

Field Day 2019 Is Completed

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

This summer, as with most Wisconsin summers, has been anything but predictable. We can always count on the weather in Wisconsin to throw us a curve ball every once in a while. The week before the WTA Summer Field Day the temperature was in the 90's with high humidity. Due to that weather pattern, I heard from many of you that you would not be attending the Field Day. As Field Day drew closer, it was apparent that the extreme heat would pass. Many felt they would need the break in the weather to catch-up from the previous week. Then the weekend before Field Day, many of you received torrential rain and wind that left a path of destruction in its wake. On Field Day the weather was perfect.

Summer Field Day week for myself and my staff starts on Sunday. We start on Sunday in an attempt to mitigate interference with the researchers and the work they need to do on Monday setting up for the big day. On Monday morning, I felt we were way ahead of schedule and Monday would be an easier day. Of course, I was wrong! Nothing disastrous or problematic happened but my staff was quite busy the entire day.

Tuesday morning came and everything seemed to fall into place. The vendors began arriving around 6:30 and everyone was set-up and ready for the day by 8:00am. While attendees and vendors waited for the official start of the day, they enjoyed great conversation, coffee, juice, rolls, and muffins. This is always a great combination.

Dr. Soldat began opening remarks along with Paul Huggett, President of the WTA. Once the morning remarks were completed, attendees broke into 5 groups and began the morning talks. The morning attendance was higher than in the recent past. Everyone

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The Wisconsin Turfgrass News is the official publication of the Wisconsin Turfgrass Association, edited by Audra Anderson, O.J. Noer Turfgrass Research and Education Facility.

PRESIDENT'S MESSAGE

As One Season Comes To An End, The Next One Is Right Around The Corner

By Paul Huggett, Paul's Turf & Tree Nursery

Fall is such an exciting time. End of summer family vacations, kids getting ready for school and that first cool morning that requires a jacket. Our growing season is far from over but the signs of transition are there.

I hope you were able to attend the WTA Summer Field Day! The staff did an excellent job of getting things ready and created topics of interest and value. This was a Field Day you did not want to miss and here are a few reasons why.

There are some presentations that I go "Hmm where is this headed." I always keep an open mind, listen and observe because you never know. The unexpected

part about keeping my ears and mind open at the most recent Field Day was the very next week, two items that were presented on the tours, I was approached on. One was jumping worms presented by P.J. Liesch. At first, I was thinking that jumping worms might only cause a problem in mulch beds but learned they could be an issue in lawns also. Well as strange as it might seem, I had a customer call



me with a diagnosed problem of jumping worms in a turf area just a few days after Field Day. I was glad I paid attention to P.J.'s talk so I could have an intelligent conversation on the subject. I think that is cool.

The other summer Field Day subject I learned about were alternative herbicides to glyphosate. Dr. Paul Koch had an herbicide trial showing different alternatives and results over time. I had a solicitor call me about one of the products Paul used in his trial. I was quickly able to tell the salesperson I was not interested in the product based on the results of Paul's time study herbicide trial. I really appreciate summer

Field Day for the information provided and had the bonus of putting it to use less than a week later.

I hope everyone has a great fall! Thank you for all the support you give to the WTA. Our next event is our annual Golf Outing which is going to be held at Tuckaway Country Club in Franklin on Monday, September 30th. To register go to www.wisconsinturfgrassassociation.org.



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Year behind board member name, is the expiration of their current term. January is the month the term is up.

was very interested while paying close attention to the speakers.

The morning topics were very broad in scope and all the turf managers in attendance had positive responses. These topics were:

Plant Growth Regulators For Lawns (Nick Bero, Soil Science)

Jumping Worms in Wisconsin (P.J. Liesch the Bug Guy, Insect Diagnostics Lab)

Impact of Fungicides and PGR's On Pollinators (Audrey Simard, Entomology)

Glyphosate Alternatives (Dr. Koch, Plant Pathology)

Diagnosing Abiotic Stresses of Turfgrass (Kurt Hockemeyer, TDL)

Robotic Mowers (Dr. Soldat, Soil Science)

After these varied topics, everyone returned to the vendor area with ample time to visit their favorite vendors and catch-up with friends. The vendor time was followed by a great lunch served by Gaylord Catering.

The afternoon has always been focused on golf topics. Dr. Soldat and Dr. Koch lead the group discussing a wide range of topics show casing a small sampling of their research. The lively conversation included many topics. The tour stops were:

Effects of Irrigation and Soil Organic Matter on Bentgrass Clipping Yield and Visual Quality

Wetting Agents, Phosphorous and Potassium Soil Test Levels, Starter Fertilizer

Robotic Mowers

Common Ground Initiative Update

Iron Sulfate for Dollar Spot Control on Fairways

Precision Disease Management of Dollar Spot

Effects of Pesticide Residue Within Turfgrass Guttation Fluid on Pollinators

The education presented at this year's event was well received and presented. I hoped the weather would be the talk of the day but the talks and research were the shining stars of the day. Every year when planning Field Day, the weather is the biggest unknown of the day. Who knows whether it will rain, be super hot or the place will be

flooded. The one thing we never need to worry about is the quality of the days talks and the research from year to year.

If you missed this year's event there are many ways to hear this great research. On January 7th, 2020 the WTA Winter Conference is moving locations and being held at the American Family Insurance Campus on the east side of Madison.

I would advise everyone to put the 2020 WTA Summer Field Day on his or her calendar for next year. As soon as the WTA Board decides on next years date we will post it on the WTA website.

Here is hoping the balance of your year goes as well as the weather on Summer Field Day.





Summer 2019 Update

By Kurt Hockemeyer, TDL Manager, Plant Pathology, University of Wisconsin-Madison

I write this article about one week removed from the WTA Summer Field Day. As is usually the case, the Field Day went very well. Great weather. Lots of people. Curious minds. Good food. Interesting research. I'm a bit biased because I'm one of the people conducting the research here. I believe one of the reasons we have relevant and interesting research projects is due to all the conversations we have with turf managers. By hearing about your struggles, your victories, your concerns, we can shape our research studies based on that information. The guestions you ask at Field Day directly influence the research projects we will run in the future.

As for the research we conducted this year, we had some fun ones this year. We have a multi-year study looking at using iron sulfate for dollar spot control. At the very least it is showing moderate promise at controlling dollar spot. Be on the lookout for the results of this study this fall on the TDL website (tdl.wisc.edu). We are studying this in conjunction with the University of Minnesota in the Twin Cities.

We also ran a Pythium trial this year on some juvenile perennial ryegrass (Figure 1). Disease severity and turf quality data can be found in Table 1. Treatments fell in to 3 distinct levels of control. Phosphites applied 17 days before the plots were covered to encourage Pythium development performed the same as the nontreated control with lots of turf death (≈65% death). Segway applied 17 days before covering performed the same as phosphites applied 1 day before covering with moderate turf death (≈26-43% death). And Segway applied 1 day before covering had almost no disease development (≈1.5% death). This year's study illustrates perfectly how phosphites can be used for Pythium control. The application of phosphites has to be precisely prior to when disease will develop, but even then disease will develop under heavy disease pressure. Phosphites might give you good control under moderate to low disease pressure. The use of more traditional Pythium fungicides can give you larger windows of control, and if timed right, can completely control the disease.

The results of these two studies will be published on our website this fall. In addition to some of the more specialized research, we have our large scale fairway and greens dollar spot control trials. We

also have some studies exploring how the Smith-Kerns dollar spot prediction model can be used in more detail. Will an early season dollar spot application change how the model can be used for the rest of the year? At what point on the model should we tighten spray intervals? These studies will continue into the fall and even may be repeated next year.

Hopefully, we can get some more dollar spot to develop on the plots during August so that we can publish the most relevant information possible. Final plot ratings will be conducted at the end of August, and final published reports will be put up on the website sometime in early September.



Figure 1. Even with the very hot and humid weather, we still have to use tarps to trap heat and moisture and encourage Pythium to develop on our plots.

Table 1. Pythium disease ratings on perennial ryegrass at the OJ Noer Turfgrass Research Facility in Madison, WI during 2019.

Treatment		Rate	Application Code		Pythium Infection Centers		hium sease erity ^a	Turf Quality	
				Jul 19		Jι	1 22	Jul 22	
1	Nontreated Control			16.0	ab		62.5a	4.3bc	
2	Stressmast er 0-0-31	3.0 fl oz/ 1000 ft2	Н	21.8	a		65.0a	4.0c	
3	PolyPhosp hite 30	2.0 fl oz/ 1000 ft2	Н	25.5	a		62.5a	4.3bc	
4	PolyPhosp hite 30	3.0 fl oz/ 1000 ft2	Н	24.5	a		62.5a	4.0c	
5	Segway	0.9 fl oz/ 1000 ft2	Н	12.8	abc		26.3b	4.8b	
6	Stressmast er 0-0-31	3.0 fl oz/ 1000 ft2	J	15.8	ab		33.8b	4.8b	
7	PolyPhosp hite 30	3.0 fl oz/ 1000 ft2	J	7.5	bc		43.8b	4.8b	
8	Segway	0.9 fl oz/ 1000 ft2	J	0.0	c		1.5c	6.5a	

^aPythium severity was visually assessed as percent disease. Means followed by the same letter do not significantly differ (P=.05, Fisher's LSD).

^bApplication code H = July 2nd and J = July 16th.

Learning About Robotic Mowing

By Doug Soldat, Ph.D., Department of Soil Science, University of Wisconsin-Madison

One of the best parts of my job is getting to investigate the performance of new products, grasses, and equipment. It is always exciting to get a glimpse at the future of turf management before it happens and I think autonomous, battery powered mowers (or robotic mowers for short) are going to play a big role in that future.

Robotic mowers have been around since the 1960s, but have only recently garnered much interest in the US. There are several potential benefits to robotic lawn mowing. They can reduce labor costs, carbon emissions, and noise levels; studies and anecdotes have reported improved turfgrass quality with robotic mowing compared to traditional gas-powered mowers. This summer at the O.J. Noer Facility, we took a firsthand look at four different robotic mowers. The details of the units we tested are listed below.

We learned guite a bit about how these mowers work since we installed them in early June, 2019. First, all these mowers currently require the installation of a boundary wire to define the mowing area. GPS is available on two of the units, but that is more for allowing the user to see where the mower is and has been, rather than to guide the mowing. With higher resolution GPS receivers (like those on GPS guided sprayers), these mowers will eventually not require a boundary wire at all. These mowers all move randomly within the boundary area. Having GPS, one would expect that the mowers could easily improve the efficiency of their mowing by following patterns or not mowing over the same areas too often. Talking with some company insiders. I'm told this is indeed the plan for future mowing algorithms.

Each mower comes with software that allows the user to monitor and adjust the mowers. The software varies in quality, but all companies have room for improvement in this category. Of the units tested, we were most impressed with the Robomow



Photo credit: Micah Woods

mobile phone app, which allowed for the simplest adjustments and had a remote control function so one could manipulate the direction of the mower manually.

All but one unit (Robomow) uses razor blades to cut the grass. While the blades dull in a few months, they are inexpensive and very easy to change. Clearly, razor blades will give a very high quality of cut. Couple this with the fact that these mowers never defy the 1/3rd rule and you would expect to see improved turfgrass health compared to moving with a push mower with a duller blade and periods of excessive tissue removal. There are many anecdotal reports and one research report demonstrating improved turfgrass quality following robotic mowing. However, after several weeks of observation, the robotic mowers in our evaluation have showed decreased turfgrass quality but similar turfgrass density compared to traditional mowing. The grass was less vigorous and appeared less green in color compared to the neighboring grass mowed with a

traditional mower. This observation is in contrast Grossi et al. (2016) who showed higher turf quality and increased turf density with robotic mowing compared to traditional mowing. It is unclear why we are not seeing the quality benefits right now and requires additional investigation.

While robotic mowers decrease the labor associated with mowing, they are not management free. In fact, we interact with these mowers almost on a daily basis. These interactions include picking up sticks and other debris that may have fallen in the mowing area, getting the mowers un-stuck from a tree or other impediments, helping the mowers charge because sometimes they may not have returned to the charge station properly, or resetting the mower because of a safety error or software failure.

While we are not monitoring differences in energy consumption, Grossi et al. (2016) found that a robotic mower similar to the Husqvarna in our evaluation had four times lower energy consumption and onethird lower operating costs per week than traditional mowing. In summary, there are many potential benefits to robotic mowing, but much room for improvement – particularly in the software, guidance systems, and battery life. I look forward to continuing to study these mowers and learning the pros and cons, as well as staying on top of the technological advances. Thank you for your support of the Wisconsin Turfgrass Association, which helps fund this and other important turfgrass research.

Mower Mowing Area		Boundary Wire Required	GPS	Approx. Purchase Price	
Echo Robotics TM2000	6 acres	acres Yes		\$15,000	
Robomow RC304 0.1 acres		Yes	No	\$1,000	
WORX Landroid 0.25 acres		Yes	No	\$1,000	
Husqvarna Automower 315x	0.4 acres	Yes	Yes	\$2,000	





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Alternatives to Glyphosate for Spot Treating Weeds

By Kurt Hockemeyer, TDL Manager and Paul Koch, Ph.D., University of Wisconsin – Madison, Department of Plant Pathology

INTRODUCTION

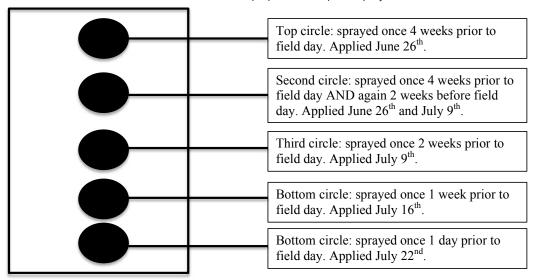
Glyphosate is the primary active ingredient in Roundup and is the most commonly used non-selective herbicide. Glyphosate is routinely used in by turfgrass managers to control weeds in ornamental beds, bunkers, paved surfaces, and elsewhere. Even though the Environmental Protection Agency recently reiterated it's stance that glyphosate does not cause cancer, legal cases surrounding the use of glyphosate have skyrocketed in recent months and has left many turfgrass

managers and municipalities exploring the use of other herbicides for effective and safe non-selective weed control. The objective of this demonstration was to demonstrate the efficacy of several 'alternative' to glyphosate.

MATERIALS AND METHODS

Seven treatments, including glyphosate, were used in this demonstration. The product name, active ingredient(s), rate, and cost per gallon are included in Table 1. All treatments were applied using either a handheld spray bottle or a self-propelled backpack sprayer.

Each treatment was applied to a circular area approximately 1-2 feet in diameter to simulate spot treatment of weeds. The treatment area consisted of a mix of turfgrass, grassy weeds, and broadleaf weeds. Each treatment was applied to 4 different areas at 4 different timings within each plot, illustrated in the figure below. Products were applied according to label instructions. The speed, efficacy, and duration of control was rated using a 0-3 scale where 0 = no change in plant appearance, 1 = mild change on plant appearance, 2 =



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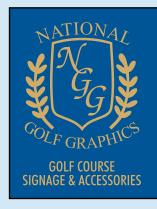




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significant effect on plant appearance, and 3 = totally dead. Ratings were conducted 1, 4, 7, and 14 days after each application.

RESULTS

At the time of publication the 4-, 2-, and 1-week prior to field day applications had been made and the results to date can be observed in Table 2. All treatments provided effective initial knockdown of weeds in the treated circles. Homeplate, Axxe, and WeedPharm provided the fastest knockdown of weeds with the plants highly impacted within 24 hours. This is not surprising given they are contact 'burn down' herbicides. The flame treatment also provided a fast knockdown of the treated area. The treatments containing glyphosate and glufosinate were also highly effective but took 2 to 3 days until visual impairment of the plants was observed. Plots treated with Homeplate, Axxe, and WeedPharm did recover significantly by 14 days after the application so 2 or even 3 follow up applications will be required for complete weed control using these products..

Table 1. Treatment list, active ingredient(s), rate, OMRI certification, cost per gallon

Trt#	Treatment	Active Ingredient	Manufacturer	Rate/ Concentration	Organic Certified (OMRI)	Cost per gallon (USD)
1	Ranger Pro	Glyphosate	Monsanto/Bayer	3 fl oz/gallon	No	\$16.00
2	Cheetah	Glufosinate	NuFarm	3 fl oz/gallon	No	\$175.00
3	Homeplate	Caprylic Acid + Capric Acid	Certis	8 fl oz/gallon	Yes	\$89.00
4	Axxe	Ammoniated pelargonic salts	BioSafe Systems	16 fl oz/gallon	Yes	\$46.00
5	WeedPharm	Acetic Acid	Pharm Solutions	20% acetic acid	Yes	\$47.00
6	APSA 80 + Ranger Pro	Adjuvant + glyphosate	Nutriplant	1.5 fl oz/gallon	No	\$56.00 (Adj) 16.00 (Gly)
7	Mechanical	Fire	Bernz O Matic	Until charred	No	\$4 per canister

Table 2. Impact on weed appearance 1, 4, 7, and 14 days following herbicide application

Trt #	Treatment	Days after first application on June 26th			Days after second application on July 9th				
		1	4	7	14	1	4	7	14
1	Prosecutor	0	2	3	3	0	1	3	3
2	Cheetah	0	2	3	3	0	1	3	3
3	Homeplate	3	3	3	1	2	3	3	2
4	Axxe	3	3	2	1	3	3	3	2
5	WeedPharm	3	3	3	3	3	3	3	2
6	APSA 80 + glyhphosate	0	2	3	3	0	1	3	3
7	Mechanical	3	3	3	2	3	3	3	1

Figure 1. Picture of the demonstration plot at the OJ Noer on July 24th, 2019. Each column represents a treatment, from left to right: (1) Ranger Pro (2) Cheetah (3) Homeplate (4) Axxe (5) WeedPharm (6) APSA 80 + Ranger Pro (7) Flaming. Each row represents a different application timing, from top to bottom: (1) 4 weeks prior to picture [PTP] (2) 4 + 2 weeks PTP (3) 2 weeks PTP (4) 1 week PTP (5) 24 hours PTP.



CALENDAR OF EVENTS

2019 Sept. 16th Sept 30th	Wee One Fundraiser – Pine Hills C C	
2020		
January 7th	WTA Winter EXPO – American Family Training Center	Madison, WI
Feb 7-9	Garden EXPO – Alliant Energy Center	Madison, WI

WTA Members -- If you have an important date you'd like to share with other members, Call 608-845-6536 or email audra.anderson@wisc.edu to include it in the next calendar.

Contact Telephone Numbers

GCSAA	Golf Course Superintendents Association of America	800-472-7878
Great Lakes	Great Lakes School of Turfgrass Science Online	763-767-3518
iLandscape	the Illinois + Wisconsin Landscape Show	630-472-2851
NGLGCSA	Northern Great Lakes Golf Course Superintendents Assoc	906-424-4176
Northern	Northern Green	651-633-4987
PAT	Pesticide Applicator Training (Turf and Landscape 3.0)	608-262-7588
STMA	Sports Turf Managers Association Conference	800-323-3875
TPI	Turf Producers International	800-405-8873
WDATCP	Pesticide Certification & Licensing.	608-224-4548
Wee One	Wee One Foundation Golf Outing	630-457-7276
WGCSA	Wisconsin Golf Course Superintendents Association	
WGIF	Wisconsin Green Industry Federation	414-529-4705
WPT	WPT Garden Expo	
WSPA	Wisconsin Sod Producers Association	
WSTMA	Wisconsin Sports Turf Managers Association	608-792-9264
WTA	Wisconsin Turfgrass Association	608-845-6536



2019 Golf Outing Fundraiser

Benefitting the Wisconsin Turfgrass Research **Sustainability Fund**

Tuckaway Country Club Monday, September 30, 2019





Where Tuckaway CC

Wisconsin Turfgrass Association 2019 Golf Outing Fundraiser

Benefitting the Wisconsin Turfgrass Research Sustainability Fund



Tuckaway Country Club – Monday, September 30

Proper country club attire is required. There is no ATM on site.

When: Monday Sentember 30 2019

Where Tuckaway CC		Ptember 20, 2015
6901 West Drexel Ave		Registration
Franklin, WI 53132	9:30 - 10:45	Practice Range
(414) 425-4280		Boxed Lunch On Cart
	11:00am	4-Person Best Ball Shotgun Start
Cost: \$150 per person	After Golf	Hors d' Oeuvres, Door Prizes, Golf Awards, Cash Bar
What: Golf, Cart, Practice Range, Lunch, Door Prizes, Golf	Questions:	(608) 845-6536 or <u>audra.anderson@wisc.edu</u>
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lined fairways and beautifully manicured experienced golfer and the recreational p	d greens, the cours blayer. While the gennis courts, a swi	country club located in Franklin, WI. With our broad, tree- e at Tuckaway offers an ideal experience for both the greatest benefit of being a Tuckaway member may be our mming pool, and sauna as well. In our clubhouse, the Grill g.
* ·		Tuckaway Country Club welcome you to this WTA event. dison turf faculty to develop new techniques for managing
ENTRY	FORM – WTA	Golf Outing Fundraiser
Name:		Phone: ()
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# of People Attending x \$150 per	person =	
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- Or to pay online go to www.wisconsinturfgrassassociation.org
- Refer questions about the outing to Audra at 608-845-6536, or <u>audra.anderson@wisc.edu</u>
- Registration deadline is Monday, September 23, 2019
- You may register by yourself or as a foursome

