



Stay Safe

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SPRING 2020

Course Maintenance Considerations During COVID19

By Doug Soldat, PhD, Soils Department, University of Wisconsin-Madison and Paul Koch, PhD, Plant Pathology, University of Wisconsin-Madison

The COVID19 crisis has forced us to think about our turf management in a new light. If there are no golfers, how much nitrogen should I apply? If our crew size is limited, which management practices do we prioritize? Mowing eats up a lot of labor, how can we do that most efficiently? Do we need to control diseases on fairways? The questions go on and on. Below are some of our suggestions for dealing with this unusual situation.

Mow according to the one-third rule, not according to the calendar.

While this is one of the oldest rules of thumb in the book, recent research at University of Nebraska, University of Wisconsin, and Purdue University have confirmed that it holds true. When you mow more than one-third of the leaf blade off, the grass increases its growth rate. This is a hormone-induced stress response. When one-third or less of the leaf is mown, clipping yield is minimized. So instead of mowing fairways on Monday, Wednesday, and Friday, get out a Prism Gauge and mow your turf when it is 33% (that would be 0.180" for a green at 0.120", 0.75" for a fairway at 0.50", 4.5" for rough at 3"). Stripes don't matter anymore, the growth rate does.

Increase the mowing height of your turf.

The overall length of your turf affects its growth rate. At UW-Madison, we measured the growth rate of bent/poa at putting green height vs. collar height. Surprisingly, we found the greens height grass grew 40% faster than the collar height. Because the leaf is a solar panel that feeds the rest of the plant, when the leaf area is small

(low mowing height), the plant elicits a hormonal response to increase leaf area. We don't recommend drastically changing mowing heights because of potential trouble in bringing them back down when normalcy returns but increasing your mowing heights by 15 or 20% will slow the growth rate appreciably, and also result in deeper rooting and all the benefits that come with that.

Apply plant growth regulators.

Not only will PGRs reduce the growth rate of your grass to minimize mowing, they also afford some protection in the (unlikely) event that maintenance would be severely restricted or even banned. In a no-traffic or limited traffic situation, minimizing growth is less risky. In addition, certain PGRs like paclobutrazol have strong fungicidal properties and will also suppress dollar spot. In a reduced labor situation, the value of PGRs will become evident. If you are mowing based on the one-third rule, you'll be able to see how much these tools can reduce your mowing requirements. I bet it will change the way you operate when things return to normal. Use the GreenKeeper Application which factors in your weather, grass species, and mowing height to give you the best, research-based re-application interval.

Eliminate or minimize nitrogen applications.

Your soil will provide enough nitrogen to keep the plant alive under no traffic. In our studies over the years, about half of the N in the turf comes from the soil, and the other half from fertilizer. Applying nitrogen will increase your growth rate, increase organic matter production, and is probably not required to maintain density and repair from the usual

wear and tear that golfers induce. Sure, the turf will look a little more yellow than normal, but it'll come right back with a little soluble N when you need it to.

Measure and record clipping volume.

If there is any silver lining to this crisis, it may be that superintendents will be a lot more invested in accurate estimates of turfgrass growth. In the last few years, progressive superintendents have been using clipping volume as a management decision tool. The adoption of clipping volume has so much in common with the adoption of soil moisture meters in the mid-2000s. We are still waiting to meet a golf course manager that started collecting clippings and then stopped because they felt it wasn't worth the effort. The only difference between measuring clipping volume and measuring soil moisture is that measuring clipping volume is faster and less expensive than measuring soil moisture.

The first step is to find some graduated buckets. Then, dump your putting green clippings into the bucket. Tap the bucket on the ground twice firmly to settle the clippings and record the number of liters of clippings from each green. Enter the area of your putting greens and the volume of clippings from each green in a spreadsheet (download ours at: turf.wisc.edu/tools) and you will quickly learn how your management influences your growth rate. In a typical scenario, 1 L of clippings per 100 m² (same a 1 quart per 1000 ft²) would be tournament conditions, and 2 L/100m² would be a good sustainable amount for daily play. In a no-traffic situation, 1 L/100m² might be

Continued on page 3

PRESIDENT'S MESSAGE

What Was Happening In 1981

By Brad T. DeBels, PhD, Weed Man Lawn Care



Ronald Reagan is sworn in as president, the Oakland Raiders win the Super Bowl, Mario is debuted, and the Wisconsin Turfgrass Association (WTA) is founded by nine turfgrass professionals. I was, well, even my older brother wasn't considered a good idea yet. Since that time the WTA has built buildings, funded professorships, provided more than \$40,000 in student scholarships, and educated thousands of green industry members. It doesn't take long to realize the rich history of the WTA far exceeds anything I have been able to accomplish at this point in my career. Making it all that more important to thank the organizations recent past presidents Rich Riggs '04 – '07, Dan Biddick '08 – '12 and most recently, Paul Huggett. With the utmost sincerity, I, as well as the rest of the green industry, say thank you Paul for the last 7 years of leadership as the WTA president and your continued support on the board.

I have been part of the green industry for the past 22 years in some capacity, variously split between golf course maintenance, academia and currently lawn care. I'm excited to continue working with all the

dedicated professionals on the board as we embark on a new chapter. I also welcome new board members Mike Bremmer and Dan Harrier, thank you for your commitment.

It is an interesting time for the WTA as the membership has slowly fallen over the last five years. A growing membership is by far my biggest initiative with the board as we move into 2020. We are exploring all avenues from marketing, industry partnerships, educational events and dissemination of information. We also ask that each of you spread the word, sign up members and engage in all of the WTA events. If you have any ideas for, or desires from the organization please let us know. Keep an eye on your inbox, as we hope to survey our current membership this year. As always, we remain dedicated to furthering education and research in the state of Wisconsin.

The green industry contains some of the most dedicated and resilient individuals I have ever met. In one of the most challenging times many of us have faced in our lives, I am encouraged by our ability to choose our own future and how we want to respond as individuals and as an industry. For the WTA, we are choosing to strengthen our membership and support of the Wisconsin green industry.

Cheers ■

John "JT" Turner

Territory Manager,
Aquatrols

☎ 1-630-215-6110
☎ 1-630-443-7807
✉ jturner@aquatrols.com

📍 40W665 Campton Woods Drive
Elburn, IL 60119



Danny Quast
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Mike Upthegrove
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Joe Jehnsen
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Weed Man
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Middleton WI 53562
608-824-0043
brad.debels@weedmanusa.com

Vice-President
Neil Radatz '21
Hawks Landing Golf Course
1602 Waterbend Dr
Verona WI 53593
608-957-6763
nsuperhawks@gmail.com

Secretary
Grayson Harms '22
Reliable Property Services
5440 Willow Rd # 122
Wauwaukee WI 53597
608-709-5546
graysonh@rpswi.com

Treasurer
Mark Kienert '22
Retired
521 19th Street S
Wisconsin Rapids WI 54494
715-697-8067
tomanpak@wctc.net

2020 DIRECTORS

Mike Bremmer '23
J W Turf
717 Main St
Allenton WI 53002
414-234-3317
mikebremmer@icloud.com

Dan Harrier '23
SiteOne Landscape Supply
8520 Fairway Pl
Middleton WI 53562
608-259-6265
dharrier@siteone.com

Paul Huggett '21
Paul's Turf & Tree Nursery
5146 Ridge Rd
Marshall WI 53559
608-698-3640
paul.paulsturfandtree@gmail.com

Josh LePine '22
Maple Bluff Country Club
500 Kensington Dr
Madison WI 53704
608-249-3468
joshl@mbcc1899.com

Ron Novinska '21
Oregon School District
456 N. Perry Pkwy
Oregon WI 53575
608-835-4048
rjn@oregonsd.org

Honorary Member
Terry Kurth
Midwest Lawn Care
2211 Eagle Dr
Middleton WI 53562
608-824-0043
takurth@gmail.com

Honorary Member
Monroe Miller
Retired
5524 Sandhill Ct
Middleton WI 53562
608-445-4982
groots@charter.net

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

a good target to ensure that you have some growth, but you don't have to worry about recovering from regular wear and tear. If/when Wisconsin opens courses to golfers, you'll need to get that growth rate up into the 2 L/100m² range. But these are just general guidelines, like for soil moisture, you'll be able to identify the targets that work best for your course.

Implications for Disease Control.

All reports are that courses are emerging from winter in fabulous shape...as long as you had a strong snow mold treatment down. This is obviously good news because recovery from winter injury means stimulating growth, which we want to avoid. For now, it's fortunate that this crisis has come at a relatively low disease pressure time of the year. Relatively minor infections of leaf spot or Microdochium patch can occur but can also be tolerated without golfers present since it's unlikely that they will cause any lasting effects. If the course closures last into late May and June that has larger implications for disease control, but for this article let's assume that courses will be opening up by June 1st and maintenance will be returning to normal around that time.

For a June 1st 'return to normal-ish' date, the fungicide focus should be on diseases that aren't effectively controlled with curative fungicide applications later in the season. This is true for diseases like take-all patch, summer patch, and fairy ring. If you have experienced these diseases in the past, preventative applications targeting these diseases should be the priority (and should be lightly watered in) when 2-inch soil temperatures reach 55-60°F. Applications for these diseases made much later than this, when soil temperatures

are above 65°F, are largely ineffective and can lead to widespread damage later in the season that isn't easily fixed.

Dramatic reductions in nitrogen fertility will lower growth rate but could also increase susceptibility to certain diseases later in the season, namely dollar spot and anthracnose. Rutgers has determined the optimal nitrogen fertility range for anthracnose to be between 2.5 and 3.5 pounds of nitrogen per 1000 sq ft per year. While the nitrogen range for dollar spot is less well-defined, our research has demonstrated that nitrogen fertility below 3 pounds of nitrogen per 1000 sq ft per year will lead to increased levels of dollar spot and slower rates of recovery. To account for nitrogen levels well below this, we recommend making a preventative fungicide application in mid-to-late May targeting primarily dollar spot. Products from the SDHI fungicide class (Posterity, Xzemplar, Exteris, etc) and newer products like Maxtima and Secure Action typically have longer reapplication intervals (21 to 28 days) and should be used instead of shorter duration products like chlorothalonil.

The products listed above have longer reapplication intervals, but in many cases might be too expensive for fairway applications given the reduced-revenue environment many superintendents currently find themselves in. Putting greens should be prioritized, and an increased willingness to accept some disease on fairways and tees is probably needed right now as well. Mild to moderate outbreaks of dollar spot can be brought under control in just a couple weeks with increased nitrogen and curative applications of a number of fungicides.

Good luck and best wishes to you during this difficult and unprecedented situation. We are happy to discuss these or any other topics with you by email (djsoldat@wisc.edu / plkoch@wisc.edu) or phone (Doug: 608-469-0378 / Paul: 608-576-2673). ■

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New Turf Management Certificate Programs at UW-Madison

By Doug Soldat, PhD, Soils Department, University of Wisconsin-Madison and Paul Koch, PhD, Plant Pathology, University of Wisconsin-Madison

In the fall of 2020, students interested in an education in turfgrass management will have the opportunity to pursue either a one or two-year certificate in Turfgrass Management at the University of Wisconsin-Madison. These certificates are offered through the University's Farm and Industry Short Course, a historic program that has been going strong for over 130 years. We wanted to expand our current four-year B.S. degree in turfgrass management to find a way to educate students in a compressed period without compromising the course content or quality. We will teach the turfgrass courses, and other core classes and electives will be taught by more than 25 faculty and staff at UW-Madison who are all highly regarded in their fields.

The turfgrass certificate courses will be offered over two eight-week periods, early October through mid-December, and mid-January through mid-March. This timing works well for students who already work in the turf industry and want to augment their work experience with education. It also allows those in the two-year program to complete an extended internship (late March to October). These certificates will attract students from three main areas: 1) high school graduates interested in a turfgrass management career, without a four-year degree; 2) working turf professionals interested in career advancement; and 3) students who have a degree in another field, but wish to switch careers.

The two-year curriculum offers courses in introductory soil science and turfgrass management and a focus on communications, human resources, and the business side of the industry in year one, and specialized turf management courses in year two (Table 1). For students with previous secondary education or several years of work in the industry, we offer a fast-tracked one-year certificate (Table 2). We prefer that recent high school graduates pursue the two-year certificate. If you aren't sure which certificate to pursue, please contact us to discuss your options.

Certificate students will enjoy all the benefits of being a UW-Madison student and are encouraged to participate in student clubs, career fairs and committees - as well as athletic and social events. Outside of class, FISC hosts various tours, industry presentations, workshops, and trainings

for students. Students in the certificate programs will interact regularly with the students in the four-year program and gain leadership experience in the Badger Turf and Grounds Club.

As the program grows, we will add more courses to suit the needs of our students. Although we cannot quote exact costs for this article, the costs are competitive with similar certificate programs around the country. Student housing is available, but not required. The average student will

receive \$3,000 in scholarship support each year, with many awards earmarked for turf management students. These scholarships will cover a substantial part of the total cost of the program. Anyone interested in enrolling in fall 2020 can start by visiting the University of Wisconsin Turfgrass website at turf.wisc.edu or the Farm and Industry short course website at www.fisc.cals.wisc.edu and/or contacting Doug Soldat at djsoldat@wisc.edu. The enrollment deadline for the fall semester is August 1, 2020. ■

Table 1. Curriculum for the two-year certificate in turfgrass management

Year 1 Courses	Year 2 Courses
Introduction to Soils (2 credits)	Turfgrass Nutrient Management (2 credits)
Agribusiness Communications (2 credits)	Precision Agriculture (2 credits)
Plant Science (2 credits)	Turfgrass Irrigation and Drainage (1 credit)
Agricultural Safety (1 credit)	Farm Power (2 credits)
Weather and Climate (1 credit)	Safe and Effective Use of Pesticides (1 credit)
Business Principles (1 credit)	Turfgrass Integrated Pest Management (2 credits)
Agricultural Human Resources Management (1 credit)	+ Electives
Turfgrass Management (2 credits)	
+ Electives	
Total: 12 or more credits	Total: 12 or more credits

Table 2. Curriculum for the one-year certificate

Year 1 (mid-October to mid-March)
Turfgrass Management (2 credits)
Turfgrass Nutrient Management (2 credits)
Turfgrass Irrigation and Drainage (1 credit)
Turfgrass Integrated Pest Management (2 credits)
Safe and Effective Use of Pesticides (1 credit)
Weather and Climate (1 credit)
Farm Power (2 credits)
+ Electives
Total: 12 or more credits



2019-2020 Snow Mold Research Complete

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

Hello from the Turfgrass Diagnostic Lab. The last article I wrote here I talked about snow on the ground at Halloween. I guess maybe I should have known that was to be a good omen for snow mold research this winter. In all, we had 7 snow mold studies at 3 off-site locations and the O.J. Noer Research Facility. Every single one resulted in good data. It is not very often that we get to say that, but this year appears to be special. When I say 'good', I mean that there was plenty of snow mold infection. I know this might be a strange viewpoint, lots of snow mold being a 'good' thing. But for the researchers, it truly is good. If there was no snow mold infection, or even very little, we would have no idea which products actually protect the turf, because they all work great! Even doing nothing works great! But by getting a decent level of disease pressure we can get an idea of which products are actually worth your time and money and which ones are better off staying in the salesman's warehouse.

The large study this year was only replicated in Marquette, MI and Wausau, WI. In Marquette, nontreated control (NTC) plots averaged 87.5% disease. In Wausau, NTC plots averaged 71% disease. For Marquette, this has become pretty standard as it has consistently been a great place for us to do our research. For Wausau though, we have not had a huge year in snow mold there in quite a while. It's pretty fun as a researcher to pull up to your study after not seeing it for 5 months and see lots of green and brown rectangles scattered throughout the plot. The rectangles mean the individual treatments we applied last fall (3 ft wide by 10 feet deep) actually resulted in differences. I'm still working on compiling all the data we collected and publishing the reports. The reports will be posted on our website, tdl.wisc.edu, probably by the time this article is published.

Next up we had our snow mold timing study. We replicate this study at 3 locations: Madison, Wausau, and Minocqua. The NTC plots at those locations resulted in 56.3%, 88.8%, and 98% disease, respectively. This was the first year of the timing study that all 3 locations had appreciable disease. The interesting thing about this study is that we can see a drastic decline in snow mold control in a very short window. One application results in great snow mold control, but applying only 2 weeks earlier

results in almost no control! We are working to develop an aide to help with timing of snow mold apps.

The pink snow mold study in Madison had a few hiccups but overall it was good disease pressure with 36.7% disease. The last replication of the study had almost no disease in it for some reason. This resulted in a slightly lower overall percentage, but still not bad. The technique we've developed has worked pretty well over the past 4 years.

So far I've managed to write this article without mentioning the strange times we are currently living in. Well that ends here. It's hard to describe the times today. Sometimes I feel overwhelmed and worried. My wife has been 'redeployed' to help out at the Madison hospital. She doesn't normally work at the hospital, but now she has to be exposed to hundreds of people every day. It's hard not to worry about her. And then there is my 10 month old son, James. It's possible that my wife could bring the virus home with her and our son could get sick. I know young folks are at a relatively low risk, but as a parent you can't help but worry. And then there's our families. My wife's and my parents are in the higher risk age group. My dad has several predisposing conditions that put him at even higher risk. My sister-in-law is a doctor in New Jersey, one of the epicenters of viral infections in our country right now. Oh yeah, and then there is my health too. Forgot about that.

I'm not writing this because I think you should feel extra sorry for me. I'm writing this because I know many of you have similar concerns, family members in high risk situations, friends who may have already contracted the disease, etc. I'm writing this because I hope you know you are not alone. In the age of social distancing, it may feel like you are alone. But in the past few weeks, I've seen so many acts of kindness, so many people helping others. I know the Wisconsin turf industry is a close-knit group of folks and I know that we will all support each other through these unprecedented times.

A quick note regarding TDL sample submissions. I have been instructed by the university to work from home as much as possible. Therefore, please let me know if you plan to submit a sample so that I can come into the lab and process it. Also, we are asking that only samples that are deemed important be sent into the lab. Please contact either myself at

hockemeyer@wisc.edu or Dr. Koch at plkoch@wisc.edu if you have any questions. Or you can phone the lab at 608-845-2535. Stay safe and sane out there.. ■



Figure 1. The border between our study on the left and the fairway fungicide app on the right in Wausau, WI. The sharp lines of disease and protected turf a quite stark.



Figure 2. A perfect outline of an oak leaf. A leaf was laying on the research plot when we applied the fungicides last fall. The turf underneath had no fungicide residues to inhibit snow mold development.

What Will Spring 2020 Bring?

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

It is April, the snow has melted, the frost is gone and I am waiting for the grass to grow. In my 40 plus years in this business, annually waiting for grass to turn green has always been a joy. This year is different. I have checked multiple weather apps and weather telecasts, the warm rain will begin Friday, April 3rd. The temperatures to follow will be in the upper 50's and 60's, maybe even a 70 degree day next week. More rain is in the forecast for Monday through Wednesday. The turf should turn green and really begin to grow.


With all the Covid-19 restrictions, social distancing, lack of staff, ability to hire staff and hiring on hold, what will April and May bring? If I am required to do it with my staff of three, me, myself and I, I have fashioned a plan to maintain the O.J. Noer Facility until Memorial Day. Golf in Wisconsin is closed but research will still march on. We feel we can social distance and adhere to the hand washing and disinfecting protocols. By the time you read this WE WILL BE MAKING IT HAPPEN! What will happen the rest of the growing season? Will membership levels fall, advertising dry up, more mandated closings or business as usual? Due to this is new uncharted territory, no one can make that prediction with any accuracy. Those predictions are way out of my league, my job will be to adapt and do the best I can.

Since I cannot predict the future, let me share with you some of the events that have happened here in the past month. In early March the University of Wisconsin-Madison was making it clear there were going to be changes to life as we knew it. On March 11th the decision was made to have all non-essential workers tele-work or have some paid time off if they could not do their normal work by tele-commuting. Additionally, travel outside of Dane County was halted.

Dr. Koch and I were presenting Pesticide Applicator Training that day in Pewaukee. When I finished my portion of the morning session, my phone was slammed with texts and emails from a wide variety of people. What did that mean? No one knew for sure, so the waiting began. I was told that when I returned to the O.J. Noer Facility that evening, I was not allowed to leave Dane County. I informed my boss that I was scheduled to be the lunch speaker at an event for Carlin Sales in Milwaukee the next day. We agreed that cancelling on them at this late hour would be unfair. My boss went to bat for me and got approval from his bosses for me to attend the next day meeting. The following day the limitations and restrictions for what I would be allowed to do were well explained. Besides the UW, many businesses had informed their personnel they were to return home or they were granted permission to attend the event but after the event, all travel was cancelled indefinitely. The Carlin meeting went off without a hitch except for the attendees that did not or could not attend as they missed an excellent lunch speaker!

Soon thereafter the University of Wisconsin-Madison went through the process of determining who was essential and who would be deemed non-essential. This was done mid-March and at that time Audra and I were deemed non-essential. As such, we were informed that at the end of the day, we were not to physically report to work until April 13th. As we all know, soon thereafter Governor Evers declared the Executive Order, "Safer at Home." What would this mean for the O.J. Noer Facility? It meant the Noer was closed to all users. Dr. Koch was able to get permission to remove tarps and conduct

Continued on page 7



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his snow mold ratings. After that both Dr. Koch and Dr. Soldat were required to submit paperwork to convince the University of Wisconsin-Madison that their work was essential. As you would expect, they submitted the necessary paperwork and as of now their research is essential. They may scale back a few projects as they see fit but this meant the O.J. Noer Facility would re-open sooner rather than later.

A few days after I was sent home, I was reclassified and told I was to make security checks on the property only, until further notice. Audra and I were also informed we could tele-work. Until I was required to do this, I did not realize how much time each day Audra and I spend working on various projects for the UW, the Noer and the WTA. We sure have sent many emails and exchanging telephone calls each day. As we headed toward late March, I was informed I would be returning to the O.J. Noer Facility as a half time, semi-essential staff. The O.J. Noer Facility was to remain closed to the public and only open to University of Wisconsin-Madison staff who had filled out the necessary paperwork. As the weather warmed, I was able to begin spending time outside getting clean-up work done and finishing equipment repair. As of now the O.J. Noer Facility is just about ready for Spring.

Just this week came the news that there may not be summer staff for quite a few weeks, possibly all summer long. All summer staffing positions are on hold. My one staff member (Larry) informed me just before the Covid-19 pandemic that due to family commitments he would not be returning to work for the Summer of 2020. I was lucky enough to post his position just before all the Covid-19 issues ratcheted up. I am hoping that on May 1st I will be able to bring on my one 25-30

hour per week employee. Now I just need to find that person.

Hoarding has been an issue for at least a month. We all have seen this firsthand but let me tell you my stories. My neighbor went to Walmart to buy a few basic things and a dozen eggs. When she arrived at the egg case, a lady had five 18 packs of eggs, another gentleman grabbed the last 18 pack. The war of words ensued. She made a scene, he tried to reason with her saying that 90 eggs should be more than enough for one family, but to no avail. He returns the 18 pack of eggs he had put in his cart back to the case. She promptly took it and placed them in her cart, where he then punched his fist through all six 18 pack of eggs. My neighbor quickly moved on to the next aisle. While at Whole Foods doing our normal shopping, my wife was looking at buying two cans of spicy beans, there were ten cans left. She turned to me to make a comment on how empty the shelves were. A man squeezed between us and took all the spicy beans and 15-20 other cans of beans. Thinking quickly, I ask the man if he had dropped a five-dollar bill in the aisle, when he looked, I took two can of spicy beans out of his cart and we walked off. Carol yelled at me all the way home.

In mid-March the CDC issued it guidelines for helping "flatten the curve." In those guidelines we all heard the elderly were at the greatest risk. Their definition of elderly was 60 and over! I did not hear the announcement when it was released but within minutes my twin sons both texted me that according to the CDC, I am now elderly. I thanked them for letting me know! My family is staying home as much as possible and interacting with the outside world as little as possible. As of this writing my family is healthy. Hopefully when you read this, we are all still healthy. I hope you and yours are equally healthy and being safe. We will get through this together! ■



BETH DUSCHACK
T&O TERRITORY MANAGER
608-216-5066
beth.duschack@corteva.com

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Nothing Stays The Same Forever

By Mike Krupke, Wisconsin Sports Turf Managers Association, President

Some of you old timers or let's say "seasoned professionals" in the turf industry, may remember the good old days when turf conferences were 3 days long, packed with every turf related item you could imagine; education, equipment, trade show booths by the score, networking, luncheons and on and on. When all 8 monthly GCSAA golf/education meetings, especially in Northern Illinois where I was a superintendent, were attended by at least 60 or 70 attendees, superintendents, assistant supers, golf staff members, etc. The list of educational and networking opportunities was endless. Sadly, I think those days are over.

In my 30 years in the turf industry, I have seen turf associations thrive, along with their corresponding parcel of the turf industry. Slowly, times change. It is not necessarily anyone's fault, although we have all sat around brainstorming on how to give our section of the turf arena a shot in the arm. As a whole, our industry has taken a hit. Society changes, budgets get smaller, time gets shorter, lists get longer and I'm talking from both sides of the ball. As turf associations, it's been a roller coaster ride. The Wisconsin Sports Turf Managers Association (WSTMA) has been on that same roller coaster. As many of us know, turf managers time and budgets are a lot tighter these days and the meaning of being a member of a service organization needs to have a different focus than we had way back when.

The WSTMA currently is making sure we can be of service to our members by not only trying to make sure we give them turf education, but education they can use, by means of conferences, field days, research, and networking. Most importantly, because our members come from so many demographics, we strive to identify each of their needs. What Miller Park requires and can afford to manage their turf is much different than Iowa-Grant School District. Both are important to their fans and athletes and both are expected to provide the best playing surfaces they can. The other side of it is that, because many turf managers don't have the budget or time to travel to a turf conference, we have started going to them.

We have and will continue to attend Wisconsin Association of School Business Officials (WASBO) meetings and conferences to assist the school district turf managers around the state. Many of these managers are attending and gathering information they need to manage other parts of their school district duties. We decided it was a good place to share education regarding their sports fields while they are getting other education they need. For the Wisconsin Parks and Recreation Association (WPRA), we are working with them and holding a "hands on" field day focused on soil sampling, aeration, seeding, etc. They are receiving CEU's for this and we look forward to a very productive alliance with them.

Pertinent research is also an important part of sports turf management. I've found that following the fundamentals of turf management can produce great results but with today's increased play and expectations bring added challenges that new products and procedures can help you with, sound familiar golf guys/gals? We've enlisted the help of Dr. Doug Soldat and his staff from the University of Wisconsin-Madison to perform research trials that are a focused on managing sports fields. Poa annua control, PGR's, traffic on turf varieties, are an opportunity for sports turf managers to be more efficient and successful. Many of the issues we had on the

golf course and how we managed them are the same as in sports turf, but much of it needs to be tweaked to focus on blue/rye blends with more localized traffic than fairways and not bentgrass. Much of this focused education and research comes from the experience of the board of directors and from our members. Making sure we let members know the lines of communication are always open. We also have surveyed the membership to get an idea of who we are serving and what they need. Again, our demographic is varied, so we have many viewpoints to consider.

Let's go back to the word alliance. We have been seeking out other associations and how we can best work together to serve our turf managers in Wisconsin. Whether its sports turf, golf or lawncare; turf management is turf management, it is just a difference in degree and specific focus. We all need education, networking, research, and other assistance to be better turf managers. Associations like the WSTMA, the WGCSA, the WLNA and of course the Wisconsin Turfgrass Association are here to try and provide that. As always, time, money and opportunity has made past and potential members of the organizations review their wants and needs when it comes to affiliations. Our view is to bring these organizations together. Combining the talents and resources of each organization, without each one losing their respective identity. We have talked to the WTA, wondering, how can we offer our services as the WSTMA. Personally, the WTA has been an invaluable tool in my career in providing research and education. I'm a "show me the research" guy when it comes to turf. The WTA along with the UW has always provided great research and answers to the questions I needed answered. As of now there has been talk and ideas of how we can assist, so we look forward to whatever transpires and thus, improve the availability of turf education and networking in Wisconsin.

On another note, we look forward to following in the WGCSA's tracks with their "Best Management Practices" (BMP) initiative. Josh LePine spoke at our Winter Conference explaining the initiative. After the WGCSA has finished their hard work in putting this together, the WSTMA plans on using it as a template to create their own BMP and focusing it on sports turf. Then have it available to those in the sports turf world. Our view is the same as the WGCSA and others in the turf industry, turf management needs to be as responsible as we can be regarding the environment and community. Times are changing and the community's impression of the turf industry needs to be one of a responsible industry, that is if we want to continue doing what we do. We appreciate the WGCSA pulling the weight.

As the turf industry continues to ebb and flow in Wisconsin, the WSTMA's view is about collaboration. Whether it is on a turf association level or on a grass roots (pardon the pun) level. When I say grass roots, I mean facilitating all turf managers, talking to them and sharing their experiences, both successes and failures. That is called networking and it's what our industry has been built on. As the Wisconsin Sports Turf Managers Association, we are trying to open all doors leading to networking and collaboration. Turf conferences and field days are great opportunities for education, but making it convenient to get the right information for their specific situation when they need it, whether it's online, on the phone, or one on one in person, that's what we feel we need to do. The turf industry needs it. Times have changed. ■

The 'Essential' Turf Industry

By Paul Koch, PhD, Plant Pathology, University of Wisconsin-Madison

The COVID19 epidemic is dramatically altering almost every aspect of daily life and is resulting in lots of talk about what is 'essential.' Rules are currently in place to only allow 'essential' businesses to stay open, only 'essential' personnel are allowed into buildings on the UW campus, and we're all asked to only leave the house for 'essential' activities. To be clear, staying home and avoiding social contact is critical to mitigating the spread of the virus, saving lives, and allowing us to return to a more normal life as soon as possible. In addition, no one is going to argue that turfgrass is essential to human life. But one thing I have learned during this process is that while turfgrass may not be essential, it's really, really important to today's urbanizing world. As climate change and urbanization continue to increase in the coming decades, it's likely to become even more important.

The Economic Impacts

The turfgrass industry is large and economically important by almost any measure. A WTA analysis from 1999 found that turfgrass made up the 4th largest acreage of any 'crop' in the state and the Wisconsin turfgrass industry had a value of approximately \$1 billion. A more recent analysis published by Golf 2020 and released in 2011 found that the Wisconsin golf industry alone was worth over \$2.4 billion and employed over 38,000 people. Still another analysis published by the University of Florida in 2015 found that the Wisconsin 'green industry', which encompasses more than just turfgrass, was valued at over \$5 billion and employed 43,000 people. Different analyses come up with different values but two things are constant in all of them: the economic impact of the turfgrass industry is massive and the turfgrass industry is 'essential' to each of the tens of thousands of Wisconsinites employed within it.

The Benefits

It's fashionable to criticize the turfgrass industry for being elitist, wasteful, and harmful to the environment. In some instances those criticisms are accurate, including lack of pollinator habitat, production of air pollution and atmospheric carbon from gas-powered mowers, and misuse/overuse of inputs like water, irrigation, and pesticides (mostly by uninformed homeowners). However, the vast majority



Figure 1. Photo from Madison, WI in 2016 showing reduced soil erosion from a turfgrass area compared to a bare soil area.

of the trove of research done on the environmental impacts of turf has found there are numerous benefits to turfgrass systems. Dr. James Beard summarized these various benefits into functional, recreational, and aesthetic in his 1994 paper titled 'The role of turfgrass in environmental protection and their benefits to humans' published in the Journal of Environmental Quality (Table 1).

One of the clearest benefits of turfgrass relative to other plant systems is reduction in soil erosion (Figure 1). Soil loss due to

Table 1. The various benefits of turfgrass as outlined by Dr. James Beard and Robert Green in their 1994 article 'The role of turfgrasses in environmental protection and their benefits to humans.'

Functional	Recreational	Aesthetic
Soil erosion	Low cost surfaces	Beauty
Dust prevention	Physical health	Quality of Life
Heat dissipation	Mental health	Mental health
Noise abatement	Safety	Social harmony
Glare reduction	Spectator entertainment	Community pride
Air pollution control		Increased property values
Fewer nuisance animals		Complements other plants

Continued on page 11

The 'Essential' Turf Industry - *continued*

erosion was found to be 11 Mg per ha per year in a study of row crop agriculture by Uri and Lewis (1999), but was just 0.0003 to 0.02 Mg per ha per year in studies of dense turfgrass systems by Gross et al (1990) and Kauffman and Watschke (2007), respectively. According to these studies, soil erosion in the turf system was only 0.18% of that from the row crop system!

Nutrient runoff from turfgrass sites is another common target of environmental groups, but again the research tells a different story. Easton and Petrovic (2004) and Biermann et al (2010) found that unfertilized turf lost more phosphorus than fertilized turf due to decreases in turfgrass density, and Steinke et al (2007) found no difference in phosphorus runoff from prairie vs Kentucky bluegrass buffer strips. More recently, the United States Geological Survey completed a study in 2016 that found nearly 80% of the urban phosphorus contribution to the Madison watershed came from tree leaf litter piled at the curb in the fall (Figure 2). One caveat here is that minimal nutrient runoff occurs when fertilizer is applied according to university recommendations, however when fertilizer is accidentally applied to impervious surfaces or fertilizer is applied at improper rates or on saturated or frozen soil the risk for nutrient runoff and environmental harm increases exponentially.

Though climate change has taken a momentary backseat to COVID19 as one of the biggest threats to the planet, climate change remains the most serious long-term threat. Most people assume that turfgrass only exacerbates climate change, but again the science doesn't agree. Recent research done at UW by Ziter and Turner (2018) found that 'public parks and people's yards store substantially more carbon than urban forests or grasslands' and more 'than the agricultural soils that dominate Madison's surrounding landscape.' Earlier studies found similar results, including Bandaranayake et al (2003) that found a 30-year old turf stand stored TWICE the carbon in the soil as a native prairie. However, the use of gas-powered mowers, synthetic fertilizers, and frequent irrigation can offset or reverse many of these climate benefits.

The Future

Take away the sports on TV, the rushing off to work and various social activities... and parks and other green spaces that are primarily made up of turfgrass have become

almost essential to our mental health during this COVID19 pandemic. Moving forward I believe that turfgrass has a critical, perhaps even 'essential' role to play in the health of future urban and suburban landscapes. Turfgrass is not inherently good or bad for the environment, it's how the turf is managed that makes the difference. Future turfgrass managers will need to focus on

reducing the negative environmental and human health impacts of their management strategies so that the focus can remain on the many 'essential' benefits that turfgrass landscapes provide.

Authors note: Please email Paul Koch at plkoch@wisc.edu if you would like copies of any of the studies referenced in the text of this document. ■

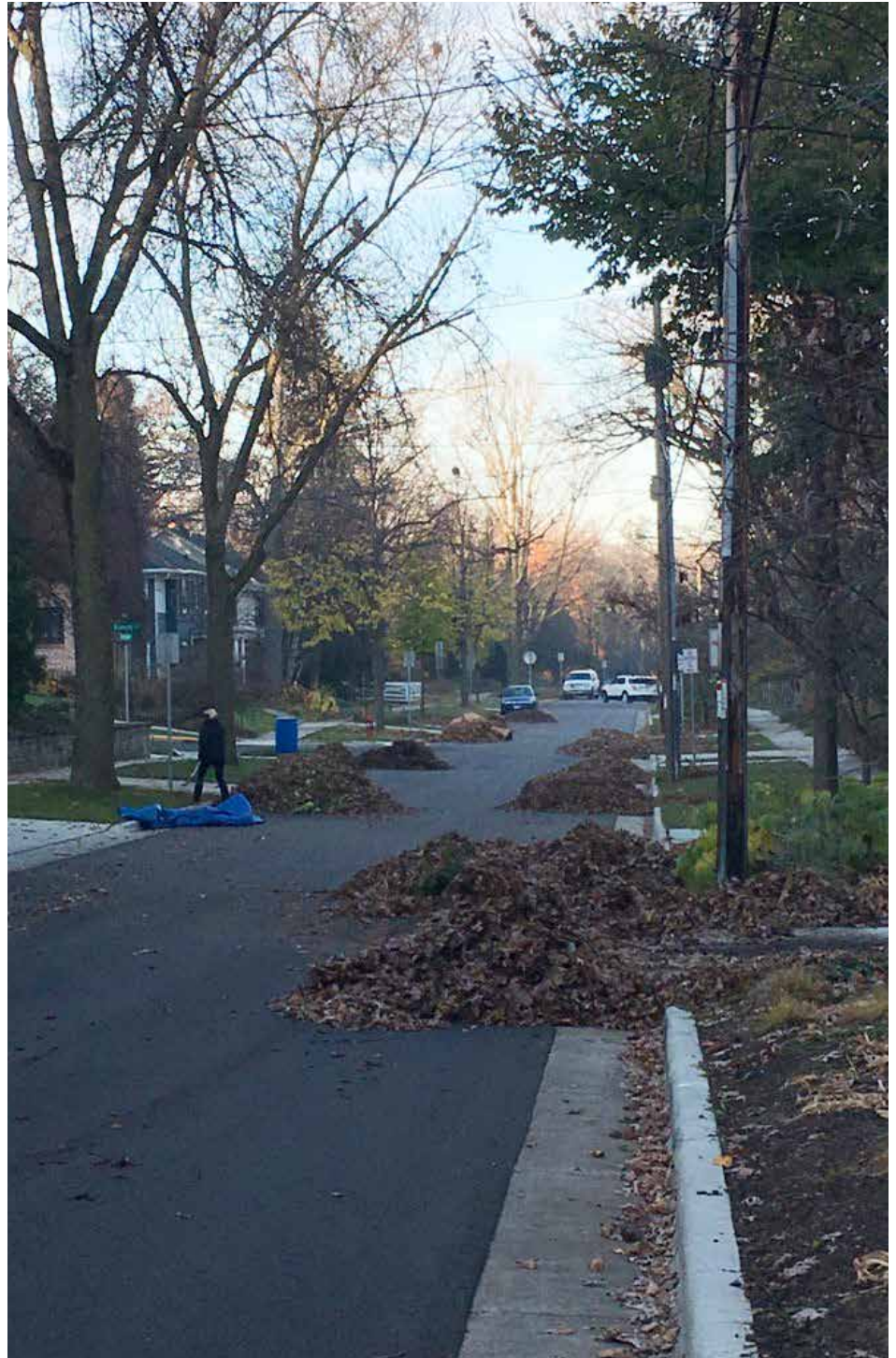


Figure 2. Piling tree leaves at the curb in the fall is standard practice for many Wisconsinites, but recent research conducted in Madison found that it can contribute nearly 80% of the annual phosphorus load into nearby lakes, rivers, and streams.

CALENDAR OF EVENTS

To see if a Spring turf event is still scheduled, please contact them directly.
Phone numbers for some of the common organizations are listed below.
Stay safe and healthy!

WTA Members -- If you have an important date that you would 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	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	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	920-643-4888
WGIF	Wisconsin Green Industry Federation	414-529-4705
WPT	WPT Garden Expo.....	608-262-5256
WSPA	Wisconsin Sod Producers Association	262-895-6820
WSTMA	Wisconsin Sports Turf Managers Association	608-792-9264
WTA	Wisconsin Turfgrass Association	608-845-6536