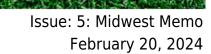


MIDWEST Memo



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Dr. Fred Whitford Honored as the MRTF's 2024 Distinguished Service Award Winner

(Ashley Ryan Breed, ashbreed@purdue.edu)



Dr. Fred Whitford, Clinical Engagement Professor, Botany and Plant Pathology and Director of Purdue Pesticide Programs, is the 2024 MRTF Distinguished Service Award Winner. The MRTF Distinguished Service Award is the highest honor given by the Midwest Regional Turf Foundation. It is awarded to individuals who have given of themselves through the years for the betterment of the Turfgrass Industry. The service by these individuals has been in many different forms. Some have used their leadership abilities to serve on the MRTF Board of Directors and steer the Foundation through the changes needed to meet the future. Others have donated their time to work with students and help train them to be future turf industry leaders. Others have worked an entire career dedicated to serving those in the turf industry. Fred has a bachelor's degree in wildlife management and M.S. and Ph.D. in entomology. He has served as the Coordinator of the Purdue Pesticide Program since 1991. Fred is the author of The Grand Old Man of Purdue University and Indiana Agriculture: A Biography of William Carroll Latta, The Queen of American Agriculture: A Biography of Virginia Claypool Meredith, and For The Good of the Farmer: A Biography of John Harrison Skinner, Dean of Purdue Agriculture as well as two other books on pesticide management. He has authored more than 300 publications and become a popular speaker with more than 5,000 presentations given throughout Indiana and the United States. He has received numerous awards from organizations and universities. A celebration of Fred's service and the MRTF Distinguished Service Award Reception was held at the Indiana Green Expo on January 18 from 5:00 - 7:00 pm at the Indiana Convention Center. Thank you for all you do for the turf industry, Fred!



Fred (right) being presented his award by Bob Avenius (left).

Indiana Green Expo 2024 Recap

(Ashley Ryan Breed, ashbreed@purdue.edu)



There were over 850 pre-registered attendees, including staff and speakers as well as over 340 exhibitors, and over 200 on-site registrations for the 2024 IGE bringing the total attendance to a little over 1,400!

The Indiana Green Expo wishes to thank the following Sponsors who assist in alleviating some of the inherent cost of putting on an event of this stature.

Corporate Sponsors: Blue Grass Farms of Indiana, Brehob Nurseries, Schuetz Insurance Services/ proud to offer Frankenmuth Insurance, Outdoor Environments Group, and Proven Winners.

Lanyard Sponsor: Syngenta

Lounge Furnishing Sponsor: The Engledow Group

Session Sponsor: Midwest Groundcovers

First Day - January 17, 2023

The first day was full of very well-attended morning and afternoon

sessions of workshops, as well as the first day of the 2-day initial training for ICPI (Interlocking Concrete Paver Installation) class. While various workshops were going on, ranging from The Short and Tall of Disease Diagnosis, Green Industry Math, Landscape Management for Entry-Level Professionals, Improving Organizational Performance, Indiana Accredited Horticulturist (IAH) Review and Exam, which is the **only state-approved certification program,** to CPR, AED, and Basic First Aid Training; some 100+ exhibitors began filling up Hall F to exhibit their wares.

Day 2 - First day of Trade Show and Full Education Tracks

The education tracks on Day 1 included the following sessions with most having Continuing Credit Hours (CCH) for applicator/RT licensing from the Office of the Indiana State Chemist (OISC), as well as Indiana Accredited Horticulturist (IAH -INLA) Continuing Educational Units (CEU) and the Golf Course Superintendents Association (GCSA). Tuesday's Educational Tracks included the following after separate opening sessions; Lawn Care (full day), Golf (full day), Landscape Installation and Maintenance (full day), Vegetation Management (half-day), Sports Turf (half day), Plant Material (half day), Spanish Track (full day), Women in the Industry (half-day), and a NEW Professional Development Track (half day). Also, Tuesday was the second day of the ICPI Initial Installer Certification. While this was all transpiring, educationally speaking, the Trade Show full of varying exhibiting companies was open from 9:00 am to 5:00 pm, one hour longer by opening at 9:00 am instead of the usual 10:00 am. This year, there was an INEF silent auction and raffle contest. Like last year, the concession stand inside Exhibit Hall F was open from 10:00 am to 2:00 pm. Several companies were also exhibiting new products in the New Product Showcase designated area. We also gave some of our exhibitors "Best of Show" awards for certain categories. Congrats to all the winners, your displays and enthusiasm were over the top!

Day 3 - Final Trade Show (half day) and Educational Tracks (full day)

While the trade show was open from 9:00 am to 1:00 pm to allow exhibitors to tear down and load up after 1:15 pm, the concessions were open from 9:30 am to 1:30 pm and educational talks on the trade show floor were available from 10:30 am to 12:00 pm. Exhibitors generally prefer to leave when there is less traffic in the Indianapolis Metro area. The educational tracks for Wednesday included the following tracks; Workshop – Core Pesticide Training, Lawn Care (full day), Golf (full day), Sports Turf (half day), Equipment Managers (half day), Tree Care (half day) Landscape Installation and Maintenance (full day), Nursery Production (half day), Plant Material (half day), Invasive Species (half day), Design (1/4 day), and Business and Marketing (half day).

We trust and hope that the diversification of topics as well as the various expertise in the speakers that we assemble will create the need to attend the 2025 IGE, which takes place February 10-12, 2025 at the Indiana Convention Center.

On behalf of the Midwest Regional Turf Foundation (MRTF) and

the Indiana Nursery and Landscape Association (INLA), partners for the Indiana Green Expo, we wish everyone a safe, healthy, and prosperous 2024.

See you in person at the Indiana Green Expo 2025!!!!

Membership Spotlight – Sustaining Member Upgrade

(Ashley Ryan Breed, ashbreed@purdue.edu)

In 2024, the return of our Sustaining Membership option is going very well. We have seen MANY individuals and companies opting to upgrade their membership to provide additional support to the MRTF's project initiatives and student scholarships. If you have not heard about this upgrade, simply click the link above for all the details.

MEMBER BENEFIT	2022 MEMBERS	2024 REGULAR MEMBERS	2024 SUSTAINING MEMBERS*
Stay engaged with the latest information on turf management	*	~	~
Increased profit as you learn from the industry experts the MRTF supports	v	~	~
Take advantage of Continuing Credit Hours (CCHs) at our education events	√	~	~
Reduced registration fees for MRTF education events	v	~	~
Recognition as a member on our website; brings enhanced business activity	√	~	~
Foster new relationships and increase your network at our events	v	~	~
Access to a new member-only collection of training videos (approx. 116 videos)		~	~
Access to a new MRTF member newsletter		~	~
Access to MRTF-member logo for your company website and business card		~	~
Funding of Daniel Turf Center capital project improvements			~
Funding of a new sustaining member student scholarship			~
Recognition of your support as a sustaining member			~

This upgrade can be added to a current membership, or to a new membership. If you have not registered to be a 2024 MRTF and receive the annual benefits listed above, please do so by visiting www.mrtf.orf/members/membership. There is a whole page during registration dedicated to becoming a sustaining member.

We would like to thank all of our 2024 Sustaining Members (so far):

Aquatrols Corporation of America Automatic Supply BASE Brickyard Crossing **Butler University** Calvin Landscape Christmas Lake Golf Club Classy Grass Services Commercial Grounds Maintenance Country Club of Terre Haute Cragen Lawn Care Crown Lawn Service Custom Cuts Lawn Care David George (Retired) Earlywine Pest Control Eden's Gate Lawncare LLC Elcona Country Club Evansville Country Club Forever Green Lawn Care Fort Wayne Country Club Grassmasters Sod Farms Green Touch Services Hamlet Golf Course Haulin Property Solutions LLC Hawthorns Golf and Country Club Helms Lawn Specialists, Inc. . Hillcrest Country Club Hubinger Landscaping Corp Idle Creek Golf Course, Inc. J&D Turf Knox Fertilizer

Universitv

Langdon Bros Seed Lawn Doctor of Hamilton County Lawn Masters featuring Mole Patrol Lush Lawns LLC Mark M. Holeman Inc. Morris Park Country Club Naturalscape Services Inc NatureScape Services LLC North Shore Country Club Old Oakland Golf Club Pebble Brook Golf Club Pine Valley Country Club Professional Golf Car R&R Topsoil RLM Inc. Ricci's Landscape Management Rolling Hills Country Club Rose-Hulman Institute of Technology RT Yard Care Southern Dunes Golf Course The Bridgewater Club The CISCO Companies The Club at Holliday Farms The Fort Golf Resort Total Lawn Care, Inc Tuscan Valley Landscaping, Ltd. Vibrant Outdoors Youche Country Club

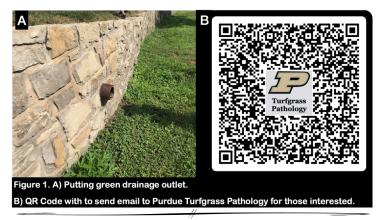
Research Spotlight – Pathogen Monitoring of Drainage Water from Golf Course Greens (Spring 2024)

By Mariah Cashbaugh, Ph.D. student and Dr. Lee Miller - Purdue

Turfgrass pathogens diminish the quality, aesthetics, and utility of turfgrasses. In golf courses, putting greens require careful management to maintain the pristine playing conditions demanded by players. This often involves multiple fungicide applications throughout the season to keep common pathogens under control. Pathogen monitoring to time these applications using traditional methods require destructive plant and soil sampling.

Many pathogens including dollar spot, brown patch, and pythium have unique requirements and seasonality caused by fluctuations in the soil temperature, moisture, and nutrient content. Predictive models utilizing air temperature and rainfall can help golf course managers predict when outbreaks might occur, but they cannot consider all of the site specifics. A more efficient method of pathogen detection, diagnosis, and monitoring may utilize the putting green drainage system. USGA drainage systems layer a 30 cm sand base on 10 cm of pea gravel to create a perched water table that flushes percolated water into a 10 cm drainage pipe below. Little is known about the microbiome of drainage water in these systems, nor the rate of water flow through these perched water tables throughout the season.

This field season, we will be collecting flow rate data and developing a collection vessel that can be attached to a drainage outlet. Our goal is to assess if pathogen inoculum is transmitted through percolated ground water and can be detected using modern molecular techniques. If successful, a more a comprehensive look at both the spatial and temporal dynamics of pathogen inoculum and microbial diversity may be gained. This information may translate into more effective timing of preventive treatments and reduction in overall fungicide use. If you are interested in getting your course involved in this pioneering study, please scan the QR code below to contact us at turfpath@purdue.edu.



Research Spotlight – What Do 20 Years of White Grub Efficacy Data Say About Application Timing? (Spring 2024)

(Doug Richmond)

It's hard to believe I've been running white grub efficacy trials for this long, but since I've started wrangling the data generated from these efforts, some interesting patterns have begun to emerge.

I'd like to share these data as I'm able to get them summarized and chopped into bite-sized chunks, and this article marks the beginning of those efforts.

Insecticide programming is a combination of logistics and the application of scientific information. Everyone has their favorite products and approaches, but operational constraints often dictate how much flexibility professionals have in developing their programs. Over the last few decades, the preponderance of long residual, systemic insecticides have provided even greater opportunities for turfgrass professionals to manage white grubs effectively. Not only are these products excellent insecticides, but the extended application windows provided by their residual activity allow for applications to be made over a longer period of time while maintaining very high efficacy against grubs. The end result has been a dramatic shift toward preventive grub control.

This shift away from IPM is understandable given the environmental characteristics of modern grub insecticides and the increasing pace at which we go about our daily business. But, it's worth mentioning that some of our most effective grub insecticides do not require a preventive approach. I don't expect everyone to scout for grub infestations, and make application decisions based on what they find. However, wouldn't it be nice to know, with confidence, the potential trade-offs between efficacy and application strategy?

I've taken a subset of the data we've generated over the last 20 years to examine how application timing (think strategy) influences the efficacy of the two most widely used grub insecticides; imidacloprid and chlorantraniliprole (Figure 1). For our analysis, we considered applications made during May and June as preventive applications ³/₄ well in advance of the time white grubs are hatching from the eggs. Applications made during July and August were considered early curative applications and were typically made after egg hatch, but prior to the appearance of late instar larvae in the soil. Lastly, applications made during September and October were considered late curative applications and were directed toward late instar larvae.

When controlling for variation in application rate, imidacloprid, and chlorantraniliprole performed equally well when used in a preventive or early curative strategy, and there was no relationship between efficacy and application date during these two application windows. The average percent control was above 90% in both cases. Not surprisingly, we did see some decrease in efficacy for both active ingredients when used in a late curative strategy, with % control decreasing gradually the later these applications were made during the late curative window. What is most surprising is the relatively good performance of chlorantraniliprole when used in this fashion; with an average percent control registering at 85%. Even imidacloprid, registering 75% control during the late curative window, performed well against late instar grubs.

Remember, these data were not collected from just one efficacy trial, but from many replicated trials conducted over the last 20 years (N= the number of trials for each treatment). The bottom line is that while preventive applications tend to perform very well, the performance of early curative applications was indistinguishable. This means the time frame for good grub control effectively runs from May to September when either of these two materials are used, and that good control can be achieved much later than we often think. Something to keep in mind as you plan for the coming season.

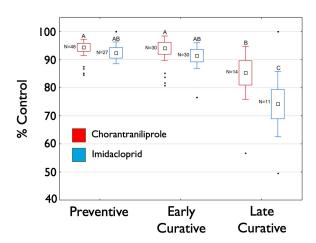


Figure 1. Influence of application timing on the efficacy of chlorantraniliprole and imdacloprid against white grubs in turfgrass. Preventive = May-June, Early Curative = July-August, Late Curative = September-October. N = the number of replicated field trials including each treatment (material x application timing).

Research Spotlight: Divot Pattern Study (Spring 2024)

(Aaron J Patton, ajpatton@purdue.edu)

Does the Right Divot Pattern Actually Improve Recovery?

Aaron Patton and Naba Amgain

Golfers warm-up and practice on driving range tees by hitting various clubs causing severe damage through the creation of multiple divots. Golf course superintendents shift hitting positions on the range tee to provide a fresh surface for the golfers while simultaneously allowing the recovery of the damaged portion of the tee. Divots can be of different shapes and sizes depending on the club used and the divot pattern used by the golfer. Golf courses commonly post signage related to the preferred divot pattern (Figure 1, Table 1). The linear divot pattern is preferred and recommended by the USGA because it "removes the least amount of turf" and "promotes quick recovery." However, neither a removal of less turf or a faster recovery has been documented beyond anecdotal accounts. Faster divot recovery is very important for golf courses to use driving range tee space efficiently. To help study this more thoroughly, the USGA funded a study in the summer of 2023 at Purdue University. Our objective was to quantify the impact of three common divot patterns on available tee space, divot mix needs, and divot recovery.

Divot pattern	Description
scattered	A scattered divot pattern removes the most amount of turf because a full divot is removed with every swing. Scattering divots results in the most turf loss and uses up the largest area of a tee stall. This forces the golf facility to rotate tee stalls most frequently and often results in an inefficient use of the tee.
concentrated	A concentrated divot pattern removes all turf in a given area. While this approach does not necessarily result in a full-sized divot removed with every swing, by creating a large void in the turf canopy there is little opportunity for timely turf recovery.
linear	The linear divot pattern involves placing each shot directly behind the previous divot. In so doing, a linear pattern is created and only a small amount of turf is removed with each swing. This can usually be done for 15 to 20 shots before moving sideways to create a new line of divots. So long as a minimum of 4 inches of live turf is preserved between strips of divots, the turf will recover quickly. Because this divot pattern removes the least amount of turf and promotes quick recovery, it is the preferred method.

We conducted an experiment at the W.H. Daniel Turfgrass Research and Diagnostic Center in West Lafayette, IN on a 'Penncross' creeping bentgrass fairway mown at 0.5". The site was established in 2012 and received 2 lbs N/1000 sq. ft (applied over three applications annually). The site was also treated with fungicide to ensure 100% green turf to quantify divot injury and recovery using digital image analysis.

Three divot patterns were created by four single digit handicap golfers. Each golfer struck 10 full shots with a sand wedge (54-56 degrees). The treatments were arranged in randomized complete block design with three replications of each divot pattern. In total, there were 39 plots [3 blocks × (4 golfers x 3 divot patterns, plus a nontreated plot)] (Figure 2). Each plot was randomly assigned a golfer and pattern. Golfers were instructed to hit 10 shots from each plot per the prescribed pattern. Each golfer hit 90 total sand wedges (3 reps, 3 patterns, 10 golf balls for each plot) on August 2, 2023 to initiate the experiment.



Divots were filled with sand, and the volume of sand required to fill the divots was recorded. The total area of divots was quantified with digital image analysis and digital images of each plot were collected twice per week to quantify recovery.

The total teeing area made unavailable for other golfers was determined for each divot pattern. This was done by using a rectangle frame around each area of divots, allowing for a 2" border of green grass. The "area made unavailable" was used as a proxy to determine how much tee space would be occupied or created by each pattern.



Figure 2. A photo of one of the golfers in the study during treatment initiation.

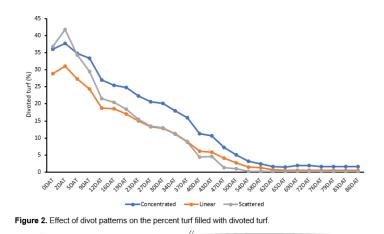
Initial results: The results showed that a linear divot pattern had the lowest percentage of divoted turf, whereas a scattered pattern had the highest. The scattered divot pattern resulted in less teeing area being available compared to linear and concentrated divot patterns (Table 2). The amount of sand required to fill divots was not significantly different, but the concentrated divot patterns had numerically higher sand requirements compared to scattered and linear divot patterns.

Table 2. Effect of divot patterns on percentage of divoted turf, area impacted, and divot mixes.				
Divot Pattern	% Divoted turf	Area impacted (cm ²)	Divot mix needed (cm ³)	
Concentrated	36 ab	19.9 b	723.3 a	
Linear	29 b	22.9 b	608.3 a	
Scattered	37 a	30.5 a	625.5 a	

<u>Recovery</u>: In the beginning, scattered divot patterns had a higher area of divoted turf (Figure 2), but this type of divot recovered the fastest (Figure 3). By 54 days after we started the experiment, divots in scattered plots recovered fully, linear divots were recovered 95%, and concentrated divots were recovered 92%.

The recovery rate of individual plots was higher for scattered divot patterns followed by linear and concentrated patterns (data not shown). Scattered divots recovered 50% in 19 days, linear divots recovered 50% in 27 days, 8 days after scattered divots. Concentrated divots recovered 50% in 34 days, which is 15 days later than scattered divots and 7 days slower than the linear divot pattern.

It is evident that the golfers divot pattern impacts the available tee space, divoted turf percent and divot recovery. Although the scattered pattern had a higher area of impact and a higher percentage of divoted turf, this divot type was fastest to recover. This pattern would work well when sufficient driving range tee space is available. Concentrated divots had a lower area of impact and percentage of divoted turf, but required the most time to recover. This type of divot should be avoided. The linear divot pattern appears to be the best divot pattern option as it had a lower area of impact and divoted turf than scattered pattern and a higher recovery rate than concentrated pattern. This pattern would work best when driving range tee space is limited which is likely the case for most golf courses. preliminary results and learn more about divot recovery. The USGA is also interested in doing this research on bermudagrass tees.



Retiring and Vacancies Leave Space for Many New Board Members

(Ashley Ryan Breed, ashbreed@purdue.edu)

In 2024, the MRTF will say goodbye (hopefully not forever) to Jim Held and Bryce Poynter, as they retire from the Board of Directors. Both have contributed at a high level to the board throughout the years and we thank them both for their service. Jim Held plans to continue his work with the board, from the outside, as the chair of our Governance Committee. Thank you, Jim!

In January, Blain Poole became our new President, Devin Moyers is our President-Elect, and Michelle Hancock is our Vice President. We also welcomed 7 new members to the board! Their names and positions are below. For a full view of our current board, please visit https://www.mrtf.org/board-of-directors/.

PLEASE WELCOME:

- Dave Koone (Landscape/Lawncare) with Lawn Doctor of Hamilton County
- $\circ~$ Tracy Tudor (Michiana GCSA) with Syngenta
- $\circ~$ Phil Fischer (At-Large) with Brickyard Crossing Golf Course
- Ryan Baldwin (Affiliate) with Advanced Turf Solutions
- Jared Brewster (Tri-State GCSA) with Rolling Hills Country Club
- Ryder Haulk (Board Appointee) with Holliday Farms Golf Club
- Jordan Mansfield (Board Appointee) with Advanced Turf Solutions

Thank you to all who have chosen to serve and support turf research and education at Purdue University for the advancement of the turfgrass industry. We all appreciate you!

Professor Spotlight: Doug Richmond

We plan on repeating this experiment in 2024 to confirm our

Doug Richmond

Professor and Extension Specialist Entomology Department

My applied research and extension program serves Indiana's professional turfgrass industry. This industry encompasses a large and diverse clientele group that includes golf courses, lawn & landscape businesses, sod producers, parks, athletic fields, product manufacturers, and distributors. I try to use my extension appointment as a listening tool to develop applied research projects that benefit the turfgrass industry. So, I think of my extension program as a conduit for translating findings of my applied research program into practical solutions that support insect management decisions while helping practitioners minimize the economic and ecological footprint of managed turfgrass. With this in mind, the turfgrass entomology extension program is designed to engage stakeholders and meet their needs through a variety of programming.



More than 500 turfgrass professionals attend the Purdue Turf and Landscape field day each year where I get to share information about turfgrass insects. Photo credit Doug Richmond.

The most visible programs I participate in annually are the Indiana Green Expo, Purdue Turf & Landscape Field Day, and Purdue Turf & Landscape Seminar, but I also enjoy delivering content at other venues across the state, region and internationally. I use these venues to help stakeholders understand basic aspects of insect biology and how they can leverage that understanding to develop safe, effective, economically and environmentally sustainable Integrated Pest Management programs. Not surprisingly, the impacts of climate change on insect pest populations and the durability of traditional management approaches are at the forefront of turf managers minds, and I've developed a repertoire of in-person extension programming to help frame and address their concerns. In addition to live and virtual educational events, all of this information is accessible through a series of websites and bulletins, online training and certification opportunities, a mobile app, and timely social media releases.



Signage installed on the Kampen-Cosler golf course at Purdue notifying golfers about the prairie renovation project. Photo credit Doug Richmond.

Most recently, may lab has undertaken a project to address growing interest in the establishment of pollinator conservation areas on golf courses. We've partnered with the United States Golf Association, U.S. Fish and Wildlife Service, Birck Boilermaker Golf Complex, National Wild Turkey Federation, Pheasants Forever, Stantec Native Plant Nursery, and Martin Seed Company to develop a road map to help guide installation efforts and delineate expectated outcomes for golf course staff interested in undertaking such conservation efforts. With the help of some very experienced people, we've renovated 6.5 acres of the Kampen-Cosler course with the long-term goal of understanding the economic, aesthetic and ecological outcomes stemming from the establishment of native, prairie vegetation. But, in this initial phase, the Kampen Prairie project aims to characterize the effects of seeding time and seeding method on resulting plant and pollinator communities.

As a faculty member, I also use my extension appointment as an avenue for training graduate students to become the next generation of academic extension specialists. I do this by challenging them to participate in extension programs by contributing presentations and posters, and by preparing extension materials. Because of the strong support structure and emphasis on integration among mission areas within the College of Agriculture, I've also been able to leverage applied research and extension projects into undergraduate instructional opportunities for students enrolled in ENTM 40100 and for Capstone students working in my lab. It's particularly rewarding to be able to serve all three of the land grant missions in this way – with Extension as the centerpiece.

2024 Calendar of Events

(Ashley Ryan Breed, ashbreed@purdue.edu)

January 17-19, 2024

Indiana Green Expo; Indiana Convention Center, Indianapolis, IN

Spring, TBA Day of service

Herbicide Workshop (Virtual Class)		
December 3, 2024 Herbicide Workshop; Holiday Inn Purdue, Fort Wayne, IN		
December 5, 2024 Herbicide Workshop; The Fort Golf Resort, Indianapolis, IN		
December 12, 2024 (tentative date) Herbicide Workshop; Louisville, KY		
February 10-12, 2025		
Indiana Green Expo, Indianapolis Convention Center, Indianapolis, IN		
To get updates on events, please follow us on Facebook and regularly visit our website: www.mrtf.org .		

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