

Hole Notes

The Official Publication of the MGCSEA

UW Madison Snow Mold Chemistry Trial Results

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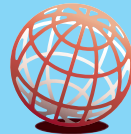
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October 2
The Scramble
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Presidential Perspective

By Erin McManus, Superintendent Medina Golf and Country Club

Summer is flying by and the weather has been tolerable. It has been a decent

growing season so far and with cooler temperatures in the forecast it is hard to not look forward to fall aerification and projects. It has been a pretty challenging transition at Medina over the past couple of months and I am looking forward getting all of our new systems and programs in place and finish the golf season strong. More importantly, my pup Lea is getting some formal training work done and should be ready to hit the field this fall.

I have typically done a lot of my own dog training in the past and really enjoy it. I made a decision with the new puppy I picked up this year to send her to some formal bird and gun dog training. She was just starting to hit her stride at the golf

course riding in the cart, chasing geese and the occasional squirrel. She has been gone about two weeks and I am not sure if the members or my kids miss her the most. Lea had gained a pretty good following from our ladies league, with several ladies stocking their golf bag with dog treats. My daughter Annabel has been shooting trap the past two seasons with the school trap team. She has also been joining her Grandpa in some league matches as well as some Sunday shoots. Her main goal is to be able to wing shoot with Lea this fall. I definitely cannot wait to see her harvest her first pheasant this fall.

The golf course has been crazy busy with all of the different operating protocols that come with changing ownership. New human resources models and accounting protocol have been the biggest change for my department.

We finished our Invitational Tournament in the middle of June and then the transition happened. Basically, we fired and rehired the entire staff at the club which was interesting to say the least. We get very comfortable with our vendors and then all of sudden your federal tax identification changes and you need to update all of your accounts with the new entity. Our new accounting department was also in the transition to a new accounting system at the main office in Dallas so that added another layer to the whole process. I am just glad I have pistol league on Monday nights in Osceola, Wisconsin.

Last year I started to help out with an informal pistol league at the Osceola Rod and Gun Club. It is a small group of people that just want to shoot and have fun. The league has given me a pretty good excuse to get out of the office and off the course and send some rounds down range. It is pretty amazing how two hours of pistol shooting can take your mind off of everything you

have going on at work. I have taken some shooting classes over the past couple of years, but it has been a lot more fun to shoot weekly and run some different courses of fire. The past couple of weeks we have been working on basic fundamentals of grip, trigger press and sight picture. Shooting a Dot Torture target (Google it) from nine feet doesn't look difficult. Once you try to put all of the concepts together it can be great challenge. The drill takes you through slow shooting, to drawing from the holster, shooting weak hand and strong hand only. I have been slowly transitioning from strictly shotgun shooting for bird hunting to pistol and rifle shooting also. The next shooting discipline I am looking at getting some experience in is long range shooting.

Shooting, dog training and hunting have given me a lot of opportunities to get away from work and the golf course. My wife gave me my first hunting dog to get me to quit working so much. I am not

sure how that worked out for her now with how far I have taken the hunting and shooting disciplines.

will be looking forward to getting in the field with Jeff and his great Yellow Labrador Casey.

These hobbies have given me opportunities to get away from golf and the course and take advantage of some opportunities I might have missed by just working all the time. Bird season is right around the corner and I can't wait to get back in the field with Lea and the other dogs.

The MGCSA Championship is right around the corner and Jeff Pint will be looking to defend his title. More importantly I



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88 and still mowing 'snap lines' at The Pines

Class A Superintendent Mike Bonenstingl is proud of his staff, including employee Marlow Strand who recently celebrated his 88th birthday. For the last 15 years this gentleman has been performing a variety of tasks on Mike's property. The former school teacher currently mows greens Monday through Friday. Do you have a special staff member who deserves recognition?



In Bounds

By Jack MacKenzie, CGCS

Sometimes the idiom, “an apple doesn’t fall far from the tree,” when a child has a similar character or similar qualities to his or her parents, is quite accurate. My father, born in 1928, a product of the great depression with very, very limited resources, great unemployment and basically harder times than I have or will ever know in my lifetime, grew up appreciating that money could dramatically improve upon the harsh realities of an impoverished environment. His passion, perhaps instilled by his father and supported by life experiences, was gainful employment beginning at a very young age.

Odd pick-up jobs grew into part-time and then full-time opportunities providing my Dad a strong self-esteem and perhaps

of more importance, the money necessary to live without worries of destitution. A proficient worker with the intelligence and motivation to succeed, he did very well for himself. Starting with the proverbial ‘nothing’, Dad carved his place in society by applying the other idiom, “living to work and not working to live.”

Self-employment, with busy days, long weeks and many family sacrifices allowed him to achieve his goals.

His example of personal drive instilled in me a similar predisposition. For many years, hard work, practically compulsive employment, was the blood of my existence. I caddied as a youth, ironing and rubber banding my first \$100 in dollar bills, ruining my mother’s iron in the process. Bussing tables occupied my early teen years until I turned 16 and was employed at the White Bear Yacht



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Club.

There, another work-driven individual, superintendent John Steiner CGCS, mentored me. Combined with the financially beneficial (for a teenager) and heartfelt fulfillment of working hard outdoors with seemingly instantaneous product gratification and practically unlimited hours, I fell into my own element of, “living to work.”

Beyond an income stream, indeed on the far side of a compulsion, the hyper impulse to work consumed me. Every day, all day long. And as you know, my vocation as a superintendent of a large recreational property, where there is always something to be done on the course, only served to reinforce my dependency.

However, please do not pity me, as it was my choice to be a slave to my job. Eventually I paid the personal consequences of a divorce, “you were never home, married to that damn course, and I eventually became lonely,” she said

later. I had limited days off with my young family and the lack of a real hobby, a distraction that I could immerse myself in and distract me with great pleasure from my job.

Vacations? Hmmm, my idea of a vacation was to bring the family to Orlando or Anaheim when they were the destinations for the national convention or maybe, just maybe a long weekend in the winter. My vacation weeks continued to pile up, yet I didn’t know what to do with them and eventually lost several months of time off when my club changed their vacation policy. In hindsight I was a dummy. Even after the policy change I can only count a handful of vacations during my tenure as superintendent, and most of those in the off-season.

Not only did I lose a significant and tangible portion of my earnings, I paid the price in bruised family relationships and likely was less of an asset to my golf course, as I never took a break to relax and recharge.

A radical change in careers

opened my eyes to the importance of time off and brought to my attention the common thread amongst golf turf professionals, many do not take their earned vacations or for that matter even a weekend off during the season.

How did this come about? To be blunt, is there any other profession with this mindset? There seems to be a common theme of “living to work” and an even more noticeable background of, “frustrated with living to work.””.

Perhaps it is time to put a brake on the train of compulsive labor and take a vacation. Even an extra, extra long weekend would be good for you personally and even

healthier for your family and staff. Your course won't disappear, you can delegate duties and you earned the right to take time off and live. If you don't break the habit of a workaholic, you may regret the loss of other life enhancing opportunities

and become bitter with your job and envious of those who do take time off, neither of which are mentally healthy positions to take on.

In recent years I have

renewed my youthful interest in canoe camping, fishing and exploration. Reminiscent of the sporadic times my father broke the mold and joined the family in the Boundary Waters Canoe Area for a few days of camping. Unbeknownst to me for decades, this distraction



Vacations are life-enhancing

was sorely missing from my life and since I began appreciating the value of a vacation, I have taken my adventures to levels I had previously never dreamed of including treks to the Arctic Circle and even the Rio Grande. Each break from work has allowed me opportunity to grow mentally, and perhaps more importantly, the chance to recharge myself for the good of my vocation, as your Executive Director.

Work is no longer my hobby either. In recent years I have been transported back to my ninth grade woodworking class and, much to my pleasure, begun to craft functional items. For too long, tens and tens of years, I didn't know or

even appreciate that I had the skill set necessary to build watercraft, nor did I ever give myself the time or perhaps distinctly more important, the permission to do something other than work.

Wow, simply put, WOW, what a game changer! Because I am enjoying my life and making time for mental and physical distractions, I am comfortable in knowing that I am both a better employee and, of much greater consequence, a better family man.

Perhaps I did "fall close to the tree," but that doesn't mean that this "old dog can't learn any new tricks." Take that time off, you earned and deserve it.





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*St. Cloud Country Club,
“Tournament Ready” for
MGCSA Championship
By Superintendent Gary Deters*

Hole three

On September 18th the St. Cloud Country Club will host the 2017 MGCSA Championship. My first real memories of the St. Cloud Country Club come from 1994. I grew up in Albany, which is about

25 miles west of St. Cloud, right on Interstate 94. I played golf, but wasn't working in the industry and didn't really know much about other courses except for Albany Golf Club.

Back in the day, SCCC hosted the Minnesota State High School Golf Championships for Class A and teams from Albany were playing in the event, including a very good friend. A few of us drove to SCCC to watch the Albany golf teams compete. Our friend happened to be one of the best high school golfers in the state and actually won the State Title with us following him around the course. I had a great time walking the grounds and at the time I never would have considered that 20 years later, I would be the Superintendent in charge of it.

With several holes along the Mississippi River, the St. Cloud Country Club has been a fixture in

the city of St. Cloud for nearly a century. Established in 1920 with nine original holes designed by Tom Vardon, the club hired architect Tim Murphy in the late 1950's to complete a renovation in which eleven new holes were added, two eliminated, and the course re-routed to be an 18 hole golf course. Holes that still exist from the original design are 1, 2, 3, 4, 8, 9, and 18. Since 2000, there have been three greens renovated due to the severe slopes developed by early golf course design.

Like many golf clubs across America, trees were added to the course as a form of "beautification" and now those big trees line the fair-





Hole ten tee box

ways, which makes accuracy off the tee a must. In recent years, we have started to remove some of the trees around the course.

The front nine is definitely a reflection of the original design with rolling hills and blind shots. Two holes that usually stick out to golfers are the 3rd and 4th holes. Hole three is a downhill par-3 and has the Mississippi River as a backdrop. Hole four is an uphill par-5 with a blind tee shot, a forced carry, and a wall of turf that gobbles up line drive tee shots.

The back nine was built from old farm land and is relatively flat until you get to holes 17 and 18. The 10th and 13th have Mississippi

River views, but the river doesn't really come into play. With today's technology, the par-5 15th can easily be reached in two with a well-struck, accurate drive. You'll need to carry the creek that runs in front of the green, and if you do, you'll have a good chance at birdie. In my opinion, the 18th is one of the toughest par-4 finishing holes in the state. I am probably biased, but one thing that gives me this opinion is I've never birdied it, and I've played over 100 rounds of golf out here.

With being on a major waterway, we have a lot of wildlife on and around the course. My favorite animals are the eagles that have nested across the river behind our



Special thanks to the full time Green Staff at St. Cloud Country Club from left to right: Equipment Manager Greg Glader, Spray Technician Tim Kennedy, Superintendent Gary Deters and Assistant Superintendent Jon Anderson

3rd green. On most days I'll either see or hear the eagles.

This is my 4th year as the Superintendent at the SCCC. I was the Assistant Superintendent for eleven years before getting promoted. Jon Anderson has been the Assistant Superintendent for four years and we have worked together for eleven plus years. Jon was promoted from spray tech. Tim Kennedy has been our spray tech for four years, comes with an irrigation installation background and has worked with Jon and I for ten plus years. The rock at the St. Cloud Country Club is our equipment manager, Greg Glader, who has been here for 33 years.

So a really nice theme of the SCCC turf department is that we have worked together for a really long time and we have great camaraderie. It helps us run a smooth operation because we know the expectations of the club and we all know each other very well. We have been very fortunate to have a great seasonal staff to help us achieve the visions of the turf department. I look forward to hosting the MGCSA Championship and I hope to see many of you here that day.



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St. Cloud Country Club
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Host Gary Deters
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Why Healthy Individuals = Successful Farm Businesses

By Dr. Bob Milligan

Have you come to the end of a long day and still felt guilty about not working harder and longer? Have you felt guilty about not spending more time with your family and friends but still kept working? Have you worked long hours but wondered whether you were making any progress?

If any or all of these are common in your life, ask yourself if you feel that your life is in balance. Many farmers believe their work is a seven-day-a-week, 365-day-a-year job. The health of the livestock and crops is critical to business productivity, but so is your health and your relationships with your family.

Research shows that those whose lives are in balance are healthier, and healthy individuals are more productive in their businesses. Time for regeneration (refueling your energy level) is important to your health. Vacations, of course, are a vital way to refuel, reduce stress, and energize family unity. So, however, is how we live each and every day. This month we address this issue by answering three questions:

- Why is life balance important?
- How can we increase balance each day?
- What about a vacation?

Why is life balance important?

Each of us finds balance in different ways. What one does to regenerate energy levels and reduce work stress differs for each person. It may mean developing a hobby, getting more exercise, involving yourself in school activities of your children, finding time alone as a couple, socializing with family or friends, or taking a vacation.

In challenging times, as farmers experience every day, an unconscious voice often kicks in to say that there just isn't time for these activities. There is an unstated belief that if only one works harder, then problems will go away and things will get better.

But it doesn't work that way. Not only do they not get better, the stress resulting from the long hours and unsolved problems starts to pile up. That pile-up often comes not just from the business but from the family as well, because there is little to no time remaining for the family.

How can we increase balance each day?

Information and communication along with problem solving through shared decision making (among business members, with employees, and with agribusiness personnel) are critical factors for viable farm operations today. To do this well, you need energy - physical, mental, and emotional. Life balance creates a larger pool of energy from which to build a successful business.



Make time for your hobbies like Wild Marsh Superintendent Eric Ritter CGCS. How about those beautiful small mouth bass!

Taking a break, even wetting a line, offers valuable soul searching moments and the ability for one to re-charge without the distractions of work.

Mini-Breaks are often the key to day-to-day life balance. We all need to develop habits that relieve the stress of work and create quality time away from work and with your family and friends. Research shows that HOW you spend time with your family is at least as important as HOW MUCH time you spend.

Try some of the following:

- Schedule time during the day when all family members are together. Talk about the day. Ask each person to share one or two positives from their day - a new friend, an accomplishment, something learned, an exciting experience with an old friend.



Family First in the Jesse Trcka household. The Wayzata Country Club Superintendent makes family time a priority.

- Go for a walk. Don't look for weeds in the corn or problems with the beans. Listen to a bird sing, watch a butterfly flit by, marvel at a beautiful flower or the quiet of the countryside.
- Read something you enjoy. You need not spend a long time. A chapter or a few pages a day really add up. A short period of reading or reflection is very important to many very successful people.

What about a vacation?

Maybe you've heard a story like this: "My dad always bragged that he didn't take a day off in 50 years. But after Mom died, he regretted that they never took that trip she dreamed of. He told me to be sure to get away with my family. I took his advice-and I'm glad I did."

"May the Force be with YOU!" Scott Thayer, Superintendent at Legends Club, and his family share a vacation opportunity with Darth Vader.



You probably can think of a hundred reasons why you shouldn't take a vacation. Here are some reasons you should:

- Spend time with your family
- Gain a clearer perspective on the business
- Create memories with your family that last a lifetime

- Develop confidence that this can be done again (you may be surprised at who steps up while you are gone)
- Reduce stress by focusing your energies elsewhere
- Discover how other people live (you might even gain valuable insights about your farm business)

Part of the stress release of vacations is in the excitement and process of planning what to do. Remember, vacations don't always have to cost a lot. A contingency plan to handle something going wrong on the farm is a must for the farm and for your ability to relax.

A 50-year-old farm family talks about how they viewed the barriers to taking a vacation:

“Every time we've taken a vacation, my husband feels better physically and mentally when we return. He's rested, and upbeat. But that also makes it hard to come back, sometimes, because we know what the workload is going to be like. What stops us from planning vacations isn't money, or people to fill in - because we have those, at least for the moment. It's this notion that we are indispensable, and no one else can do things quite as well when we're gone. Once we get beyond that, it's no problem!”

The take home message

Research indicates that individuals who take time away from work are better family members and better business people. Reflect and plan now to create alternatives that allow that to happen. But, most of all, make it become a reality in the near future.

Remember no one on their deathbed says “I wish I had spent more time working.”



*Midland Hills
Superintendent
Mike Manthey
and family cool
off at Glacier
National Park*

*Tim Fleegel, MTI
Distributing, and his
troop pause at
Mission Beach in
San Diego on their
family vacation.*



2016-2017 Snow Mold Control Evaluation: Marquette Golf Club – Marquette, MI

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

OBJECTIVE

To evaluate fungicides for the control of Typhula blight (caused by *Typhula incarnata*) and Microdochium patch (caused by *Microdochium nivale*) on golf course turfgrass.

MATERIALS AND METHODS

This evaluation was conducted at Marquette Golf Club in Marquette, MI 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 p.s.i using a CO₂ pressurized boom sprayer equipped with two XR Teejet AI8004 VS nozzles. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft². Early applications were made on 6 Oct 2016, and late applications were made on 1 Nov 2016. The experimental plot area was not inoculated. There was consistent snow cover on the experimental area from December until mid-March, a total of nearly 90 days. Disease severity, turf quality, and color were measured on March 23rd, 2017. 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

Non-treated controls averaged 70% disease and the primary snow mold present was Microdochium patch. All treatments except for three reduced disease severity relative to the non-treated control, and 58 of the 106 treatments present in the trial provided disease suppression of 95% or greater. However, this number was significantly lower than the 89 treatments that provided 95% suppression at our trial in Wausau. Minor differences in turf color were observed using the Chlorophyll meter, and treatments containing pigments did appear slightly more green and resulted in a slight increase in the turf quality rating. Phytotoxicity was not observed with any treatment.

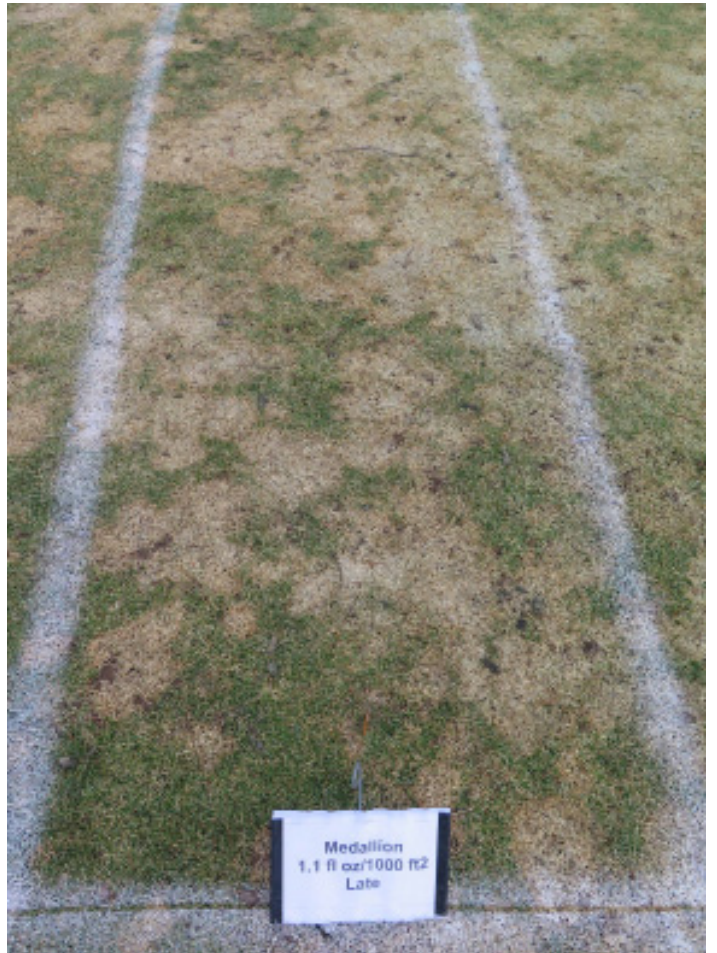


Table 1: Mean snow mold severity, turf quality, and turf color were assessed on March 23, 2017 at Marquette Golf Club in Marquette, MI.

	Treatment	Rate	Application Timing ^a	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
1	Non-treated control			70.0ab	2.5rst	103zAB
2	Medallion	1.1 fl oz/1000 ft2	Late	73.8a	2.3st	121v-B
3	Turfcide	8 fl oz/1000 ft2	Late	50.0c-f	3.3p-s	117.5w-B
	Foursome	0.5 fl oz/1000 ft2				
4	Turfcide	12 fl oz/1000 ft2	Late	27.5g-k	4.8j-n	134s-B
	Foursome	0.5 fl oz/1000 ft2				
5	Turfcide	16 fl oz/1000 ft2	Late	8.0n-r	6.0e-i	240.3a-j
	Foursome	0.5 fl oz/1000 ft2				
6	Oreon	8 fl oz/1000 ft2	Late	3.0pqr	6.8b-f	188.3e-w
	Foursome	0.5 fl oz/1000 ft2				
7	Oreon	8 fl oz/1000 ft2	Late	1.0qr	7.3a-d	273.5ab
	Daconil Weatherstik Foursome	4 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
8	Oreon	8 fl oz/1000 ft2	Late	1.3qr	7.3a-d	173.3g-z
	Daconil Weatherstik Foursome	5.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
9	Oreon	8 fl oz/1000 ft2	Late	0.0r	7.3a-d	199.5c-s
	Secure Foursome	0.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
10	Oreon	10 fl oz/1000 ft2	Late	3.0pqr	6.8b-f	244a-g
	Foursome	0.5 fl oz/1000 ft2				
11	Oreon	10 fl oz/1000 ft2	Late	0.0r	7.3a-d	227a-m
	Daconil Weatherstik Foursome	4 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
12	Oreon	10 fl oz/1000 ft2	Late	0.0r	7.3a-d	219a-p
	Daconil Weatherstik Foursome	5.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
13	Oreon	10 fl oz/1000 ft2	Late	0.5r	7.3a-d	210.8b-p
	Secure Foursome	0.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
14	Oreon	12 fl oz/1000 ft2	Late	0.0r	7.3a-d	242.8a-i
	Foursome	0.5 fl oz/1000 ft2				
15	Oreon	12 fl oz/1000 ft2	Late	0.0r	7.3a-d	234a-m
	Daconil Weatherstik Foursome	4 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
16	Oreon	12 fl oz/1000 ft2	Late	0.5r	7.3a-d	217b-p
	Daconil Weatherstik Foursome	5.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
17	Oreon	12 fl oz/1000 ft2	Late	0.5r	7.3a-d	216.5b-p
	Secure Foursome	0.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2				
18	Concert II	5.5 fl oz/1000 ft2	Late	0.0r	7.3a-d	250.5a-e
	Turfcide Foursome	8 fl oz/1000 ft2 0.5 fl oz/1000 ft2				

^aEarly treatments applied on Oct 6th, 2016 and late treatments applied on Nov 1st, 2016

^bMean percent diseased area assessed on March 23rd, 2017.

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

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

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Table 1(cont): Mean snow mold severity, turf quality, and turf color were assessed on March 23, 2017 at Marquette Golf Club in Marquette, MI.

	Treatment	Rate	Applicatio Timing ^a	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
19	Concert II Turficide Foursome	5.66 fl oz/1000 ft2 5.33 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Late	5.5n-r	6.0e-i	190.8e-v
20	Concert II Turficide Foursome	8.5 fl oz/1000 ft2 8 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Late	0.5r	7.8ab	225a-n
21	Interface Mirage	4 fl oz/1000 ft2 1.4 fl oz/1000 ft2	Late	3pqr	6.8b-f	212.8b-p
22	Interface Mirage	6 fl oz/1000 ft2 2 fl oz/1000 ft2	Late	1.3qr	7.3a-d	289.3a
23	Instrata	7 fl oz/1000 ft2	Late	3.0pqr	6.5c-g	207.8b-q
24	Instrata Turficide Foursome	7 fl oz/1000 ft2 5.33 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Late	0.5r	7.3a-d	222.8a-o
25	Instrata	9 fl oz/1000 ft2	Late	1.0or	7.0a-e	215b-p
26	Insignia Turficide Foursome	0.7 fl oz/1000 ft2 8 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Late	6.3n-r	6.3d-h	198.3c-s
27	Insignia Oreon Foursome	0.7 fl oz/1000 ft2 8 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Late	0.0r	8.0a	235.3a-l
28	Secure Torque	0.5 fl oz/1000 ft2 0.6 fl oz/1000 ft2	Late	6.8n-r	5.8f-j	165l-A
29	Secure 26 GT	0.5 fl oz/1000 ft2 4 fl oz/1000 ft2	Late	15.0j-r	5.0i-m	174.3g-z
30	Secure Torque 26 GT	0.5 fl oz/1000 ft2 0.6 fl oz/1000 ft2 4 fl oz/1000 ft2	Late	3.8o-r	6.5c-g	185.5e-w
31	Daconil Weatherstik 26 GT	5.5 fl oz/1000 ft2 4 fl oz/1000 ft2	Late	15.0j-r	5.3h-l	206b-r
32	STK-53	1.5 fl oz/1000 ft2	Early/Late	40.0d-h	4.3l-p	134.3r-B
33	STK-53	3 fl oz/1000 ft2	Early/Late	46.3c-f	3.5o-r	135r-B
34	Timorex Gold	0.5 fl oz/1000 ft2	Early/Late	26.3g-l	4.8j-n	123.3u-B
35	Timorex Gold	1 fl oz/1000 ft2	Early/Late	38.8e-h	4.3l-p	125.5t-B
36	Briskway	0.725 fl oz/1000 ft2	Early/Late	28.8g-j	4.5k-o	153.8n-B
37	STK-53 Briskway	1.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Early/Late	18.8j-p	5.0i-m	164.3l-A
38	Timorex Gold Briskway	0.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Early/Late	16.3j-r	5.0i-m	212.5b-p
39	Fame T	0.67 fl oz/1000 ft2	Late	3.0pqr	6.8b-f	194e-u
40	Fame T	0.89 fl oz/1000 ft2	Late	4.8n-r	6.3d-h	214.8b-p

^aEarly treatments applied on Oct 6th, 2016 and late treatments applied on Nov 1st, 2016

^bMean percent diseased area assessed on March 23rd, 2017.

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

^dColor 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 March 23, 2017 at Marquette Golf Club in Marquette, MI.

	Treatment	Rate	Application Timing ^a	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
41	Fame SC Tourney	0.18 fl oz/1000 ft ² 0.37 oz/1000 ft ²	Late	4.3o-r	6.3d-h	199.5c-s
42	Fame SC Tourney	0.36 fl oz/1000 ft ² 0.44 fl oz/1000 ft ²	Late	3.0pqr	6.5c-g	215b-p
43	Torque 26/36	0.75 fl oz/1000 ft ² 4 fl oz/1000 ft ²	Late	0.0r	7.0a-e	218.8a-p
44	Torque 26/36 Spectro 90	0.75 fl oz/1000 ft ² 4 fl oz/1000 ft ² 4 oz/1000 ft ²	Late	0.0r	7.0a-f	223.3a-n
45	Torque 26/36 NUP-15013	0.75 fl oz/1000 ft ² 4 fl oz/1000 ft ² 0.5 fl oz/1000 ft ²	Late	0.0r	7.0a-e	243.5a-h
46	NUP-15014 26/36	1.5 fl oz/1000 ft ² 4 fl oz/1000 ft ²	Late	0.0r	7.3a-d	210b-p
47	NUP-15014 Pinpoint	1.5 fl oz/1000 ft ² 0.31 fl oz/1000 ft ²	Late	1.3qr	6.8b-f	228.3a-m
48	Enclave	8 fl oz/1000 ft ²	Late	0.0r	7.0a-e	215b-p
49	Enclave	8 fl oz/1000 ft ²	Early/Late	0.5r	7.0a-e	188.3e-w
50	Strobe 2L Propiconazole 14.3	0.75 fl oz/1000 ft ² 0.2 fl oz/1000 ft ²	Early/Late	21.3i-n	5.8f-j	185.8e-w
51	UW EXP Spreader Sticker	1.94 fl oz/1000 ft ² 8 fl oz/100 gal	Early/Late	55.0b-e	3.0q-t	112.3x-B
52	UW EXP Spreader Sticker	1.94 fl oz/1000 ft ² 8 fl oz/100 gal	Late	60.0abc	3.0q-t	106.5y-B
53	UW EXP Spreader Sticker Torque	1.94 fl oz/1000 ft ² 8 fl oz/100 gal 0.6 fl oz/1000 ft ²	Early/Late	10.0l-r	5.3h-l	167.8k-A
54	UW EXP Spreader Sticker Torque	1.94 fl oz/1000 ft ² 8 fl oz/100 gal 0.6 fl oz/1000 ft ²	Late	10.0l-r	5.3h-l	218.3a-p
55	A19188A A13705V Medallion Par	1 fl oz/1000 ft ² 2.6 fl oz/1000 ft ² 2 fl oz/1000 ft ² 0.37 fl oz/1000 ft ²	Late	3.0pqr	6.3d-h	189.3e-w
56	A13705V A19188B Par	2.6 fl oz/1000 ft ² 1 fl oz/1000 ft ² 0.37 fl oz/1000 ft ²	Early Late Late	10.5l-r	5.8f-j	224.8a-n
57	A19188B A13705V Instrata Par	1 fl oz/1000 ft ² 2.6 fl oz/1000 ft ² 5 fl oz/1000 ft ² 0.37 fl oz/1000 ft ²	Late	0.0r	7.8ab	204.3b-s
58	A19188B A13705V Turfside Par	1 fl oz/1000 ft ² 2.6 fl oz/1000 ft ² 6 fl oz/1000 ft ² 0.37 fl oz/1000 ft ²	Late	1.0qr	7.3a-d	227a-m

^aEarly treatments applied on Oct 6th, 2016 and late treatments applied on Nov 1st, 2016

^bMean percent diseased area assessed on March 23rd, 2017.

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

^dColor 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 March 23, 2017 at Marquette Golf Club in Marquette, MI.

	Treatment	Rate	Application Timing ^a	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
59	A19188B	1 fl oz/1000 ft ²	Early			
	A13705V	2.6 fl oz/1000 ft ²	Early	1.8qr	7.0a-e	230.8a-m
	Instrata	5 fl oz/1000 ft ²	Late			
	Par	0.37 fl oz/1000 ft ²	Late			
A19188B	0.5 fl oz/1000 ft ²					
60	A13705V	1.3 fl oz/1000 ft ²	Late	11.3k-r	5.3h-l	162.5m-A
	Par	0.37 fl oz/1000 ft ²				
	Concert II	8.3 fl oz/1000 ft ²				
61	Banner Maxx	1 fl oz/1000 ft ²	Late	3.8o-r	6.5c-g	224a-n
	Par	0.37 fl oz/1000 ft ²				
	Banner Maxx	2 fl oz/1000 ft ²				
62	Daconil Weatherstik	5.5 fl oz/1000 ft ²	Late	7.5n-r	5.8f-j	225.5a-n
	Banner Maxx	2 fl oz/1000 ft ²				
63	Secure	0.5 fl oz/1000 ft ²	Late	8.0n-r	5.8f-j	208.5b-q
	Daconil Weatherstik	5.5 fl oz/1000 ft ²				
64	Secure	0.5 fl oz/1000 ft ²	Late	17.5j-q	5.0i-m	188.8e-w
66	A19188B	1 fl oz/1000 ft ²				
	A13705V	2.6 fl oz/1000 ft ²	Late	0.5r	7.5abc	267.3a-d
	Par	0.36 fl oz/1000 ft ²				
A19188B	1 fl oz/1000 ft ²					
67	A13705V	2.6 fl oz/1000 ft ²	Late	0.5r	7.5abc	190.3e-v
	A17856B	1 fl oz/1000 ft ²				
	Par	0.36 fl oz/1000 ft ²				
	A21664A	0.8 fl oz/1000 ft ²				
68	A17856B	1 fl oz/1000 ft ²	Late	4.3o-r	6.3d-h	213.5b-p
	Par	0.36 fl oz/1000 ft ²				
	A21664A	0.8 fl oz/1000 ft ²				
69	A17856B	2 fl oz/1000 ft ²	Late	2.8pqr	6.8b-f	182e-x
	Par	0.36 fl oz/1000 ft ²				
	A15457K	0.236 fl oz/1000 ft ²				
70	A19649B	0.157 fl oz/1000 ft ²	Late	3.8o-r	6.3d-h	193.8e-u
	A17856B	1 fl oz/1000 ft ²				
	Par	0.36 fl oz/1000 ft ²				
	A15457K	0.236 fl oz/1000 ft ²				
71	A17856B	1.88 fl oz/1000 ft ²	Late	6.3n-r	6.3d-h	184.5e-w
	Par	0.36 fl oz/1000 ft ²				
	A14036B	9 fl oz/1000 ft ²				
72	Par	0.36 fl oz/1000 ft ²	Late	1.8qr	7.3a-d	203.5b-s
	A21790A	4 fl oz/1000 ft ²				
73	A21791A	1.4 fl oz/1000 ft ²	Late	0.0r	8.0a	187.3e-w
	A21790A	6 fl oz/1000 ft ²				
74	A21791A	2 fl oz/1000 ft ²	Late	0.5r	7.8ab	225.5a-n

^aEarly treatments applied on Oct 6th, 2016 and late treatments applied on Nov 1st, 2016

^bMean percent diseased area assessed on March 23rd, 2017.

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

^dColor 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 March 23, 2017 at Marquette Golf Club in Marquette, MI.

	Treatment	Rate	Application Timing ^a	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
75	Insignia	0.7 fl oz/1000 ft ²	Late	0.0r	7.0a-e	187e-w
	Trinity	1 fl oz/1000 ft ²				
	Daconil Ultrex	5 oz/1000 ft ²				
	Turfcide	8 fl oz/1000 ft ²				
76	Insignia	0.7 fl oz/1000 ft ²	Late	0.0r	7.0a-e	218a-p
	Trinity	1 fl oz/1000 ft ²				
	26 GT	4 fl oz/1000 ft ²				
	Turfcide	8 fl oz/1000 ft ²				
77	Insignia	0.7 fl oz/1000 ft ²	Late	0.5r	7.0a-e	269.5abc
	Trinity	1 fl oz/1000 ft ²				
	Daconil Ultrex	5 oz/1000 ft ²				
	Turfcide	6 fl oz/1000 ft ²				
78	Insignia	0.7 fl oz/1000 ft ²	Late	1.3qr	6.8b-f	197.3d-t
	Trinity	1 fl oz/1000 ft ²				
	26 GT	4 fl oz/1000 ft ²				
	Turfcide	6 fl oz/1000 ft ²				
79	Interface	6 fl oz/1000 ft ²	Late	18.8j-p	5.0i-m	166.5l-A
80	Tartan	1 fl oz/1000 ft ²	Late	7.5n-r	6.0e-i	212.3b-p
	Interface	3 fl oz/1000 ft ²				
81	Daconil Weatherstik	5.5 fl oz/1000 ft ²	Late	0.0r	7.3a-d	235.8a-l
	Interface	6 fl oz/1000 ft ²				
	Mirage	2 fl oz/1000 ft ²				
82	Daconil Weatherstik	5.5 fl oz/1000 ft ²	Late	0.0r	7.5abc	217b-p
	Tartan	1 fl oz/1000 ft ²				
	Interface	3 fl oz/1000 ft ²				
	Mirage	2 fl oz/1000 ft ²				
83	Daconil Weatherstik	5.5 fl oz/1000 ft ²	Late	0.0r	7.5abc	214.5b-p
	Interface	6 fl oz/1000 ft ²				
	Tartan	2 fl oz/1000 ft ²				
84	Daconil Weatherstik	5.5 fl oz/1000 ft ²	Late	0.0r	7.5abc	219.3a-p
	Interface	3 fl oz/1000 ft ²				
	Mirage	1 fl oz/1000 ft ²				
	Tartan	2 fl oz/1000 ft ²				
LSD P=0.05				16.56	1.25	71.79

^aEarly treatments applied on Oct 6th, 2016 and late treatments applied on Nov 1st, 2016

^bMean percent diseased area assessed on March 23rd, 2017.

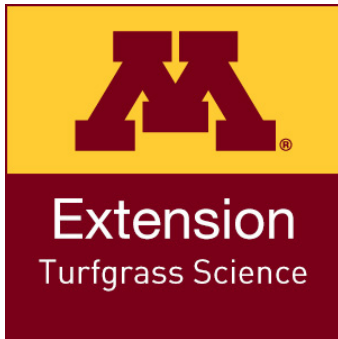
^cQuality was visually assessed where 1 = dead, 6 = acceptable, 9 = dark green.

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

For more images of the UW Marquette Study link here.



MGCSA Western EXPOSURE Golf Event



**WINFIELD
UNITED**



Thursday September 14th, 2017

AWESOME VENUE:

The Forest Hills Resort Golf Course

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: Chris Wiedenmeyer

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

RSVP NEEDED by September 9

***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

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EXPLORE YOUR FRONTIER

2016-2017 Snow Mold Control Evaluation: Wausau Country Club – Schofield, WI

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

OBJECTIVE

To evaluate fungicides for the control of Typhula blight (caused by *Typhula incarnata*) and Microdochium patch (caused by *Microdochium nivale*) on golf course turfgrass.

MATERIALS AND METHODS

This evaluation was conducted at Wausau Country Club in Schofield, WI 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 p.s.i using a CO₂ pressurized boom sprayer equipped with two XR Teejet AI8004 VS nozzles. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft². Early applications were made on 20 Oct 2016, and late applications were made on 15 Nov 2016. The experimental plot area was not inoculated. There was consistent snow cover on the experimental area from December until mid-March, a total of nearly 90 days. Disease severity, turf quality, and color were measured on March 23rd, 2017. 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

Non-treated controls averaged 41.3% disease and the primary snow mold present was Microdochium patch. All treatments except for one reduced disease severity relative to the non-treated control, and 89 of the 106 treatments present in the trial provided disease suppression of 95% or greater. Minor differences in turf color were observed using the Chlorophyll meter, and treatments containing pigments did appear slightly more green and resulted in a slight increase in the turf quality rating. Phytotoxicity was not observed with any treatment.



Untreated
Control



Top Dress
at 100 lbs/acre
Fertilizer
at 20 lbs/acre
2000

Table 1: Mean snow mold severity, turf quality, and turf color were assessed on March 23, 2017 at Wausau Country Club in Schofield, WI.

	Treatment	Rate	Application Timing ^a	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
1	Non-treated control			41.3a	4.0m	131.5u
2	Medallion	1.1 fl oz/1000 ft ²	Late	5.5ghi	6.3e-h	179n-t
3	Turfcide	8 fl oz/1000 ft ²	Late	1.3hi	6.8c-f	205.8e-q
	Foursome	0.5 fl oz/1000 ft ²				
4	Turfcide	12 fl oz/1000 ft ²	Late	1.8hi	7.0b-e	173.3p-u
	Foursome	0.5 fl oz/1000 ft ²				
5	Turfcide	16 fl oz/1000 ft ²	Late	1.3hi	6.8c-f	170.8q-u
	Foursome	0.5 fl oz/1000 ft ²				
6	Oreon	8 fl oz/1000 ft ²	Late	0.0i	7.8ab	207.5e-q
	Foursome	0.5 fl oz/1000 ft ²				
7	Oreon	8 fl oz/1000 ft ²	Late	0.0i	7.8ab	209.8c-q
	Daconil Weatherstik	4 fl oz/1000 ft ²				
8	Foursome	0.5 fl oz/1000 ft ²	Late	0.0i	7.5abc	185.8j-s
	Oreon	8 fl oz/1000 ft ²				
9	Daconil Weatherstik	5.5 fl oz/1000 ft ²	Late	0.0i	8.0a	204.5e-q
	Foursome	0.5 fl oz/1000 ft ²				
10	Oreon	8 fl oz/1000 ft ²	Late	0.0i	7.8ab	221a-o
	Secure	0.5 fl oz/1000 ft ²				
11	Foursome	0.5 fl oz/1000 ft ²	Late	0.0i	8.0a	192i-s
	Oreon	10 fl oz/1000 ft ²				
12	Daconil Weatherstik	4 fl oz/1000 ft ²	Late	0.0i	7.5abc	248.8a-e
	Foursome	0.5 fl oz/1000 ft ²				
13	Oreon	10 fl oz/1000 ft ²	Late	0.0i	7.5abc	208.8c-q
	Secure	0.5 fl oz/1000 ft ²				
14	Foursome	0.5 fl oz/1000 ft ²	Late	0.0i	7.8ab	227.8a-k
	Oreon	12 fl oz/1000 ft ²				
15	Daconil Weatherstik	4 fl oz/1000 ft ²	Late	0.0i	8.0a	214b-q
	Foursome	0.5 fl oz/1000 ft ²				
16	Oreon	12 fl oz/1000 ft ²	Late	0.0i	7.5abc	212.3c-q
	Daconil Weatherstik	5.5 fl oz/1000 ft ²				
17	Foursome	0.5 fl oz/1000 ft ²	Late	0.0i	8.0a	224a-m
	Oreon	12 fl oz/1000 ft ²				
18	Concert II	5.5 fl oz/1000 ft ²	Late	0.0i	7.8ab	214.3b-q
	Turfcide	8 fl oz/1000 ft ²				
	Foursome	0.5 fl oz/1000 ft ²				

^aEarly treatments applied on Oct 20th, 2016 and late treatments applied on Nov 15th, 2016

^bMean percent diseased area assessed on March 23rd, 2017.

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

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

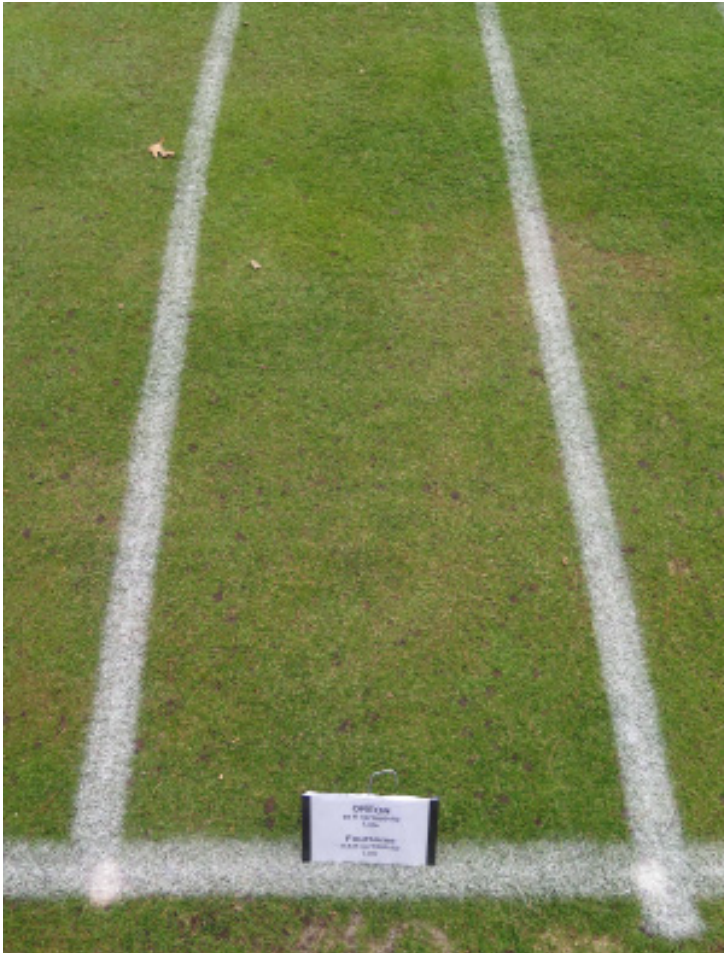
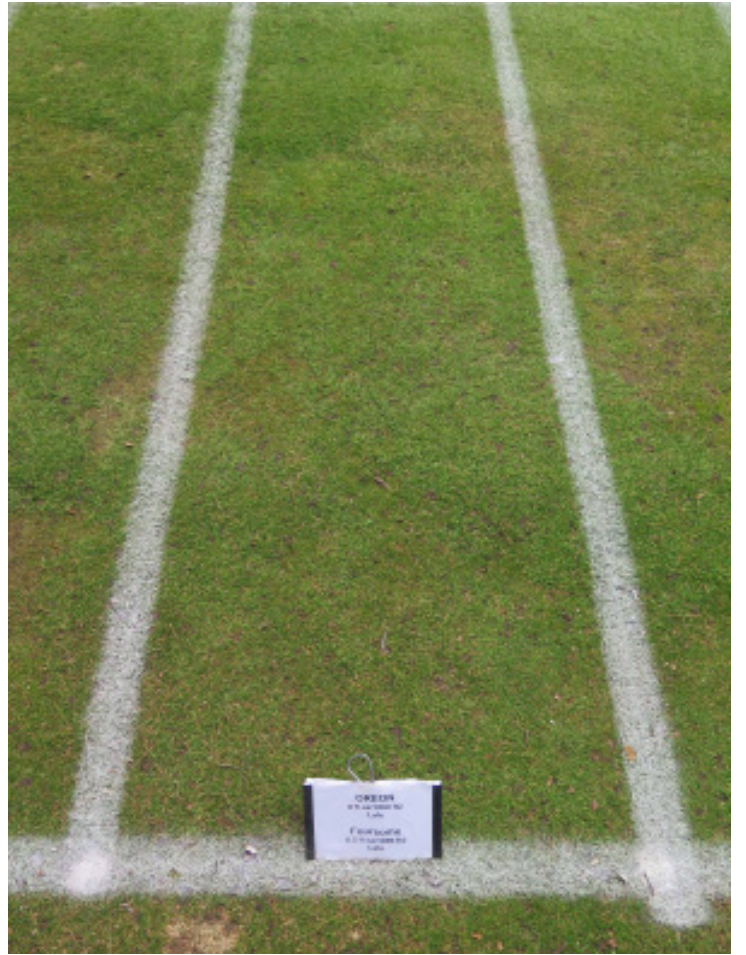
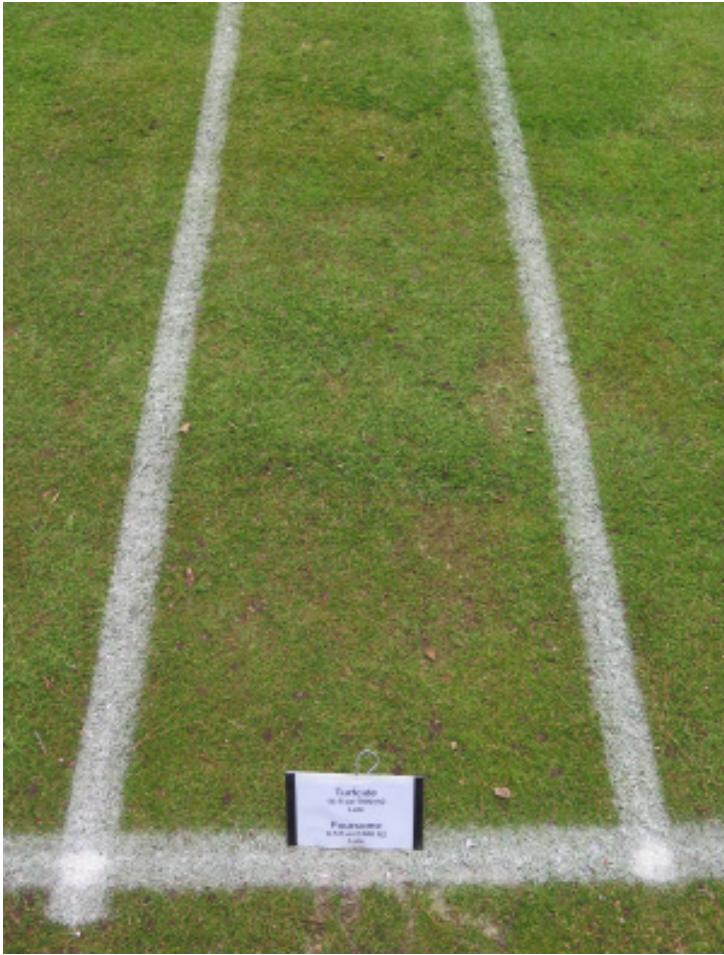


Table 1(cont): Mean snow mold severity, turf quality, and turf color were assessed on March 23, 2017 at Wausau Country Club in Schofield, WI.

	Treatment	Rate	Applicatio Timing ^a	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
19	Concert II Turfcide Foursome	5.66 fl oz/1000 ft2 5.33 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Late	0.0i	8.0a	241a-h
20	Concert II Turfcide Foursome	8.5 fl oz/1000 ft2 8 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Late	0.0i	7.8ab	227.3a-k
21	Interface Mirage	4 fl oz/1000 ft2 1.4 fl oz/1000 ft2	Late	0.0i	8.0a	260.5a
22	Interface Mirage	6 fl oz/1000 ft2 2 fl oz/1000 ft2	Late	0.0i	8.0a	227a-k
23	Instrata	7 fl oz/1000 ft2	Late	0.0i	7b-e	195.3i-r
24	Instrata Turfcide Foursome	7 fl oz/1000 ft2 5.33 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Late	0.0i	8.0a	197.8g-q
25	Instrata	9 fl oz/1000 ft2	Late	0.0i	7b-e	192.3i-s
26	Insignia Turfcide Foursome	0.7 fl oz/1000 ft2 8 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Late	0.0i	7.8ab	197.3h-q
27	Insignia Oreon Foursome	0.7 fl oz/1000 ft2 8 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Late	0.0i	7.8ab	207.8d-q
28	Secure Torque	0.5 fl oz/1000 ft2 0.6 fl oz/1000 ft2	Late	0.0i	7.0b-e	205e-q
29	Secure 26 GT	0.5 fl oz/1000 ft2 4 fl oz/1000 ft2	Late	0.0i	7.3a-d	222.3a-n
30	Secure Torque 26 GT	0.5 fl oz/1000 ft2 0.6 fl oz/1000 ft2 4 fl oz/1000 ft2	Late	0.0i	7.0b-e	206.3e-q
31	Daconil Weatherstik 26 GT	5.5 fl oz/1000 ft2 4 fl oz/1000 ft2	Late	0.5i	7.0b-e	234.8a-i
32	STK-53	1.5 fl oz/1000 ft2	Early/Late	20.0cd	5.0jkl	173.3p-u
33	STK-53	3 fl oz/1000 ft2	Early/Late	13.8d-g	5.5h-k	182l-s
34	Timorex Gold	0.5 fl oz/1000 ft2	Early/Late	18.8cde	5.3ijk	219.3a-o
35	Timorex Gold	1 fl oz/1000 ft2	Early/Late	15.0d-g	5.8g-j	148.8stu
36	Briskway	0.725 fl oz/1000 ft2	Early/Late	5.0ghi	6.3e-h	205.3e-q
37	STK-53 Briskway	1.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Early/Late	8.0f-i	6.0f-i	177o-t
38	Timorex Gold Briskway	0.5 fl oz/1000 ft2 0.5 fl oz/1000 ft2	Early/Late	8.8e-i	6.0f-i	214.5b-q
39	Fame T	0.67 fl oz/1000 ft2	Late	0.0i	7.3a-d	216.5a-p
40	Fame T	0.89 fl oz/1000 ft2	Late	0.0i	7.3a-d	203.3f-q

^aEarly treatments applied on Oct 20th, 2016 and late treatments applied on Nov 15th, 2016

^bMean percent diseased area assessed on March 23rd, 2017.

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

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

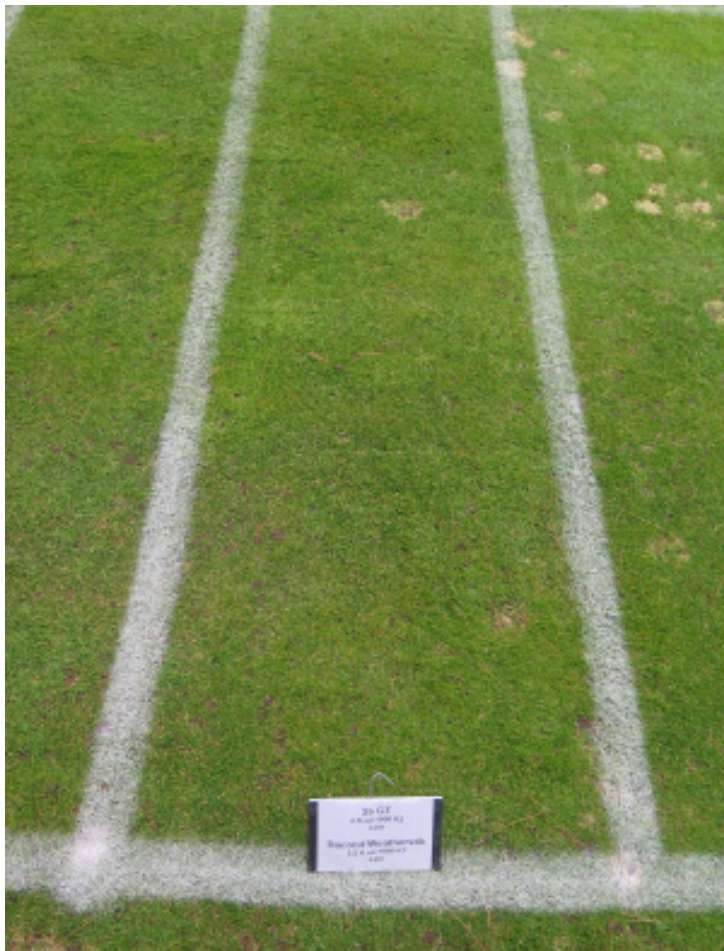
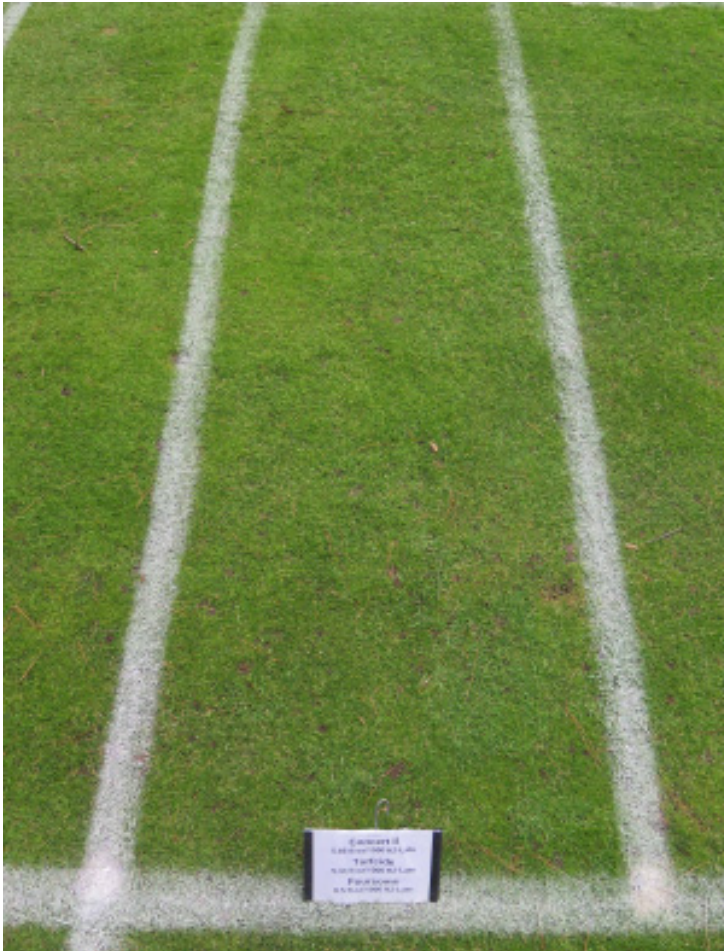


Table 1(cont): Mean snow mold severity, turf quality, and turf color were assessed on March 23, 2017 at Wausau Country Club in Schofield, WI.

	Treatment	Rate	Application Timing ^a	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
41	Fame SC Tourney	0.18 fl oz/1000 ft ² 0.37 oz/1000 ft ²	Late	0.0i	7.3a-d	184.8k-s
42	Fame SC Tourney	0.36 fl oz/1000 ft ² 0.44 fl oz/1000 ft ²	Late	0.0i	7b-e	220.8a-o
43	Torque 26/36	0.75 fl oz/1000 ft ² 4 fl oz/1000 ft ²	Late	0.0i	7.3a-d	221a-o
44	Torque 26/36 Spectro 90	0.75 fl oz/1000 ft ² 4 fl oz/1000 ft ² 4 oz/1000 ft ²	Late	0.0i	7.0b-e	207.5e-q
45	Torque 26/36 NUP-15013	0.75 fl oz/1000 ft ² 4 fl oz/1000 ft ² 0.5 fl oz/1000 ft ²	Late	0.0i	7.0b-e	203.8f-q
46	NUP-15014 26/36	1.5 fl oz/1000 ft ² 4 fl oz/1000 ft ²	Late	0.0i	7.0b-e	211c-q
47	NUP-15014 Pinpoint	1.5 fl oz/1000 ft ² 0.31 fl oz/1000 ft ²	Late	0.0i	7.0b-e	208d-q
48	Enclave	8 fl oz/1000 ft ²	Late	0.0i	7.3a-d	222.8a-n
49	Enclave	8 fl oz/1000 ft ²	Early/Late	0.0i	7.0b-e	213.8b-q
50	Strobe 2L Propiconazole 14.3	0.75 fl oz/1000 ft ² 0.2 fl oz/1000 ft ²	Early/Late	5.0ghi	6.5d-g	221a-o
51	UW EXP Spreader Sticker	1.94 fl oz/1000 ft ² 8 fl oz/100 gal	Early/Late	16.3def	5.0jkl	193.5i-s
52	UW EXP Spreader Sticker	1.94 fl oz/1000 ft ² 8 fl oz/100 gal	Late	19.3cde	5.8g-j	181m-s
53	UW EXP Spreader Sticker Torque	1.94 fl oz/1000 ft ² 8 fl oz/100 gal 0.6 fl oz/1000 ft ²	Early/Late	0.0i	7.0b-e	200g-q
54	UW EXP Spreader Sticker Torque	1.94 fl oz/1000 ft ² 8 fl oz/100 gal 0.6 fl oz/1000 ft ²	Late	0.5i	7.0b-e	215.3b-q
55	A19188A A13705V Medallion Par	1 fl oz/1000 ft ² 2.6 fl oz/1000 ft ² 2 fl oz/1000 ft ² 0.37 fl oz/1000 ft ²	Late	0.0i	8.0a	218.3a-o
56	A13705V A19188B Par	2.6 fl oz/1000 ft ² 1 fl oz/1000 ft ² 0.37 fl oz/1000 ft ²	Early Late Late	0.0i	7.8ab	230.5a-j
57	A19188B A13705V Instrata Par	1 fl oz/1000 ft ² 2.6 fl oz/1000 ft ² 5 fl oz/1000 ft ² 0.37 fl oz/1000 ft ²	Late	0.0i	8.0a	215.3b-q
58	A19188B A13705V Turfcide Par	1 fl oz/1000 ft ² 2.6 fl oz/1000 ft ² 6 fl oz/1000 ft ² 0.37 fl oz/1000 ft ²	Late	0.0i	7.5abc	194.5i-r

^aEarly treatments applied on Oct 20th, 2016 and late treatments applied on Nov 15th, 2016

^bMean percent diseased area assessed on March 23rd, 2017.

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

^dColor 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 March 23, 2017 at Wausau Country Club in Schofield, WI.

	Treatment	Rate	Application Timing ^a	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
59	A19188B	1 fl oz/1000 ft ²	Early	0.0i	8.0a	212.8b-q
	A13705V	2.6 fl oz/1000 ft ²	Early			
	Instrata	5 fl oz/1000 ft ²	Late			
	Par	0.37 fl oz/1000 ft ²	Late			
60	A19188B	0.5 fl oz/1000 ft ²	Late	0.0i	7.8ab	212.5c-q
	A13705V	1.3 fl oz/1000 ft ²				
	Par	0.37 fl oz/1000 ft ²				
61	Concert II	8.3 fl oz/1000 ft ²	Late	0.0i	7.8ab	220.3a-o
	Banner Maxx	1 fl oz/1000 ft ²				
	Par	0.37 fl oz/1000 ft ²				
62	Banner Maxx	2 fl oz/1000 ft ²	Late	0.0i	7.3a-d	184k-s
	Daconil Weatherstik	5.5 fl oz/1000 ft ²				
63	Banner Maxx	2 fl oz/1000 ft ²	Late	0.0i	7.0b-e	210.5c-q
	Secure	0.5 fl oz/1000 ft ²				
64	Daconil Weatherstik	5.5 fl oz/1000 ft ²	Late	2.5hi	6.5d-g	215b-q
65	Secure	0.5 fl oz/1000 ft ²	Late	1.3hi	6.8c-f	226.5a-l
66	A19188B	1 fl oz/1000 ft ²	Late	0.0i	8.0a	215b-q
	A13705V	2.6 fl oz/1000 ft ²				
	Par	0.36 fl oz/1000 ft ²				
67	A19188B	1 fl oz/1000 ft ²	Late	0.0i	8.0a	216.5a-p
	A13705V	2.6 fl oz/1000 ft ²				
	A17856B	1 fl oz/1000 ft ²				
	Par	0.36 fl oz/1000 ft ²				
68	A21664A	0.8 fl oz/1000 ft ²	Late	0.0i	8.0a	257.5ab
	A17856B	1 fl oz/1000 ft ²				
	Par	0.36 fl oz/1000 ft ²				
69	A21664A	0.8 fl oz/1000 ft ²	Late	0.0i	8.0a	220.3a-o
	A17856B	2 fl oz/1000 ft ²				
	Par	0.36 fl oz/1000 ft ²				
70	A15457K	0.236 fl oz/1000 ft ²	Late	0.0i	8.0a	252.5a-d
	A19649B	0.157 fl oz/1000 ft ²				
	A17856B	1 fl oz/1000 ft ²				
	Par	0.36 fl oz/1000 ft ²				
71	A15457K	0.236 fl oz/1000 ft ²	Late	0.0i	7.8ab	224a-m
	A17856B	1.88 fl oz/1000 ft ²				
	Par	0.36 fl oz/1000 ft ²				
72	A14036B	9 fl oz/1000 ft ²	Late	0.0i	8.0a	221.3a-o
	Par	0.36 fl oz/1000 ft ²				
73	A21790A	4 fl oz/1000 ft ²	Late	0.0i	8.0a	253.5abc
	A21791A	1.4 fl oz/1000 ft ²				
74	A21790A	6 fl oz/1000 ft ²	Late	0.0i	8.0a	247.5a-f
	A21791A	2 fl oz/1000 ft ²				

^aEarly treatments applied on Oct 20th, 2016 and late treatments applied on Nov 15th, 2016

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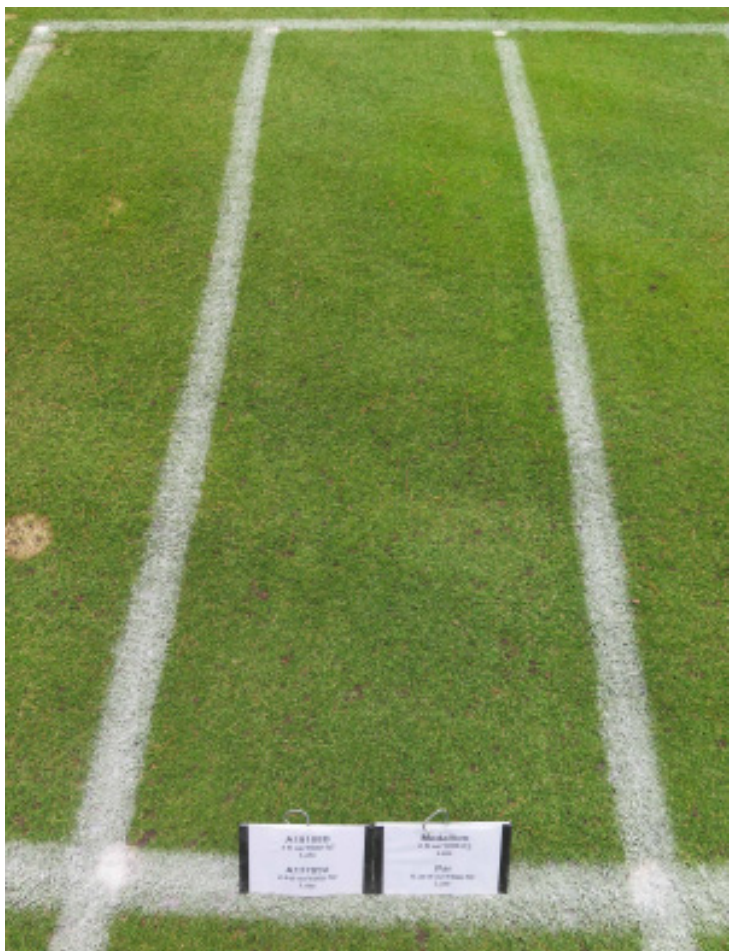
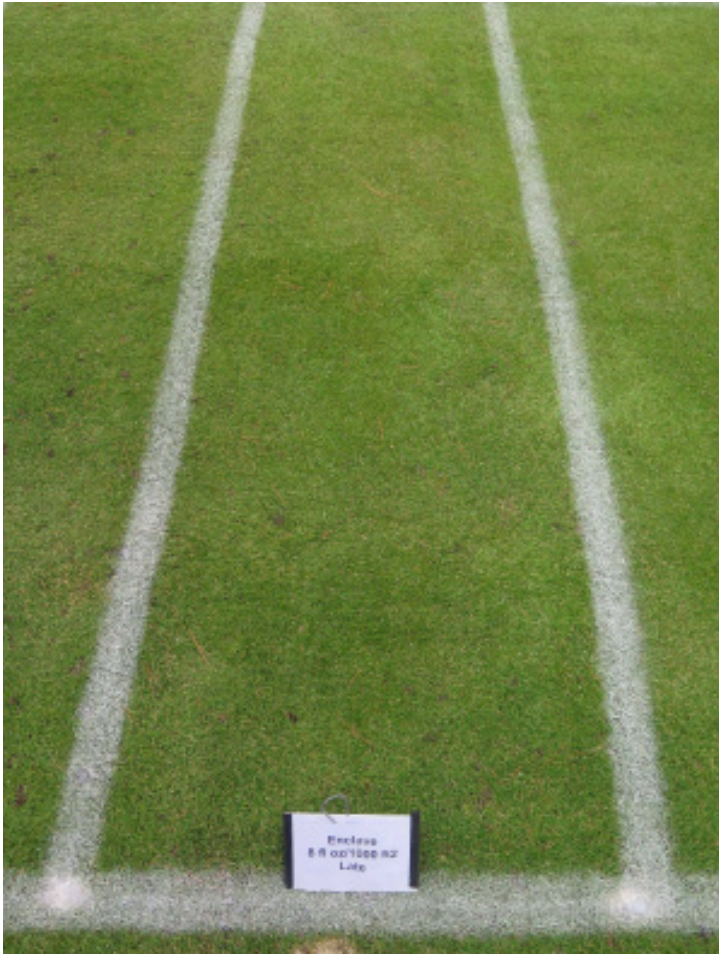


Table 1(cont): Mean snow mold severity, turf quality, and turf color were assessed on March 23, 2017 at Wausau Country Club in Schofield, WI.

	Treatment	Rate	Application Timing ^a	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
75	Insignia	0.7 fl oz/1000 ft ²	Late	0.0i	7.0b-e	203.5f-q
	Trinity	1 fl oz/1000 ft ²				
	Daconil Ultrex	5 oz/1000 ft ²				
	Turfcide	8 fl oz/1000 ft ²				
76	Insignia	0.7 fl oz/1000 ft ²	Late	0.0i	7.0b-e	190i-s
	Trinity	1 fl oz/1000 ft ²				
	26 GT	4 fl oz/1000 ft ²				
	Turfcide	8 fl oz/1000 ft ²				
77	Insignia	0.7 fl oz/1000 ft ²	Late	0.0i	7.0b-e	191.5i-s
	Trinity	1 fl oz/1000 ft ²				
	Daconil Ultrex	5 oz/1000 ft ²				
	Turfcide	6 fl oz/1000 ft ²				
78	Insignia	0.7 fl oz/1000 ft ²	Late	0.0i	7.0b-e	188j-s
	Trinity	1 fl oz/1000 ft ²				
	26 GT	4 fl oz/1000 ft ²				
	Turfcide	6 fl oz/1000 ft ²				
79	Interface	6 fl oz/1000 ft ²	Late	1.3hi	7.5abc	220.5a-o
80	Tartan	1 fl oz/1000 ft ²	Late	1.8hi	7.3a-d	220a-o
	Interface	3 fl oz/1000 ft ²				
81	Daconil Weatherstik	5.5 fl oz/1000 ft ²	Late	0.0i	8.0a	228a-k
	Interface	6 fl oz/1000 ft ²				
	Mirage	2 fl oz/1000 ft ²				
82	Daconil Weatherstik	5.5 fl oz/1000 ft ²	Late	0.0i	8.0a	242a-h
	Tartan	1 fl oz/1000 ft ²				
	Interface	3 fl oz/1000 ft ²				
	Mirage	2 fl oz/1000 ft ²				
83	Daconil Weatherstik	5.5 fl oz/1000 ft ²	Late	0.0i	8.0a	242.3a-g
	Interface	6 fl oz/1000 ft ²				
	Tartan	2 fl oz/1000 ft ²				
84	Daconil Weatherstik	5.5 fl oz/1000 ft ²	Late	0.0i	8.0a	206.5e-q
	Interface	3 fl oz/1000 ft ²				
	Mirage	1 fl oz/1000 ft ²				
	Tartan	2 fl oz/1000 ft ²				
LSD P=0.05				10.71	0.92	44.77

^aEarly treatments applied on Oct 20th, 2016 and late treatments applied on Nov 15th, 2016

^bMean percent diseased area assessed on March 23rd, 2017.

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

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

For more images of the UW Wausau research link here



The MGCSA wishes to thank Dr. Paul Koch and his turf scientist staff for their continued support on snowmold research. By realizing a variety of conditions, each course under different management programs, the MGCSA membership can design their own programs and limit winter damage. Your support is greatly appreciated.



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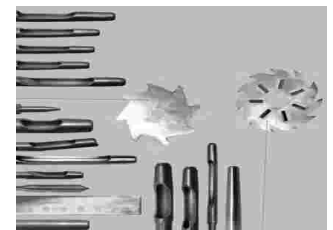
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Seasonal Influence on Wetting Agent Longevity: An Update on Current Member Driven Research

By Ryan Schwab, Graduate Research Assistant

With current social pressures on water usage, looming water fee structure increases, and extended periods of drought, soil moisture management is more important today than ever before. Multiple strategies exist to maintain soil moisture. For example, moisture meters for assessing volumetric water content, technology and automated sensors for monitoring evapotranspiration or rainfall, and/or relying on the “feel” method. Whatever the strategy, pushing the limit too far or too often can be problematic especially with unpredictable weather. Severe wet-dry cycles may provoke the development of localized dry spots (LDS), resulting in soils that repel water, which often requires wetting agent application to restore the polar attraction of water to soil.

The use of wetting agents to reduce LDS development and maintain uniform soil moisture has become common practice. However, some very practical and applied questions remain on their use, function, and ability to improve soil moisture uniformity. When throughout the season should they be applied? How frequent? Which wetting agents are recommended for specific circumstances? Will these products impact playability? It is the intention of the turfgrass science team at the University of Minnesota to develop solutions and strategies to maximize wetting agent efficiency. Application frequency as suggested by wetting agent labels is often determined by the rate. The rate and frequency may also be adjusted by the superintendent’s intended use. Recently, our team has identified that the longevity of these products to reduce soil water repellency is influenced by the season in which it was applied. A strict calendar-based wetting agent

application schedule can be convenient, but it may also be inefficient since soil water repellency and wetting agent longevity seems to be dictated by environmental and/or management factors.

In the last few years, questions pertaining to longevity of soil wetting agents have been a focus of the MGCSA Member-Drive Research program. In 2014-16, late fall applications of products and combinations varied in their ability to reduce soil water repellency following winter (Bauer et al., 2017). More recently, soil water repellency reductions of wetting agent treatments

were monitored following July or October applications on different soil types. The longevity of wetting agents applied in July was greater compared to October, and soil temperature is likely a major influencing factor in breakdown. For the University of Minnesota, we are examining longevity by soil temperature and soil water repellency following wetting agent



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An ongoing trial involving six wetting agent treatments varying in chemistries is being conducted at the University of Minnesota's Turfgrass Research, Outreach and Education Center (Table 1). The primary research objective is to assess how long these wetting agents can maintain a hydrophilic (water-attracting) soil environment compared to an untreated control with a single application at label rates. The applications are performed in May, July, and mid-October on separate plots. This enables observations of LDS, soil water repellency, and a full spectrum of growing season soil

Treatment	Rate (oz/1000 ft ²)	Manufacturer
Untreated	-	-
Aquicare	12	Winfield United
Revolution	6	Aquatrols
PBS ¹⁵⁰	5	AQUA-AID
Cascade Plus	8	Precision Laboratories
Duplex	0.46	Precision Laboratories

Table 1. Treatment list for 2017-19 wetting agent trial

temperatures prior to stress periods, during stress periods, and overwinter through spring recovery periods. Soil water repellency values collected from water droplet penetration time (WDPT) tests at depths of 1 cm and 2.5 cm will be compared across treatments, and correlated with soil temperature to create wetting agent reapplication frequency models, similar to growing degree day models (Figure 1).

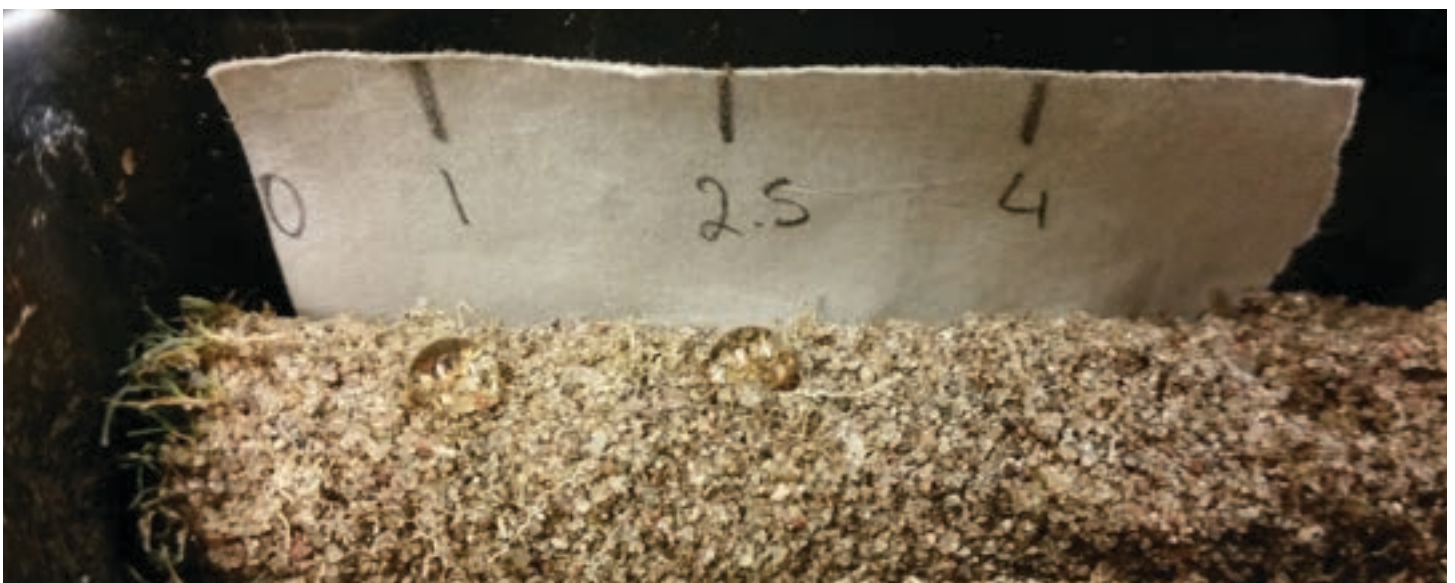


Figure 1. Water droplet penetration time tests are used to estimate soil water repellency persistence at different depths.

Currently, most collected data are on May-applied plots, revealing preliminary results. From late May to late July (61 days after wetting agent applications), all products are more hydrophilic than the untreated soil at a depth of 1 cm, with the exception of Duplex (Figure 2). Data at the 2.5 cm depth was less significant when comparing wetting agent treatments and only Revolution produced statistically better wettability than the untreated control, but this was short-lived. The water repellency status of the two depths was weakly related; if a soil readily accepts water at 1 cm, it often does so at 2.5 cm. The absence of water repellency at greater depths in this study demonstrates that water repellency occurs shallow in the rootzone, and is likely due to elevated organic matter levels at the 1 cm depth, causing water repellency and binding wetting agents.

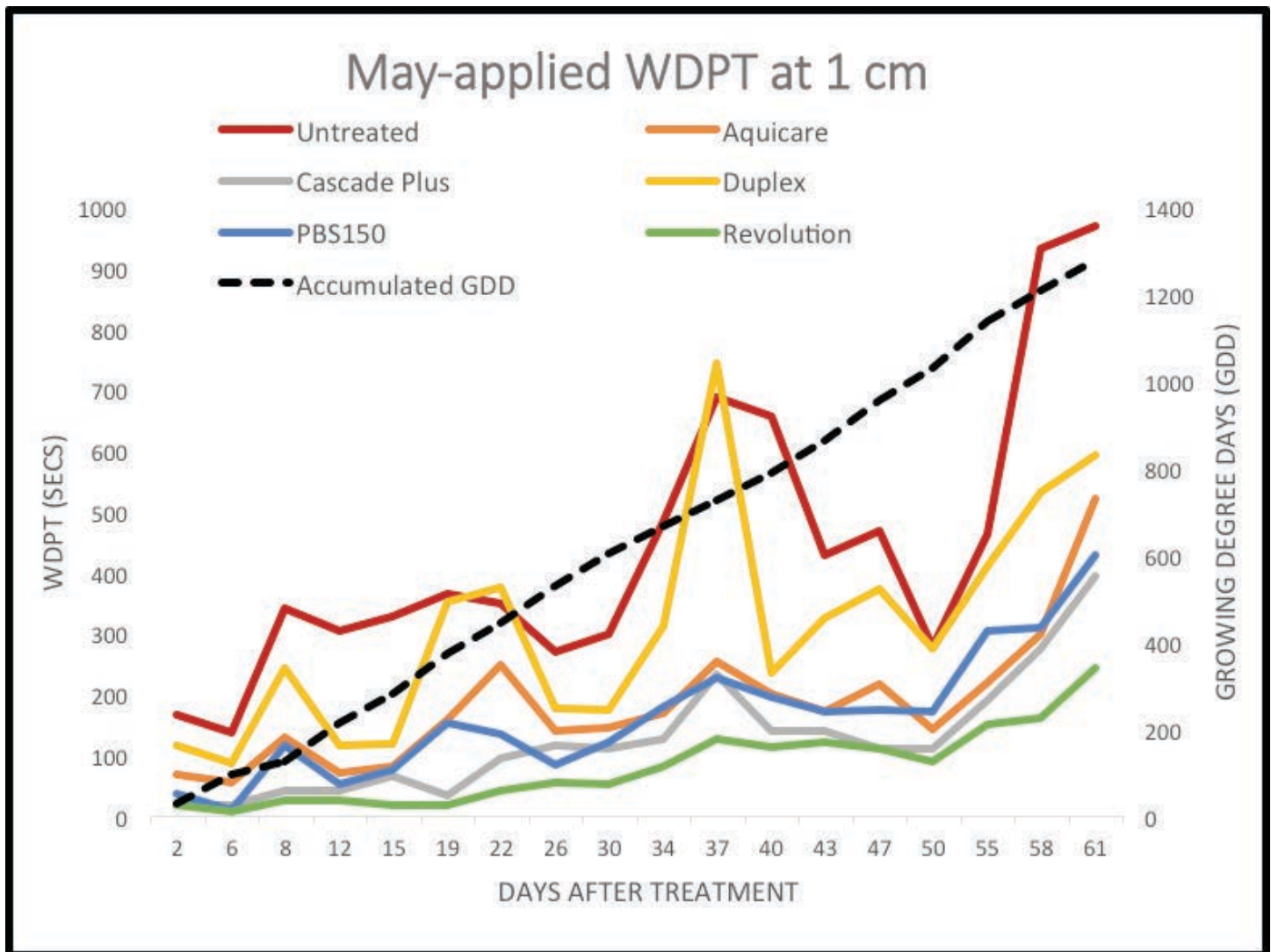


Figure 2. Average water droplet penetration times of all May-applied treatments at the 1 cm depth.

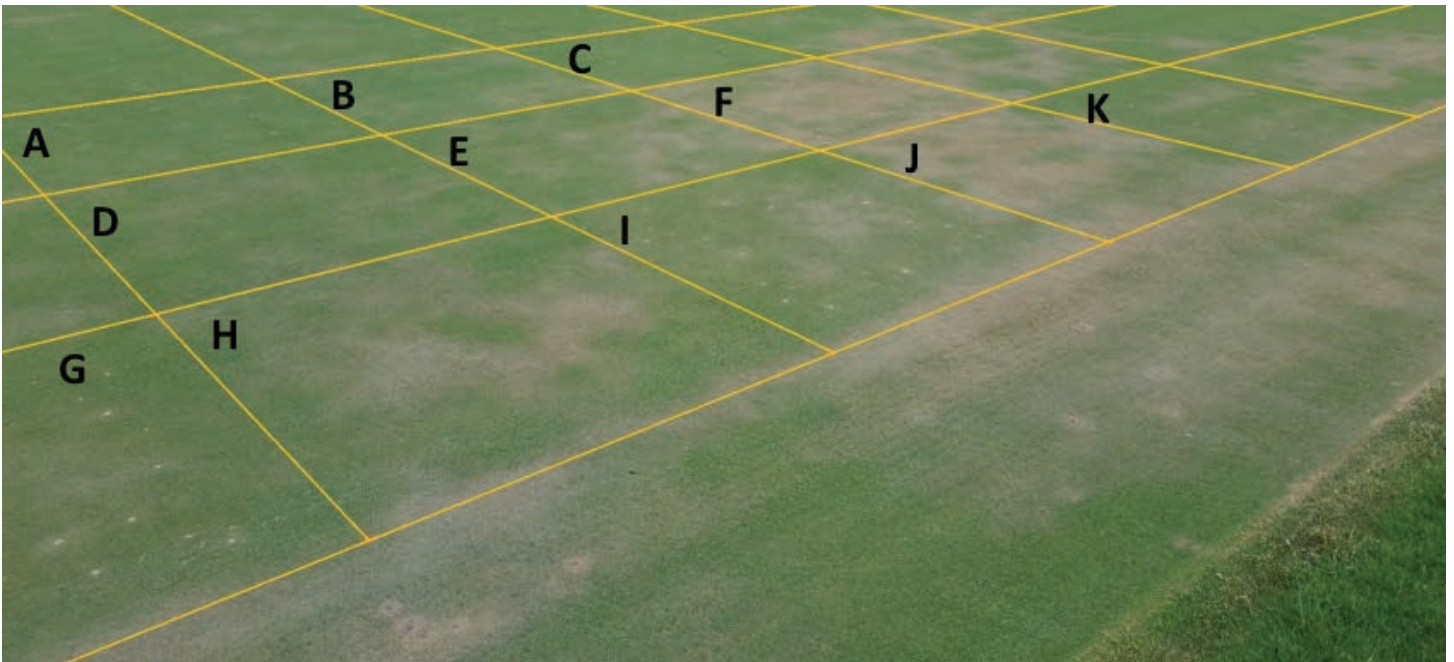


Figure 3. Mid-July drought stress. Treatments shown as listed: Untreated = B, D, E, H, J; Cascade Plus = A, C; Duplex = F; Revolution = G; PBS150= I, and Aquicare = K.

Observational data of dry spots indicates a valuable impact of wetting agent applications in preventing LDS. The research green is irrigated to produce more severe wet-dry cycles than recommended. Through this regime, localized dry spots have thinned some plots (Figure 3). Wilted bentgrass covered roughly 80% of two plots in mid-July. Treatments such as Revolution and Cascade Plus continue to show little to no wilt, while others vary in dry spot prevention across the trial area.

Temporary reductions in dew accumulation following wetting agent applications varied by product and reductions were observed for as long as 21 days after the May application (Figure 4). Cascade Plus reduced dew in the bentgrass canopy longer than other wetting agent treatments. Dew reductions were also detected as precursor for upcoming dry spots in various plots after the 21-day period.

This project will continue to develop once soil characteristics of July and mid-October applications are collected. A correlation between soil temperature and wetting agent performance will be targeted once the trial is completed each year. The University of Minnesota would like to thank the Minnesota Golf Course Superintendent's Association for supporting

this project.

Sources:

Bauer, Samuel J., Cavanaugh, Matthew J., and Horgan, Brian P. 2017. *Wetting Agent Influences On Putting Green Surface Firmness*. International Turfgrass Society Research Journal 13:1-5.



Figure 4. Reductions in dew accumulation were short-lived following wetting agent applications.



The MGCSA Membership wishes to thank Ryan Schwab, University of Minnesota Research Graduate Student, for his dedication to this Member Driven Research project. Your investment in studies you determined are important to the management of your golf course.



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The Air2G2 Story

Running Down A Dream

It was more than 40 years ago, but Glen Black remembers it like it was yesterday. It was the day he transformed his experience from a part-time job at a local golf course into a lifelong pursuit to develop a revolutionary machine for the turf industry, the Air2G2.

Glen, then a student at Western State College in Gunnison, CO, would occasionally help out at a local golf course that was owned by Ollie Woods, a professor at the college. One day that work involved

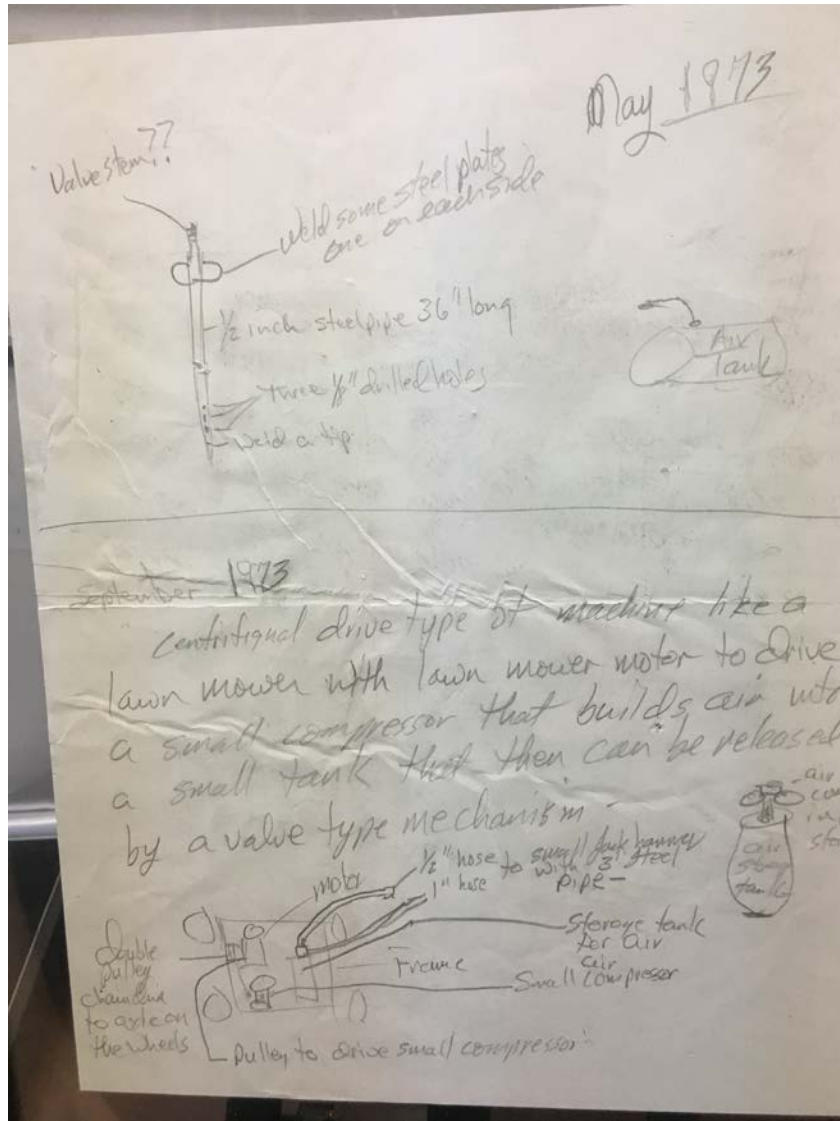
“aerating” the greens. Looking at all of the holes in the greens that were previously pristine, Glen told Ollie “I don’t get this, what are we doing?” Ollie explained to Glen that aeration reduced compaction and helped the roots breathe. Glen also recalls Ollie saying, “If someone could figure out how to truly ‘aerate’ the soil -- how to infuse or inject air into it -- they’d really have something.”

That was all the inspiration Glen needed. He sketched out a design for an air injection tool that night and within days had fabricated a device that he could use for testing. Glen took an archery tip and glued it to a piece of pipe into which he

had drilled holes. He connected the pipe and a valve stem to a portable air tank and, viola, his first air injection tool was born.

with his pocket knife, there were 4- to 5-inch white roots, something Ollie had never seen before on that green.

The greens at Ollie's course were severely undulated. A high spot on one of the greens was particularly troublesome and lacked color. Ollie told Glen that this mounded section of turf would never be dark green because water ran off the slope and didn't



Glen graduated from Western State College (now Western State Colorado University) with a degree in Business and a minor in Soil Science. He moved on to a successful business career but never gave up on his idea of developing a machine that would inject air directly into the soil. Problem was, someone beat him to the

penetrate into the soil. Glen took his fabricated air tool and faithfully treated this area of the green 3-4 times per week. A month later, Ollie summoned Glen out to the course to look at this green. The treated section of turf was not only greener, when Ollie cut into the soil

punch. In the early to mid-1990s, a handful of air injection machines made their way into the turf industry. Glen suspects that someone he knew, perhaps an acquaintance who had seen his original machine drawings from 1973, took his idea and



built machines of their own. Glen bought all of the machines, re-built them and used these machines to start NuGreen Turf in 2002, a contract service business based in Florida.

The contract service business was successful, having quickly developed a customer base of nearly 50 regular clients who contracted the service and reaffirmed the benefits Glen had come to expect of the machine. It was also a grueling business. Glen would leave home on Sunday afternoon and not return un-

til very late on Thursday or Friday. At this point, he began to wonder if all of his work was worth it. The turning point came when a friend offered Glen \$100,000 for his contracting business and the rights to all future equipment development. The offer came late on a Friday afternoon. Glen asked his friend to let him have the weekend to think it over.

Glen said one question kept nagging at him while he pondered the purchase offer. “If my friend, a very successful businessman is ready to

buy me out, what does he see that I don't?" The answer came to him that weekend while Glen and his wife, Sharon, were having dinner at a restaurant discussing the offer. Glen reached the conclusion that he needed to switch from being a service contractor to a manufacturer. Up to this time, the air machines Glen used for contract work were very industrial and intimidating. His idea for a sleeker, more appealing machine that customers could operate themselves -- the Air2G2 -- was drawn up that night on an Outback Steakhouse napkin.

Glen immediately turned his attention to manufacturing and formed GT Airinject, Inc. He sought out engineers to draw up plans so he could start making machines. But everyone he met either over-engineered or over-complicated the machine. A chance encounter solved this problem. While playing golf with three people he did not know, Glen told them of the challenge he was facing. One of the golfers suggested he talk with an engineer by the name of Kurt Wullenweber. He did so, and the match was perfect. Glen, who holds several patents on

key elements of the Air2G2 that are integral to its operation, credits Wullenweber for much of the operational simplicity and aesthetics of the current machine.

With his focus now solidly on manufacturing Air2G2 machines, Glen needed to free up time from the contracting side of his business. Corey Kimball was an assistant golf course superintendent at one of the courses where Glen did contract work. "I see what the greens look like before you get here and I see what they look like when you leave and the difference is unbelievable," Kimball told Glen. "I don't want to be a superintendent. I want to go to work for you. I think I can sell this service." Instead of working as a salesman, Corey bought NuGreen Turf from Glen in January 2010 and continues to operate it today.

The Air2G2 machine debuted at the 2011 Golf Industry Show in Orlando. One of the visitors to the GT Airinject booth was Richard Campey, owner of Campey Turf Care Systems, a highly successful distributor of specialized turf care equipment throughout Europe,

Asia, Africa and the USA. Richard provided valuable input on how to improve the machine and offered to sell the Air2G2 once these suggestions were implemented. Campey Turf Care Systems became an Air2G2 distributor in late 2011 and has been the leading distributor of the machine since then.

The 2013 GIS show in San Diego proved to be a coming out party of sorts for the Air2G2. “Our booth was mobbed,” Glen recalls. One of the show attendees who never got a chance to speak with anyone at the GT Airinject booth was David Mellor, head groundskeeper for Fenway Park. Mellor called the GT Airinject offices shortly after the GIS show. A Paul McCartney concert scheduled around the 4th of July had Mellor concerned about how his turf would respond after being covered by a stage AND by having some 16,000 fans standing in the outfield. Glen took a machine to Fenway on July 2nd for Mellor to use on the turf after the concert was over. Mellor used the Air2G2, liked the results it produced, and has since purchased a machine.

Awareness of GT Airinject, Inc. and the Air2G2 machine has continued to soar in recent years as the company has garnered several accolades for its products. The STMA named the Air2G2 winner of its 2015 Innovation Award. Financial giant HSBC named the Air2G2 the most innovative product for the Turf Industry in 2016. And recently, the Air2HP hand held air injection probe was named one of the top 20 new products for 2017 by Landscape and Irrigation Magazine.

“We want to be known as the ‘air experts’ of the turf industry,” says Glen, now 65. The company’s trademarked slogan, “Air is everything to anything that lives,” is a phrase that depicts Glen’s strong belief in the connection between all living things, from humans to turf. He believes that the Air2G2 is more of a CPR device for turf, rather than an aerator.

GT Airinject has plans to develop equipment for fairways, sod farms, and other wide-scale uses. The company has nine full-time employees and occupies a 15,000 square foot manufacturing facility in Jack-

sonville, FL. Glen credits long-time key employees Todd and Scott Jones, Jarren Stevens, and his wife, Sharon, for the company's growth and success. Air2G2 machines are used on major golf courses and sports venues around the world – from the United States, throughout Europe, to Russia, Australia and Viet Nam. Nearly 500 machines have been sold in the five years since full-scale manufacturing was launched.

During his early struggles, Glen said he found motivation from what customers told him about how his

service and machine improved their turf. A self-described “providential man”, Black said he is driven to help people and make a difference in their life, whether it's a golf or sports turf customer, or the distributors and sales reps who represent his product. “At the end of the day, it's not how big of a bank account that I have or the kind of car that I drive or the house that I live in,” Black says. “It's what people say about me when I'm dead and gone. I hope that I've left something behind, that I've helped improve the lives of all of the wonderful people I've had the pleasure of meeting.”

