the dog-leg is usually not the correct angle to the landing area. The golf course architect can help to ensure proper angles and distances to landing areas such that women are not hitting through fairways, blocked from making shots or forced to negotiate a larger portion of a hazard than the players from the men's tees.

Improper angles and distances to dogleg turning points often make the game much more difficult for women. Also, angles play a significant role in the direction a ball will roll if a drive lands on a hillside with a glancing angle versus a shot that lands on the hillside straight away. Drives from the women's tee that end up in the same lousy long



*Often, the forward tee is offset excessively to the far edge of the fairway, creating improper angles and distances to dogleg turning points.*

rough every time probably have an improper driving angle or poorly designed mowing pattern.

### **How far is too far?**

Forced carries (including over long rough) can exhilarate or deflate a golfer when he or she steps onto the tee. Indeed, one of the compelling attractions of the game of golf is the challenge presented by hazards that need to be carried, but if the carry distance is insurmountable, it only defeats the sense of well-being that is found by golfers on the course.

Instead of a forced carry, a better hazard type from the most forward tee would be a “strategic

hazard” design, which allows the golfer to decide how much of the hazard they can carry. This type of hazard is much more playable than a “forced” carry for high handicappers. If there is a graduated second tee in place for women who have a low handicap, a surmountable forced carry is appropriate.

### **Can we level the playing field?**

It is often difficult to find a level area in order to take a stance and address the ball on the women’s tees. Sometimes one large irrigation head is in the middle of a very small tee, making it difficult to set up a clear teeing area for tournament play, or just to find a level stance

when playing for fun.

On some tees, the entire tee is moderately sloped. This is particularly bad when the slope is back to front, setting up a downhill lie on a tee shot.

Also, as tees age, they settle and get lumpy. Many women's tees were built 30 years ago and have not been renovated. Maybe it is time?

### **Is your course too long?**

Decades ago, famed golf course architect Alice Dye published tee design guidelines for a "Two Tee System for Women." In order for courses to be manageable for the average woman golfer, she recommended that a course should play 4,800 to 5,200 yards. In a recent Minnesota study, only approximately 50 percent of the courses sampled had a tee built at this recommended distance.

Furthermore, when a women's tee was built, only one was built. To this day, most courses still play too long for the average woman golfer. No wonder the game seems so difficult.

### **Equity, please. Three would be great, but two will do**

As indicated above, Dye recommended that the women's tee system include two tees, similar to the teeing grounds for the men. The Minnesota study referenced above found that only approximately 20 percent of the time was a second tee built at an appropriate distance for women. Unlike the men, whose tees usually provide three choices in course length, women continue to have limited choice with only one tee.

The study also found the average distance between the women's tee and the first men's tee (the next tee choice) was approximately 940 yards. This jump in distance is too far for women to work on graduated distance challenges that will improve their game. When women's games improve such that they start hitting drives through fairways or beyond landing areas, a second tee is needed — or even a third.

Imagine where women's golf could be today if the tees had been built to Dye's recommendations years ago.

## Tokenism? No, thank you

Not only do women need to be at the decision-making table, but we also need to have a voice in making the decisions. When planning a women's tee design and renovation or new installation project, make sure your women's clubs are well represented on the design committee and/or greens committee.

Women need to step up and take part in course renovations or new design activities. Representative participation will enhance the process and outcome of the project. Women need to have a bigger voice in the game if the game is to grow and be sustainable for years to come.

Kari Haug ([www.karihaug.com](http://www.karihaug.com)) is an associate member of the European Institute of Golf Course Architects (EIGCA) and president/CEO of Kari Haug Planning & Design Inc., a golf course architecture company that specializes in sustainable golf course design and women's golf. She is also a former physical therapist who has extensively studied environmental impacts on mental and physical health and wellness.

**This article first appeared in the March, 2014 issue of Golf Course Management. The MGCSA appreciates the opportunity to provide great content to the membership and thanks Kari and the GCSAA for their contribution.**

**McCarthy Well Company**

SINCE 1860



888-854-5333 • [mike@mccarthywell.com](mailto:mike@mccarthywell.com)

# On Sight: MGCSA Member-Driven Research

By Sam Bauer, UMN Turfgrass Extension

In the winter of 2012/13, the MGCSA membership embarked on a new research initiative with the University of Minnesota's Turfgrass Science Program titled Member-Driven Research. Member-Driven Research

was created whereby the members would help determine the projects we would conduct. Since 2013, this collaborative effort has led to innovative studies on topics such as using growing degree-days to precisely schedule an application of

plant growth regulators, wetting agent influences on surface performance, and strategies to minimize or overcome the impacts of winter damage; such as bentgrass germination in low temperatures and variety freezing tolerance of common and alternative

turfgrass species. These studies are on the leading edge of turfgrass research in northern climates, something that the MGCSA should be very proud of. We showcase this research through five regional Out-

reach events across Minnesota and Western Wisconsin, as well as In-reach events in the Twin Cities. In addition, this research is published in Hole Notes, Golf Course Management, Golf Course Industry, Green Section Record and in various scientific journals.

As researchers we strive to produce timely results that can be implemented in your day-to-day management programs. To have confidence in our recommendations, we require our research to be repli-



cated both in space (more than one location) and time (more than one year). Through replication we identify impact of weather, soil types, management programs, ect... To that end, it can often take us researchers some time to “catch up” to the innovative practices that you are “studying” on a daily basis at your properties. While we continue down the path of cutting edge research in long-term studies, such as degradation of wetting agent chemistries over time based on temperature, we (and the membership) had the desire to get back to the heart of the Member-Driven Research initiative, that being quick, practical studies determined by the membership.

At the biennial MGCSA Board of Directors Retreat, U of M floated the idea of ON SIGHT research to the board. The idea is simple- golf course superintendents, assistant superintendents, or management staff can submit research ideas through an intake form on the MGCSA website. Our program will evaluate these ideas and coordinate with superintendents to carry out these studies on their golf courses. We would help you design a trial to study your research question and put some ownership back on you to take pictures and collect data. Superintendents will then communicate back to us on a weekly or bi-weekly basis for the duration of the study. The opportunities here are endless and this is a great way to learn about innovative strategies from your peers.

To get the ON SIGHT research off the ground in the first year, we solicited the Board of Directors for study ideas, some of the topics identified for ON SIGHT research included:

- Protecting annual bluegrass from winter injury
- Syringing of putting greens as a means of plant cooling
- Moss control on putting greens
- Fungicide efficacy on the duration of dollar spot suppression
- Late-fall plant growth regulator applications
- Bentgrass variety germination in cold temperatures

We are excited about this pivot in direction and we will keep the membership updated through Hole Notes articles and a blog housed on the MGCSA website and at [turf.umn.edu](http://turf.umn.edu). Look for this information and the study intake form in the near future.

Our first study of the year is already underway and it came about from the recent warming trend that spanned almost a week in mid-February.

Annual bluegrass comes out of dormancy earlier than creeping bentgrass in the spring and this February heat wave caused a concern of dormant annual bluegrass waking up from winter. When grasses come out of dormancy they take in water and subfreezing temperatures following this can cause death by crown hydration. As a superintendent, there no opportunities to keep annual bluegrass in dormancy (covering prior to the warm up would only encourage growth), but is there anything you can do to protect it from the impending cold? Brent Belanger (U of M GC Superintendent) and Erin McManus (Medina CC Superintendent) were kind enough to allow us space to put covers on annual bluegrass at their properties prior to the freeze in late-February. We are evaluating two different cover styles- Excelsior covers and Evergreen covers, with and without a reapplication of contact fungicide for snow mold prevention.

Stay tuned as we continue with ON SIGHT research this spring and thank you for your continued support.



JOHN DEERE



**FRONTIER**  
AG & TURF

**Minnesota's John Deere Golf Headquarters**





OFFICIAL  
GOLF COURSE  
EQUIPMENT  
SUPPLIER

[www.frontieragturf.com](http://www.frontieragturf.com)



651-437-7747

12040 Point Douglas Drive South  
Hastings, MN 55033



**FRONTIER**  
AG & TURF

COLUMBUS

ROSEMOUNT

TURTLE LAKE

OSCEOLA

NEW RICHMOND

HASTINGS

CANNON FALLS

EXPLORE YOUR FRONTIER

# Four MGCSA Members March on Washington DC During National Golf Day

*Written and compiled by: David Calder, Aaron Johnson, Adam Lesmeister and Eric Ritter CGCS*

An incredible opportunity – by Eric Ritter CGCS

National Golf Day is an annual event held in Washington DC for golf industry leaders to discuss the game's social, economic, and environmental contributions with members of Congress on Capitol Hill. This year was the 11th annual event and also marked the second year of the Community Service Project on the National Mall.

Recognizing the importance of the event and a need to bolster Minnesota representation on Capitol Hill, the MGCSA Board voted to fund expenses for GCSAA Grassroots Ambassadors from Minnesota to attend the event. The four Ambassadors who were able to attend (including me) were Dave Calder from The Pines at Grandview Lodge, Adam Lesmeister from Prestwick

Golf Club and Aaron Johnson from Dacotah Ridge Golf Club.

As Grassroots Ambassadors, we are linked with either our House Representative or a Senator for the purpose of developing a working relationship and maintaining a stream of communication in order to garnish support for the golf industry. Being a newcomer to the Ambassador program, I prepped by making a visit to Tom Emmer's local office a few weeks before the trip. In doing so, I met with his District Representative in order to introduce myself and become more acquainted with Mr. Emmer. This was helpful so that when I walked into the DC office it was more like a follow up appointment versus an initial exam. Being prepared for the visit made the experience that much more enjoyable.

The entire trip spanned a to-





tal of four days. Monday we arrived in DC in the late morning and had a few hours to sight see before our briefing for the Community Service Project. Tuesday morning was the Community Service Project, followed by more training and a Congressional reception at the Capitol Visitors Center that evening. Wednesday was National Golf Day and our respective meetings with Congress, followed by an early flight home on Thursday.

For all four of us, this was our first time attending National Golf Day. We had all previously partici-

pated in our State Golf Day on the Hill, so I think we all went in with the notion that at least the Congressional meetings would have a similar feel (which they did). Much like meeting with State Legislators, the purpose is to have the opportunity to be heard and tell your story, ending with the “ask” for your Congressman. Minnesota was well represented this year in terms of participation as we combined for 8 out of the 230 meetings with members of Congress representing 40 states. By attending as a team we were able to effectively deliver our message



while having our voice heard. In our individual cases, we either began or strengthened our relationship with our respective members of Congress and their staff.

The event itself was extremely educational by being exposed to the workings of Congress and being on the forefront of the issues facing the golf industry. Networking opportunities were even more personal and involved in comparison to, say, GIS or Northern Green. Overall, I left DC with a sense of accomplishment and a deliverable story to bring back to my home club.

On our brief sightseeing adventure we (unexpectedly) met French President, Emmanuel Macron and his wife, Brigitte, walking down the sidewalk. Well, we didn't really meet them, we more or less just happened to be walking in their path. To say the Secret Service is well armed and organized would be an understatement. Fortunately, Dave happened to catch a photo of the two with his cell phone and low and behold yours truly is in the corner of the image. I can now claim to have my picture taken with a President! Aside from the fun, including watching Marine One fly into the

White House, the entire trip was a tremendous experience.

I will close my part by thanking the MGCSA for funding the trip. While I feel we all completed the most important task of advocating for our industry, it was also a fun and exciting opportunity on a personal level. Special thanks are also in order to the folks at We Are Golf and GCSAA, especially Chava McKee. The level of preparation and organization of the event for those of us attending was impeccable. Lastly, I'd like to thank Adam, Dave, Aaron, Steve Randall from GCSAA, Randy Harris and Rick Rodier from Toro, who rounded out our Minnesota team. Their teamwork and support in the Congressional meetings was most complimentary and highly effective.

#### COMMUNITY SERVICE PROJECT – BY AARON JOHNSON

On the second day we were in D.C., we participated in the second annual National Golf Day Community service project. In 2017 there were 120 participants. In 2018 that number increased to 175+ participants, including National Golf Foundation CEO Steve Mona, the CEO of



***The MGCS “A” Team ready to tackle the community service project.***

the GCSAA Rhett Evens and current GCSAA President Darren Davis. I watched Rhett Evens take off walking behind a Ryan sod cutter at 9 am. I don't think he slowed down or stopped until he was finished edging at the entire north side of the National Mall at 11:30.

These participants divided into 18 teams that performed a variety of tasks, including mowing, sod installation, solid tine aerating, rock clean up, adjusting irrigation radius, aerovating/seeding, slit seeding, and other projects to spruce up the Na-

tional Mall.

Dave Calder was assigned to the irrigation team. He did an amazing job of edging the irrigation heads and valve boxes on several of the National Mall panels. Eric Ritter was on the team that knocked out solid tine aerification on several of the panels with a John Deere Aercore 2000. It appeared that a private contractor had deep tined all of the panels in the days leading up to the community service project. Adam Lesmeister was on the backpack blower team that was fine-tun-

ing the sidewalks after the seeding, sodding and mowing was complete. I was on the edging cleanup crew. We followed the sod cutter, raking out and removing all of the vegetation and debris from the gravel walking paths. After the debris had been removed, we raked up the gravel to the top of metal edging and granite edging with the goal to eliminate tripping hazards.

The National Mall has 300 acres of turf. It stretches 1.2 miles from the Capital Building to the Washington Monument. I am amazed any turf remains on the

panels after hosting 25 million visitors each year. As soon as we completed maintenance on a panel, it didn't seem to take long for a game of soccer, or playing catch to move onto the turf. It was great to be able to be a part of the community service project at the National Mall.

In speaking with one of D.C. area superintendents, who was also attending the National Golf Day and helping with the Community service project, it was indicated that the 2017 NGD community service project was the first time the National Park Service had allowed a volun-



***Blowing debris after edging the mall walk.***

teer group to come in and operate powered equipment. In the past, the community service projects had only been allowed hand tools and basically painted benches and washed garbage cans. It was great to be a part of a group working to keep the National Mall looking its best for another year and 25 million people.

WEDNESDAY – NATIONAL GOLF DAY  
– BY ADAM LESMEISTER

After the conclusion of the

Community Service Project, we had a couple of hours to clean up and brush up on our material we would be presenting to the Senators and Representatives on day three. From there, we joined the rest of the NGD contingency for our keynote speaker, Bret Baier of Fox News. Mr. Baier presented a wonderful speech; sharing stories of his love for the game, golfing with Mr. Trump, and his life story of what he's done, and where he's been. He was very entertaining and shared a very unbiased



***Left to right, Rick Rodier from TORO, Representative Jason Lewis, Adam Lesmeister and Randy Harris, also from TORO catch the lens prior to a personal briefing opportunity.***

discussion about the state of our government and which direction we are going.

From there, we assembled into our groups that we would be in for our meetings the next day. I was joined up with Randy Harris and Rick Rodier of Toro, and Steve Randle of the GCSAA. Aaron, Dave, and Eric were assembled on a separate team to meet with their outstate representatives. Christopher Kush, CEO of Soapbox Consulting, briefed us on the day on the hill activities and ran through a small tutorial on how to be successful in getting our voices heard as well as keeping it short and to the point, AND MAKE THE ASK!

After our briefing, we hopped on a bus and headed for the U.S. Capitol Visitor Center for the Congressional Reception. Unfortunately, I don't believe there were many, if any, actual congressmen or women in attendance. But we were able to meet with some of their staff to introduce ourselves and have a little small talk over a glass of wine and hors d'oeuvres. It was also a great opportunity to network with our fellow



***Ready for their appointments,  
Eric Ritter CGCS and Aaron Johnson  
CGCS are mentally and physically prepared to present the “great story of golf” to their Minnesota Legislators.***

advocates from our industry, as we hadn't had much time to do so with our somewhat busy schedule. It was a wonderful ending to a long, but very rewarding day.

National Golf Day had finally arrived on Wednesday. There was



***David Calder presents Representative Rick Nolan with materials supporting the We Are Golf Initiative.***

a certain excitement in the air that morning, even through the dreary weather, as everyone assembled to get on the bus to head toward Capitol Hill. Unfortunately, with the French President Emanuel Macron in town, we weren't able to take the annual NGD picture on the Capitol steps because of the security, so we settled for the steps inside the Rayburn House foyer where the NGD exhibits were set up. A quick cup of coffee and it was off to business with Senators Klobuchar and Smith.

The Senators were our first two meetings of the day, in which all six of us from Minnesota and Steve Randall were teamed up to share the great story of golf and the large economical impact it has on our home State. With prior planning and the briefing we received from the folks at Soapbox consulting, the meetings had a perfect flow from one constituent to the next, like a well-oiled machine. So well, it almost gave you goose bumps as you left the meeting, knowing it



couldn't have gone any better. From the Senators offices we split in to our two small teams as I mentioned previously, and continued our visits with our Representatives.

My favorite meeting of the day was with Representative Jason Lewis, who not only is representing my home district in Minnesota, but is also a member at Prestwick, where I am the Assistant Superintendent. We had met a few times around the golf course and have built a fairly decent rapport. Enough of one for me to send him a text the previous day stating that I better see him in his office, or he might be losing a vote, to which he replied, "I will do my best to be there."

Sure enough, he made a late entrance after we had been meeting with his staff member for a few moments. The reason Congressman Lewis was my favorite meeting of the day wasn't because I knew it would be more laid back and maybe a little easier, but because of the way he presented himself. He listened as we made our various asks and explained what was happening with the bills and was very upfront and knowledgeable about how he thought they would play out in con-

gress. It was refreshing to hear first hand how congress is working right now and why certain things are happening, and why some aren't.

I believe the favorite meeting with the other Minnesota group consisting of Aaron, Dave and Eric, was with Congressman Rick Nolan. Dave will supply a nice story of their meeting in the conclusion of our NGD article.

I can't express in words how fantastic National Golf Day was for me. I knew it would be a good experience, as I enjoy our DOH here in Minnesota every year. But I never knew how truly fun, exciting and rewarding it would be. I would like to thank my teammates Randy Harris and Rick Rodier from The Toro Company. Together we made a great team with them being on the commercial and business side of the industry and me on the golf course side.

#### CONCLUSION PREPARED BY DAVE CALDER

In conclusion, there are many thanks to express. First, to Jack MacKenzie for assembling the team, and to the MGCSA for sending us. I



***An unexpected treat, the Minnesota contingent gets close, and almost too personal, with the First Lady of France, Brigitte Macron. Quick with his cell phone, Dave Calder managed a fast snapshot before the Secret Service put on a full-court-press.***

have to say that every aspect of this entire experience was fantastic. It was an honor to represent Minnesota and the golf industry in Washington DC, and feel like a part of the process of government.

Thanks to Chava McKeel of GC-SAA who was tireless in her efforts to keep us organized, focused, and most of all energized with each and every event.

Thanks to Steve Mona of the

World Golf Foundation, who emceed many events and, as you might expect, was quite eloquent and inspiring.

A big thank you to our teammates Rick Rodier and Randy Harris from The Toro Company, as well as Steve Randall from GCSAA. The whole group was able to meet with staff members of our two Senators, Amy Klobuchar and Tina Smith. Rick and Randy added so much to our

message representing the commercial portion of the golf world, not to mention the number of jobs created by The Toro Company. Steve told us going in that he would fill in any gaps and represent the larger picture from GCSAA and he did a great job. He really put us at ease both prior to the meetings and in the meetings themselves. There was real synergy with the larger group and it helped us be ready for when we broke off to our two smaller groups.

We were prepared to meet with staffers of each Senator and Congressman and it was a surprise that we were to sit down with Representative Rick Nolan from the 8th District where I live and work. His office was loaded with completely recognizable photos and memorabilia from our area. When he realized that I worked at the Pines, he started in with asking about one of our sales reps and the GM of the resort. He was very entertaining and funny. When it came time for photos, he grabbed me and said, "We're taking the first one with just Dave and me at my desk." He knew just how to pose and told me just what to do. He's done this job for a while.

When we first arrived on Monday we realized the only opportunity to see any sights was the. We quickly hopped a Lyft down to the Lincoln Memorial and began to take in some of the place. We then started walking the National Mall where we would be working on landscape the next day. As we came to a cross street, there was a commotion coming from the left. Lots of flashing red and blue lights and a small mass of men in suits. "Well this looks like something" we thought. We then realized that it was the President and First Lady of France out for a little stroll like us. I fumbled for my cell phone to try to get a picture. I was able to get very close to Mrs. Macron and got a photo just as a Secret Service agent gently brushed me out of the way. We resumed our walk and a little while later we heard a huge rumbling sound above as two Osprey helicopters flew overhead. They flew to our right then back overhead going left. A few minutes later Marine One came back to the Whitehouse with (we can assume, can't we?) the President of the United States returning from a round of golf. Cool! Two presidents in one afternoon.

I want to mention the camaraderie I felt and still feel for Aaron, Adam, and Eric. I had a great time with these gentlemen and we laughed often as we went about our business. I'm convinced we met the tasks at hand representing Golf and Minnesota Golf to our leaders in Washington and to the other allied golf associations. And we had fun doing it. As it was with our Day

On The Hill in St. Paul, to be able to speak on behalf of Golf is an honor, a joy, and quite worthwhile. I felt patriotic on this trip and feel more of an American citizen for having done so. Next year when it comes time to get signed up for Day On The Hill or National Golf Day, I would ask anyone in our organization, "Who wouldn't want to do this?" It was great!

***A fine time was had by all! The MGCSA thanks Aaron, Eric, David and Adam for their representation at the We Are Golf, National Golf Day event.***



**HERFORT** ▣ **NORBY**  
**G o l f C o u r s e A r c h i t e c t s**

Phone: 952.361.0644 Fax: 952.361.0645

e-mail: [golfnorby@earthlink.net](mailto:golfnorby@earthlink.net) web: [herfortnorby.com](http://herfortnorby.com)



# *SDHI Fungicide Resistance: Coming Soon to Your Course*

*By Paul Koch, PhD  
Department of Plant Pathology  
UW – Madison*

The last few years have seen a mini-boom of effective new fungicides for the golf market. New active ingredients have included fluxapyroxad (Xzemplar®), penthiopyrad (Velista®), isofetamid (Kabuto®), and fluopyram (Exteris®). There are likely more products to come in the SDHI class as the major fungicide companies mine all possible useful molecules in this class. Each one of these products has different strengths and weaknesses, but they all have one thing in common...they belong to the succinate dehydrogenase inhibitor (SDHI) class of fungicides. While this seems like a relatively new class of fungicides, older products like flutolanil (Prostar®) and boscalid (Emerald®) also belong to the SDHI's.

Most of the products listed above with the exception of Prostar® have good to excellent efficacy against dollar spot. In Wisconsin,

dollar spot fungicides are used more frequently than any other disease, sometimes requiring 10 or more applications in a single season to provide effective dollar spot control. This puts heavy selection pressure on the dollar spot fungus, which can lead to the development of fungicide resistance.

Each SDHI fungicide works in a slightly different way, but in general they all inhibit the ability of fungi to convert succinate to fumarate via a dehydrogenase inhibitor (hence the name). This process occurs during fungal respiration, hence preventing the fungus from producing enough energy to survive. This is a single site of activity so it is susceptible to fungicide resistance, though not controlled by a single gene so resistance development will occur relatively gradually over time. The Fungicide Resistance Action Committee (FRAC) lists SDHI fungicides

Code	Target site of action	Group name	Chemical group	Common name	Comments
7	Complex II; succinate-dehydrogenase	SDHI (Succinate dehydrogenase inhibitors)	Phenyl-benzamides	Benodanil Flutolanil Mepronil	Resistance known for several fungal species in field populations and lab mutants. Target site mutations in sdh gene, e.g. H/Y (or H/L) at 257* or P225L**. Medium-high risk. Resistance management required
			phenyl-oxo-ethyl thiophene amide	Isofetamid	
			Pyridinyl-ethyl-benzamide	Fluopyram	
			Furan-carboxamides	Fenfuram	
			Oxathiin-carboxamides	Carboxin Oxycarboxin	
			Thiazole-carboxamides	Thifluzamide	
			Pyrazole-carboxamides	Benzovindiflupyr Bixafen Fluxapyroxad Furametpyr Isopyrazam Penflufen Penthiopyrad Sedaxane	
			Pyridine-carboxamides	Boscalid	

**Figure 1: SDHI fungicides are in FRAC Group 7. The different fungicides included in the SDHI class, their various groups, and their resistance risk are included in this table from the FRAC SDHI webpage (<http://www.frac.info/working-group/sdhi-fungicides/introduction-and-general-information>).**

**Figure 2: Determining which fungicides are in the same chemical class for the purposes of rotation and fungicide resistance management can be difficult. But most fungicide labels have their FRAC code on the first page of the label. In this case, Insignia (and all strobilurin fungicides) are in FRAC group 11. Rotating classes is then as simple as rotating FRAC codes. Pre-mixed fungicides will have multiple FRAC codes on the label to account for the multiple chemical classes present.**



**Insignia<sup>®</sup>SC**  
Intrinsic™ brand fungicide

---

**For disease control and plant health in turfgrass and landscape ornamentals**

**Active Ingredient\*:**  
pyraclostrobin: (carbamic acid, [2-[[[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxy]methyl]phenyl]methoxy-,methyl ester) ..... 23.3%

**Other Ingredients:** ..... 76.7%

**Total:** ..... 100.0%

\*Equivalent to 2.08 pounds of pyraclostrobin per gallon.

**EPA Reg. No. 7969-290** **EPA Est. No.**

**KEEP OUT OF REACH OF CHILDREN  
WARNING/AVISO**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

See inside for complete **First Aid, Precautionary Statements, Directions For Use, Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

**In case of an emergency endangering life or property involving this product,  
call 1-800-832-HELP (4357).**



as 'medium to high' risk of developing resistance and recommends resistance management strategies be put in place from the onset of use (Figure 1). This means they are not quite as prone to resistance development as fungicides like thiophanate-methyl, but they are slightly more susceptible to resistance development than the demethylation inhibitor (DMI class).

Resistance to SDHI fungicides have already been reported in other agronomic and horticultural crops, so it's likely that at some point SDHI resistance will be widespread in turfgrass. But is it present already? The answer is almost certainly yes, both from anecdotal reports from golf course superintendents and from laboratory research conducted by various turfgrass pathologists. University researchers have found decreases in in vitro SDHI sensitivity in the lab and reports have been increasing of dollar spot breakthrough on reapplication intervals that used to be effective.

The mechanism of resistance in the SDHI's is more similar to the DMI fungicides than the benzimidazoles (ie thiophanate-methyl), so we would expect resistance to de-

velop in a similar manner. Rather than a single mutation conferring complete resistance like in the benzimidazoles, mutations and other forms of resistance accumulate over time and lead to a gradual reduction in efficacy. This same phenomenon has been observed with the DMI fungicides. When propiconazole first came on the market, it was common to achieve 28 or more days of dollar spot control even in heavy disease pressure. Now 14 to 21 days is more common. This doesn't mean the product is lost or cannot be used any longer, but it does mean that some level of dollar spot resistance is widespread among the DMI fungicides.

The same pattern appears to be developing for the SDHI fungicides. Emerald for years was the gold standard of dollar spot fungicides, routinely providing 28 to 35 days of dollar spot control. However in the past 5 years I have been hearing more reports of dollar spot breakthrough from superintendents in Wisconsin and elsewhere before that 28-day interval is reached. More recently, Xzemplar was providing exceptional dollar spot re-

application intervals of 35 days (or more in some cases) under high disease pressures. Just a few years later, few are achieving that level of control and most reapplication intervals are approximately 28 days or less depending on the rate. Again this doesn't mean the product is failing or 'lost', but it does mean that some level of fungicide resistance to SDHI fungicides is present in the dollar spot population...and it will likely continue to increase.

Are the SDHI fungicides a lost cause then, destined to be an ineffective and resistance-laden dollar spot class like the benzimidazoles? Absolutely not, though reapplication intervals will need to continuously be monitored for breakthrough and adjusted as needed. The SDHI's will continue to be a tool for superintendents to use across a variety of diseases, but just like any other product outside of Daconil and Secure they will need to be used carefully to limit resistance development to the fullest extent possible.

Careful use of the SDHI's starts and ends with building a dollar spot management program focused on a healthy plant and proper cultural

practices (ie fertility, moisture management, drainage) to limit unnecessary sprays. The fewer overall fungicide applications you make, the less fungicides resistance you are likely to encounter. However no matter how healthy we make our plant and how fine-tuned our cultural practices are, fungicides are an integral piece of dollar spot management on Wisconsin golf courses. Fungicide programs for dollar spot control should contain a mix of DMI, SDHI, and even QoI (Pinpoint fungicide is a QoI with efficacy against dollar spot) fungicides to keep the fungus from experiencing the same selection pressure over and over. And don't forget tank-mixing and rotating with multi-site contact fungicides like Daconil and Secure, which aren't at risk for developing fungicide resistance. If you're ever confused about what chemical class your product is in, remember to look at the FRAC code in the upper corner of the first page of the fungicide label (Figure 2). Those products with the same number are in the same class, so rotating among fungicide classes is as simple as rotating among FRAC code numbers.

While following the above guidelines are unlikely to completely prevent resistance to the SDHI fungicides from occurring at your course, they are likely to slow its spread and limit the overall severity of resistance that does develop. More SDHI fungicides will be coming on the market in the near future, and as older products get taken off the market for regulatory and economic reasons it will be harder then ever

to maintain an effective resistance management program. However, it is our responsibility as an industry to use our fungicide portfolio in a responsible manner to ensure that these products remain effective for many years to come. Please don't hesitate to contact me (plkoch@wisc.edu; 608-262-6531) if you ever have any questions when building your fungicide program.

**The MGCSA wishes to thank Dr. Paul Koch for his continued support of the professional turfgrass industry and also the Wisconsin GCSA for allowing us to reproduce this excellent information about resistance. This article first appeared in the September/October issue of the Grassroots publication.**



***Associations are stronger through partnerships. Thank you WGCSA and UW Madison for your support of the Minnesota Golf Course Superintendents Association***