Midwest Regional Turf Foundation

# Midwest Memo

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## Steve Mueller Honored as the MRTF's 2023 Distinguished Service Award Winner

*(Aaron J Patton, ajpatton@purdue.edu)*

**Steve Mueller Honored as 2023 Distinguished Service Award Winner**

Steve Mueller, Director of Agronomy and Facilities of Pine Valley Country Club (Fort Wayne, IN) is the 2023 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. Steve served for many years on the Hoosier Golf Course Superintendents Association, including three separate terms as Hoosier GCSA President (1996, 2008, 2013). Steve also served on the MRTF Board of Directors from 2001 to 2005. He and Pine Valley CC have been willing hosts of Research and Scholarship Fundraising (Hoosier GCSA) and MRTF Golf Day on numerous occasions over the years in addition to hosting many meetings of the Hoosier GCSA. Steve has mentored many Assistant Superintendents, spoken at the Indiana Green Expo multiple times, and has personally contributed to numerous Purdue University Turf Endowments to help grow the program. Possibly his greatest Legacy to the turf industry is the mentoring of his son, T.J., who is a 2012 Purdue University turf graduate and current Pine Valley CC Golf Course Superintendent. Please join us in celebrating Steve's service at the MRTF Distinguished Service Award Reception at the Indiana Green Expo on January 31 from 5:00 – 7:00 pm in rooms 132-133 of the Indiana Convention Center.

## Research Spotlight – Sod Production Update (Winter 2022)

*(Aaron J Patton, ajpatton@purdue.edu)* & *(Ross Braun)*

**Sod Research at Purdue (2019-2022 summary)**

Aaron Patton and Ross Braun

Sod is an important specialty crop in the northern U.S., representing over $549 million in combined sales from the Northeast, Midwest, Plains, and Northwest regions of the US, and this value is expected to increase. Sod is important for new construction to prevent soil erosion and increase ecosystem services from turfgrass in urban and suburban areas. Recent genetic improvements in low-input turfgrass species now provide sod farms new options besides Kentucky bluegrass when selecting what to plant. Since the selection of turfgrasses (either low or high-input) by sod farms ultimately impacts the level of

input required by those receiving sod installations (homeowners), decisions made by sod farmers and landscape contractors can have a tremendous impact on the environment and efforts to manage turf sustainably.

Since 2018, Purdue University and the University of Minnesota have been investigating sod production in research funded by the USDA. We wanted to learn more about producing both tall fescue as well as fine fescue sod. Strong creeping red fescue (*Festuca rubra* ssp. *rubra*), because of its rhizome system, performed well in our study. Results from this sod research also shows us that there is much variability in horizontal spread between genotypes of strong creeping red fescue. This indicates there may be potential differences among cultivars within a fine fescue species or subspecies which we are studying in 2022-2023.

Additionally, preliminary results from a The Lawn Institute-funded experiment in 2020 at Purdue University is showing that strong creeping red fescue is producing the highest strong strength, slender creeping red fescue (*F. rubra* ssp. *littoralis*) is the next highest, and then Chewings fescue and hard fescue (*Festuca brevipila*) is the lowest sod strength among fine fescues. Preliminary results from this experiment is also demonstrating that plant genetics and not nitrogen fertilization has the greatest impact on sod strength.

Our team continues to research how to produce the best turfgrass sod possible in the Midwest. Here is a list of **some key takeaways from our research projects:**

1. Increasing seeding rate or N fertilizer rates provides negligible benefits in producing sod.
2. Higher annual N fertilizer rates are likely required for Kentucky bluegrass sod to promote faster establishment (i.e., shorter sod production period) and increase sod strength.
3. Strong creeping red fescue consistently provided highest sod strength and handling.
4. Chewings fescue provided less sod strength than strong creeping red fescue at both sites, but, at times, similar as Kentucky bluegrass, especially in Minnesota likely because of the cooler climate.
5. Tall fescue sod with no netting consistently provided poor sod strength and handling, therefore, plastic netting is strongly recommended for tall fescue sod.
6. Strong creeping red fescue, Chewings fescue, and tall fescue were able to establish to 100% turf cover faster, therefore, may have shorter sod production time periods compared to Kentucky bluegrass, which has slower establishment and may require an additional 2 to 4 months.
7. Seeding rate had no effect on growth rate or transplant success of sod.
8. Reduced growth rates were measured in fine fescues, especially Chewings fescue, thus lower mowing requirements (i.e., less annual mowing events)
9. After 24 or 72-h storage, all species provided successful sod transplant.
10. Annual mowing events below is based on fully-established turfgrass during growing season; however, during first year of establishment, fine fescues may need to mowed 1 to 2 times during fall (i.e., first 3 months of establishment), tall fescue would need to be mowed 2 to 3 times during fall (i.e., first 3 months of establishment), and Kentucky bluegrass may 0 to 1 mowing event during fall establishment period due to slower establishment.
11. Most seed mixtures evaluated in our studies produced high quality sod similar to the standard comparison of 100% Kentucky bluegrass sod.
12. Sod mixtures containing fine fescues generally produced greater sod strength and handling if the mixture contained at least 33% strong creeping red fescue due to its rhizomatous growth habit. This includes strong creeping red fescue mixed with Kentucky bluegrass or other fine fescue species.
13. Sod mixtures containing tall fescue, including “rhizomatous tall fescue” consistently resulted in the weakest sod strength across sod harvest timings.

Our work shows that Kentucky bluegrass is and continues to be the dominant cool-season turfgrass species choice for northern United States sod farms because it produces high-quality turf, producers are more acquainted with its production cycle. Sod farms in central and northern Indiana may be hesitant to try a different turfgrass species, such as strong creeping red fescue but our research shows it is a viable option.

Our future sod research in the coming years will focus on which fine fescue cultivars make the best sod. Also, we will be evaluating new, cold-hardy zoysiagrass cultivars for their sod strength. If you have any questions about this work, don’t hesitate to contact me at ajpatton@purdue.edu.

Table 1. Recommendations estimations for sod production in Indiana

| Turfgrass species | Recommended nitrogen fertilizer rates[a] | Recommended seeding rates | Estimated annual mowing events[a] | Estimated sod production time for Indiana (months required until first harvest)[b] | Other notes |
|---|---|---|---|---|---|
| Strong creeping red fescue | 87 lb N/acre/yr | 131 lb/acre | 15 | 9 to 11 mo | Rhizomatous growth habit, no plastic netting required |
| Chewings fescue | 87 lb N/acre/yr | 100 lb/acre | 12 | 11 to 12 mo | Non-rhizomatous growth habit, plastic netting may help |
| Tall fescue | 87 to 131 lb N/acre/yr[c] | 252 lb/acre | 20 | 11 to 12 mo | Non-rhizomatous growth habit, plastic netting required |
| Kentucky bluegrass | 175 to 262 lb N/acre/yr | 35 to 70 lb/acre | 20[d] | 12 to 14 mo[e] | Rhizomatous growth habit, no plastic netting required |

[a] Estimated # of mowing events per year when maintained at recommended fertilizer rate during a full growing season. For northern climates (e.g., Minnesota), there is likely an average of 5 less annual mowing events compared to Indiana due to shorter growing season.
[b] For more northern climates (e.g. Minnesota), 1 to 2 additional months may be required.
[c] Tall fescue may potentially need more N fertilizer (up to 175 lb N/acre/yr ).
[d] Growth rate may vary by cultivar.
[e] 14 to 20 months until harvest in northern climates (e.g., Minnesota).

Figure 1. Sod being cut and removed from a plot (foreground) to be tested on the sod tensile strength device (background) constructed to determine the required work (force over distance) and peak force required to tear a piece of sod in Indiana on May 13, 2020.

Figure 2. Sod being cut and removed from a plot to be tested for shelf-life duration and harvest limitations in Indiana on May 23, 2020.

Figure 3. Sod cut and removed from plots (left) to be tested on the sod tensile strength device constructed to determine the required work (force over distance) and peak force required to tear a piece of sod in Indiana on June 2, 2020. Strong creeping red fescue (middle) and slender creeping red fescue (right) held together very well and had the highest sod strength values.

# New Membership Levels

*(Ashley Ryan Breed, ashbreed@purdue.edu)*

In 2023, the MRTF decided to expand the options for membership. Please see the table below for details on the current levels being offered. For more information on membership, the new 'sustaining member' add-on, or to become/renew a membership, please CLICK HERE.

| Member Type/Level | Description | Regular Member | Sustaining Member* |
|---|---|---|---|
| Student** | Any individual attending school on a full-time basis studying turf science or a related discipline will be able to access the yearly membership. | Complimentary | $50 |
| Retiree** | Retired individuals no longer seeking employment within the turf industry, and who have been a member of the MRTF for at least five (5) years. | Complimentary | $200 |
| Individual | Any individual with interests in turfgrass and not represented in the business category. Only the individual will be eligible to receive the member rate at all MRTF functions. | $85 | $285 |
| Business Bronze | Business members and up to 4 employees receive the member registration rate at all MRTF events for the calendar year. Geared towards small businesses with a small turf division. | $185 | $385 |
| Business Silver | Business members and up to 9 employees receive the member registration rate at all MRTF events in the calendar year. Geared towards medium-sized businesses with a larger crew. | $255 | $455 |
| Business Gold | Business members and 10+ employees receive the member registration rate at all MRTF events for the calendar year. For large businesses needing to train a crew of 10 or more annually. | $325 | $525 |

** Non-voting member of the MRTF and not eligible to hold elected office.

# Campus Update – Riordan Chair

*(Ashley Ryan Breed, ashbreed@purdue.edu)*

Darrell Pehr of Golf Course Management magazine was at our field day in July and wrote a really nice article about our program in this national magazine. The article was published in September 2022 and you can read it below. The article is very complimentary of our program and a testament to the hard work and contributions of the entire Purdue Turf Program team.

*Research plots dotted the landscape at Purdue University's Turf & Landscape Field Day during the annual event July 26.* ***Photos by Darrell J. Pehr***

*Terry Riordan, Ph.D., was among the dignitaries on hand. Riordan, a three-time Purdue graduate, funded an endowed chair in turfgrass science, a first for the program.*

Whether you are within driving distance or must take a plane or even travel by train to Lafayette, Ind., you must add the annual Turf & Landscape Field Day at Purdue University to your calendar. It's that good.

Although traveling by train seemed like the natural thing to do when visiting a university with a locomotive as its mascot, I took a plane, and it seemed like before you could say, "Agrostis stolonifera," I had landed and was making my way out of Chicago traffic, heading southeast across increasingly agricultural surroundings to the land of the Boilermakers.

The July 26 field day, presented by the Midwest Regional Turf Foundation, launched early the next day on the grass-covered, 21-acre William H. Daniel Turfgrass Research and Diagnostic Center, where a trade show was already underway.

In the distance were numbered white flags, each designating the site of a tour talk. Near the trade show was a tent big enough for the nearly 500 turf enthusiasts who gathered for welcoming and housekeeping announcements.

In traditional field day fashion, faculty members doubled as hosts, with Aaron Patton, Ph.D., serving as emcee. Two big announcements were made, each illustrating the level of support and momentum in the turf and landscape program at Purdue. Terry Riordan, Ph.D., emeritus professor at the University of Nebraska-Lincoln and a three-time graduate of Purdue, already had made a generous donation in 2021 of an endowed scholarship for Purdue turf science students. At the field day, his donation of an endowed chair in turfgrass science was announced, the first for the Purdue program.

Plans for construction of a new operation and maintenance building at the center also were outlined. The project would include renovation of the west half of the existing building, adding a second classroom and additional researcher workspaces. Cost of the project is set at $1.9 million, with some funds already pledged. Next up was the extensive program of research projects, which were presented to us through the morning as we walked from talk to talk, listening to short summaries of the research being conducted at the center.

As science editor for GCM magazine, one of my goals is to find the latest research related to turfgrass and present what I find to our readers, so the field day was like finding a pot of Purdue Old Gold at the end of a rainbow! I could hardly keep up and had to recharge my turfgrass-photo-stuffed iPhone during the lunch break.

Talks covered nematodes, billbugs, annual bluegrass, sedge species and more. The topics were right on target for the legions of golf superintendents, landscape professionals and turf managers who stayed until the end.

The next day, I was fortunate to meet with faculty members Cale Bigelow, Ph.D., and Lee Miller, Ph.D., for a follow-up discussion. We focused on how the Purdue program continues to prosper and maintain a place among the premier turf programs in the country.

"There's a legacy here, from Dr. Bill Daniel you've got one of the founding fathers of turfgrass research in the Midwest," says Miller, pointing out that Riordan studied under Daniel, the center's namesake, and helped continue that legacy with his gift of the endowed chair. Having the legacy as well as support from industry helps administrators see the value of the program. Bigelow noted the importance of having a series of deans who appreciate the value the turfgrass program adds, as well as a history of productive and visible faculty. Four of the five faculty have Extension appointments, which helps ensure visibility and a connection to the broader community.

That connection to the community was evident in the healthy attendance during the field day, with many repeat participants. I

appreciated the chance to join in and the time faculty members spent with me. Unfortunately, I didn't have a chance to learn much about the university itself or the connection between the Purdue Boilermakers and railroads, but I do know that the turfgrass program at Purdue seems undoubtedly to be on the right track.

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*Darrell J. Pehr is* GCM's *science editor.*

## Calendar of Events

*(Ashley Ryan Breed, ashbreed@purdue.edu)*

**January 30 – February 1, 2023**
Indiana Green Expo; Indiana Convention Center, Indianapolis, IN

**Spring, TBA**
Day of service

**July 18, 2023**
Turf & Landscape Field Day; Daniel Turf Center, West Lafayette, IN

**August 1, 2023**
Lawncare Diagnostic Training; Daniel Turf Center, West Lafayette, IN

**October 2, 2023**
MRTF Golf Day –Fundraiser; Pine Valley Country Club, Fort Wayne, IN

**November 16-17, 2023**
Turf & Landscape Seminar; Daniel Turf Center, West Lafayette, IN

**Early December 2023** – Exact dates to be announced
Herbicide Workshop (in-person)
Herbicide Workshop (online)

**January 17-19, 2024**
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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