

# Hole Notes

**The Official Publication of the MGCSA**  
**Vol. 56, #9 September 2021**



**2021 MGCSA Champion:**  
**Jacob Dixon**



Get to Know 'em

## Donnacha O'Connor

Superintendent at Alexandria Golf Club

Pages 40 - 44

On the cover:

2021 MGCSA Champion Jacob Dixon proudly displays the coveted Champion's Chalice. Jacob earned the title through fine play at the New Prague Golf Club in August. Superintendent Jeff Pint provided exceptional conditions for the event. See the picture spread on pages 20 - 21

*Anticipate Snow mold injury?*

Read the research for the best control products pages 22 - 39

***Events Ahead:***

***The Wee One***

***The Scramble***

***Professional Turf Forum***

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COM



# Presidential Perspective

by Scott Thayer, Legends Club

What a great way to end this crazy summer! Much needed rain, and some lower temps! I feel the drought is over, following six inches of rain in a week and a half, just a short while ago. It sure makes it feel like we are somewhat back to normal. The transitional September days are ahead of us, and in my opinion, the best weather of the year. Lots of us are light on staff, but the shorter days with cooler mornings and warm afternoons make being on the course very enjoyable. I hope you are savoring the last of the “summer” and can reflect on another successful year that, although challenging, made us all a little stronger in the end.

The MGCSA just completed two successful events in late August and early September with the golf

championship and golf-centric field day at the University of Minnesota’s TROE center. It was a beautiful day for the championship. Thank you to all those that played, and a giant thank you to Jeff Pint for being such a great host for the event. The golf-centric field day was the first “golf” field day hosted by the UMN that I know of in my time in MN. In my opinion, it was a fine success. A beautiful day with great golf turf plots to check out as well as an update on the winter study that they are doing. I would like to thank Dr. Eric Watkins and Maggie Reiter, as well as the whole UMN Turf staff, that put this together and did the presentations. It was great info for all who attended. As you know, the MGCSA invests \$50K into research every year and it’s amazing to see that money at work for us at the TROE center. On a side note, the TROE center is 20 years old this year. It was inspired and built by

the MGCSA, and is a reflection of the great partnership between the UMN and the MGCSA!

Many more events are coming up that should fill your calendar over the next few weeks. The Turf-grass Talk-about at Olympic Hills Golf Club hosted by Jake Schmitz, should be another great hike with lots of info, I can't wait. The Wee One at Brackett's Crossing CC, hosted by Tom Proshek, is always

a great event. If you missed it last year all the construction done by Tom and his staff is well worth checking out and it's such a good cause. Then the Scramble a week later, but on a Tuesday, at Baker National and hosted by superintendent Kyle Stirn, should be another fun event at a great venue. I am excited to see as many of you as I can at all these events which will round out a great year for the MGCSA!

Thanks Jeff Pint for hosting the 2021 Championship and congratulations to the winners that day, the members who participated!

Have you registered a team for the upcoming Wee One Golf Event or Scramble for Research and Scholarship? There are many tee slots available and your support would be greatly appreciated.

# *What is your “Why” question?* part 3

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

A few months ago, we had to put Tommy, our 12-year old cat down, due to cancer. He was just a cat, yet I could not believe the emotions that I shed from losing that cat. This triggered thoughts back to my mom passing in 2017 and then my dad in 2018. Understanding death can be emotionally difficult, yet it is also a good time for contemplation.

My parents both died because of their physical and mental health

conditions. My mother struggled with mental health and substance use. My father’s physical and mental health deteriorated quickly after retirement from his physically demanding career as a welder. My first column documented my journey through the contemplation of their deaths and how I am, as a result, consciously changing my future. The death of Tommy impacted me in a different way. To dissect those feelings, I will start with the story about Tommy’s last three days.



***Tommy, helping me study!***



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We put Tommy down on Monday, April 21. The previous Thursday night Tommy slept on my son Cameron's bed with him. On Friday, Tommy did not leave the bed for the entire day and again slept with Cameron another night. He was conscious and respondent, yet did not leave the bed. Saturday morning, Tommy seemed to have more energy, drank some water, ate a couple bites of food, and stood at the door to go outside. Saturday was a beautiful day and Tommy loved to go outside on days like this; we hesitantly let him out. My wife, son, and I decided to go golfing. We looked for Tommy to bring him in, but he was nowhere to be found. My daughter was on her way home from work, so we were not too worried about him getting back inside.

Tommy spent the day sunning himself and enjoying all that nature held for him before retiring on our bed Saturday night. Like Friday, Tommy did not leave our bed on Sunday, in the evening we carried him to get some food and water to drink, but he struggled to even stand up. On Monday, we faced the difficult, but humane, decision of

“putting him to sleep.”

Why do I bring this story up? Tommy lived his days fully up to the very end. My parents seemed to give up three quarters of the way through life. In the last couple weeks of life, Tommy did something that he rarely did prior. Tommy began to lay on our chests with his mouth close to ours and his heart over ours. This may sound bizarre, yet to me it was almost as if he were passing along his life and all those good memories of our time together.

While I have not mentioned my family much in the past two articles, they are foundational to my existence. I could not ask for a better family and wife of 25-years in August. Tommy reinforced to me how what happens in a household is at the core of who we are and functions as a grounding place.

With my responsibilities as Golf Course Superintendent at Chicago Lakes Golf Course my summer is extremely busy with long work hours. To continue my education towards my master's, I decided to



enroll in just one class during the summer semester and I was looking forward to it. The class, CF-506 Families and Systems, is taught by Dr. Marcy Mears. Dr. Mears is a full-time practicing LICSW-Licensed Independent Clinical Social Worker who brings her rich clinical experiences to the classroom for us to understand practical, along with academic, examples of family counseling.

The class has not disappointed with discussions regarding families and the struggles that they go

through, especially when one member has substance use disorder. I asked Dr. Mears the question of where she sees families starting to fall apart and what it is that makes them strong. Dr. Mears finds that family rhythms become incongruent and disconnected, they lack grounding. I found her words reminiscent to what I saw in Tommy's final weeks with those close interactions with his mouth and heart next to mine. I believe that Tommy knew that he did not have long to live and what he needed and desired most was connecting, grounding, and



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matching his rhythms to those he cared for.

As someone in their second half of life, I have attended and spoke at many funerals. A common sentiment is that we do not know the number of days that we have on this earth and that we should spend more of those days with the ones that we love. While I agree with the idea, I think the practicality of those words are more complex. The sentiment speaks as if we should sit in a big circle looking into each other's eyes and sing Kumbaya all day long.

The members of all households have separate daily lives outside the home, yet that can be extremely rewarding and beneficial to the family. What the chaotic world fails to provide is a sense of peace and grounding. The home is the place where we can reset from the complications of the outside world, match our heartbeats and life rhythms to calm ourselves for a time – almost like recharging our phones for the next day's use.

Our families should provide the energy for those recharging



***My “center”, my family, my recharging station.  
Left to right: Garret, Alyssa, Cameron, me and Penny***

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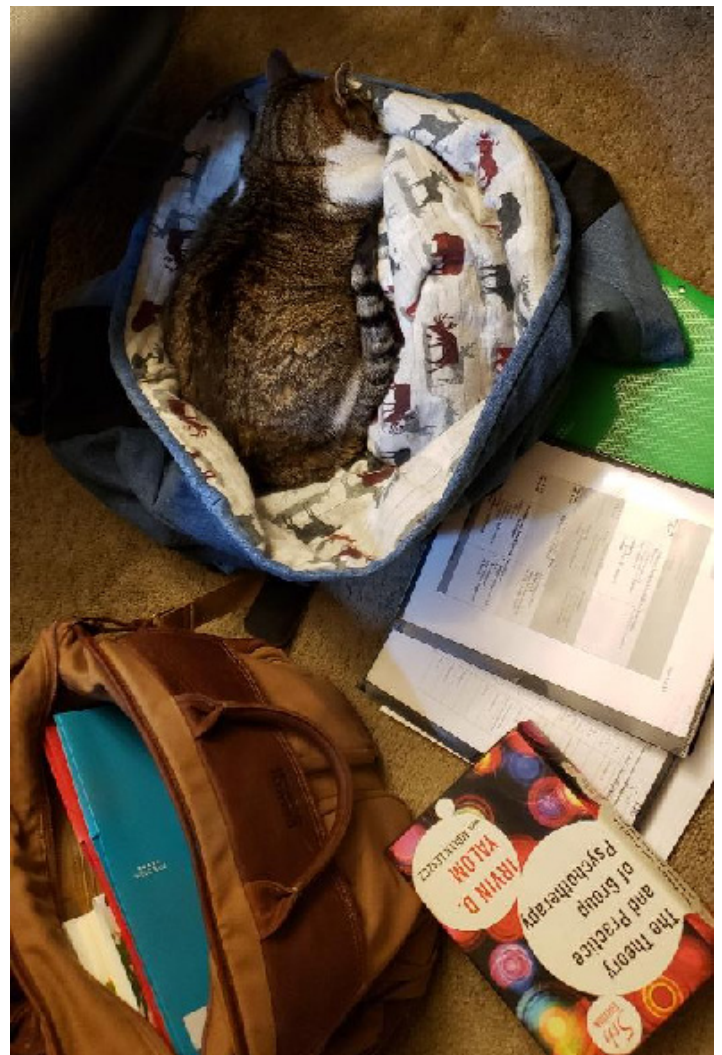
situations, through listening to one another, maintaining honest and genuine communication, even as we each have separate lives outside the home that demand our attention. Things start to fall apart when there is no “recharging” and reconnecting time to match family members’ heartbeats and rhythms to be strengthened for the next day’s challenges. We go away and come together as family members. To be strong, we gain strength in our relationship with one another and our commonalities as families. When we don’t honor the impact of being recharged by those we love, we stray away and grow weaker and weaker.

In a way, Tommy was passing along his final breaths and energy to those he loved in a very purposeful way. How is your rhythm with your family? Does your family’s heart beat as that of a marathon runner, smooth and powerful, or is it on a gurney entering the emergency room ready for some stints to be implanted? Change starts with the individual and frequently takes time. Look to those relationships close to you, are they in sync

or not. Do you provide a safe place that your family members can come talk to you without judgement and criticism? Have you asked a family member how their day was, do you eat meals together, is there some time at the end of the day to “sit” together without distractions, could you enjoy a board game together?

Today can be a great day to start to strengthen your family and supercharge it for tomorrow.

What is your Why? Family





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# *Feel the Burn!*

**John Maksymiu, BTSI. Photos by Matt Kregel**

*This article originally appeared in the October 2020 On Course magazine the official publication of the Midwest Association of Golf Course Superintendents.*

*It is reprinted with permission. Thank you MAGCS*

When the golf season is complete and the course is nearly put away for winter it can be an exciting time for land managers that apply prescribed burning to naturalized and grass areas. It is one of the enjoyable parts of our jobs when we

can be a kid again. There comes an adrenaline rush with the responsibility and power of fire. As exciting as this time can be, and short lived, are we really feeling the burn? Or feeling “OUT” the burn?

Prescribed burning can be an



***Effective fires burn best between 50-70% relative humidity. Too dry and they burn too fast, too wet and they won't spread. Ideal temperatures for controlled burns are between 40-60 degrees F. Wind speed and direction should be favorable as well. Steady wind speeds between 3-7 MPH are ideal. Direction of the wind should be watched as well depending on the surrounds (roadways, neighbors, etc.)***

easy land management practice and a quick method to see to large native expanses. As an advocate to promoting ecological programming, and a long career in the golf industry, I have learned that the existence and management of native areas does not completely reduce a workload or in many ways, inputs. Instead, it directs even more responsibility and time on the one or two technical individuals that are looking to shake the workload weight in the first place! While a prescribed burn will reduce fuel load, but the burn, and burn-

ing too frequently can also scarify/stratify unwanted weed seeds and could promote early growth of difficult to control weeds. The action benefits the weed in early competition against desirable plants making your weed situation worse.

One approach to assist in achieving desired native or grass areas, without delving into all the facets and BMP's of land management, is applying pre-emergent herbicides in conjunction with the benefits of fire. Pre-emergents are a great tool. In Spring, many turf grass

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***Head burning uses the wind to move the fire by starting the fire on the upwind side of the area. This method creates a fire that burns hotter, moves rapidly and can be more difficult to control and are less effective at removing material.***

operations have not kicked in full gear yet, and one may find time to tackle items off their laundry list, such as native or out of play grass areas. These areas are difficult to maintain in season, require time, consume resources, and laborious work when growing. For managers with little time and few resources, a prescribed burn and pre-emergent control can be a simple answer to check the native management task off the list, reducing in season attention. Making a detailed schedule of your expectations for these areas

goes without saying, and there are many ways to manage our unique sites. Although, success in achieving this goal and combining these two strategies together may be as simple as timing and patience. Balancing the fine line with naturalized areas are equally as important as the timelines we follow so diligently for turf.

Pre-emergent herbicides are designed to bond or adsorb to organic carbon (C-H bonds) relatively tightly to be effective. Organic carbons are



found in plant residue, soil, wood, and more. Thus, pre-emergents “walk a fine line” of being available for plant uptake, a necessity to kill a newly germinated seed that intercepts the preemergent layer or herbicide, or even becoming completely unavailable. The efficacy of a pre-emergent is highly determined on how much organic carbon is in the target area. An application of a pre-emergent in a mowed naturalized area with the residue left in place has a high potential of being locked up in organic residue. A timely irrigation event may potentially move the herbicide to the soil,

the intended target. However, if no irrigation or rainfall occurs more of the product will be broken down by U.V. light or adsorbed by thatch, and less easily moved to the target soil.

A prescribed burn may remove all the dead material or thatch that could otherwise intercept a pre-emergent herbicide. Adversely, burning may also produce more ash and char, carbon (C-H) sites that could bind the preemergence herbicide more tightly, lowering efficacy. The goal of a prescribed burn when coupled with a follow up pre-



***Back burning is the term given to the process of lighting vegetation in such a way that it has to burn against the prevailing wind. This produces a slower moving and more controllable fire.***

emergent herbicide application is to get the active ingredient to the soil. The best method while burning is to do a slow Back Burn. This will cause more of the organic material to leave the target area as smoke and or ash (as CO<sub>2</sub> and as organic carbon particulates [smoke]). Avoid fast, Head-Burns that may not burn or ride the area of the organic fuel load completely. This will potentially leave more ash and char in the target area (C-H) to bind a pre-emergent before it can reach the soil.

The program is a complex scenario where “one size does not fit all”. Consider several options. Do not feel obligated to burn all sites annually. Create a burn schedule in detail based on expectations, necessity, and severity of your sites. If feasible, try a Fall prescribed burn and an early application of a pre-emergent in Spring. During a Spring burn, time your



***It's better to burn fine fescues using a the Head-Burn method; a quicker moving fire will have less potential for harming the crown of the plant and help to remove unwanted leaf litter to make a herbicide spray more effective.***

burn date prior to a rain event (easier said than done!). I recommend Back-Burning a Spring burn for natives. Thus, burning the fuel load and site hot and thorough. If you are burning fine fescues, only burn a fast Head-Burn. Again, attempt to time the burn prior to a rain event. Apply your pre-emergent several days to a week after rain. The rain will help dilute and clear your burn site area of any residual carbon, increasing efficacy of your pre-emergent. As we know, burning will also warm up soil temps and activate a growth response. A follow up rain event will also escalate growth activation. The window between post burn and pre-emergent is the most crucial time when combining the two. As a superintendent pick and choose where to apply pre-emergents. Understand that efficacy may be lost, or you have no need in certain areas.

Always consult with your local authorities to see if a permit is needed; most communities now require one or at least notification when burning is carried out.



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# *The MGCSA Championship at New Prague Golf Club Thanks Host Superintendent Jeff Pint*







## 2020-2021 Snow Mold Control Evaluation: Giant's Ridge Golf Resort – Biwabik, MN



Kurt Hockemeyer<sup>1</sup>, Andrew Hollman<sup>2</sup>, Eric Watkins, Ph.D.<sup>2</sup>, and Paul Koch, Ph.D.<sup>1</sup>

<sup>1</sup>Department of Plant Pathology, University of Wisconsin-Madison

<sup>2</sup>Department of Horticultural Science, University of Minnesota

### OBJECTIVE

To evaluate fungicides for the control of gray snow mold (caused by *Typhula incarnata*), speckled snow mold (*T. ishkariensis*), and Microdochium patch (*Microdochium nivale*) on golf course turfgrass.

### MATERIALS AND METHODS

This evaluation was conducted at the Giant's Ridge Golf Resort near Biwabik, MN on a creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) golf course fairway maintained at a height of 0.5 inches. Individual plots measured 3 ft x 10 ft and were arranged in a randomized complete block design with four replications. Individual treatments were applied at a nozzle pressure of 40 psi using a CO<sub>2</sub>-pressurized boom sprayer equipped with two XR Teejet AI8008 VS nozzles. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft<sup>2</sup>. All applications were made on 21 Oct 2020. The experimental plot area was not inoculated. Snow cover was present from mid-November through late March, a total of approximately 140 days. Disease severity, turf quality, and turf color were measured on 5 Apr 2021. Disease severity was visually rated as percent area affected, turfgrass quality was visually rated on a 1-9 scale with 6 being acceptable, and chlorophyll content (turfgrass color) was rated using a FieldScout CM 1000 Chlorophyll Meter from Spectrum Technologies, Inc. (Aurora, IL). Treatment means were analyzed using Fisher's LSD method and are presented in Table 1.

### RESULTS AND DISCUSSION

Disease pressure was moderate in Biwabik this year with non-treated controls averaging 52.5% disease. The predominant snow mold disease present was speckled snow mold. Most treatments were extremely effective, with 29 of the 36 treatments providing 95% or greater disease control. All of the effective treatments tested in this trial included three or more active ingredients. Turf quality and turf color largely mirrored disease severity, though slight increases in turf quality and turf color were observed in treatments that included pigments. Phytotoxicity was not observed with any treatment.

**[To find more information about the Minnesota Snow Mold Trials link here. Your membership dollars at work locally.](#)**

**Table 1: Mean snow mold severity, turf quality, and turf color were assessed on April 5, 2021 at Giant’s Ridge Golf Resort near Biwabik, MN.**

	Treatment	Rate	Application Timing <sup>a</sup>	Disease Severity <sup>b</sup>	Turf Quality <sup>c</sup>	Turf Color <sup>d</sup>
1	Non-treated control			52.5a	3.8g	138.8i
2	Turficide	6.0 fl oz/1000 ft2	Late	0.5e	7.5abc	191.3a-f
	Banner Maxx Foursome	2.0 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
3	Turficide	8.0 fl oz/1000 ft2	Late	3.8cde	7.0bcd	204.5a-d
	Banner Maxx Foursome	2.0 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
4	Turficide	6.0 fl oz/1000 ft2	Late	0.0e	8.0a	193.3a-e
	Torque Foursome	1.1 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
5	Turficide	8.0 fl oz/1000 ft2	Late	0.0e	8.0a	193.3a-e
	Torque Foursome	1.1 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
6	Turficide	6.0 fl oz/1000 ft2	Late	0.0e	8.0a	202.3a-e
	Mirage Foursome	2.0 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
7	Turficide	8.0 fl oz/1000 ft2	Late	0.0e	8.0a	186.8a-g
	Mirage Foursome	2.0 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
8	Premion	10.0 fl oz/1000 ft2	Late	0.0e	7.8ab	207.8abc
	Previa Foursome	4.0 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
9	Premion	10.0 fl oz/1000 ft2	Late	1.3e	7.5abc	214.3ab
	Secure Foursome	0.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
10	Concert II	5.5 fl oz/1000 ft2	Late	1.3e	7.3abc	188.5a-g
	Turficide Foursome	6.0 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
11	Concert II	5.5 fl oz/1000 ft2	Late	2.5de	7.5abc	188.5a-g
	Turficide Foursome	8.0 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
12	Concert II	8.3 fl oz/1000 ft2	Late	0.0e	7.5abc	197.5a-e
	Turficide Foursome	8.0 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
13	Turficide	8.0 fl oz/1000 ft2	Late	1.8e	7.3abc	203.0a-e
	Previa Foursome	5.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
14	Turficide	3.33 fl oz/1000 ft2	Late	2.5de	7.3abc	197.0a-e
	Previa Mirage	1.825 fl oz/1000 ft2 0.67 fl oz/1000 ft2				
15	Turficide	6.66 fl oz/1000 ft2	Late	0.0e	7.5abc	187.0a-g
	Previa Mirage	3.65 fl oz/1000 ft2 1.33 fl oz/1000 ft2				
16	Turficide	8.0 fl oz/1000 ft2	Late	0.0e	7.8ab	181.0c-g
	Previa Mirage	4.4 fl oz/1000 ft2 1.6 fl oz/1000 ft2				
LSD P=.05				9.06	0.98	31.8

<sup>a</sup>All treatments applied on Oct 21, 2020.

<sup>b</sup>Mean percent diseased area assessed on Apr 5, 2021.

<sup>c</sup>Quality was visually assessed where 1 = dead, 6 = acceptable, 9 = dark green.

<sup>d</sup>Color was assessed using a FieldScout CM1000 Chlorophyll Meter from Spectrum Technologies, Inc.

**Table 1(cont): Mean snow mold severity, turf quality, and turf color were assessed on April 5, 2021 at Giant's Ridge Golf Resort near Biwabik, MN.**

	Treatment	Rate	Application Timing <sup>a</sup>	Disease Severity <sup>b</sup>	Turf Quality <sup>c</sup>	Turf Color <sup>d</sup>
17	Turficide	10.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.8ab	182.8b-g
	Previal	5.5 fl oz/1000 ft <sup>2</sup>				
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>				
18	Turficide	3.0 fl oz/1000 ft <sup>2</sup>	Late	1.3e	6.8cde	188.3a-g
	26GT	2.0 fl oz/1000 ft <sup>2</sup>				
	3336F	1.0 fl oz/1000 ft <sup>2</sup>				
	Mirage	0.6 fl oz/1000 ft <sup>2</sup>				
19	Turficide	6.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.8ab	202.8a-e
	26GT	4.0 fl oz/1000 ft <sup>2</sup>				
	3336F	2.0 fl oz/1000 ft <sup>2</sup>				
	Mirage	1.2 fl oz/1000 ft <sup>2</sup>				
20	Turficide	8.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.8ab	202.0a-e
	26GT	5.33 fl oz/1000 ft <sup>2</sup>				
	3336F	2.67 fl oz/1000 ft <sup>2</sup>				
	Mirage	1.6 fl oz/1000 ft <sup>2</sup>				
21	Turficide	9.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.5abc	172.5e-h
	26GT	6.0 fl oz/1000 ft <sup>2</sup>				
	3336F	3.0 fl oz/1000 ft <sup>2</sup>				
	Mirage	1.8 fl oz/1000 ft <sup>2</sup>				
22	Turficide	3.0 fl oz/1000 ft <sup>2</sup>	Late	0.5e	7.5abc	190.3a-f
	26GT	1.0 fl oz/1000 ft <sup>2</sup>				
	Torque	0.3 fl oz/1000 ft <sup>2</sup>				
	Banner Maxx	0.5 fl oz/1000 ft <sup>2</sup>				
23	Turficide	6.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.0bcd	175.8d-g
	26GT	2.0 fl oz/1000 ft <sup>2</sup>				
	Torque	0.6 fl oz/1000 ft <sup>2</sup>				
	Banner Maxx	1.0 fl oz/1000 ft <sup>2</sup>				
24	Turficide	9.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.0bcd	160.8f-i
	26GT	3.0 fl oz/1000 ft <sup>2</sup>				
	Torque	0.9 fl oz/1000 ft <sup>2</sup>				
	Banner Maxx	1.5 fl oz/1000 ft <sup>2</sup>				
25	Turficide	8.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.0bcd	141.3hi
	Torque	0.6 fl oz/1000 ft <sup>2</sup>				
	Banner Maxx	1.0 fl oz/1000 ft <sup>2</sup>				
26	Turficide	8.0 fl oz/1000 ft <sup>2</sup>	Late	1.3e	6.8cde	158.3ghi
	26GT	2.0 fl oz/1000 ft <sup>2</sup>				
	Torque	0.6 fl oz/1000 ft <sup>2</sup>				
	Banner Maxx	1.0 fl oz/1000 ft <sup>2</sup>				
27	Enclave	8.0 fl oz/1000 ft <sup>2</sup>	Late	1.3e	7.3abc	199.8a-e
28	Insignia	0.65 fl oz/1000 ft <sup>2</sup>	Late	7.5b-e	6.0ef	182.0c-g
	Trinity	1.0 fl oz/1000 ft <sup>2</sup>				
LSD P=.05				9.06	0.98	31.8

<sup>a</sup>All treatments applied on Oct 21, 2020.

<sup>b</sup>Mean percent diseased area assessed on Apr 5, 2021.

<sup>c</sup>Quality was visually assessed where 1 = dead, 6 = acceptable, 9 = dark green.

<sup>d</sup>Color was assessed using a FieldScout CM1000 Chlorophyll Meter from Spectrum Technologies, Inc.



**Table 1(cont): Mean snow mold severity, turf quality, and turf color were assessed on April 5, 2021 at Giant’s Ridge Golf Resort near Biwabik, MN.**

	Treatment	Rate	Application Timing <sup>a</sup>	Disease Severity <sup>b</sup>	Turf Quality <sup>c</sup>	Turf Color <sup>d</sup>
29	Insignia	0.65 fl oz/1000 ft2	Late	3.8cde	6.3def	188.5a-g
	Trinity	1.0 fl oz/1000 ft2				
	26GT	4.0 fl oz/1000 ft2				
30	Insignia	0.65 fl oz/1000 ft2	Late	1.3e	7.3abc	210.0abc
	Trinity	1.0 fl oz/1000 ft2				
	Daconil Weatherstik	4.4 fl oz/1000 ft2				
31	Insignia	0.65 fl oz/1000 ft2	Late	5.0cde	6.3def	200.3a-e
	Trinity	1.0 fl oz/1000 ft2				
	Medallion	0.94 fl oz/1000 ft2				
32	Enclave	8.0 fl oz/1000 ft2	Late	2.5de	7.5abc	212.8abc
	Foursome Plus	0.4 fl oz/1000 ft2				
33	Intaglio	11.0 fl oz/1000 ft2	Late	16.3b	5.5f	215.8a
	Foursome Plus	0.4 fl oz/1000 ft2				
34	BCP1803	1.7 fl oz/1000 ft2	Late	11.3bcd	5.8f	205.0a-d
	Fame	0.36 fl oz/1000 ft2				
	BCP1803	1.7 fl oz/1000 ft2				
35	Fame	0.36 fl oz/1000 ft2	Late	12.5bc	5.8f	197.5a-e
	3336F	5.75 fl oz/1000 ft2				
	BCP1803	1.7 fl oz/1000 ft2				
36	Fame	0.36 fl oz/1000 ft2	Late	7.5b-e	6.0ef	209.8abc
	Daconil Weatherstik	4.0 fl oz/1000 ft2				
LSD P=.05				9.06	0.98	31.8

<sup>a</sup>All treatments applied on Oct 21, 2020.  
<sup>b</sup>Mean percent diseased area assessed on Apr 5, 2021.  
<sup>c</sup>Quality was visually assessed where 1 = dead, 6 = acceptable, 9 = dark green.  
<sup>d</sup>Color was assessed using a FieldScout CM1000 Chlorophyll Meter from Spectrum Technologies, Inc.



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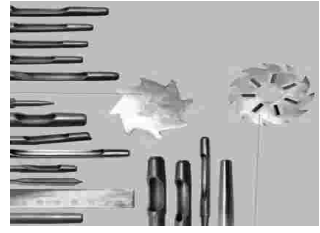
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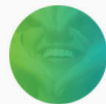
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1

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2

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Pending approval by the Minnesota Department of Agriculture (MDA), this workshop meets Commercial Pesticide Applicator Requirements for Category A (Core) and Category E (Turf and Ornamentals).

Licensed applicators with Categories A and E who last attended a recertification workshop in 2020, and newly-licensed pesticide applicators in 2021, must attend an MDA-approved workshop by December 31, 2022. By attending the Pesticide Recertification track and scanning in and out onsite with staff of the Department of Agriculture, applicators will obtain recertification credit.



3

## LANDSCAPE DESIGN CHALLENGE

**Design Leaders:** Jason Rathe, Field Outdoor Spaces; Alyson Landmark, Southview Design, and Michael Keenan, Urban Ecosystems Inc.

**Coordinator:** Julie Weisenhorn, University of Minnesota

Time for some design fun! The Landscape Design Challenge brings MNLA designers together to flex their creative muscles! Design leaders will offer up a series of diverse design challenges, and teams will be putting marker to paper to develop and present their solutions. Leaders will share the real-life solution that was implemented. This is an opportunity to stretch your design skills, learn how challenging problems can be solved, and have some fun with fellow designers!



4

## CREATING A CULTURE OF SERVICE AND ENGAGEMENT

**Facilitator:** John Kennedy, John Kennedy Consulting

Join international speaker, strategist, and author John Kennedy as he explores the right ingredients needed to build a workplace culture that supports the needs of the customer and the wants of its employees.

John's morning session will address the four stages of building a strong service culture and the systems needed to drive that culture each and every day. From vision, values and volition to rewards, recognition and respect, John will set the right balance of both to drive alignment and engagement into 2022 and beyond.

The afternoon will take a deeper dive into creating standards of excellence for an exceptional customer experience. Topics will include the four reasons customer's buy, the top expectations of your green industry clients, how to deal with difficult customers, and the six steps to delivering a consistent customer experience.



5

## NCMA SEGMENTAL RETAINING WALLS INSTALLER COURSE – LEVEL I/BASIC

**Presented by:** Frank Bourque, Landscape and Hardscape Business Consultant

The one-day classroom Segmental Retaining Wall (SRW) Installer Course teaches installers fundamental SRW installation guidelines, material and system component properties, soils and compaction, the effect of water, and site practices.

The SRW basic installer course is intended for contractors new to the business and for new employees of established installer companies who want to become NCMA certified. Those who successfully complete the classroom training and pass a written examination become certified as a Certified SRW Installer (CSRWI).

This credential is highly valued by consumers, and the program includes a wealth of valuable course information and reference material which attendees take back to work for implementation as money-saving and profit-making ideas.



6

## DOING MORE WITH LESS

Turf and grounds managers are constantly faced with the challenge of providing a high quality product with the least amount of resource and labor inputs. As the price of fertilizer, plant health products, labor, and irrigation (to name a few) continue to increase, a focus must be placed on "Doing More with Less." In this Master Class, attendees will learn about some of the most important maintenance practices for tree and turf care. Attendees will leave with a list of strategies that they can implement to improve their bottom line, while improving plant health and playability.

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## **2020-2021 Pink Snow Mold Control Evaluation: OJ Noer Turfgrass Research Facility – Madison, WI**

Kurt Hockemeyer and Paul Koch, Ph.D.  
Department of Plant Pathology  
University of Wisconsin-Madison

### **OBJECTIVE**

To evaluate fungicides and varying spray volumes for the control of *Microdochium* patch (caused by *Microdochium nivale*) on fairway height turfgrass.

### **MATERIALS AND METHODS**

This evaluation was conducted at the OJ Noer Turfgrass Research and Education Facility in Madison, WI on an ‘Alpha’ creeping bentgrass (*Agrostis stolonifera*) fairway maintained at a height of 0.5 inches. Individual plots measured 3 ft x 4 ft and were arranged in a randomized complete block design with three replications. Individual treatments were applied at a nozzle pressure of 40 psi using a CO<sub>2</sub>-pressurized boom sprayer equipped with two AI80025 Teejet air induction nozzles. All fungicides were agitated by hand and applied in the equivalent of either 1.5, 1.0, or 0.5 gallons of water per 1000 ft<sup>2</sup>. All applications were made on 1 Dec 2020. The experimental plot area was inoculated with *M. nivale*-infested rye grains 24 hours after the fungicide applications were made and then covered with custom made foam board insulation frames and an impermeable Greenjacket cover. The cover and frames were removed on 10 Mar 2021, and disease severity, turf quality, and turf color were evaluated on the same day. Disease severity was visually rated as percent area affected, turfgrass quality was visually rated on a 1-9 scale with 6 being acceptable, and chlorophyll content (turfgrass color) was rated using a FieldScout CM 1000 Chlorophyll Meter from Spectrum Technologies, Inc. (Aurora, IL). Treatment means were analyzed using Fisher’s LSD method and are presented in Table 1.

### **RESULTS AND DISCUSSION**

*Microdochium* patch pressure was high under the cover and frames with non-treated controls averaging 66.7% disease. The best performing products were 26GT, Secure, Medallion, Instrata, and Densicor. Secure and Medallion performed best at a water volume of 1.5 gallons and worse at decreasing water volumes. Secure is a contact fungicide and Medallion is a localized penetrant, meaning neither are translocated within the plant xylem. Decreasing water carrier volume appeared to have no effect on Insignia or Heritage TL, a local penetrant and acropetal penetrant, respectively. Turf quality and turf color mostly mirrored disease severity. Phytotoxicity was not observed with any treatment.

**Table 1: Mean snow mold severity, turf quality, and turf color were assessed on March 10, 2021 at the OJ Noer Research Facility in Madison, WI.**

	Treatment	Rate	Spray Volume <sup>a</sup>	Disease Severity <sup>b</sup>	Turf Quality <sup>c</sup>	Turf Color <sup>d</sup>
1	Non-treated control			66.7a	2.7g	162.3a
2	26 GT	4.0 fl oz/1000 ft2	1.5 gal H2O/1000 ft2	5.0gh	6.3ab	171.3a
3	Daconil Weatherstik	5.5 fl oz/1000 ft2	1.5 gal H2O/1000 ft2	36.7bcd	4.0ef	163.3a
4	Torque	0.6 fl oz/1000 ft2	1.5 gal H2O/1000 ft2	25.0b-g	4.7def	181.0a
5	Secure	0.5 fl oz/1000 ft2	1.5 gal H2O/1000 ft2	8.3fgh	6.0abc	188.0a
6	Secure	0.5 fl oz/1000 ft2	1.0 gal H2O/1000 ft2	10.0e-h	5.7bcd	188.0a
7	Secure	0.5 fl oz/1000 ft2	0.5 gal H2O/1000 ft2	31.7b-f	4.7def	182.3a
8	Medallion	2.0 fl oz/1000 ft2	1.5 gal H2O/1000 ft2	5.0gh	6.3ab	177.3a
9	Medallion	2.0 fl oz/1000 ft2	1.0 gal H2O/1000 ft2	13.3d-h	5.7bcd	174.0a
10	Medallion	2.0 fl oz/1000 ft2	0.5 gal H2O/1000 ft2	20.0c-h	5.0cde	170.3a
11	Insignia SC	0.7 fl oz/1000 ft2	1.5 gal H2O/1000 ft2	38.3bc	4.3ef	163.7a
12	Insignia SC	0.7 fl oz/1000 ft2	1.0 gal H2O/1000 ft2	35.0bcd	4.3ef	171.7a
13	Insignia SC	0.7 fl oz/1000 ft2	0.5 gal H2O/1000 ft2	41.7bc	4.0ef	165.3a
14	Heritage TL	2.0 fl oz/1000 ft2	1.5 gal H2O/1000 ft2	33.3b-e	4.3ef	177.3a
15	Heritage TL	2.0 fl oz/1000 ft2	1.0 gal H2O/1000 ft2	48.3ab	3.7fg	178.7a
16	Heritage TL	2.0 fl oz/1000 ft2	0.5 gal H2O/1000 ft2	31.7b-f	4.7def	176.3a
17	Instrata	7.0 fl oz/1000 ft2	1.5 gal H2O/1000 ft2	0.0h	7.0a	190.7a
18	Densicor	0.196 fl oz/1000 ft2	1.5 gal H2O/1000 ft2	5.0gh	6.3ab	185.3a
19	Interface	6.0 fl oz/1000 ft2	1.5 gal H2O/1000 ft2	21.7c-h	4.7def	180.3a
20	Mirage	2.0 fl oz/1000 ft2	1.5 gal H2O/1000 ft2	25.0b-g	4.7def	169.3a
			LSD P=.05	23.74	1.23	20.55

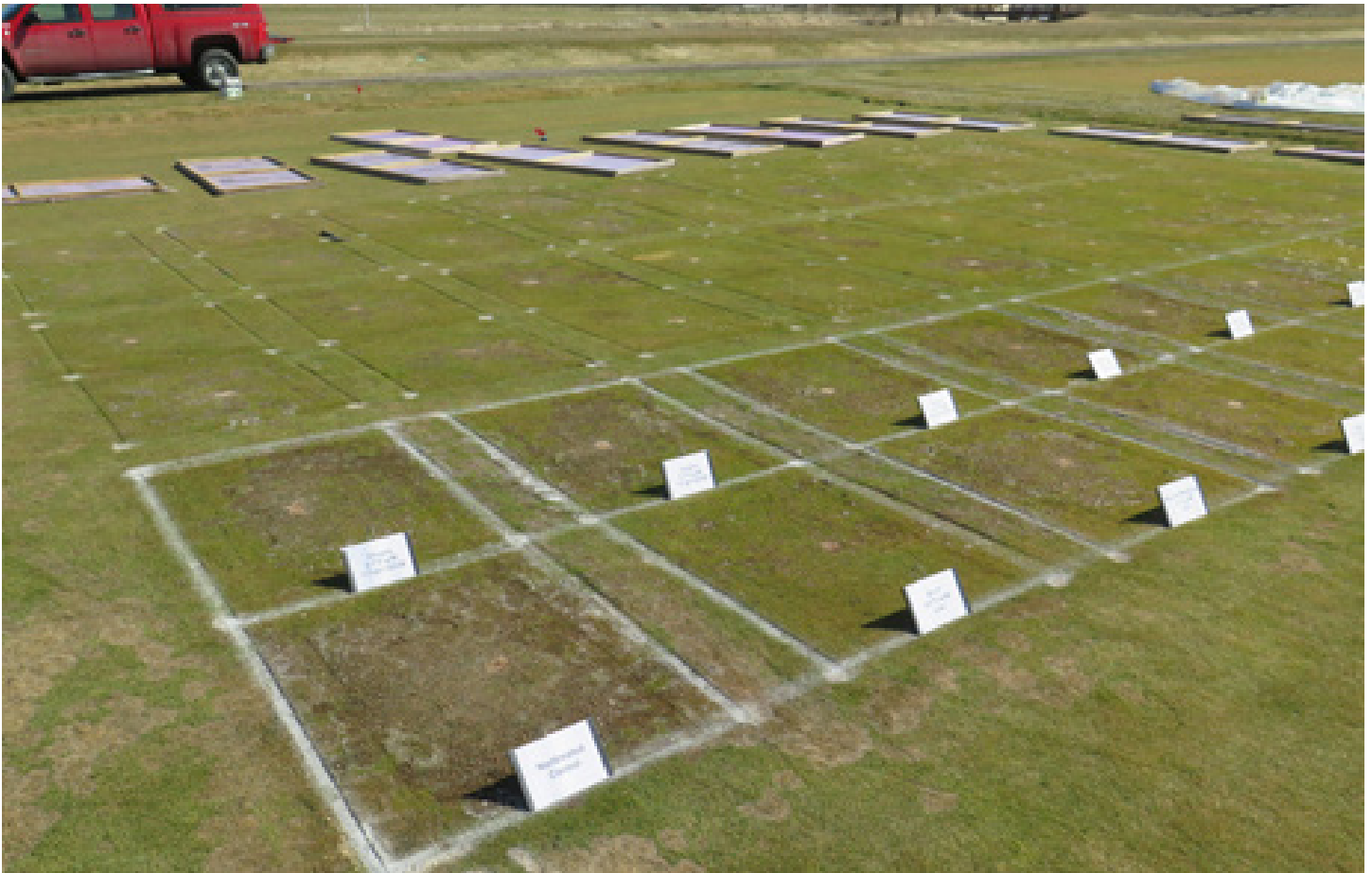
<sup>a</sup>All applications were applied on 1 Dec 2020.

<sup>b</sup>Mean percent diseased area assessed on March 10, 2021.

<sup>c</sup>Quality was visually assessed where 1 = dead, 6 = acceptable, 9 = dark green.

<sup>d</sup>Color was assessed using a FieldScout CM1000 Chlorophyll Meter from Spectrum Technologies, Inc.

***The MGCSA acknowledges and thanks Dr. Paul Koch and his UW turfgrass research team for their continued support of our industry. For more details regarding the results of the Pink Snow Mold Trials link here.***



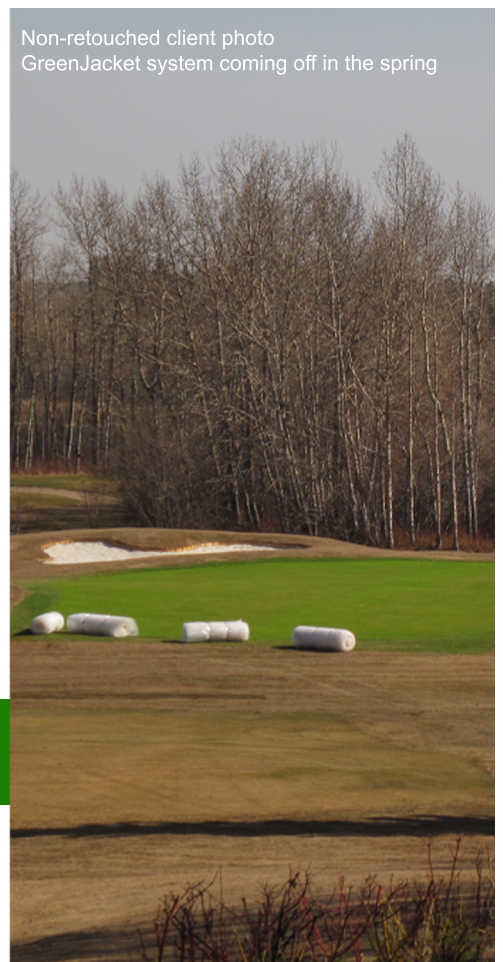
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**2020-2021 Snow Mold Timing Evaluation:  
OJ Noer Research Facility – Madison, WI  
Wausau Country Club – Wausau, WI  
Timber Ridge Golf Club – Minocqua, WI**

Kurt Hockemeyer and Paul Koch, Ph.D.  
Department of Plant Pathology  
University of Wisconsin-Madison

**OBJECTIVE**

To evaluate optimal timing of fungicide applications to control gray snow mold (*Typhula incarnata*), speckled snow mold (*T. ishikariensis*), and Microdochium patch (*Microdochium nivale*) on fairway height turfgrass.

**MATERIALS AND METHODS**

This evaluation was conducted at three locations: the OJ Noer Turfgrass Research and Education Facility in Madison, WI on an ‘Alpha’ creeping bentgrass (*Agrostis stolonifera*) fairway maintained at a height of 0.5 inches, at Wausau Country Club in Wausau, WI and at Timber Ridge Golf Club in Minocqua, WI on a creeping bentgrass and annual bluegrass (*Poa annua*) golf course fairway maintained at a height of 0.5 inches. Individual plots measured 3 ft x 10 ft and were arranged in a randomized complete block design with four replications. Individual treatments were applied at a nozzle pressure of 40 psi using a CO<sub>2</sub>-pressurized boom sprayer equipped with two AI8004 Teejet air induction nozzles. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft<sup>2</sup>. Disease severity, turf quality, and turf color were evaluated on 12 Mar 2021 in Madison, on 15 Mar 2021 in Wausau, and on 25 Mar 2021 in Minocqua. Disease severity was visually rated as percent area affected and turfgrass quality was visually rated on a 1-9 scale with 6 being acceptable. Treatment means were analyzed using Fisher’s LSD method and are presented in the following tables.

**RESULTS AND DISCUSSION**

The Madison and Minocqua sites had very high disease pressure, with 87.5% and 91.0% disease in the non-treated controls, respectively. However, the Wausau site had minimal disease due to limited snow depth for the duration of the winter. The primary snow mold disease present in Madison was gray snow mold (*T. incarnata*), in Wausau it was pink snow mold (*M. nivale*), and in Minocqua it was speckled snow mold (*T. ishikariensis*). In Madison and Minocqua there was a sharp drop off in disease between successive applications in October. The sharp drop off occurred on 10/15/20 in both Minocqua and Wausau, and on 10/30/20 in Madison, which roughly correlated with HDD surpassing 100 at each site. Turf quality and turf color mostly mirrored disease severity. Phytotoxicity was not observed with any treatment.

**Table 1. Mean snow mold severity and turf quality were assessed on March 12, 2021 at the OJ Noer Turfgrass Research and Education Facility in Madison, WI.**

Treatment	Rate	Application Timing	Disease Severity <sup>a</sup>	Turf Quality <sup>b</sup>	Turf Color <sup>c</sup>	
1	Non-treated control		87.5a	1.5c	111.8c	
2	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	10/1/20	83.8a	1.8c	109.5c
3	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	10/16/20	32.5b	4.5b	144.0b
4	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	10/30/20	5.0c	6.3a	174.8a
5	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	11/16/20	2.5c	6.5a	168.0a
6	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	12/1/20	0.0c	7.0a	182.5a
7	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	12/10/20	0.0c	7.0a	182.8a
LSD P=.05			10.82	0.86	22.71	

<sup>a</sup> Mean percent diseased area assessed on March 12, 2021. Means followed by the same letter are not statistically different.

<sup>b</sup> Quality was visually assessed where 1 = dead, 6 = acceptable, 9 = dark green.

<sup>c</sup> Color was assessed using a FieldScout CM1000 Chlorophyll Meter from Spectrum Technologies, Inc.

**Table 2: Heating Degree Days and 2-inch soil temperature at the OJ Noer Turfgrass Research Facility in Madison, WI in 2020.**

Trt #	Application Date(s)	HDD <sup>z</sup>	2" Soil Temp (F)
1	Non-treated	NA	NA
2	Oct 1	2	55.5
3	Oct 16	38	48.6
4	Oct 30	196	43.4
5	Nov 16	309	38.4
6	Dec 1	521	31.6
7	Dec 10	677	31.8

<sup>z</sup>Heating Degree Days was calculated by taking the mean temperature for each day beginning on July 1<sup>st</sup> and subtracting that number from 50°F. Negative numbers (ie means temperatures above 50°F) were removed and the summation is presented here.



**Table 3. Mean snow mold severity and turf quality were assessed on March 15, 2021 at Wausau Country Club in Wausau, WI.**

Treatment	Rate	Application Timing	Disease Severity <sup>a</sup>	Turf Quality <sup>b</sup>	Turf Color <sup>c</sup>	
1	Non-treated control		12.5a	5.5b	164.0-	
2	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	9/16/20	2.5b	6.5a	174.0-
3	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	9/30/20	0.0b	7.0a	188.0-
4	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	10/15/20	0.0b	7.0a	164.0-
5	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	10/30/20	0.0b	7.0a	164.5-
6	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	11/12/20	1.3b	6.8a	172.8-
7	Instrata	9.3 fl oz/1000 ft <sup>2</sup>	11/20/20	1.3b	6.8a	164.0-
LSD P=.05			3.07	0.61	21.43	

<sup>a</sup> Mean percent diseased area assessed on March 15, 2021. Means followed by the same letter are not statistically different.

<sup>b</sup> Quality was visually assessed where 1 = dead, 6 = acceptable, 9 = dark green.

<sup>c</sup> Color was assessed using a FieldScout CM1000 Chlorophyll Meter from Spectrum Technologies, Inc.

**Table 4: Heating Degree Days and 2-inch soil temperature at Wausau Country Club in Wausau, WI in 2020.**

Trt #	Application Date(s)	HDD <sup>z</sup>	2" Soil Temp (°F)
1	Non-treated	NA	NA
2	Sep 16	10	62.6
3	Sep 30	16	54.3
4	Oct 15	60	44.7
5	Oct 30	317	33.8
6	Nov 12	399	37.4
7	Nov 20	546	36.7

<sup>z</sup>Heating Degree Days was calculated by taking the mean temperature for each day beginning on July 1<sup>st</sup> and subtracting that number from 50°F. Negative numbers (ie means temperatures above 50°F) were removed and the summation is presented here.

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**Table 5. Mean snow mold severity and turf quality were assessed on March 25, 2021 at Timber Ridge Golf Club in Minocqua, WI.**

Treatment	Rate	Application Timing	Disease Severity <sup>a</sup>	Turf Quality <sup>b</sup>	Turf Color <sup>c</sup>
Non-treated control			91.0a	1.5c	94.0c
Instrata	9.3 fl oz/1000 ft <sup>2</sup>	9/1/20	89.8a	1.5c	101.0c
Instrata	9.3 fl oz/1000 ft <sup>2</sup>	9/16/20	89.8a	1.5c	106.3c
Instrata	9.3 fl oz/1000 ft <sup>2</sup>	9/30/20	43.8b	4.5b	136.3b
Instrata	9.3 fl oz/1000 ft <sup>2</sup>	10/15/20	3.0c	6.5a	163.8a
Instrata	9.3 fl oz/1000 ft <sup>2</sup>	10/30/20	1.5c	7.0a	146.3ab
Instrata	9.3 fl oz/1000 ft <sup>2</sup>	11/20/20	0.5c	7.0a	147.3ab
LSD P=.05			16.79	1.21	25.08

Mean percent diseased area assessed on March 25, 2021. Means followed by the same letter are not statistically different.

Quality was visually assessed where 1 = dead, 6 = acceptable, 9 = dark green.

Color was assessed using a FieldScout CM1000 Chlorophyll Meter from Spectrum Technologies, Inc.

**Table 6: Heating Degree Days and 2-inch soil temperature at Timber Ridge GC in Minocqua, WI in 2020.**

Trt #	Application Date(s)	HDD <sup>z</sup>	2" Soil Temp (°F)
1	Non-treated	NA	NA
2	Sep 1	0	60.6
3	Sep 16	15	62.2
4	Sep 30	35	51.9
5	Oct 15	111	42.8
6	Oct 30	425	33.4
7	Nov 20	681	33.3

Heating Degree Days was calculated by taking the mean temperature for each day beginning on July 1<sup>st</sup> and subtracting that number from 50°F. Negative numbers (ie means temperatures above 50°F) were removed and the summation is presented here.

**November 30th, Northeast Region, TBD**  
**December 2nd, Somerby Golf Club**  
**December 14th Marshall Golf Club**  
**March 15th, Fargo Country Club**

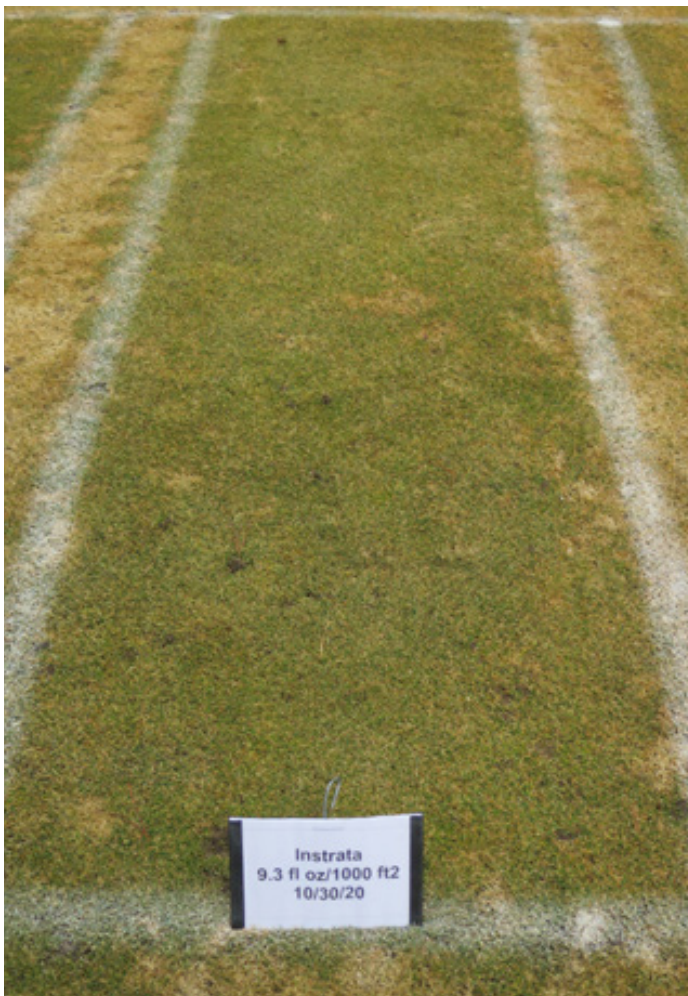


*Timing is everything when it comes to snow mold chemistry applications.*



*Early September application of Instrata at 9.3 ounces per 1000 square feet.*

***Right,  
late September  
application of  
Instrata at 9.3  
ounces per 1000  
square feet.***



***Left,  
late October  
application of  
Instrata at 9.3  
ounces per  
1000 square***

# Get to Know 'em

## Superintendent Donnacha O'Connor Alexandria Golf Club

by Hole Notes Editor, Joe Berggren



### **FACILITY INFO**

Golf Course: Alexandria Golf Club

Public or Private: Semi-Private

Number of Holes: 18

Full time employees: 2

Seasonal employees (not including full time): 16

***Right, Donnacha and sister Aine following a hike in east county Cork, Ireland.***





Types of grass: We have ALL the cool season grasses

Total course acreage: 150

Greens acreage: 3

Tee acreage: 2

Fairway acreage: 22

Rough acreage: 120

Driving range acreage: 12

Range tee acreage: .75

**Personal Turf Facts:**

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

This is my twentieth season at Alexandria Country Club.

*How many years have you been in the turf industry?* 30

*Where else have you worked?*

Wayzata Country Club, Killarney Golf and Fishing, Colony Club Gutenhof and Harbour Point Golf Club.

*Turf School Attended (if any)?*

HND at Reaseheath College, England



## Industry thoughts

*What is one “master plan” thing you would like to change at your golf course?*

Green Complexes

*What concerns do you have the turf business and the future of golf?*  
Professional Golfers are setting a poor example.

*What piece of equipment do you want? Not a need, a want.*  
Just got the Toro 5900 rough mower. That has been a want for a few years, I have to say I’m satisfied for now.

*In terms of industry costs (equipment, pesticides, labor, etc.) are they too low, too high or just right?*

Good



***Above, Donnacha having fun recreating a 1930's vintage golf picture.***

*Quality since 1971...*

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## **FUN FACTS**

*Have you ever met a celebrity?*  
Nobody of note.

*What is your favorite vacation spot?*  
Brittany, France

*What is your favorite memory of starting your turf career?*  
Getting paid to run heavy equipment. Didn't always get paid when working on the farm.

***Right, daughter Clara on the AGC staff.***



*What is your favorite job on the golf course?*

I like projects

*What is your least favorite job on the golf course?*

Office work

*Have you played any famous golf courses? Which ones?*

East Lake in Georgia has great memories for me

*Who is your dream foursome?*

Caddying for my kids is my favorite. I play with my friends, that's a dream come true. Thanks to Steve Roxberg, Don Saxon, and Jim Dolan.

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

Alexandria was spared much of the hardships that other places endured. I consider myself fortunate for that.



***Alexandria High School takes to the links in early spring 2021***

*Thank you and you and you!!!*

*Platinum Podium and Event Sponsor*



**Golf**

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*Silver Tee Sign Event Sponsors*



Bayer Environmental Science



*Superior Tech Products*



*For the Strongest Turf*



*Reinders*



# Snow Mold Research Report

## 1993-1994 Winter Season

Treatments were applied at three locations: Nursery green at Duluth - 22 October, Fairway at Edinburgh USA - 2 November, Green not in play at Stillwater - 3 November and a Nursery green at Northfield - 3 November. Additional treatments were applied 17 November at two Metro locations. Products were measured, mixed and applied at 45PSI to four replicates at each site in 2 gal./1,000 sq. ft. The 4 by 10 foot plus were scored for percent disease (mycelium and sclerotia) and a 2nd record was made to record the level of live or dead turf about 3 weeks after the first notes were taken. This began 8 March and continued through 7 May.

Disease level was high at Duluth, 99% mycelium and 90% dead turf in the UTC (untreated controls), while Edinburgh had 6%, Stillwater had 3.3% and Northfield had no disease. The first three sites were observed a 2nd time and with so little disease meaningful observations were not possible; however, the plots that had disease levels at or near the UTC level were those plots that performed poorly at Duluth also. The usual phytotoxic symptoms associated with mercury and PCNB were present in the sites with no or little disease. This tip burn/mercury symptom is leaf tip injury and is removed in the first or 2nd mowing. The pale green grass color/PCNB symptom does not last long and, with renewed growth, color returns, a bright green normal grass color. Neither of these symptoms are much of a negative and may be seen only if you have side by side plots.

Several products have acceptable levels of disease control and this is now the 2nd year for such performance. The standard mix of Caloclor + Chloroneb + PCNB (1 oz + 2 oz + 2 oz) had 0.5% disease and a range of performance of +/-0.5, a high level of control and little variation in the

4 replicates. Other good performers are: Prostar + PCNB (4.3 oz + 4 oz), or Chipco 26019 + Daconil 2787 F (4 fl oz + 8 fl oz) and (2 fl oz + 8 fl oz) or Chipco 26019 + PCNB + Daconil 2787 F (4 fl oz + 4 oz + 8 fl oz) or at (2 fl oz + 4 oz + 4 fl oz), or Vorlan + PCNB + Daconil 2787 F (2 oz + 4 oz + 4 fl oz), or the new product from Zeneca ICIA5504 in combination with either Daconil 2787 F or PCNB (0.7 oz Plus either 8 fl oz or 8 oz), and combinations of PCNB and Daconil 2787 F or Daconil 2787 75W or Daconil 2787 WDG (2 oz + either 8.6 fl oz or 6 oz 75W or 6 oz WDG).

Products with low disease score and a small range are judged to be best. The small -/+ following the Average Disease Score indicates the lack of or presence of mycelium and the superscript "s" indicates sclerotia of *Typhula ishikariensis* were present. The development of mycelium indicates some disease activity occurred, while the formation of sclerotia indicates a greater level of disease development. Color and grass growth scores three weeks after the initial readings indicate a strong relationship between disease/mycelium and dead turf. The UTC had 99% disease and 90% dead turf and the standard three way treatment of Caloclor + Chloroneb + PCNB had 0.5% disease and 0.5% dead turf.

The results of '93-'94 confirm the results from '92-'93. The winter disease agent this season was nearly all *Typhula ishikariensis* and little *Microdochium nivale* (*Fusarium nivale* or *Gerlachia nivalis*) was present. This species of *Typhula* is the more difficult one to control and is the most common *Typhula* in Minnesota. *T. incarnata* is also present some years, but is easier to control. Lower levels of disease control in the '92-'93 season are attributed to more Pink Patch or Pink Snow Mold. PCNB offers some control on both *Typhula*

and *Microdochium* and therefore can improve both the control of Grey by Daconil 2787 and Pink by Chipco 26019 or Vorlan. The use of Daconil alone allows for development of Pink and the use of Chipco or Vorlan alone allows for the development of Grey, while a low rate (2 to 4 oz) of PCNB alone is not adequate.

The results of the last two years indicate that we have several choices for winter disease management. Some may be tempted to do nothing and hope for a winter season with no damage. I don't recommend that. Others who have open winters and little long term snow cover may wish to direct products towards the Pink group and those with more snow cover should consider the Grey types. A large area of Minnesota will have the potential for both and I cannot predict which species will be the most common. Early spring/late winter loss of turf can be due to *Microdochium* species, an early application of Chipco 26019, Vorlan, Fungo 50 or Tersan 1991 may be important to those who have good winter survival, but then experience rapid turf loss.

Chipco 26019 or Vorlan with Daconil 2787 F is a good choice in much of Minnesota and the addition of PCNB to this program strengthens both side of the treatment target. The Metro area should have good results with this recommendation; as you move north in the state the addition of PCNB is more important. Prostar or ICIA 5504 (when registered) in combination with either Daconil 2787 or PCNB is another good choice. Daconil in '93:'94 was a better choice than PCNB due to the fact the most disease pressure was from *Typhula* species. Products like Banner, Bayleton, Rubigan and now Sentinel are not good choices for most of Minnesota due to the fact that *Typhula ishikariensis* is not controlled.

(Continued on Page 28)

# Snow Mold —

(Continued from Page 27)

**Table 1. Snow Mold 1993-94 Minnesota**

Snow Mold Treatment	Rate/1,000 sq. ft.	Average Disease Score	Range ±
SN 84364 NA314 Prostar	4.3 oz.	95-	5.0
SN 84364 NA314 Prostar & PCNB	4.3 oz. 4.0 oz.	0-	0.5
SN 84364 NA313 Prostar plus Triadimefon	3.6 oz.	54+	33.
Chipco 26019 F & Daconil 2787 F	4.0 fl. 8.0 fl.	2-	1.0
Chipco 26019 F & PCNB	4.0 fl. 6.0 oz.	13-	12.
Chipco 26019 F & PCNB	2.0 fl. 4.0 oz.	32+	14.
Chipco 26019 & PCNB & Daconil 2787 F	4.0 fl. 4.0 oz. 8.0 fl.	0-	0
Chipco 26019 & PCNB & Daconil 2787 F	2.0 fl. 4.0 oz. 4.0 fl.	0-	0
Vorlan & Daconil 2787 & PCNB	2.0 oz. 4.0 fl. 4.0 oz.	2-	2
Calcolar & Tersan SP & PCNB	1.0 oz. 2.0 oz. 2.0 oz.	0.5-	0.5
ICIA 5504	0.7 oz.	79-	15
ICIA 5504 & PCNB	0.7 oz.	2-	1
ICIA 5504 & Daconil	0.7 oz. 8.0 fl.	0-	0
ICIA 5504 & Daconil F & PCNB	0.7 oz. 8.0 fl. 8.0 oz.	0-	0
Chipco 26019 F & Daconil 2787 F	2.0 fl. 8.0 fl.	0-	1
PCNB	2.0 oz.	80+	10
PCNB & Tersan SP &	2.0 oz. 2.0 oz.	55-	15
PCNB & Daconil 2787 F	2.0 oz. 8.6 fl.	1-	1
PCNB & Daconil 2787 75W	2.0 oz. 6.0 oz.	3-	3
PCNB & Daconil 2787WDG	6.0 oz. 6.0 oz.	3-	2.0
UTC		99+	5

# Winter Injury Report '93 - '94

## Situation

Winter injury, a serious problem for golf courses, has become even worse for those who have prevented one form of injury-desiccation only to have another problem related to crown hydration become the reason for turf loss. The high expectation for excellent turf quality in the early spring has stimulated the use of covers and the expense-labor and cost has driven the expectations even higher for quality turf.

## Objectives

The study was to evaluate the ability of two grass populations, Poa and Bent, to survive freeze/thaw cycles after being removed from covers. Turf survival and green up data were collected to measure differences.

## Procedure

Turf plugs were taken last fall from the University of Minnesota Golf Course from a site having Poa and another having Bent. These plugs were placed in metal flats as individual cores, surrounded with sand and then covered with green covers. Samples were taken three times during the winter and the cores were then saturated with water before freezing or left at normal soil water levels and stored in a growth chamber programmed to freeze the soil cores to minus 4 C or 25 degrees F. The cores were removed after one to 5 freeze cycles and placed in the green house for color and growth evaluations.

## Results

The first plugs removed and grown out in the greenhouse were nearly identical in response: A 100% survival and 100% regrowth for both Poa and Bent. This was a real change from last year and the pattern continued. All 5 grow outs and all 3 replicates performed the same. Early in the process we identified that all plugs were nearly 100% Bent and no Poa was present. At first we believed it was a mix-up in plug labeling, but this was not the case. All plugs were mostly Bent and the source site was checked in the spring confirming the high Bent level. The only information gathered is that Bent grass survived all treatments. Covers made no difference to Bent grass. At least 90 to 95% survival of Bent was recorded in all plugs taken in 1993 and tested in 1994. The level of Bent in the test plugs prevented any meaningful measurements.

# LOST

**PING EYE 2  
RED DOT 3-IRON**

The 3-iron was lost at the MGCSA  
Championship at Wayzata C.C.

Contact: Jim Johnson, Rich Springs G.C.

**685-4322**

# *Turfgrass Educational Options in Minnesota and Wisconsin*

BY

**Eric Watkins, Professor, Horticultural Science, University of Minnesota,  
Doug Soldat, Professor, Soil Science, University of Wisconsin-Madison,**

Twenty years ago, undergraduate turfgrass science programs were booming; these programs were producing well-trained students for golf course management careers at a pace that made filling open assistant superintendent positions easy. In the ensuing years, the number of high school students matriculating into four-year programs in preparation for turfgrass management careers has plummeted. There are one or two examples of universities bucking this trend, but these cases are few and far between.

As golf courses struggle to fill positions, there is an increasing demand for employees with turfgrass management training. Although four-year programs have diminished in size, they continue to provide excellent preparation for students interested in working as greenkeepers or in the turfgrass industry.

There are several avenues a prospective student, whatever their age, could take that lead to a rewarding, productive career in golf course turf management. As professors at large research universities, we hope that



**Extension  
Turfgrass Science**



students will rediscover the value of a four-year degree; however, we also know that for many, a traditional path to a career in the turf industry may not be the best fit. In this article, we will do our best to offer a look at each of the primary educational paths open to prospective turfgrass managers in the Upper Midwest.

A research-based graduate degree at either the Masters or Ph.D. level provides knowledge and skills useful for research. While few golf course superintendents hold these degrees, they can be excellent ways to develop skills useful for evaluating and developing new approaches to turfgrass management. These programs take at least two years of full-time effort and require a thesis or dissertation on an original research project in addition to advanced coursework. Most students entering these programs are provided funding which covers tuition, along with a modest salary and fringe benefits. A Masters or Ph.D. degree opens up opportunities not typically available to those with four-year degrees including teaching and Extension positions, research and development or technical positions with chemical manufacturers and distributors.

A professional graduate degree, such as the Masters of Professional



***Hands on and outside education is critical in the development of tomorrow's golf course superintendent. Above, Dr. Florence Sessoms showing students research on mycorrhizal effects on turfgrass performance***

Studies in Horticulture at the University of Minnesota, requires 30 credits of graduate level coursework. This coursework can be completed either quickly (one to two years) or gradually over time (three or more years). These types of programs are most useful for those with undergraduate degrees outside of agriculture who want to develop knowledge and skills useful for the green industry. The University of Wisconsin does not offer a professional graduate degree.

In Minnesota and Wisconsin, there are three universities that offer undergraduate bachelors of science degrees (B.S. degrees) in turfgrass management: University of Wisconsin-Madison (Soil Science or Horticulture major); University of Minnesota-Crookston (Golf and Turf Management major); and University of Minnesota-Twin Cities (Plant Science major). Tuition for an undergraduate degree at these institutions will cost between \$10,000-15,000 per year. These programs require ~120 credits, and often take four years to complete, although if a student changes majors the time to graduation can be longer. There are many benefits of a B.S. degree, including the ability to enter a graduate degree program, and the B.S. degree also opens up many opportunities beyond turfgrass should the student decide to pursue a position in another field. Disadvantages of this option are the relatively high cost, and the degree is difficult to obtain



<b>Educational Option</b>	<b>Time Commitment</b>	<b>Approx. Tuition</b>	<b>Limitations</b>	<b>Benefits</b>	<b>Usefulness in other fields</b>	<b>Flexibility</b>	<b>Examples</b>
Professional graduate degree	2 - 4 years	\$25k	Expensive Large time commitment	Graduate degree that can be done part time while working	High	High	University of Minnesota Masters of Professional Studies in Horticulture
Research-based graduate degree	2-7 years	Often no cost to student	Large time commitment	Opens up many opportunities in research and sales	High	Low	University of Minnesota University of Wisconsin
Bachelor of Science degree	4 years	\$45-60k	Expensive Large time commitment	Standard option High flexibility	High	Low	University of Minnesota University of Wisconsin
Associates degree	2 years	\$10k	May limit upper mobility	Option to move on to a B.S. program if desired	Medium	Medium	Southwest Technical College
Short courses	1-2 years	\$10-15k	Certificate possibly not useful outside of turf mgmt	Inexpensive path to formal education in turf mgmt	Low	Medium	University of Wisconsin Rutgers University Penn State University
Non-credit, online options	N/A	\$600 per course	Education possibly not useful outside of turf mgmt	Inexpensive path to informal education in turf mgmt	Low	High	GreenKeeper University Great Lakes School of Turfgrass Science

while working full time.

A two-year associate degree in turfgrass management will provide coursework specific to an entry-level position in the turf industry. In addition, successful completion of this type of program can lead to entry into a four-year degree program; oftentimes, completion of an undergraduate B.S. will take two years beyond the associate degree. There are very few options in this category in our region, but Southwest Technical College in Fennimore, WI offers such a degree. There are many examples of highly successful turfgrass managers that possess only an associate degree; however, while advancing to upper-level management (General Manager, Director of Golf Operations) is possible with this degree, the more well-rounded coursework (writing, communications, etc.) required by a B.S. degree may make advancing to that level easier.

Prospective turfgrass managers can also enroll in turfgrass short courses. These short courses, usually provide 8-to-16-week full-time sessions each year, with the typical students attending two years, have been an im-



portant part of turfgrass management education for decades. The most prominent program in this category is at Rutgers; however, other options exist throughout the country. These short courses provide very focused turfgrass management education in a short amount of time, usually during the fall and winter when northern golf courses and turfgrass operations are in the off-season.

Courses are typically taught by university professors and other experts from the industry. For those coming from the Upper Midwest, travel costs and housing will create additional financial burden beyond tuition, which is generally in the range of \$11,000-12,000 for the two-year option. Upon completion, students earn a certificate, not a degree. A limitation of the short courses is that the training received will not be as useful outside of the turfgrass industry, so a career change would likely necessitate additional education. The University of Wisconsin-Madison offers such a

short course which runs from late October/early November through mid-March. The tuition of the program costs between \$5,000-7,000 depending on if you live in Wisconsin or Minnesota. Students may choose between a one-year or two-year certificate. More information about this program can be found at [www.fisc.cals.wisc.edu](http://www.fisc.cals.wisc.edu)

For those not yet ready to commit to one of these options, enrollment in non-credit online turf management courses is a good option. These courses, which do not provide college credit, will help students explore turfgrass management without needing to make a longer-term commitment. In our region, both the Great Lakes School of Turfgrass Management and Greenkeeper University have been popular choices in this category.

### Summary

If you are interested in learning more about these options, especially those available in Minnesota and Wisconsin, please reach out to either one of us. Talking to friends and co-workers in the turfgrass industry can also be a very helpful way to gather information about these programs.



***Fine turf management up[on a golf course is a rewarding career.***

# In Bounds

by Jack MacKenzie, CGCS



Whoa!!! Less than a four-page column by Jack! What is up with that?

Well, and to be honest, I can get long winded. So, this month's column will be short, sweet and a direct solicitation regarding a few very important issues. I won't go so far as to say that the livelihood of YOUR association depends on YOUR response, but the following bullet points are pretty darn important.

The Wee One 2021 It is my greatest wish that you never ever need to make a request for support through the Wee One Foundation. If you did, it would indicate that something unexpected and serious happened to you or your family, and that would be tragic. Four MGCSA members did suffer medical catastrophes and pursued Wee One support in 2021.

"Peers helping peers" is the name of the game and thank goodness

the Wee One is there to soften the blow. However, without your support of the Wee

One through an annual membership or by participating in the Wee One Fundraiser Golf Tournament, those who need help, simply put, wouldn't get any.

Please contribute to the Wee One event with a prize, sponsorship, or better yet, come play and try your luck at some great raffle prizes.

The Scramble 2021 for Research and Scholarship Some might say both are of limited value, but I disagree. The University of Minnesota TROE Center is an internationally known destination that supports an amazing amount of turfgrass research. But you wouldn't know it if you didn't participate in the Field

# Have you registered for the 2021 MGCSA Scramble?

*Proceeds support MGCSA Legacy Scholarships and  
Research at the UMN*

**Baker National  
Golf Club  
OCTOBER 12TH**



**10:00 registration/range/box lunch  
11:00 Shotgun start, proximity prizes  
Outdoor BBQ reception following  
Host Superintendent Kyle Stirn**

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

Just \$120 per player or \$480 per team.

Electronic registration only by October 6th.

Purse prizes will be pro shop gift cards and based upon participation

**Register today at [mgcsa.org](https://mgcsa.org)**

Day or ask questions of our turf-grass scientists. The MGCSA was instrumental in the creation of this multi-tasking research facility back in 2001. If you don't use it, if you don't support it financially, then I can assure you the UMN Regions will find a better use for the property. Maybe a new parking lot? Your participation in The Scramble helps keep the "lights on" at the TROE by paying for staff, supplies and research that will benefit the game of golf.

Legacy Scholarships are mighty important too. In school I received a couple bumps from Trans-Miss, and they helped me pay a few bills. Maybe your kids are too young or too old, but how about supporting The Scramble Fund Raiser for one of your professional peers whose kids are eligible?

Please participate in the 2021 The Scramble for Research and Scholarship. The round will be played at the recently renovated Baker National where Superintendent Kyle

Stirn and his staff provide an exceptional product for their patrons.

Membership When I was a young man, I was introduced to the MGCSA by my employer, the WBYC, and John Steiner. Without his inspiration (likely a very strong suggestion) I wouldn't have known about the professional association and perhaps wouldn't be in the position I am in today, your Executive Director. How many of you were dragged into membership by your employer and then continued to support the golf industry through association with the MGCSA?

Attrition overpassed membership recruitment in 2021. This is disturbing and should have you concerned. What troubles me is the lack of seasoned members who DO NOT introduce their interested professional team to the MGCSA. I met nine students in the industry over the past summer while participating in the MGCSA or associated golf programs. None, yes, I said none, were aware of the MGCSA even though



their bosses are members of the organization.

With a free membership offered to student members the cost most certainly cannot be a factor in the apathy. Then again, even with my strong promotion I was only able to “hook” three into membership.

If you don’t support new members, then your professional organization

will eventually be unable to represent a very important sector of the golf course industry in Minnesota. No students leads to no assistants and that eventually translates into no golf course superintendents.

Short and... well, maybe not sweet. But there is a whole lot of truth in this column. Am I soliciting a reaction? Yup.

## **TRUTH:**

***The livelihood of this professional association requires a continuous flow of new members. The bulk of those members will only come from the ranks of quality individuals who are currently on your green staff. Don’t suggest membership in the MGCSA, demand it. Your support will make a difference in our industry.***