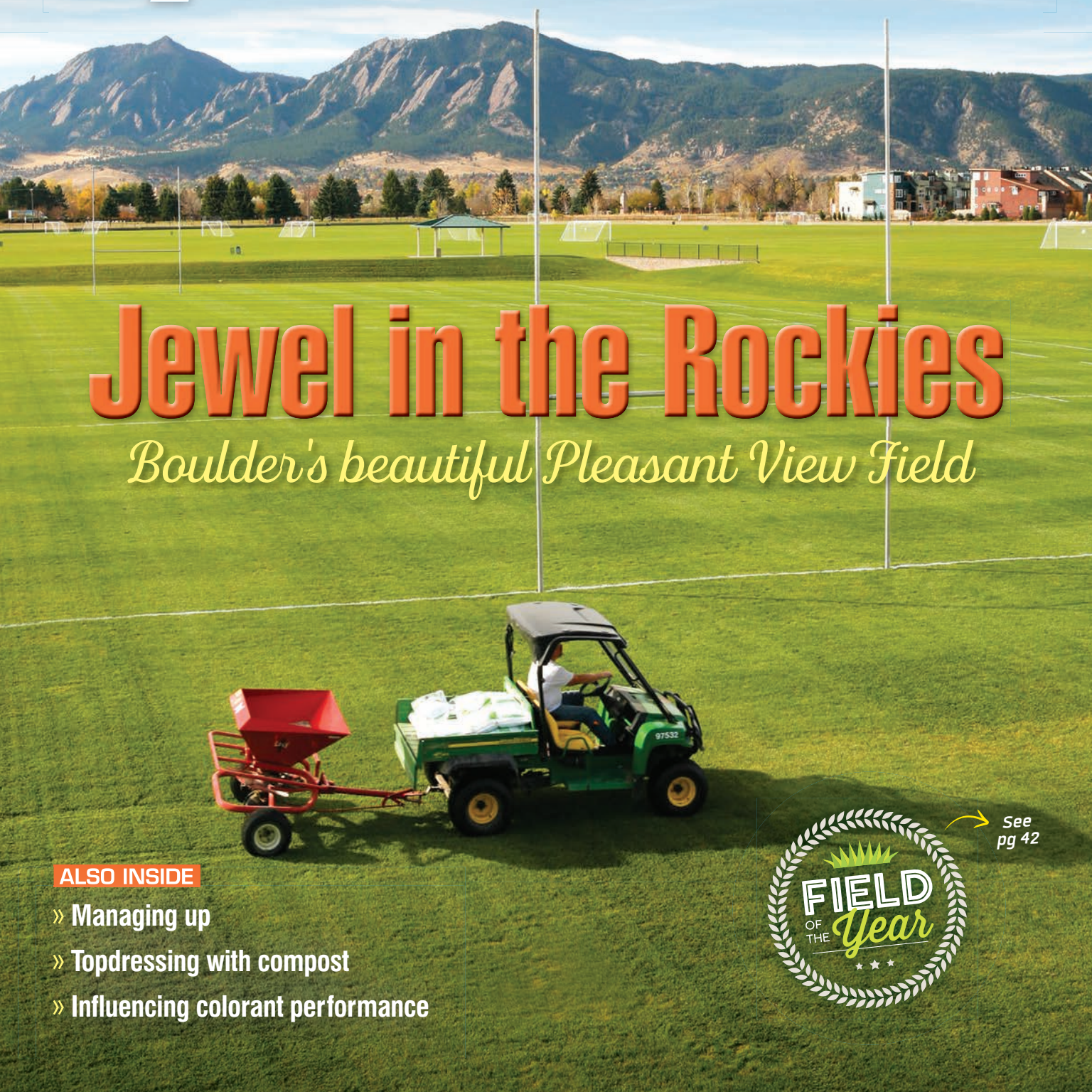
THE OFFICIAL PUBLICATION OF THE **SPORTS TURF MANAGERS ASSOCIATION**

SEPTEMBER 2018

SportsTurf

SPORTS FIELD AND FACILITIES MANAGEMENT / www.sportsturfonline.com



Jewel in the Rockies

Boulder's beautiful Pleasant View Field

See pg 42

FIELD OF THE Year

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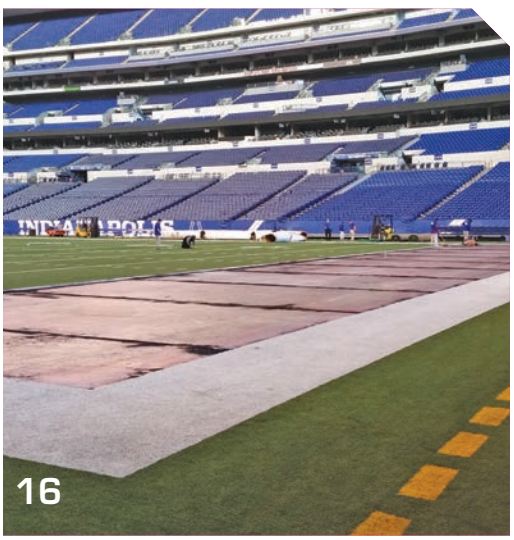
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FEATURES

DEPARTMENTS

ON THE COVER

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On the cover: John Cogdill, manager for Boulder (CO) Parks, says of his award-winning field: "In the past the Championship Field at Pleasant View has undergone two recycle dressings a year to improve compaction. This year we opted to run with 9-inch coring tines to improve drainage and also improve subsoil compaction. This also increased the frequency; we were able to use this option without tearing up the field and so helped maintain an increased level of play."

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FROM THE SIDELINES

New turf in nation's capital

Eric Schroder / Editorial Director / Eschroder@epgmediallc.com / 763-383-4458

THE OPENING OF THE NEW 20,000-capacity Audi Field built specifically for Major League Soccer's DC United caught my eye last summer. Naturally I was curious about the grass and discovered I could get some answers about it from Michael and Heather Sullenberger of Game Day Inc., in nearby Chantilly, VA. Their company is responsible for maintaining the new surface in Buzzard Point. I exchanged emails with the Sullenbergers and here's their reply:

What turfgrass variety was picked, and why?

"The variety is Northbridge bermudagrass. We joined [reps from] the field builder Precision Turf, DC United, and Turner Construction to visit Oakwood Sod Farm in Delmar, MD in the fall of 2017 and again in the spring of 2018 to inspect the sod, including fields of Northbridge and Latitude 36 bermuda. Game Day also consulted with Dr. John Sorochan at the University of Tennessee and he provided valuable insight and advice based upon his research.

"Upon inspection, it was decided that the grass for Audi Field should be Northbridge, on a rootzone is a 97/3 blend of USGA sand and Dakota Peat supplied by Luck Ecosystems."

At what point in the planning of the surface did Game Day get involved?

"Game Day Inc. has been caring for the DC United training facility adjacent to RFK Stadium since 2004. The training field grass is Latitude 36, also from Oakwood Sod Farm. Once the construction for Audi Field was underway, we weighed in on turfgrass variety and supported the choice in bermudagrass.

"After winning the Audi Field maintenance contract, we were able to visit the construction site every few weeks, and then every week, and then every other day until it was complete for the most part. There is still some work to do, some finishing touches, but the first three matches are on the books [as of August 9] and the new field has held up very well."

According to builder Precision Turf, Sugar Hill, GA the drainage system is composed of two 24" collect lines and 6" lateral lines 10' on center. There is roughly 2 miles (11,000 linear feet) of pipe trenched in the subgrade. All lines are dropped in a 1' wide ditch with total encasement of gravel.

Like most of the new soccer-specific stadiums, having fans close to the action is a major marketing coup but it doesn't do much for growing grass. "In short, we know that shade will be one challenge that comes with high stadium walls and partial overhanging roofs," said the Sullenbergers.

Think you'll have to do anything out of the ordinary re any cultural practices?

"We have some good ideas for how to address the challenges. For example, the use of grow lights is one practice used throughout the industry to address shade. We will continue to consider all options and to provide recommendations to the stadium leadership team.

"Game Day has a grounds manager, Brandon Peach, working full time at Audi Field. Brandon has a degree in plant sciences from the University of Tennessee and most recently worked as a sports field manager at the University of Miami. Brandon is supported by the Game Day Inc. production team of sports field managers." **/ST/**

SportsTurf
// August 2018

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The Official Publication Of
The Sports Turf Managers Association

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SportsTurf (ISSN 1061-687X) (USPS 000-292) (Reg. U.S. Pat. & T.M. Off.) is published monthly by EPG Media & Specialty Information at 75 Pike Street, Port Jervis, NY 12271. POSTMASTER: Send address changes to Sportsturf, PO Box 2123, Skokie, IL 60076-7823. For subscription information and requests, call Subscription Services at (845) 856-2229. Subscription rates: 1 year, $40 US & Poss.; 2 years, $65 US & Poss.; 1 year, $65 Canada/ Foreign Surface, 1 year, $130 Airmail. All subscriptions are payable in advance in US funds. Send payments to Sportsturf, PO Box 2123, Skokie, IL 60076-7823. Phone: (847) 763-9565. Fax: (847) 763-9569. Single copies or back issues, $8 each US/Canada; $12 Foreign. Periodicals postage paid at Port Jervis, NY and additional mailing offices.

PRESIDENT'S MESSAGE

Social media can put your fields on display

Sarah K. Martin / CSFM / sarah.martin@phoenix.gov / @neongrapefruit

SEPTEMBER HAS ARRIVED, and the kids are back in school. September also brings us FOOTBALL! High school, college and professional football teams are busy practicing, sometimes twice a day, as well as playing games. All of this practice-to-games puts our fields in the spotlight! All the work that has been done over the summer to prepare the fields is on display.

STMA members have been seeing the fruits of the labor from our PR firm, Buffalo.Agency. We got a big shout out a while back in *Parade* magazine. Got to love when Marky Mark gives us props! Headquarters will be showcasing other big items in the news as well (see page 46 in this issue for examples).

Social media is, as always, HUGE. I've fully enjoyed seeing all the tweets and Facebook posts so far this year! I'm constantly amazed at the work that is being done to have the safest, most aesthetically pleasing playing fields out there! This was hugely evident with the Stars and Stripes Contest! WOW! Great job, everyone! Ryder Haulk of Purdue University Athletics garnered 2,019 "likes" via Facebook to best 2nd place finisher Danny Losito (1,300 likes) of the Columbia (SC) Fireflies. Haulk earned a complimentary pass to our upcoming Conference in Phoenix (see more from Haulk on page 34 this issue).

More than anything, though, I love to see what natural turfgrass and synthetic field managers are doing on a daily basis: the pictures and videos of aeration, mowing, irrigation (or should we say "irritation"?) projects, and all of the minutiae that goes in to what we do.

Look for the STMA on Twitter (@FieldExperts), LinkedIn, Instagram (fieldexperts), Facebook, and as always, at the STMA webpage, STMA.org. [Editor's note: And please consider following us on Twitter, @SportsTurf_Mag, and then look for your tweeted photos in "Opening Whistle" (page 8-9) of every issue.]

Feel free to follow me on twitter @neongrapefruit (yes, I know it is weird, but I bet you won't forget it!). I don't post often, but I am trying to get out there more. I'm old school still; I take pictures, but I forget to share them!

@neongrapefruit
Aug 14
#SodTuesday at #Reach11 #fieldexperts #sunrise

This quote sums it up for me: "We don't have a choice on whether we DO social media. The question is how well we DO it."- Erik Qualman

Here's to doing it better! **/ST/**

Sarah K. Martin, CSFM

@DMAYDEN87

Independence, MO July 17

Softball wear areas will be the death of me, and I'm yet to find the solution. Sodded Bermuda last week, and will be put to immediate test with WS tourney this week. We will seed into this with straight Bluegrass this fall and covered with grow tarps. Wa-la Bluemuda coming at ya.

@UPMC_G_CREW

Erie, PA July 24

Meet Wesley. Found in the batting cage this morning.

@SIS_GEORGE

Green Bay, WI July 20

Delighted to be at Lambeau Field on completion of our 1st SISGRASS pitch in the USA. Home of the iconic Green Bay Packers @SISPitches

@UNLTURF

Lincoln, NE July 24

New bling for the backyard putting green. Logo courtesy of a good friend.

@TAR_HEELS_TURF

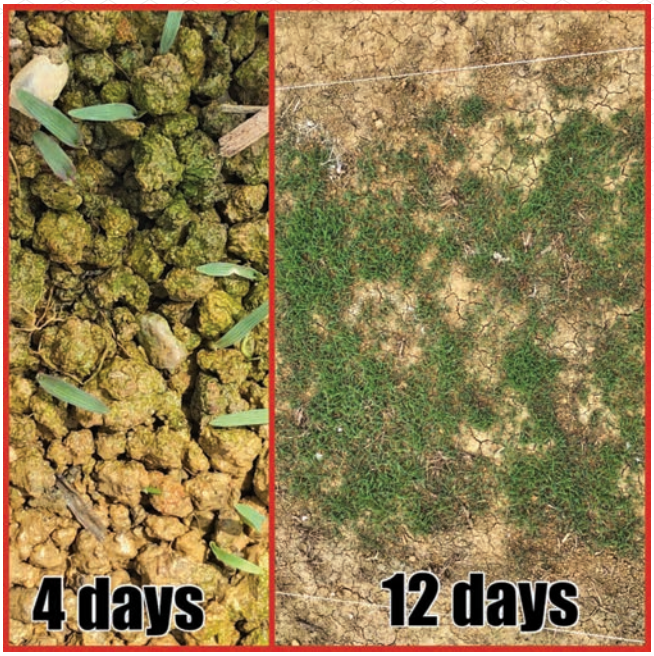
Chapel Hill, NC July 18

Broom 2x with teeth down, 25 tons sand, drag, cross tine aerify, and fertilizer today for Kenan.

@MDACOSTAUMASS

Amherst, MA July 24

Heat + disease these last few weeks taking a toll on the #NTEP Fine fescues... ready for @kmorris_NTEP visit!



@TURFBLADE

Starkville, MS July 24

First experience seeding bermudagrass in Mississippi worked out pretty well...germination 4 days after seeding

@MIZZOU94_PATE

Cleveland, OH July 28

Concert season is over. Back to Football!!! – at FirstEnergy Stadium

Managing up

Having a healthy, positive relationship with your boss makes your work life much easier and it's also good for your job satisfaction and your career. But some managers don't make it easy. According to an article by Dana Rousmaniere in the *Harvard Business Review*, even if your boss has some serious shortcomings, it's in your best interest, and it's your responsibility, to make the relationship work.

Perhaps the most important skill to master is figuring out how to be a genuine source of help because managing up doesn't mean sucking up. It means being the most effective employee you can be, creating value for your boss and your employer. That's why the best path to a healthy relationship begins and ends with doing your job, and doing it well, Rousmaniere wrote.

STMA Editorial Committee member Rebecca Auchter says, "Most sports turf managers report to senior stakeholders who are not well versed in the particulars of our profession. Securing resources, ensuring key agronomic practices fit into the facility schedule, and gaining professional respect as an integral part of an athletic business are key strategies for success. Managing your boss is a soft skill with critical consequences."

Auchter says most sports turf managers report to a GM, public works director, facilities GM, owner – someone who has only basic or limited knowledge of what turf managers do. "It is not unusual at ALL for the grounds manager or sports turf manager to be the sole member of the organization with the operational and technical skill to do what we do," she says.

Given that very common organizational hierarchy, it is a critical skill for sports turf managers to develop communication techniques for explaining and justifying our personnel requirements, budgetary concerns, operational needs, etc., to "laymen," Auchter says.

"There's an entire section at the bookstore on communication for business but the basics are to know your own communication preferences, and then figuring out your boss's [along with other important stakeholders]," says Auchter. "It's easiest to just ask them! Once you are on the same page, it is your responsibility to behave and communicate in a way that will be best received. Examples include does he or she prefer frequent, detailed information or infrequent, high level information? Phone versus email? Weekly office meetings or site visits?"

Auchter says, "After communication style, figuring out what your boss's expectations are for your department or division is vital. Make sure your goals are in line with her or his concerns and success. The best path to getting what you want from somebody is to tell them why it's good for them!"

Daniel Thomas

Mike Andresen, CSFM, Kirkwood (IA) CC, Jody Gill, CSFM, Blue Valley (KS) SD, Eric Harshman, Berea (KY) College, Daniel Thomas, CSFM, Baltimore Orioles Spring Training, and Josh Weigel, Noblesville (IN) Schools answered a few questions about their experiences "managing up":

Do you understand your boss's perspective, agenda and preferences? If so, how did you accomplish that?

HARSHMAN: My bosses have a hands-off approach on my day to day operations/management of the main campus and athletic complex. I've based my management style on good organization, planning and communication. From the first day I started I was entrusted in being a good steward of my overall operating budget, and I have seen an increase in that budget in recent years. I have made necessary equipment purchases to increase productivity/efficiency in our daily operations.

WEIGEL: Yes. I sat down with my boss as soon as he was hired by our school corporation and asked him his goals/expectations. Previous to joining our corporation, he was at a few neighboring communities, so I was able to see the work

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done there and implement it here. Communication with your boss is key. Even if it's just a quick text message here and there, it can go a long way in being successful.

ANDRESEN: My boss is vice president of facilities but he was a very accomplished and well respected turf instructor at this school before taking the "cabinet" position. I'm in the unique position of his knowing turf science and our campus far better than me. For the past year I've tried to keep my mouth shut and just listen when he discusses campus politics, priorities and goals. With the landscape design instructor on campus, we worked this past year on developing a Campus Master Plan. In a nutshell, this piece was critical to express a unified vision for campus development and maintenance. I was privileged to be part of the development team and through that process I learned a great deal about the campus successes, shortcomings and its culture. I believe now we have a consensus on a vision to make a difference to staff, students and the community members that use our campus.

GILL: I am fortunate to work in an organization that believes in strong and frequent communication along with a highly supportive administration. I meet with my boss, Joe Chick, formally every week but informal communication is always happening via phone, text and email. I see it more as a partnership than a superior/subordinate relationship. I fully understand that he is the boss but I think we work to understand each other's perspective, agenda and preferences.

THOMAS: Like all aspects of business, communication is the key component when trying to understand where your boss is coming from. Every person is different in their own way, and finding that avenue to common ground can sometimes be a tall task. I have a very good relationship with our Director of Florida Operations, Trevor Markham. We have weekly meetings, but often the most results happen when we talk on the phone after hours on our drives home. The best business can be done when we have a chance to clear our minds from all of the day's responsibilities and focus on the conversation. We don't always see eye to eye but our willingness to see things from the other person's perspective plays a major part in our success. Listen closely when people speak and you can pick up on their line of thinking and preferences fairly quickly.

Rebecca Auchter

Can you share an example of when knowing how your work fits into the organization's goals enabled you to get approval for a project you wanted to do?

THOMAS: Here in Florida at our spring training facilities we are in the business of training, development and rehabilitation of all our players in the organization. Providing safe playing fields and training grounds is priority number one for us in Sarasota. I like to prioritize major projects according to the safety of the fields and how they can affect the players training on them. Knowing the organization places a heavy emphasis on player safety and development, we can present our requests to the front office confidently knowing we all have the same agenda. For example, we fraze mowed and topdressed one of our fields this past May. The age of the field and settling had led to some sloping in the outfield and buildup along the grass/clay edges. We were able to pitch this project openly and honestly as a necessity for player safety. Understanding the organization's expectations, goals, and philosophies increases the odds of the project getting approved.

WEIGEL: One of our middle school football fields was in really rough shape. We continued to play on it and but knew it was likely someone would eventually be injured. Initially I wanted to regrade the field and start over, but I was turned down as we didn't have the funds for that. I presented the idea of fraze mowing it, topdressing with 72 tons of sand, and overseeding it. The corporation agreed with this plan, as it was considerably cheaper. We now have a smooth, and more importantly, a safe playing surface.

HARSHMAN: When I took on be role as grounds coordinator my responsibilities were only over the main campus and nothing with athletics or managing their fields. After being in this position for nearly a year I was asked to create a proposed operating budget for the athletic complex. After much thought and a visual assessment of the complex I was able to provide a working document/budget on what the complex needed to be brought up to speed and for the overall safety of the student athletes. With the information I provided I was given the keys to complex with a start-up operating budget and allocated monies for some equipment/renovation needs. I also convinced my bosses that a full-time position needed to be created to handle the day to day maintenance of the complex.

ANDRESEN: Not sure I've been at Kirkwood long enough yet to give a good example. My first priority was and continues to be having our campus grounds department become more of an asset to the 2-year turf management and horticulture degree programs. The bottom line is ensuring instructors and students in that program know they have an ownership stake in the campus grounds. Students in the program help us maintain our Tree Campus USA designation, they help us develop and maintain native and pollinator habitat, they help with athletic field maintenance and we use the landscape design students creativity in developing high profile areas of campus. We have an effective equipment sharing agreement to maximize college resources. It's clear that communications and lack of ego on the part of all parties absolutely allows us to maximize pooled resources and opportunities here.

> "THIS IS ONE OF THE BIGGEST STRUGGLES IN MY JOB. I HAVE DIFFICULTY FIGURING OUT HOW TO CONVINCE MY BOSS AND OUR FINANCE COMMITTEE OF THE IMPORTANCE OF WHAT I DO, THE NEED FOR ADDITIONAL EQUIPMENT, ETC. I'M WORKING ON IT, BUT IT SEEMS LIKE I HAVE TO HIT A MOVING TARGET."
>
> *– Andy Gossel, Covenant Christian HS, Indianapolis*

GILL: One thing that has been very important to my boss is eliminating the imaginary work silos that our individual departments would sometimes use as shields when we would become overwhelmed with work orders. We have three primary divisions within operations and maintenance: building maintenance, custodial services and grounds services. By tearing down the silos and sharing the workload between departments, we have dramatically increased the overall productivity of our teams. As a result, our capital project and equipment approval rates have increased.

Do you have an example(s) of things you do that make your boss's job easier and proves your value to the organization?

ANDRESEN: I'd like to blame the challenging 2018 weather for this but I'm not sure I've made his job anything but more difficult this year! Our vision and goals are long term with a very high

upside so we focus on those. Coming from an athletics background helps us both accept the challenges will make each success taste that much sweeter. There are days my boss has talked me down off the ledge and there are days I have to convince him and the grounds staff that with persistence and focus we're on track to accomplish our goals. Honesty and integrity are most important to my boss. He knows my job better than me so it's not like I can BS him. We both know our grounds staff is full of exceptionally talented and loyal folks. The entire full-time roster graduated from Kirkwood so no one wants to leave a better legacy than each of them does. This is one of those years

IS THERE AN OFF-SEASON ANY MORE?

Do you have suggestions for how to communicate with management about the need for turf rest and maintenance?

JIMMY SIMPSON, CSFM, TOWN OF CARY (NC): In my opinion, this communication starts prior to the construction of the playing surface. Both the administrative team and the sports turf team must know what the end goal is in order to determine the maintenance needs to meet it. The expectations of both the sports turf team and administration should be on the table from the beginning for open discussion. Things change all the time and each group will have different goals and objectives that they are trying to achieve. Without clear communication about each other's goals and objectives, the collective team cannot be as successful.

At some point, all surfaces need rest or maintenance. As part of our team's joint efforts to provide the safest playing surfaces possible, each provides the other with a yearly calendar of needs as it relates to surface use (play) and maintenance. The teams at each of our facilities then meet regularly to discuss the previous period and the upcoming period as it relates to what went well and what didn't. From these meetings, adjustments are made moving forward to ensure all goals are met. This open forum helps both parties build trust and a strong relationship, which are important when the administration team reaches out to add an event or the sports turf team needs to add a maintenance practice to the schedule during the year.

DAVE STOKKA, LEAVENWORTH (KS) USD: Set up weekly meetings in person with your AD or user group to go over the week's events. Visit with your coaches and parents. Explain to them the need to take care of the field and that from time to time they will be closed for renovation or routine care maintenance. Explain the need for field rotation. Explain the cost it takes to maintain and renovation sports fields. Explain what it takes to keep fields in top condition for them and that you need their help to keep them in top condition. Hopefully you will get their help and patience when you maintain your fields.

MEGAN VANARSDALE, BOYLE COUNTY (KY) SD: First, no there is not an off-season anymore! I try my best to send email reminders to coaches and ADs about rotating practice areas on fields, rotating fields, etc., especially at the beginning of each season. The key is to try to EXPLAIN WHY this is important and not just some rule. I require coaches to get me practice and game schedules before each season and then I organize my maintenance practices around them. The key is communication, e.g., in order to have high quality fields, THIS needs to happen!

JOHN WATT, CSFM, NORTH KANSAS CITY (MO) SD: Educating the coaches and administration at the K-12 level can be an exhausting task. The fields are provided by tax dollars and some patrons always think they have every right to use them all the time. Turfgrass is just like an athlete, it is a living ecosystem that needs rest to recover. The players have off days, the turf needs off days, too. If there are no off days, things tend to fail. Constant communication with as many people that use the fields is best, just explaining what maintenance tasks you are doing and the need for turf recovery. I know it might come across as whining, but it also shows the pride and dedication that my staff and I have toward the fields. Emails and phone calls are the most common ways I communicate with the coaches and administration. With emails, it is in "black and white" for when a problem might arise that I tried to get information out. My best suggestion is to stay constant with communicating to all users that your crew needs time to provide a high quality field and the turf needs time to recover.

What tips might you have for others regarding how you manage your turf through all the summer activities?

WATT: Think outside the box, or the textbook. Sometimes turf maintenance practices need to be done in the odd hours before the extreme heat. You can aerate in the dark to reduce bruising of the turf. Monitor the moisture levels in the soils regularly. Find that happy medium to where the turf is not really dry or extremely saturated, because regardless the teams will still use the field and then you have to deal with the end results. Regardless of the time of year, educate the coaches to move around the field, and to stop using the same areas every day.

STOKKA: Try to maintain all cultural practices and aerate as much as possible. Talk with your coaches as much as possible and explain what you are doing and

when each week feels like a grind but folks on the other side of campus depend on us to help project the very best image possible of this campus. Maybe the real value to our boss is that he knows we'll stay focused on creating the greatest learning environment possible. More than anything else our job is to "make problems go away," whether they be turf, landscape or even fleet vehicle related. The boss may value that more than anything.

GILL: I would go back to silo removal and work crossover first. This alone has made his job easier. Additionally, we have taken on non-grounds related tasks including fleet

Continued on page 49

Photo courtesy of Megan VanArsdale, Boyle County (KY) SD

how it will benefit them in the long run. This way they might be appreciative of the work you are doing for them. I said "might"!

VANARSDALE: Stay organized and communicate as much as you can. Have all practice schedules and game schedules on a calendar. Have coaches ALWAYS check with you in case of rain, etc., BEFORE practices/games. You should have the final say. Be proactive! You have to be the leader and not take a backseat to what their needs are – you have to dictate what needs to happen.

SIMPSON: As schedules continue to change and expand, we are now looking at each playing surface individually as it relates to scheduling maintenance activities. We are fitting our maintenance plans around the use on both the natural grass and synthetic surfaces. Our collective goal is to allow as much play as possible and still provide a safe surface. With this individualized surface maintenance plan, we have also increased what we call targeted maintenance practices. Some of the practices that we employ are aerification only in high wear areas, fertilization only in areas that need additional growth and recovery, systematically moving fields around to distribute wear to different locations, adding additional play from different sports to change the wear pattern, and looking at new varieties of natural grass that may take increased use with less inputs.

How convertible end zone panels work

// By ERIC SCHRODER

Erik Harlow, the Lucas Oil Stadium field coordinator famous for repairing a seam in the middle of last year's Big Ten championship game, told *SportsTurf* that the Colts chose to have convertible end zone panels made because paint was not holding well on the fibers of the initially installed synthetic turf.

"So we had blank green panels made and converted the system," Harlow said. "It's not a cheap process but if your facility has the money it is a very nice option."

Harlow said the process time of switching out the panels varies depending on how many panels are being replaced and how much labor is available. When we spoke, Lucas Oil's surface was being replaced (FieldTurf out, Shaw Sports Turf in, with The Motz Group handling the installation); Harlow said he hopes installation time for the new system's panels will be 12-15 hours for both end zones.

The panels are secured by heavy-duty Velcro along their edges, which can be unzipped before the panels are rolled up, a pipe put through the center, and then taken away via picker. "Having a proper rack or cradle for storing panels is important," Harlow said. "Being rolled up keeps the infill in the panels; when you go to put them down again, you only have to refill along the edges.

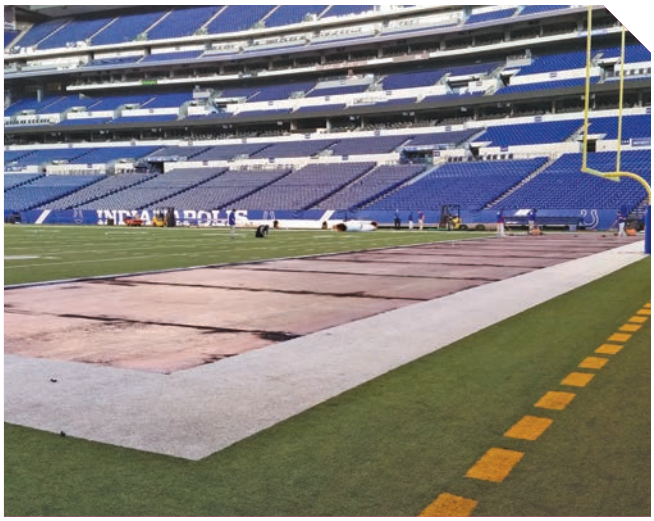
"The synthetic turf manufacturers build the panels and all have crews who do the switch outs; I will call about 2 months in advance to schedule their 5-6 person crew. And then when they are here we supply more labor," he said.

"The process is pretty cut and dried and we've had great success. When the panels are properly installed, you can't tell the difference," Harlow said.

Harlow said he likes to make the conversion about a week before a special event like the Big Ten championship game, to give the new paint time to dry before pre-game media events, etc.

The seams are secured by having the "loop" part of the Velcro sewn onto the bottom of each panel, and the "hook" part on a wide strip that lays on the ground, by zippering them together they adhere to the ground, and then infill is used to fill in that seam, Harlow said.

Storing the panels properly is very important to making the process go smoothly, Harlow said. "You don't want the panels laying flat, and you don't want to roll them until they are completely dry after the paint is removed," he said. "The tighter you can roll them, the less infill you'll lose.



The panels removed during a converstion at Lucas Oil Stadium in 2016.

Rolled panels staged on the sideline.

"Keep a close watch on the Velcro; it can become contaminated with paint and infill, especially the male Velcro on the bottom," he said. "You also need to watch that any equipment you are using doesn't somehow compromise the integrity of the Velcro. Stay off the edges, and especially when there are no panels in place, limit any equipment being on those edges. If you keep them firm and clean there will be less infill in the Velcro."

Harlow said if a turf manager is able to be part of the process from the beginning, he or she should ask the panels be designed to that as many seams as possible fall outside the hash marks, which will limit possible problems.

"Go with a company that has experience installing quality surfaces, and someone you are personally comfortable working with," he added. **/ST/**

JOHN MASCARO'S PHOTO QUIZ

JOHN MASCARO IS PRESIDENT OF TURF-TEC INTERNATIONAL

////////

ANSWER ON PAGE 33

CAN YOU IDENTIFY THIS SPORTS TURF PROBLEM?

PROBLEM:
Police tape found on facility in morning

TURFGRASS AREA:
Six-field baseball and softball complex

LOCATION:
Louisville, KY

GRASS VARIETY:
Bluegrass mix and fields are artificial turf

Application conditions influence turf colorant performance

// By DREW PINNIX AND GRADY MILLER, PHD

When painting and athletic field are mentioned in the same sentence, we most commonly think of those freshly painted lines and logos that athletic field managers spend countless hours perfecting for the next sporting event. However, painting fields may be about nothing more than making the surface green. Painting bermudagrass athletic fields with turf colorants has become a common practice to enhance winter color of heavily trafficked overseeded athletic fields as well as low-use non-overseeded fields.

The use of turf colorants rather than overseeding reduces agronomic inputs and can result in a more predictable spring green-up. Whether turf colorants are used to accentuate the natural green color of an actively growing turf or simply to provide color during winter months, it is important to apply these products at the ideal time to maximize product functionality while minimizing the potential for problems.

Types of products for specific uses

Generally, colorant products fall into three categories: paints, "pigments," or dyes. In simple terms, the difference among these categories involves the amount of binder and pigment ingredient in the product. Binder creates adhesion of pigment to turfgrass leaf blades, suggesting its importance in regard to product longevity. The extended life of paints can be attributed to increased levels of binder, which are typically resin based. Paints have binder amounts that usually comprise between 10 to 40% of the concentrated product, whereas the pigments have much lower amounts of binder. Paints contain mostly insoluble pigments designed for opacity compared to pigments and dyes that have soluble organic pigments that provide color with very little opacity. These products between paints and dyes are often termed "pigments" by the turfgrass industry. The term "pigments" thus refers to low-binder products that have the opacity characteristics of paints. The products with a higher percentage of binder (but less than that of paint) are often termed as "colorants" by the turfgrass industry. There are many different products on the market and knowledge of product formulation can be very beneficial to athletic field managers when selecting a colorant for application.

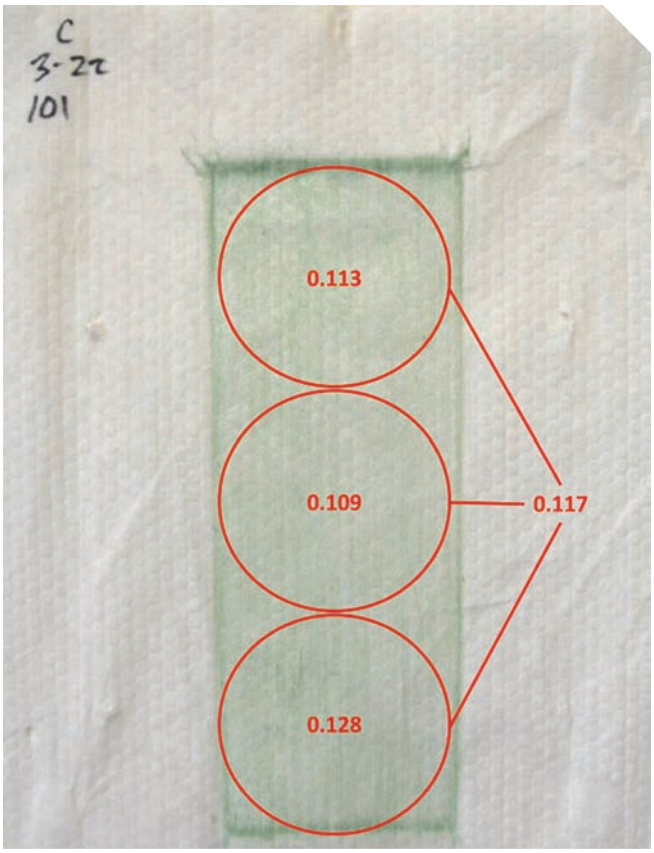


Fig. 1. Colorant transfer sample collected from treated plot. Transfer amounts quantified with NDVI reflectance device.

Air temperature at colorant application

Our research has identified great variability in measured color parameters and physical properties among turf colorants. For example, vast differences in fluid viscosity of turf colorants suggest colorant formulation may influence colorant performance. During some of our earlier trials, we found certain products were prone to tracking as well as extensive off-target staining during the application process. Athletic field managers have enough field issues to worry about without the concern for staining of athlete uniforms. To better characterize products for staining potential, we developed techniques that allow us to evaluate turf colorant transfer onto absorbent materials similar to athlete uniforms (Fig. 1).

Throughout the past few years, we have screened more than 30 products for colorant transfer potential. As expected, results have varied substantially among the products tested. Some products transfer non-discernable amounts of colorant one day after colorant application, while two products stained cloth at unacceptable levels up to 6 weeks after application. Elevated levels of colorant transfer multiple weeks after colorant application has been the exception as even the poor-performing products produced acceptable transfer levels by 14 days following application. Considering those results, a product that has increased colorant transfer potential can still be a viable option for field managers if applied far enough

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in advance of a sporting event. If the product is applied well in advance of an event, the additional time under traffic may risk reduced quality of color. However, the reduced paint quality may be a necessary sacrifice for most field managers in order to minimize the risk of excessive uniform staining.

Our most recent colorant transfer trials have focused on air temperature at the time of colorant application. During an earlier product evaluation trial, we observed colorant transfer levels that were much higher for all products tested during year 1 compared to year 2. The temperatures during year 1 were much cooler, which led us to believe that air temperature may influence colorant transfer. After further investigation, our research has shown that air temperature during colorant application can greatly influence the product's ability to adhere to the turf foliage. Specifically, when applied at temperatures below freezing, colorant transfer from leaf tissue onto absorbent material more than doubled compared to when colorant was applied at 45°F (Fig. 2).

If transfer is a concern, a field manager may not want to apply these products when frost is present or air temperature is less than 45°F as severe staining of athletic uniforms can have significant cost ramifications. This causes a bit of a dilemma for athletic field managers because most turf managers that have used turf colorants agree that visual paint quality is increased when there is frost present during colorant application. However, the lower temperatures required to produce frost can promote greater colorant transfer. For most products, once the air temperature warms the colorant further dries and has increased adherence to the turfgrass. Turf managers also risk producing tire marks when applying colorants when frost is present. We have yet to test the influence of frost on subsequent visual paint quality, but recognize that it is very popular among golf course superintendents. We caution athletic field managers to plan applications far enough in advance of sporting events to minimize transfer potential if frost is desired at application.

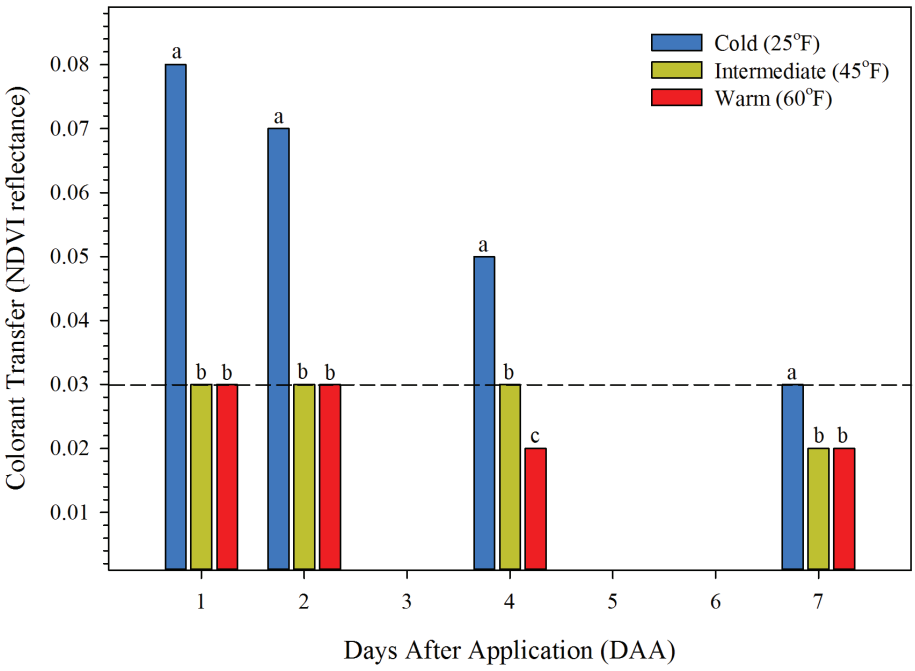


Fig. 2. Averaged colorant transfer when applied at three air temperatures.

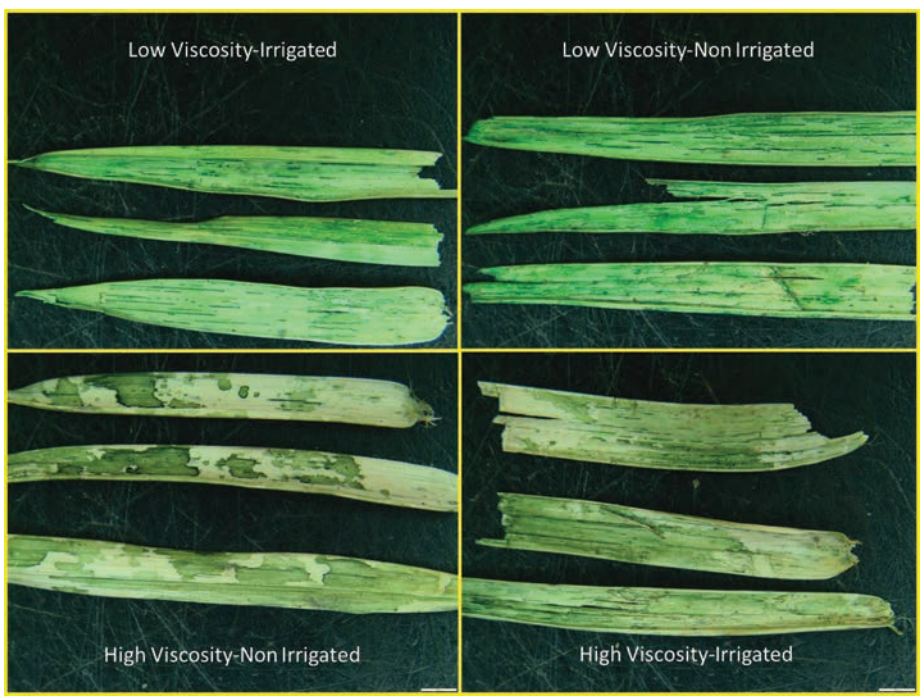


Fig. 3. Turfgrass leaf samples following the application of low and high viscosity products with or without irrigation.

Leaf wetness at colorant application

During the previous two winters, we tested wetting the dormant leaf blade prior to colorant application to evaluate any influence leaf wetness may have on colorant quality and coverage. The results have varied, and have been mostly product dependent. We have found that the quality of colorant-treated turf following

the application of products with lower viscosities is not greatly influenced by leaf wetness at the time of application. Conversely, we have seen where leaf wetness can improve quality of the colorant application when using products that are of higher viscosity. Products with lower viscosities spread more evenly across the dormant leaf blade, whereas higher viscosity products almost have a speckled look when examining at a microscopic level (Fig. 3).

Although the speckled look is not visible at eye level, you are able to see improved colorant coverage and quality when applying a light application of irrigation before treating with higher viscosity colorants. Something else to keep in mind is that as the turfgrass becomes more dormant, the leaf tissue becomes drier. Supplemental water (irrigation) will increase leaf moisture and the added moisture will reduce the applied colorant from absorption into the leaf tissue. This can increase the colorant's coverage and improve color. While leaf wetness is usually accomplished with a quick syringe cycle from the irrigation, some people have waited to apply the colorant after a light rainfall or even early in the morning with the presence of dew. Be aware that too much irrigation or rainfall can cause puddling that can dilute the application and result in an undesirable appearance.

Maximizing colorant functionality

Making timely applications should be a primary concern for all athletic field managers who use turf colorants. Choosing the best product is difficult since not one product has significantly outperformed the rest in all our evaluations. However, one can mitigate product shortcomings by applying them under the ideal environmental conditions. For example, managing colorant transfer can be difficult for athletic field managers, especially those who maintain fields at the recreational level. Applying products in warmer air temperatures will help prevent elevated levels of colorant transfer onto athlete uniforms. We would also recommend using products that are of higher viscosity. The increased binder in these products will help retain colorant pigment on the leaf blade rather than dislodging onto an athlete's uniform. Keep in mind that products higher in viscosity often do not produce the best paint coverage. Applying a quick irrigation cycle prior to colorant application or applying when there is dew present can help mask coverage deficiencies.

As mentioned before, there are a number of colorants now available. Some are more appropriate for specific uses, while others can be considered general use products. The best way to identify how to use these products requires a bit of experimentation by the turf manager under each unique situation. However, applying colorants under the conditions mentioned in this article can help improve the quality of the painted surface while enhancing the functionality of the colorant treated field by decreasing the risk of colorant transfer onto athlete uniforms.

For more information on individual products refer to *www.turffiles.ncsu.edu.* **/ST/**

Drew Pinnix is a graduate research technician, and Grady Miller, PhD, is professor and Extension turfgrass specialist at North Carolina State University in Raleigh.

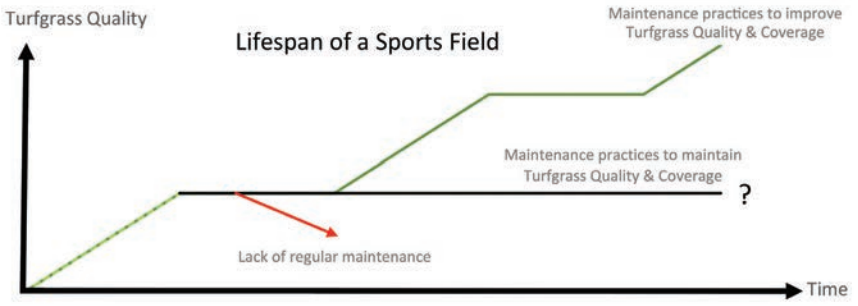
Fig. 1. Sweeping in of Compost at the PTRC's turfgrass plots on KB turf maintained at 2.5" HOC.

Topdressing with compost

// By KATIE DODSON, MSc

Traffic is one of the dominant stresses that all actively used sports fields face. Traffic leads to soil compaction that eventually results in a loss of vegetative coverage on primary play surfaces, and unsafe play conditions. Ideally, all maintenance programs are designed to maintain turfgrass quality and coverage after establishment, but more often is the case that turfgrass quality declines as the play seasons progress (Graph 1).

In an ideal world, maintenance practices beyond regular fertilization and mowing will help to improve turfgrass quality, or at the very least maintain it at the original quality. Unfortunately, over time, fields become worn and eventually the quality and turfgrass coverage begin to decline. Fortunately, one tried and true method for mitigating wear damage is to adopt the practice of topdressing and aerification. Topdressing is a time when many field managers will introduce new technology to their play fields, such as overseeding with modern cultivars, or adding soil amendments into the profile.



Graph 1: Idealized depiction of how turfgrass maintenance practices can maintain or improve the quality and coverage of a play field. Modified from Gingell, 2008.

These introductions may help to improve the turfgrass quality and coverage of in-use fields (dark green line of Graph 1).

Topdressing sports fields with a compost-dominant mix has been a source of controversy, as the typical recommendation is to topdress with materials closely matching the underlying rootzone, as long as the parent material easily drains and is supportive of natural sports turf plant growth. If there were problems with the underlying rootzone material, then topdressing with a relatively uniform sand source that has no fine particles, particularly clay, is the standard recommendation for sports fields.

Extension bulletins often encourage the use of compost in topdressing materials due to compost's ability to increase the the cation exchange capacity of the soil through the addition of organic matter; and to stimulate soil microbe population through the addition of microbes and by creating a conducive environment that encourages microbial population growth.

Fig. 2. Side by side comparison of an UTC plot (left) and a plot treated with 0.2" depth of compost 1 time per season. Picture taken August 21, 2017, Olds, AB. Wear commenced May 2015 and the trial was completed Sept 15, 2017.

Research on the incorporation of compost during the establishment period has found that compost additions in general improve both soil properties, such as a soil's tilth and friability, which ultimately improve soil drainage, as well as increased germination rates. There has been published research on the effects of both compost and compost tea applications on disease suppression in both field crops and turf.

With respect to using compost as a topdressing amendment, the data is limited. One compost topdressing study investigated using compost as the only nutrient source on turf, and two other topdressing studies used manure compost and biosolid topdressing for improving soil structure and improving turfgrass quality. None of these studies focused on Kentucky bluegrass fields that maintain scheduled play throughout the duration of a growing season, like is typical for the northern US states and Canadian municipal athletic fields.

The overall objective of the study performed at the Prairie Turfgrass Research Centre (PTRC) of Olds College was to determine if there were any measurable improvements to turfgrass quality in high wear areas from topdressing with compost. Two compost sources were evaluated: municipally sourced thermophilic compost and vermicompost. Thermophilic compost is the resultant of organic material being broken down into compost through the action of microorganisms during a mesophilic (10-40C) cycle, followed by a thermophilic (40-65C) cycle, and a final maturing mesophilic cycle. Vermicompost is the end product from the use of worms breaking down organic material into worm castings, aka worm manure. Darwin (1881) probably said it best when he was describing the action of worms in their habitat: "It may be doubted whether there are many other animals which have played so important a part in the history of the world, as have these lowly organized creatures."

Worms create numerous benefits to both the soil and the plants residing in the soil, therefore the use of worm castings as a topdressing material was tested to determine if these benefits of worms could be transferred into a high-wear sports field area. Both compost types were evaluated in this study to determine if one would result in superior performance over the other one.

The topdressing depths tested were: 0.1" 0.2", and 0.4", and topdressing frequency was a one-time spring topdressing event versus a three times applications (every 6 weeks) during the growing season. The total volume was premeasured into bags and then hand spread using dustpans and

Fig. 3: Student research assistants applying the compost to each individual plot at the PTRC, Olds, AB.

Fig. 4. Inland Athletic Rugby Field. Calgary AB after a 0.2 in (0.5cm) compost application.

stiff push brooms for sweeping the compost into the canopy (Fig.1). The turf was evaluated weekly for turfgrass quality using the NTEP 1-9 scale, chlorophyll content using NDVI, surface hardness using the Clegg Hammer, moisture levels at the 1.5", and 3" depths using a TDR moisture meter, and turfgrass surface coverage using digital image analysis (DIA). Soil chemical properties such as Solvita testing (microbial respiration via measuring CO2 output from the soil samples), C:N ratio, and the various soil nutrient levels were measured at the end of the trial through offsite laboratory testing.

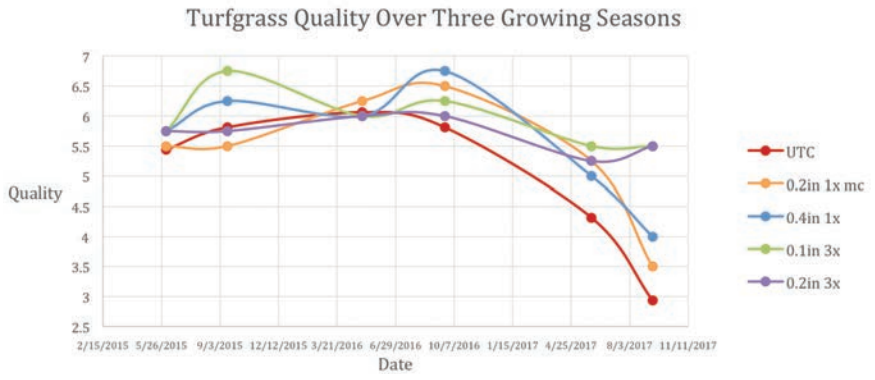
Topdressing with either type of compost improved the overall performance of all plots (Fig. 2), with the exception of the one-time 0.10" depth treatment. Plots that did not receive topdressing (UTC) had lower performance ratings with respect to visual quality, NDVI, 1.5" and 3" moisture levels, surface hardness, and turfgrass coverage when compared to the plots that received topdressing. Interestingly

COMPOST TOPDRESSING TIPS

Ensure the compost is ready to use by doing two tests: The Sealed Bag Test: place a handful of the compost into a Ziploc bag, seal it and wait 2-3 days. Open the bag and smell. If you smell a putrid smell, the compost needs to continue maturing before using. If you smell an ammonia smell then the compost source needs the addition of dry carbon material, like leaves added to the pile. Germination Test: do a simple side-by-side experiment using radish seeds where you compare the germination rate of the radishes in potting soil vs. the compost. If germination is limited in the compost pot, it suggests the compost is not quite ready to use.

- The texture should be Friable (crumbly) that ideally screened through a 6-9.5 mm (0.25 - .375") screen.
- Moisture content should be 30-50% moisture.
- C:N ratio ~30:1
- pH 6-8
- Apply the compost at 0.2 – 0.4" (0.5 – 1 cm) depth annually or up to 3 times in a season.
- Be sure to sweep the material in to minimize any muddy spreading during the following week after application.

Core Aeration is an important part of a maintenance program and should be performed at least once a year in the fall or spring when the turfgrass is stress-free and actively growing.



Turfgrass Quality changes over 3 growing seasons. The quality of the UTC changed from a mean quality of 5.5 to 2.9, while the best light and frequent topdressing rates remained consistently close to the quality at the onset of the trial (5.5).

the 3-season mean moisture levels were lower at both testing depths for topdressed plots, suggesting the addition of compost helped to improve soil structure resulting in greater infiltration rates.

This result was visually apparent in season two of the study (summer 2016), where the research plots were receiving well over an inch of rain each week in heavy prairie-style rainstorms. The compost treated plots did not have standing water while the UTC plots tended to puddle and hold water for several days. The difference between the two compost types was minimal; however, the VC compost did have greater secondary nutrients in the samples at the end of the trial. Unfortunately, worm castings are very expensive and not cost effective for most municipalities to justify using; however the municipally made thermophilic compost did a good job when maintaining turfgrass coverage.

The practice of topdressing with compost resulted in greater turfgrass coverage and quality, although topdressing alone was not enough of an 'extra' maintenance practice to improve the quality or the turfgrass coverage beyond the starting point of the trial (Graph 2). Without an overseeding program introducing new plants into the sward, there was a decline in both quality and percent coverage in season 3 of the study, whereas the decline was more apparent in season 2 for the UTC plots.

Maintaining turfgrass coverage is the ultimate goal of high use fields, and it appears that the best strategies for topdressing is to apply compost at the 0.2 or 0.4 in depth one time or the 0.1 or 0.2 in depth three times in a season. Going more frequently resulted in the highest turf coverage, however even just a one-time application did improve turfgrass coverage by almost 20% (Fig. 2) when compared to the UTC.

The 0.4 in depth may be challenging to achieve, as it tended to leave the plots muddy for a week until the material was incorporated down through the canopy further than the one time manual sweeping action resulted in (Fig 3). This depth was not tested on in-use fields, however the 0.2 in depth was at fields in Calgary, Edmonton, and Lethbridge with play scheduled that same day (Fig. 4).

There were no complaints made about the condition of the fields, and interestingly most player groups were happy to see that amendments to their fields were being done. Using compost as part of the maintenance program appears to be beneficial over three seasons, and if the municipality you work in is already green-streaming organics into a local compost facility this may be a great option for improving wear tolerance.

[Editor's note: references available at *www.sportsturfonline.com.*] **/ST/**

Katie Dodson, MSc, is senior research scientist, Turfgrass, for the Prairie Turfgrass Research Centre, Olds College, Olds, Alberta. Global Technical Manager, Turf and Landscapes with Syngenta starting in September. I'm moving to Switzerland.

Performance testing on bermudagrass fields

// By TAYLOR WILLIAMS AND DR. JOHN SOROCHAN

Bermudagrass athletic fields are commonly located in areas with hot, dry summers and it is chosen due to its recuperative potential and drought tolerance. These playing surfaces are often used year round with little time for cultivation. In many cases, practice fields are not maintained to the same level compared to game fields though because they typically are not seen by many outsiders. Safety should always be the highest priority when managing athletic fields.

Practice fields are where athletes spend most of their time, which can lead to bodily harm if the field is not properly maintained. This leads to playing surfaces becoming hard and compacted, resulting in more frequent injury, as the ground is not able to provide the adequate cushion needed to protect an athlete during a fall.

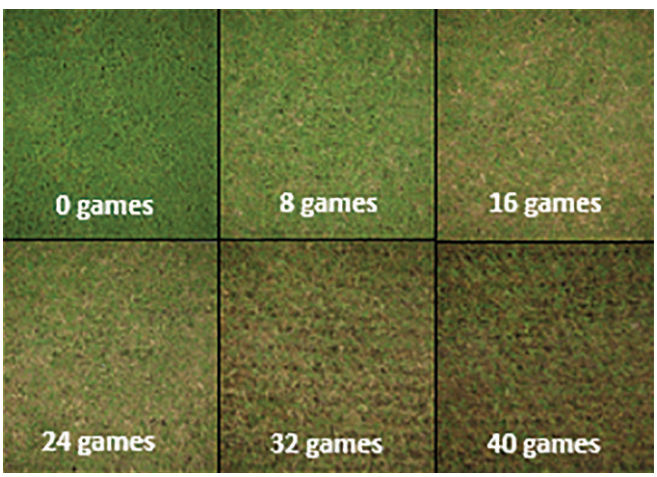
A variety of testing methods are used to evaluate both natural grass and artificial athletic fields. Natural fields are constructed with sand rootzones or native soils, which often contain high clay levels. Sand-based rootzones are reliable because they allow for the surface to drain rapidly when compared to rootzones higher in clay. A sand-based rootzone allows rain to penetrate the surface and drain rapidly, instead of moving slowly through the tightly packed clay particles. Traffic simulation research has been carried out on both sand and clay rootzones at the Center for Athletic Field Safety at the University of Tennessee.

Protect yourself with testing

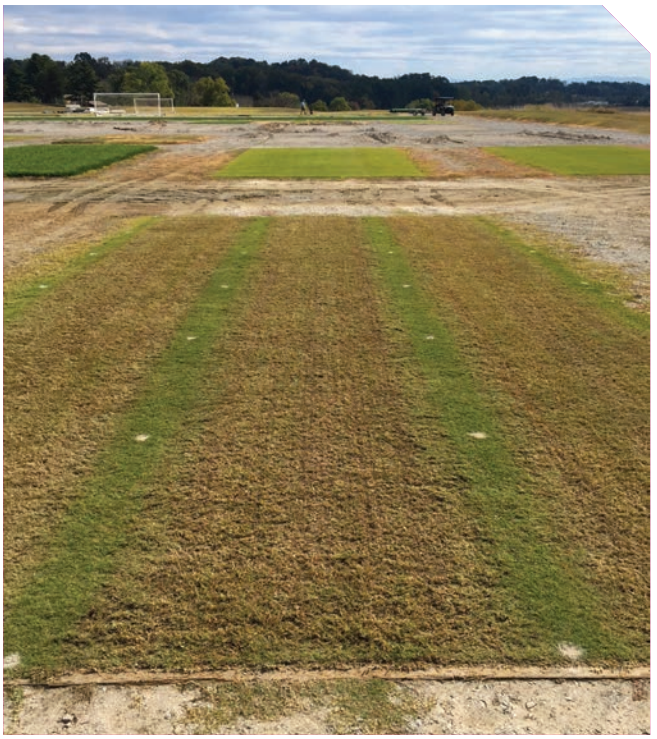
Changes in surface consistency include reductions in turfgrass cover and changes in surface hardness. Surface hardness for natural turf has been traditionally measured using the Clegg Impact Soil Tester (CIST), but the CIST has not been correlated to player safety. Alternatively, the F355-E Missile measures surface hardness and head impact criteria (HIC), and has been correlated to potential human head injuries. This testing device resembles a human head, as the missile has a curved bottom and weights approximately ten pounds. Other missiles used for testing have flat bottoms that do not resemble the impact a human would have when the head strikes the turf surface. The critical fall height (CFH) is identified by 1000 HIC, where 16% of the population would suffer a traumatic head injury.

The experimental area was established hybrid bermudagrass grown on two separate plots, sand and a high-clay soil. Eight simulated traffic events were applied weekly to the separate plots for a total of 5 weeks (40 traffic events). Each traffic event replicates the amount of traffic a football field receives in the highest wear areas (between the hash marks and inside the 40-yard lines). Performance tests were carried out once per week, at the end of each eight-game cycle. Percent green turfgrass cover was analyzed before and after each traffic simulation using digital image analysis. Soil volumetric water content was collected five times weekly to verify moisture fell in the ideal ranges for each soil type as identified by Dr. Kyley Dickson at the University of Tennessee. Three drop heights were used when testing with the

The F355-E Missile is dropped from 2.5 meters.



A sand-based rootzone at 0, 8, 16, 24, 32, and 40 simulated games.



Each traffic event replicates the amount of traffic a football field receives between the hash marks and inside the 40-yard lines.

Each traffic event replicates the amount of traffic a football field receives between the hash marks and inside the 40-yard lines.

F355-E Missile to simulate possible heights (1.3, 1.9, and 2.5 meters) from which an athlete's head may fall during a practice or game.

A fall from 2.5 m on the native soil always had a HIC value above 1000. The sand rootzone was more predictable in terms of HIC as a result of the sand reaching a point where it could not be further compacted resulting in a firmer rootzone. After the bermudagrass canopy was destructed, revealing sand, surface hardness testing results became similar for the remaining weeks. The CFH for native rootzones shortens as the surface becomes compacted at a much faster rate than sand due to the ability of clay particles

Author Taylor Williams pulling the traffic simulator.

to compact, which results in a denser soil after traffic is applied to athletic fields.

Athletes must have a safe playing field to be able to perform at a high level for their entire career. An athletic field is at its best for only one game each season; before any games have been played on its surface. Throughout the length of a full football season, a field's safety characteristics change in all types of rootzones. The data we are collecting will be useful to field managers, coaches, parents, and athletes to provide an estimate of when the turfgrass surface becomes unsafe during the playing season. This data will also give field managers the knowledge they need to limit play on their fields when they become unsafe. This will reduce the need to completely replace a natural grass field since the field is not being completely destroyed by the players during a season.

At this time, cultivation techniques can be performed to make the athletic field safe, and playable once again. Turf managers should periodically performance test during the season to ensure safe playing conditions at all times. Future research can be done to use this test procedure for other sports such as soccer or rugby. **/ST/**

Taylor Williams is a Master's candidate in the Plant Sciences Department at the University of Tennessee in Knoxville; John Sorochan, PhD, is a Distinguished Professor at the University of Tennessee in the Plant Sciences Department and heads the Center for Athletic Field Safety in Knoxville.

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JERAD MINNICK, NATURAL GRASS ADVISORY GROUP

This month in "The *SportsTurf* Interview," we meet Jerad Minnick, whose passion for natural grass is fueled by his role as lead advisor for the Natural Grass Advisory Group. Minnick, a long time sports turf manager, brings his on field experiences to his clients and into the classroom. Minnick holds a BS in plant science/turfgrass management from the University of Missouri and formerly was the director of field maintenance for the 22-field Maryland SoccerPlex just outside Washington, DC. He also has served as the director of field maintenance for MLS's Sporting Kansas City. Minnick started his career at Kauffman Stadium with the Kansas City Royals as the manager of grounds.

Jerad Minnick, lead advisor the the Natural Grass Advisory Group.

***SportsTurf:* How did you first become involved in sports turf management?**

MINNICK: My love for high-use sports fields came out naturally when I was 12 years old when I built a make-shift baseball field in the pasture across the gravel road from our house. But I had no idea sports turf could be a career even during my first year in turf management at Mizzou. My goal then was to become the superintendent at a golf course in one of the small towns around our family farm. Fate and luck changed that though when my academic advisor took a call from Trevor Vance, head groundkeeper at Kauffman Stadium in Kansas City, who was inquiring about developing an internship program. As a life-long Royals fan, this sports-loving farm kid jumped at the chance to work on a Major League Baseball field. That was the first time I realized sports turf management could be a career.

***ST:* You know a lot of sports turf managers. What are they saying are the biggest obstacles to overcome for them to be successful today?**

MINNICK: Overall it seems turf managers see their biggest obstacles today being "too much play" and that "coaches and/or administrators do not understand what it takes to maintain a field." But from the successes we see, the biggest obstacle for field managers is actually that they think those are their obstacles.

The managers having the most success and who are becoming the highest paid do not think that they have too much play. They are working pro-actively to manage the play and to bring new technology into their program to improve the fields. Their ability to get those new technologies comes with having strong, professional relationships with their coaches and administrators. They use data to justify spending. They have 5-year master budgets and master plans. They insert themselves into a suit and sit in executive meetings, even if they don't really need to be there. No doubt we are in a time of transition in the industry, and the possibilities of the future are so exciting!

***ST:* What are your main responsibilities? And what does a regular working week entail, if there is such a thing?**

MINNICK: As Lead Advisor of NGAG, my #1 focus is always helping our clients. Recently we added a managing director, Julie Adamski, to lead the rest of our team and allow all of my time to be focused on clients and spent with our project managers. There certainly is no "regular" anything when it comes to a workweek! Having a Managing Director also allows time for me to work on up-scaling the NGAG field-testing and analytics program as we work to establish standards for playability, consistency, and safety for all natural grass surfaces.

With travel, a typical week for me includes a minimum of 3 days travel, by car or airplane, to be out face-to-face collaborating with clients. Traveling or not, my days all start at 5 am ET. No matter the time zone. At 5 am ET we are already "behind" as Europe is at least 5 hours ahead and Asia is 12-14 hours ahead. Early mornings are focused on client reporting and project plans. Mid-morning until mid-day is for meetings, both via phone and in-person. Then afternoon is for problem-solving the challenges of the day. We never pass-off on a challenge for "tomorrow." The fields and field managers we support do not have "business hours." Nor does Mother Nature. So it is important to hit all challenges head-on and find a solutions

ASAP, especially with cool-season fields in the summer. It's hard for people outside the turfgrass world to understand why cool-season sports field managers do not take vacation in the summer time. There are few challenges in this world like keeping cool-season turf alive during summer stress periods. Vacation just has to be put off until another time. But the busy nature of our work or the travel never gets old. Every day teaches us something new, as every day is full of new possibility for pushing the limits of high-use natural grass surfaces that are safer for athletes and that have a positive impactful on the environment. Those possibilities are endless. Those possibilities are amazing!

***ST:** Tell us about the Natural Grass Advisory Group; how did it get started, what are its goals?*

MINNICK: NGAG is an independent advisory and testing firm focused specially on high-use grass fields. We offer four services: analytics/surface testing; education on maintaining fields to take more use; advice for facilities dealing with high-use challenges; and project management for maintenance, renovation, and/or construction of high-use fields. Unless we have numbers and data to support our work, we are just providing our opinion, all our education is supported from our testing program, just as advisory and management are based in data as well. It does not matter how smart we think we are, it matters where the data guides us.

"IT DOES NOT MATTER HOW SMART WE THINK WE ARE, IT MATTERS WHERE THE DATA GUIDES US."

NGAG launched more than 3 years ago with a mission developed during my time as Director of Grounds at Maryland SoccerPlex. Out of necessity to meet use demand, our field management team re-wrote the book on high-use field maintenance and crushed the old "rules" about the amount of play grass could sustain. Even as field use time ballooned to 1000 hours + per field per year, SoccerPlex field quality continued to increase. Soil de-compaction was Focus #1, happening every 2 weeks as use never stopped. Small windows for renovation spawned us to adapt fraze mowing for the USA and stimulated us to go seed to play in only 35 days on a Kentucky bluegrass field.

We want to show that old "rules" re how many hours of use a natural grass field can sustain without being in disrepair are wrong. The possibilities for high-use fields and

my love of a challenge spurred me to step away from the SoccerPlex to start Growing Innovations, a company that works with vendors on creating and expanding technologies for high-use grass fields. Then in May 2015, Natural Grass Advisory Group was born and our #GrassCanTakeMore mission launched.

ST: How do you keep up-to-date on emerging technologies and best practices?

MINNICK: In short, we DON'T keep up with emerging technologies! Yes, it seems we are working well ahead on a lot. But every day we uncover technologies that have existed for multiple years. A great example is the plant activity sensor we map fields with. It looks and sounds space age. We collect plant activity/plant health in real time and can compare it to the health of the plants at any other given time. It allows traffic stress or disease to be diagnosed well before we see the change with our eyes. But it is NOT space age. The sensor has existed since 2003. Work was done on an athletic field in 2004. Similar was traditional fraze mowing, which was developed in 1999 in Holland. We didn't start working with it in the USA in 2012 and still today people consider it "new." But it is not.

To "discover" these things, we are asking questions. The beauty of science and technology is that things are always evolving. We try hard to keep an open mind, realizing we will never "know it all." And even when we think we have it figured out, we still might not be right. Testing and data mapping alone has been extremely humbling as data diagnoses so many things that we though we knew but also actually have been wrong. We will never stop learning and evolving. It's so exciting!

ST: What's the best piece of turf management advice you have ever received?

MINNICK: "If you can't measure it, you can't manage it." Early in my management career, I was still extremely intimidated by all the numbers on a soil test report. So I still was relying on my sales reps to guide me with them. That combination kept my fertility approach essentially the same from year to year, no matter what the soil test said. During a grow-in, we could not get the sod to root onto a new sand-based field, even though we just kept throwing fertilizer at it. One night I was just staring at the roots and I asked myself "why will they start to grow, but then they will not grow DOWN into the sand. CLEARLY there was an issue in the sand and we needed to quantify it. We had a soil test already, but my sales reps were the ones who were breaking it down for me. I shared the test with an independent soil chemist who I hoped wouldn't laugh at me too much for admitting I had no idea what it said. And sure enough, a pH of 8.8 was the serious limiting factor for rooting. We were throwing all this fertilizer at it and essentially wasting money because it was never going to root. The soil chemist did not make fun of me thankfully, and he changed the early course of my management career by encouraging me to embrace the soil test data instead of fearing it. "If you can't measure it, you can't manage it" he said. And how right he was! SO simple, yet SO profound.

ST: What are your passions and interests outside of work?

MINNICK: Do turf managers have time for things outside of work?! Ha ha. Fortunately I have not "worked" a day in my entire field management career. And my work crosses into my passions: 1) Leaving this planet in better condition than it was left to us, and 2) Improving the life experiences and opportunities that kids today have compared to ours in the past. High-use natural grass fields impact both of those things. And because our rescue dogs have each loved running around on grass, and because I am fortunate enough for NGAG to "take root" quickly where I get to travel and see the work, all of my passions outside of work tie in directly with my passion inside my work. **/ST/**

JOHN MASCARO'S PHOTO QUIZ

JOHN MASCARO IS PRESIDENT OF TURF-TEC INTERNATIONAL

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ANSWERS FROM PAGE 17

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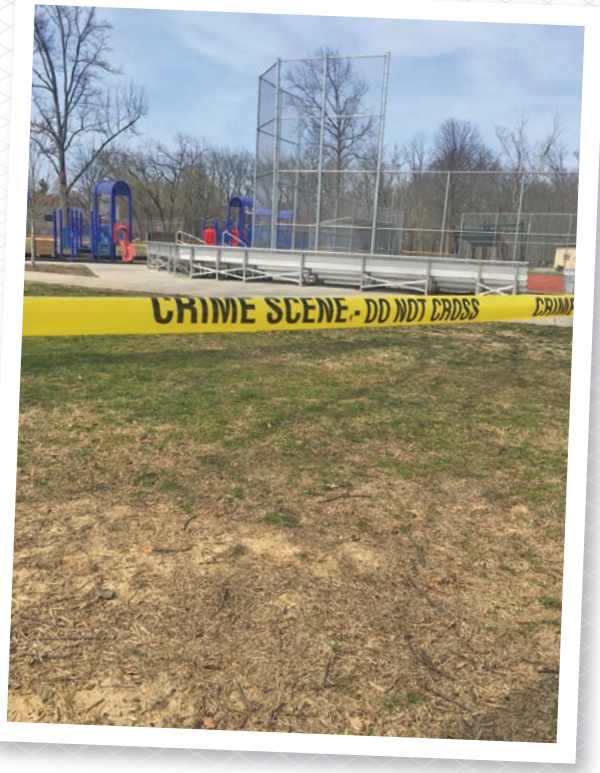
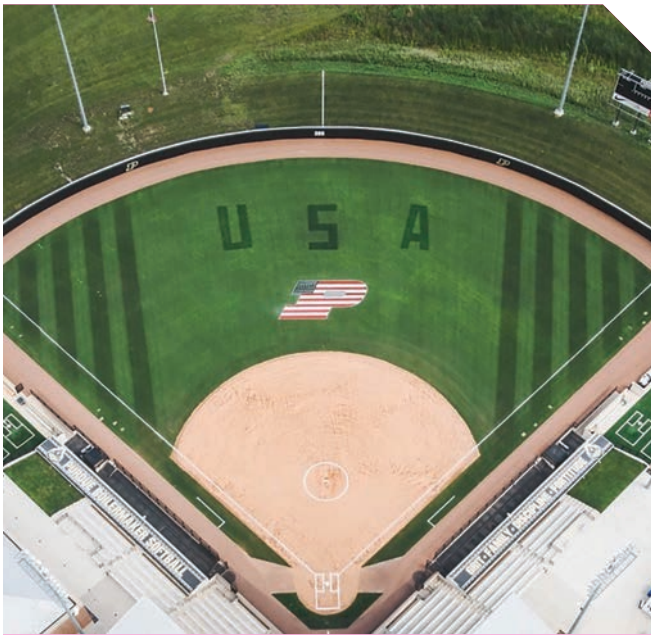
This baseball and softball complex with six fields is located in a city park in Louisville, KY. When the Sports Turf Manager arrived at the facility one morning, he was concerned when he came upon this police crime scene tape. According to the facility's Executive Director, there has never been any sort of police incident at the park before, so he tried to find out what had happened. As it turns out, the police department held a training activity at the park and forgot to remove some of the crime scene tape after the exercise was over. The city's police department does occasionally use one of these fields for K9 training, however they always clean up after themselves and their dogs. Although this photograph is not really a turfgrass problem, it is just one example of the many different activities and wear issues that go on in our parks and recreational areas to aid in the betterment of our communities.

Photo submitted by Doug Netherton, Executive Director at the St. Matthews Baseball and Softball facility in Louisville.



If you would like to submit a photograph for John Mascaro's Photo Quiz please send it to John Mascaro, 1471 Capital Circle NW, Ste #13, Tallahassee, FL 32303 call (850) 580-4026 or email to john@turf-tec.com. If your photograph is selected, you will receive full credit. All photos submitted will become property of *SportsTurf* magazine and the Sports Turf Managers Association.



DRONE PHOTOS BY DAVE WEGIEL

10 questions with "Stars and Stripes" Contest winner, Ryder Haulk

We spoke with Ryder Haulk, assistant sports field manager at Purdue University, to learn more about his winning "Stars and Stripes" contest entry. "Red, White and Purdue" received a record 2,019 votes.

When and why did you decide to enter the "Stars and Stripes" contest?

The thought crossed our mind after one of our former students, Andrew Marking, won the contest last year, but we never really had a chance to enter in previous years because we don't usually have events during the summer. That changed this year, when we found out we'd be hosting the Indiana High School Athletic Association (IHSAA) state softball championships in mid-June. We decided to lay out the pattern as soon as the championships ended so we were ready for the start of the contest. We thought it would be something fun to do and get publicity for not only the sports turf crew but for the Purdue softball team and Purdue Athletics as a whole.

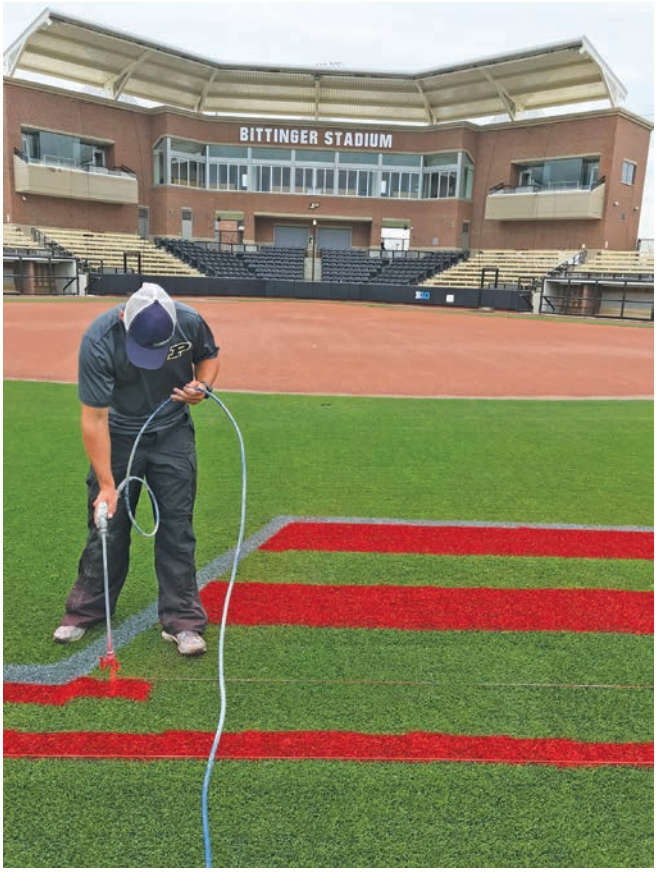
When did you start brainstorming the design and what was your inspiration?

Brian Bornino, CSFM, agreed that we could enter the competition if a good enough design was agreed upon within our staff. We started throwing designs up on our white board and discussing them. The one that was the overall winner within our breakroom was the idea to broom "USA" into the outfield grass with the Purdue "P" below it painted like an American flag. It was a combination of a few previous designs. We really liked what University of North Carolina Sports Turf did by turning their logo into an American flag, so we tweaked that a bit and added our own touch. We wanted to make sure we got all 50 stars and 13 stripes into the "P" logo. We had seen other entries mow/broom stars or a flag into an outfield, but never the letters "USA."

How did you create each of the aspects of your design?

For the "P" logo, we ran a string from center field to home plate, and another string from the inside corners of each foul line where the grass and warning track meet. We did this so that the logo wasn't in the exact middle of the outfield where the center fielder stands, but just inside that and outside the edge of the infield. The logo was bordered with an 8-inch gray line, and before we painted the stripes, we laid out the blue area for the stars. We mixed our royal blue and black paint together to get navy blue and a staff member from our carpenter shop, Mark

EDITOR'S NOTE: Thanks to the STMA's PR arm, Buffalo.Agency, for providing us this interview with Ryder Haulk.



Douglas, made us a small star stencil. We then spaced the red and white stripes out evenly, so we could fit all 13, using strings to lay each stripe out. Once the "P" logo was completed, we moved onto creating the "USA" in the outfield. Using multiple strings and tape measures to get the ideal location for each letter, the letters were then outlined with strings, so we knew where they were until they were more defined from rolling/brooming. Each letter was 4½ feet wide and 25 feet tall.

How long did each part (and the finished product) take to create?

Each part took a little longer than we wanted due to weather. It took us around 2 days to get the "USA" in and around 2 days to paint the "P" logo. Overall, I would say it took us a week to get all the fine details and mowing pattern looking how we wanted it to.

What was the most challenging part?

The most challenging part was measuring and laying out the "USA." The second most challenging part was trying to decide how we wanted to showcase the design in photos. That part became easier once we made contact with a local photographer, Dave Wegiel, who owned a drone and had done some amazing shots of our facilities.

How many gallons of paint did you use?

We used around 20 gallons of paint.

How many people were involved and what were their roles?

There were five people involved: four students and me. I mowed the field, layed out and painted the "P" logo and helped with the "USA." Lane Zink helped lay out and paint the "P" logo. Matt Homco, Brett Shoults and Anthony Maquet measured and broomed/rolled in the "USA" logo.

How did you decide to create the design on the softball field?

The summer for us is a time without games or events so our fields aren't typically game-conditioned. Our soccer and football fields are bermudagrass, which were still in the grow-in phase at that point. As mentioned earlier, we had just wrapped up the IHSAA championships at the softball facility so that was a natural choice.

What type of grass is it?

The field is a blend from Tuckahoe Turf Farms in New Jersey that contains Ginny, P105, Bewitched and Moonlight Kentucky bluegrass.

Anything else you'd like to add?

Thank you to everyone who took the time to vote and share our photo. We want to especially thank Dave Wegiel for taking the time out of his day with short notice to fly his drone over the complex and capture these pictures for us. We had a great battle for votes with the Columbia Fireflies. It was a tight race the whole week; they had a great design as well. ***/ST/***

Differences among wetting agents re: water infiltration

// By DR. XI XIONG

When water levels become inadequate in the soil to support optimum turf growth and performance, we know that irrigation is needed to prevent drought. There is a condition termed localized dry spot however, which refers to turfgrass plants that remain water-deficient in affected areas despite watering. This condition is caused by the development of soil water repellency, also referred to as soil hydrophobicity. In this state, soil repels rather than retains water.

When such a condition occurs, irrigation or rainfall water that hits the turf surface bypasses the water-repellent areas, similar to an electric current that seeks the least resistant route. Ultimately, water deficiency occurs in this area and forms localized dry spot. Sometimes, soil hydrophobicity is evident as slow water infiltration. Many of us have faced this frustration when water stands on the turf surface extensively after a rainfall event or just a light shower. The situation is worse if it happens before play.

To find a proper solution we need to start by understanding the underlying culprit behind soil hydrophobicity. Soil water repellency is a common and universal issue that occurs on all lands. It happens as a natural consequence of soil organic matter decomposition, which is attributed to plant residues and other sources of organic matter in the soil. Over time, decomposition of soil organic matter forms a range of complex organic acids, such as humic acid and fulvic acid, which tend to coat on the surface of soil particles. Once coated with these organic compounds, soil particles become water-repellent and introduced water will not be able to adsorb to the soil surface. Instead, the water molecules simply move away or down deeper in the soil profile under gravity. This resembles wax-coated apples that are waterproof, and water cannot "stick" onto their surface.

Water standing on the surface of a USGA green at the Turfgrass Research Facility, University of Missouri, after a light irrigation due to soil water repellency developed at this green.

Dr. Xi Xiong, Division of Plant Sciences, University of Missouri

Sand that we use to construct intensively managed turf for control of soil compaction, unfortunately, is more prone to develop hydrophobic conditions. By saying this, development of soil water repellency, especially on a sandy soil, is inevitable. An earlier report actually suggested that it might occur as quickly as 6 months after construction of a golf course green, for example.

Once formed, soil water repellency cannot be easily reversed by increasing irrigation water or frequency. As a matter of fact, soil water repellency in summer months typically worsens, as the soil experiences dry-wet cycles between irrigation/precipitation events. This fluctuation in soil water status changes the orientation of those organic acids, resulting in their water-repellent ends pointing outward from the soil particle. During this time, higher temperatures also stimulate production of organic acids, leading to a further progression of soil water repellency.

Fortunately, we can use a powerful tool, wetting agents, to alleviate this condition. Wetting agents are a type of surfactant that contains both oil-loving

and water-loving parts in their molecules, just like a household detergent. When applied to a water repellent soil, wetting agents work as a bridge with one end holding onto the water-repellent sand surface and the other end sticking to the water molecule, thus retaining water and consequently wetting the soil. There are numerous wetting agents in the turf market, and early studies aimed at control of localized dry spot found minimal differences among those wetting agents. There are, as a matter of fact, substantial differences when water infiltration and soil rewettability are concerned.

At the University of Missouri, a research team consisting of a turf specialist, a soil physicist and a soil chemist, discovered that wetting agents commonly used on turf exhibit substantial differences in facilitating water infiltration into water-repellent sand. Adapted from a manuscript published in the *Agronomy Journal* by this team, this research found that wetting agents, such as Cascade Plus, Tournament-Ready, and Hydro-Wet, infiltrated into extremely water-repellent sand at the speed of 84 in/hr or greater at ¼ label suggested rates. Without wetting agents, water alone simply accumulated on the sand surface and never infiltrated, despite maintaining a consistent 4 in ponding depth. Other tested wetting agents, such as Revolution and LescoFlo Ultra, resulted in a slower steady rate at 60 in/hr. The slowest infiltration was found with Surfside 37, which exhibited a steady infiltration rate of 41 in/hr 20 min after ponding. The infiltration with wetting agent solutions, although variable, all surpassed the minimum suggested steady infiltration rate of 6 in/hr, as recommended by the USGA for green construction.

After the wetting agent treated sands went through a total of three dry-wet cycles by oven drying, infiltration of water was again tested and the wetting agents segregated into three groups. The first group contained sands treated with Hydro-Wet and Surfside 37; water infiltration was reduced to the minimal rate after the first run of dry-wet cycle, and after the second dry-wet cycle, no water infiltration was observed. The second group contained sands treated with Revolution and Tournament-Ready, which allowed the water to infiltrate after the first two runs of dry-wet cycle but not after the third dry-wet cycle. The third group included sands treated with Cascade Plus and LescoFlo Ultra, with both maintaining water infiltration at 60 in/hr or above even after three runs of dry-wet cycle.

This lab-based experiment demonstrated the differences among selected wetting agents for water infiltration, and projected their residual effect in facilitating water infiltration under field conditions. Caution is needed, however, because wetting agents are being used for a range of purposes including conservation of irrigation water. An ideal wetting agent would therefore strive for a balance between water infiltration and retention, in order to maintain a firm playing surface and an ideal growing environment for turfgrass plants. The research team at the University of Missouri is also performing field-based experiments; stay tuned for more research findings. **/ST/**

Dr. Xi Xiong is Associate Professor, Division of Plant Sciences, University of Missouri. Xiongx@missouri.edu

REDEXIM'S RINK DS 3800 DISC SPREADER

The Rink DS 3800 disc spreader from Redexim North America is a topdresser with dual spinners and a variable spread pattern of up to 50 feet wide. The operation of the belt and spinners can be done from the tractor seat by switching the hydraulic lever. No unnecessary drop of material takes place between stopping and operation, since the material release gate automatically closes when the belt is stopped. The spinner discs have been designed in a way that they will handle wet material extremely well.

METE-R-MATIC XL

As the industry's topdressing leader since 1961, Turfco's Mete-R-Matic XL offers turf managers the power and productivity of its time-tested, patented ground-drive and Chevron belt. The machine: ensures that drop rate remains consistent even if turf or operator speed isn't, with a ground-drive system that automatically adjusts to towing speed or uneven terrain; evenly spreads any material from wet sand to crumb rubber, calcined clays and lime; can cover more ground, faster with a 2.25 cubic yard galvanized steel hopper; needs no engine or hydraulics, operators can just hook up and go; and offers Turfco's signature ease of operation, durability and 3-year warranty. With less loading and increased efficiency on large turf areas, the Mete-R-Matic XL delivers the most uniform application in less time.

DEERE'S TD100 TOPDRESSER

Designed for the John Deere ProGator Heavy-Duty Utility Vehicles, the TD100 topdresser is ideal for use on athletic fields and other areas where an efficient means of topdressing is needed. The hopper has a capacity of 12 cubic feet level-full or 19 cubic feet heaped, a rated capacity of 1500 pounds, and is made of galvanized steel to reduce corrosion and supported by steel-members to increase strength. The fixed-speed, nylon/polyester cord, endless conveyor belt on the TD100 efficiently moves material under the metering gate and through a rotating brush for even distribution. The full-width metering gate opening can be adjusted from zero to three inches, with a two-lever system allowing the operator to adjust the gate height and lock the gate into position.

STEC EQUIPMENT'S GKB SANDSPREADER

The GKB Sandspreader is designed to evenly distribute a wide variety of materials, sand or compost, on fields. The "V" shape of the sand hopper ensures efficient operation and improved maneuverability. The sand is transported to the mechanically adjustable metering valve on a conveyor belt. The double disc spreader then ensures the perfect distribution of material over the surface. The machine can be used anywhere thanks to the four oversized turf tires and pendeling axels. The oversized tires ensure minimum ground pressure, keeping compaction to a minimum. The Sandspreader can also be fixed with an optional material handling conveyor system.

TORO'S MH-400 MATERIAL HANDLER

The large capacity Toro MH-400 material handler delivers versatility and performance to tackle a wide range of jobs at any facility. The cross conveyor is ideal for applying mulch, back filling of drainage ditches, and much more. Install the twin spinner accessory and the MH-400 becomes a large area topdresser to transport and accurately spread materials ranging from crumb rubber or fertilizer, to a sand/peat topdressing mix. The rear hitch receiver allows implements, such as a wood chipper, to be towed in tandem. The optional wireless controller allows real-time adjustments.

TURFTIME TOPDRESSERS

TurfTime Equipment topdressers have a capacity range of .75 cubic yd. to 8 cubic yd. The long hopper allows faster loading without spilling and can be used anywhere. Looking for the best topdresser to sand-dress, apply compost, repair washouts, apply mulch for erosion control,

level low spots, maintain paths and even grass runways? TurfTime's topdressers are designed to spread wet or dry materials allowing a very light dusting or a heavy application. The unique configuration of the belt and metering gate eliminates bridging and delivers a consistent flow of material to the spinners. Like a drop spreader? Adjust spinner and belt speeds to get a narrow drop application, or to broadcast the material over a wide area, all with the same topdresser.

NEW ECO 600T TOPDRESSER ATTACHMENT

The ECO 600T 3-point hitch top dresser attachment is unique in Ecolawn Applicator's line of broadcast top dressers. Equipped with a category 2 3-point hitch and a PTO drive, the new generation ECO 600T makes handling heavier products feasible without sacrificing maneuverability or ease of operation. It has been designed with a hydraulic flow-gate system, for effortless adjustability directly from the driver's seat. Whether applying compost, sand, soil, or a custom blend; the ECO 600T's large capacity, rear-delivery hopper (22 cu. ft.) broadcasts bulk material in a 180-degree arc (22 ft. spread), making topdressing quick, smooth, and effortless.

BANNERMAN BTD-20 TURF TOPPER

The Bannerman Turf-Topper (BTD-20) is the original big capacity, precision-built topdresser designed especially for sports turf maintenance. Engineered for speed, accuracy and uniform dispensing of material, this topdresser will handle any combination of sand, loam, peat moss, manure or fertilizer, spreading to a desired depth of 1⁄4 to 3 inches. The reinforced steel box has a capacity of 3-4 cubic yards, with a conveyor floor that is driven by hydraulics with over 20 calibrated speeds. The tractor PTO ensures a continuous and uniform flow of material through the contra-rotating spreader drum, breaking up any lumps and ensuring a fine and uniform texture.

EARTH & TURF'S MULTISPREAD TOPDRESSER

The Earth & Turf LLC product line includes its MultiSpread model 320, a 1-cubic yd. topdresser spreader with exclusive, widespread beater. This versatile machine spreads topdressing materials, infield mix, calcined clay, and grass clippings. With a convenient light-material sides option, available for dealer or customer installation, this topdresser virtually doubles its capacity, especially great for spreading light compost to improve turf quality! Overall height with light-material sides, plus narrow overall width, allows operators to reach in easily from either side when loading. Maximum load capacity using the light material sides is 3,600 lbs. Two-wheel ground traction drive is standard. Hydraulic drive is available as an option, offering benefits for owners of tow vehicles with remote hydraulic valve and minimum of 6 GPM flow. With hydraulic-drive, apron and beater speeds are independent of ground speed, each infinitely and independently adjustable, providing excellent spreading flexibility.

EXMARK STAND-ON SPREADER-SPRAYER

The Exmark Spreader-Sprayer features innovative Lean-to-Steer controls, which

give the operator one-handed control of steering and forward or reverse speed. The second hand is free to manage spread or spray system controls, or perform spot spraying with the easy-to-access spray wand. Selectable narrow (up to 5.5 feet) and wide (up to 11 feet) spray nozzles provide enhanced versatility. Dual induction nozzles inside the 20-gallon tank deliver aggressive agitation of spray mixtures to keep materials in suspension. The Spyker spreader system offers reliable performance and ease of use, and the 175-pound capacity hopper is supplemented by room for 50-pounds of additional bagged material atop the tank. A Subaru EX27 commercial engine, corrosion-resistant stainless steel mainframe and powder-coated control tower deliver maximum durability.

FDS 9200, 6000 & 4600 SERIES

Endorsed by the Baltimore Ravens' Don Follett, Director of Fields & Grounds, WoodBay Turf Technologies offers its fds series of machines for synthetic and natural turf. Quickly revives old and compacted synthetic turf to get the spring back into the rubber-crumb top dressing in one easy pass. Approved by synthetic turf manufacturers/ installers, the machines' large number

of tines provides superior coverage and compaction relief. For natural turf, machines offer high-speed dethatching after winter kill and repair of flood impact zones, as well as effective turf preparation for overseeding. Less intrusive alternative to verticutting, with variable tension settings for use on different component areas (end zones, central play areas) on football fields. Evenly spreads topdressing and sand and/or rubber infill used in synthetic athletic fields. Also features magnetic sweep to remove dangerous objects from turf.

IMANTS SHOCKWAVE

The Imants ShockWave is a linear decompactor, designed to revitalize heavy wear areas by relieving soil compaction, improving aeration and remove surface water, all without disruption to the playing surface afterward. The ShockWave is reputed to be the world's fastest PTO driven rotary, linear decompactor. All ShockWave models feature a no-chains, direct drive design, maintenance free "sealed for life" bearings and no shearbolts.

CORE SOLUTIONS BY NORDIC PLOW

You owe it to your crew and budget to save time and money the next time you aerate! Introducing Core Solutions by Nordic Plow for Sports Turf Equipment. The same Core Solutions used by Golf Courses on their greens & tee boxes can now be used on Sports Turf Equipment, like the Toro SandPro, the Deere 1200a & Hydro, and the SmithCo Super Star. It only takes one man to clear the turf and pays for itself in your first use! Works great in wet or dry conditions! The traditional method of removing core plugs requires hours of drying time, extra manpower shoveling and/or utilizing heavy equipment on your soften turf. Using our 64" wide Core Solutions on your Sport Turf Equipment allows one person to clear outfield & infields.

ACCU-SYNC PRESSURE REGULATORS

Pressure regulation at the valve can immediately solve high-pressure issues that can lower sprinkler performance. These pressure regulators are easy to install and are offered either adjustable or pre-set pressures like in the case of Hunter's Accu-Sync pressure regulators. The ICV is the heavy-duty valve workhorse that includes both a fabric reinforced EPDM diaphragm, EPDM seat, and flow control as standard features, and can consistently withstand pressures of up to 220 PSI. The ICV also offers the added option of the Accu-Sync pressure regulator to maintain a safe, constant water pressure. Plus, it's easy to service, with bonnet bolts that can be loosened and tightened using a variety of common contractor tools.

TORO LYNX SMART MODULE

Toro recently introduced the Lynx Smart Module, a brand-new technology solution designed to save operating costs through precision irrigation and provide high-speed diagnostics with a durable and reliable design. The new module

is the latest 2-wire control system technology from Toro, designed for INFINITY and FLEX800 sprinkler systems. Lynx Smart Module makes it possible to control sprinkler run times down to about one second, which can lead to significant water savings and provide outstanding course results by preventing overwatering. Each component of the Lynx Smart Module is designed with durability in mind and is built to withstand tough weather conditions. It works with Lynx Smart Hub to protect flow-managed irrigation schedules, even in the event of a central failure. Finally, the Lynx Smart Module provides comprehensive diagnostic data faster than competitive 2-wire brands. The system can provide diagnostic data for up to 1,000 sprinklers within seconds, allowing superintendents to address issues efficiently and reduce downtime.

GREENWORKS COMMERCIAL LITHIUM ZERO-TURN MOWERS

Greenworks Commercial recently unveiled the first production models of its Lithium Z Zero Turn mowers, which feature the first and only lithium-ion battery powered commercial grade mowers to be independently UL-certified for safety. At the outset, the Lithium Z family will feature both a 48" stand-on mower and a 60" ride-on mower, both offering users the ultimate in zero-turn radius maneuverability, zero gas

and zero emissions! Both models are powered by an 82-volt 13.8kW lithium-ion battery and feature three 1.5KW Brushless Blade Motors and two 1.7KW Brushless Drive Motors, delivering pro-level cutting speed and power, offering a true gas replacement. Each of the models deliver long lasting power, commercial grade durability and maximum safety features. Each offers a 90-day blade warranty, 2-year (or 500-hour) frame warranty and 3-year battery and motor warranty.

TURF FUEL PRODUCTS FOR PROFESSIONALS

Target Specialty Products offers a complete line of professional turf solutions under its brand name Turf Fuel that are designed to provide solutions to the needs of turf professionals. Turf Fuel is a complete line of unique products and solutions for needs ranging from plant nutrition, to soil and foliar surfactant management technology and is designed to enhance plant strength and prepare intensely managed turf for extreme growing conditions, improving soil moisture management and maximizing pesticide performance. Target Specialty Products' Turf Fuel product development division is developing the next generation of soil remediation products as well as substantial enhancements in foliar adjuvants that work to improve both pesticide performance and increase plant resilience to both biotic and abiotic stress. Turf needs the right fuel to endure the rigors of continuous stress.

OPEI Releases Leaf Blower Toolkit

Throughout the country, communities are banning or restricting the use of leaf blowers, or are considering doing so. The Outdoor Power Equipment Institute (OPEI) is working to help professional landscapers, outdoor power equipment dealers and retailers, and other stakeholders to counter these challenges.

"Many of the objections to leaf blower use are based on emotion, misinformation, or unfounded beliefs. And don't think this is just a gas-powered equipment issue. Bans and restrictions are being put in place regardless of the power source," says Kris Kiser, President and CEO of OPEI. "We are doing our part to prevent and fight these bans, but it is vital that landscapers, dealers, and retailers get involved at the local level to ensure they don't lose access to this important equipment."

OPEI's new toolkit is designed to be used by end users to help educate the public, local officials, and the media about the important work leaf blowers to in their communities. The toolkit, available in English- and Spanish-language versions, includes:

- A series of videos that outline what landscapers and the broader industry are doing to encourage safe and courteous use of leaf blowers,
- A template opinion piece and letter to the editor to send to local media,
- "Myth-busting" talking points to help frame conversations with local officials,
- A safe and courteous use pledge for landscapers and their workers to share with local officials, and
- Social media posts that they can use to share information.

"We encourage professionals to be vigilant in watching for leaf blower issues in their local communities and to respond when they see a challenge arise. As the green industry, it takes all of us to respond on these issues," Kiser says.

Professional landscapers, dealers, and retailers can learn more at available at *www.opei.org/leafblowers*. To receive the full suite of toolkit materials, email *info@opei.org*. ***/ST/***

FIELD OF THE Year

FIELD

CHAMPIONSHIP FIELD

PLEASANT VIEW

LOCATION

City of Boulder, CO

- **Category of Submission:** Schools/Parks Sporting Grounds
- **Sports Turf Manager:** John Cogdill
- **Title:** Manager
- **Experience:** 30+ years at the City of Boulder in design, construction and maintenance; 20+ years in management of satellite fields and athletic fields
- **Full-time staff:** Don McGhee
- **Part-time staff:** Ron Strong
- **Original construction:** 1993
- **Turfgrass variety:** Playmate ryegrass, Pioneer sports turf mix of ryegrass and Kentucky bluegrass; PBR sports turf mix of ryegrass and bluegrass
- **Overseed:** Broadcast seeding, slit seeding, and spot seeding with divot repair sand (90% sand, 10% organic mix)
- **Drainage:** Underground full herringbone design with 8" mainline tied in with flexible corrugated plastic pipe

Previous winner

As a previous Field of the Year winner, what if anything did you do differently on your winning field this year?

"In the past the Championship Field at Pleasant View has undergone two recycle dressings a year to improve compaction. This year we opted to run a deep tiner with 9-inch coring tines to improve drainage and also improve subsoil compaction. This also increased the frequency; we were able to use this option without tearing up the field and so helped maintain an increased level of play."

Why should STMA consider your field a winner?

"The field is used starting the beginning of March through the middle of November. In the spring, between March and June 1 then the field is used by PDL soccer team from June1 thru mid-July. Then the field is setup for rugby between August 1 through the end of November. The field is used for special tournaments such as soccer, Ultimate Frisbee, and clinics. In the summer, the field is converted back to rugby for the duration of the growing season. The field gets approximately 460+ hours of play a year. The field is sand-based with an automatic irrigation system and a wishbone drainage system.

The Field of the Year Awards program is made possible by the support of sponsors Carolina Green Corp., Ewing, Hunter Industries, and World Class Athletic Services.

"The field is limited to 1 full week of uninterrupted grow time throughout the growing season. Compaction is a never-ending concern due to our safety standards and is always being addressed. Unscheduled play, golf practice, dogs, and the growing population of geese create another never-ending challenge to maintain a clean and safe environment for the players. Prairie dogs are also a constant threat for the facility. Soccer camps and clinics during the

heat dormancy of cool weather grasses present a scheduling challenge to try to maintain growth and rigidity of the grass during summertime.

"The field at Pleasant View is unique due to high traffic sustainability, design, and versatility. This field is usually playable when others are not, due to rain or snowfall. The design of the drainage system is unique to most city or county parks. The 12 inches of sand base also increases drainage and is a great growing median for cool weather grasses. This helps us increase our traffic load while still maintaining a high level of safety for our players. No herbicides, pesticides or fungicides are ever used in the maintaining of this field."

SportsTurf: What are your job responsibilities?

JOHN COGDILL: My responsibilities include the general oversight and management of turf and irrigation in Boulder City Parks, which include all athletic programmed facilities.

ST: What attracted you to this industry?

COGDILL: I grew up in a Agricultural community and began farming in my early teens, after moving to Boulder I have always enjoyed working with the land-being in a Urban environment the transition to Sports Turf and fields was natural for me.

ST: What do you do that's the most enjoyable?

COGDILL: I enjoy showing cutting horses.

ST: What changes if any are you considering or have implemented for the winning field in 2018?

COGDILL: We need to definitely focus on further improvement with Turf varieties and by increasing the percentage of KBG with the existing ryegrass with a focus on darker color.

ST: Have you been involved in any departmental efforts to increase revenues through park use? If so, how?

AAREN LEMIEUX: *[Editor's note: Aaren Lemieux began working in March 2018 as sports turf supervisor for the City of Boulder.]* Currently I have been involved in a department committee that is looking at the athletic parks pricing structure for athletic special events. Part of our goal is to make sure our pricing structure is up to date, and all small costs are captured.

ST: What are the biggest obstacles you deal with at work, and how do you try and overcome them?

LEMIEUX: One of the biggest obstacles we deal with is keeping a healthy, safe, and aesthetically pleasing turf grass, without the use of toxic herbicides and pesticides.

ST: How has your career benefitted from being a member of STMA?

LEMIEUX: It has been extremely helpful to be part of a professional organization that provides information on best practices from a national perspective.

ST: What's the best piece of turf management advice you have ever received?

COGDILL: From Ross Kurcab: "Clegg your fields and let the results dictate your management program." ***/ST/***

STMA's PR program continues to advance sports turf managers

2018 dues increase helps to fund

Play Ball!

Whether you're snacking on peanuts or toasted grasshoppers (really!), there's nothing like a ball game. *Parade* celebrates America's favorite pastime with a collection of fun facts.

By Brooks Clark
Cover photography by the Riker Brothers

During this very American week, some 2 million fans will root, root, root for their home teams, from the collegiate summer league Wisconsin Woodchucks in Wausau and Anchorage Glacier Pilots in Alaska to the big league Houston Astros and New York Yankees. And on each field—in 2018 as it was in 1839 (when some say that Abner Doubleday invented the game before he went on to be a Civil War hero)—time is measured in outs, the millions of ball park franks slathered in mustard and the number of balls caught in the stands by young fans. Here are some fun facts about America's favorite pastime.

Go to *Parade.com/baseball* to see our best covers featuring baseball greats through the years.

'Baseball is the only field of endeavor where a man can succeed three times out of 10 and be considered a good performer.'
—Superstar left fielder and slugger Ted Williams

4 LAWN STRIPING

That's the technique used by baseball groundskeepers to create those cool, patterned designs. (A roller behind the blades of the mower causes grass blades to bend down in one direction.) The champ is **Andrew Marking, head groundskeeper for the Quad Cities River Bandits, the Class-A affiliate of the Houston Astros**, who won the 2017 Sports Turf Managers Association second annual Stars and Stripes mowing pattern contest with his "Banks of the Mississippi River" design, which he created along with assistant groundskeeper Andrew Anderson, at Modern Woodmen Park in Davenport, Iowa.

1 Weird Things You Can Eat at a Game

Move over, 2-foot-long hot dogs (called **Boomsticks** and served at Globe Life Park in Arlington, Texas), there are some new snacks in town.

- In Pittsburgh, Pirates fans gobble up Pitts-Burgers, beef patties topped with french fries and coleslaw on white bread.
- In Chicago, the White Sox–cheering crowd takes its seventh-inning stretch with **elote** (Mexican-style corn), served off the cob and topped with chile powder, butter, salt or mayo—or all of the above.
- At Seattle's Safeco Field, **Oaxacan chapulines** (toasted grasshoppers with chile-lime seasoning) are a favorite crunchy treat for Mariners fans.
- pie filling or Nutella at Comerica Park.

2 $99,100

That's the highest price ever paid for a modern-day baseball card: **Derek Jeter's rookie card**, sold in May 2018.

3 They Had Never Been to a Ball Game

Wait for it . . . When Jack Norworth and Albert Von Tilzer wrote the lyrics and music to **"Take Me Out to the Ball Game"** in 1908—they had never been to a game! Norworth was inspired to write "baseball's other national anthem" by a sign on the subway that read "Baseball Today—Polo Grounds." Norworth and Von Tilzer didn't see their first MLB games until 32 and 20 years later, respectively. What crunchy snack got a big boost by the song? Why, Cracker Jack, of course!

5 6'11"

That's the height of the tallest player in pro baseball history, relief pitcher **Jon Rauch**, who played for seven MLB teams from 2002 to 2013.

continued on page 8

Why I Love Baseball

Boston Red Sox fan **Mark Wahlberg** hits it out of the park in his career and on the field. *By M.B. Roberts*

Mark Wahlberg, one of the biggest movie stars on the planet, has been a rapper, a model, a producer, a restaurateur and an Oscar-nominated actor (his next movie is action-thriller *Mile 22*, out Aug. 3).

But there's still something—and it's baseball related—that the hardcore Red Sox fan and father of four is dying to do. No, he's already thrown out the ceremonial first pitch at Fenway Park in 2009. This is more personal.

"I'd love to take my kids to Fenway for a playoff game or the World Series, where they can really see the intensity and the excitement," he says. "But they're not into it! My sons play football. That's on my bucket list, getting my kids [Ella, 14, Michael, 12, Brendan, 9, and Grace, 8] into baseball."

Growing up as the youngest of nine children, the Boston kid who dreamed of playing in the big leagues was all about baseball. In fact, he and his siblings, including his singer-actor brother Donnie Wahlberg, often were their own baseball team.

"We played together all the time," he says. "We'd leave the house at 7 in the morning and come back at dark. I played Little League and on a traveling team. Playing baseball was my favorite thing to do." So was attending Boston Red Sox games.

"We got tickets in the bleachers for only two bucks," he says. "We hung around Fenway quite a bit. There was a lot going on."

With wife Rhea and kids in 2015

As baseball fans know, many years after Wahlberg and his pals used to hang around Fenway as kids, things got really exciting in 2004 when the Red Sox broke "the Curse of the Bambino" (the championship losing streak that started after Babe Ruth was traded to the New York Yankees in 1919) and won their first World Series in 86 years.

"They came back and beat the Yankees [in the American League Championship Series] after being down 3-1. Then they won the World Series. It was one of those things we never thought would happen. Now they've done it three times."

Wahlberg, 47, admits that he'll watch the baseball playoffs and World Series even when the Red Sox aren't in the mix. But what he really loves? Watching young people play.

"If I'm driving by a baseball field and there are kids playing, I'll probably stop and watch," he says. "That's the purest form of the game."

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Visit *Parade.com/kaplan* to follow *Parade* cub reporter Zach Kaplan's tour of 12 great American ballparks.

STMA's public relations program continues to gain national, regional and local attention for members' field management practices. In July, STMA received 25 publicity hits that resulted in a reach of 99 million visits that month. Stories and news appeared in many high-profile media outlets, such as MiLB.com, *Parade* Magazine, CBS, ABC, and PurdueSports.com.

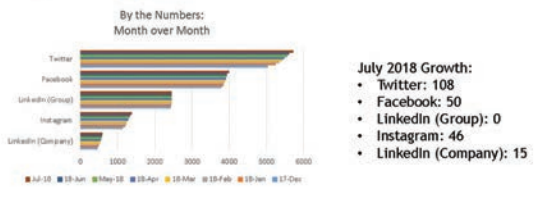
The dues increase that was initiated in 2018 has helped to fund the PR program, which is managed by Buffalo.Agency, headquartered in Reston, VA. The program involves public relations – news releases, member and industry stories and contests – and a strong social media campaign consisting of Twitter, Facebook, LinkedIn and Instagram. One of our strongest campaigns is #DayInTheLife, which is composed of tweets and posts highlighting individual members and their work.

We have the largest presence with Twitter at 5,714 followers, an increase of 134.5% from June 2017, followed by a 184% increase in Facebook page likes from last year bringing us to 3,983.

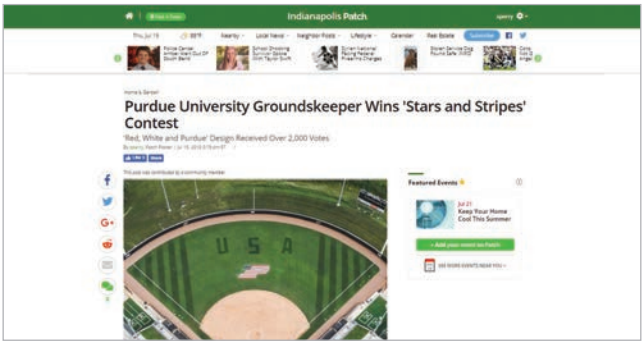
Engage with STMA. Find out what your peers are doing. Follow us *@FieldExperts* on Facebook, Twitter, Instagram and Linkedin!

OVERVIEW

@FieldExperts Social Media Growth



July 2018 Growth:
- Twitter: 108
- Facebook: 50
- LinkedIn (Group): 0
- Instagram: 46
- LinkedIn (Company): 15



SAFE TO FUND FIELD SAFETY RESEARCH

The Foundation for SAFER Athletic Fields for Everyone (SAFE), STMA's charitable arm, is funding a small research project this fall.

The SAFE Board of Trustees voted last month to provide funding for a Field Safety Study to determine if there is a correlation between field management practices and field safety measurements.

Three university researchers will be participating, and each will take measurements on a minimum of 10 football and soccer fields at different facilities including universities, high schools and parks and recreation districts.

SAFE

The Foundation for Safer Athletic Fields

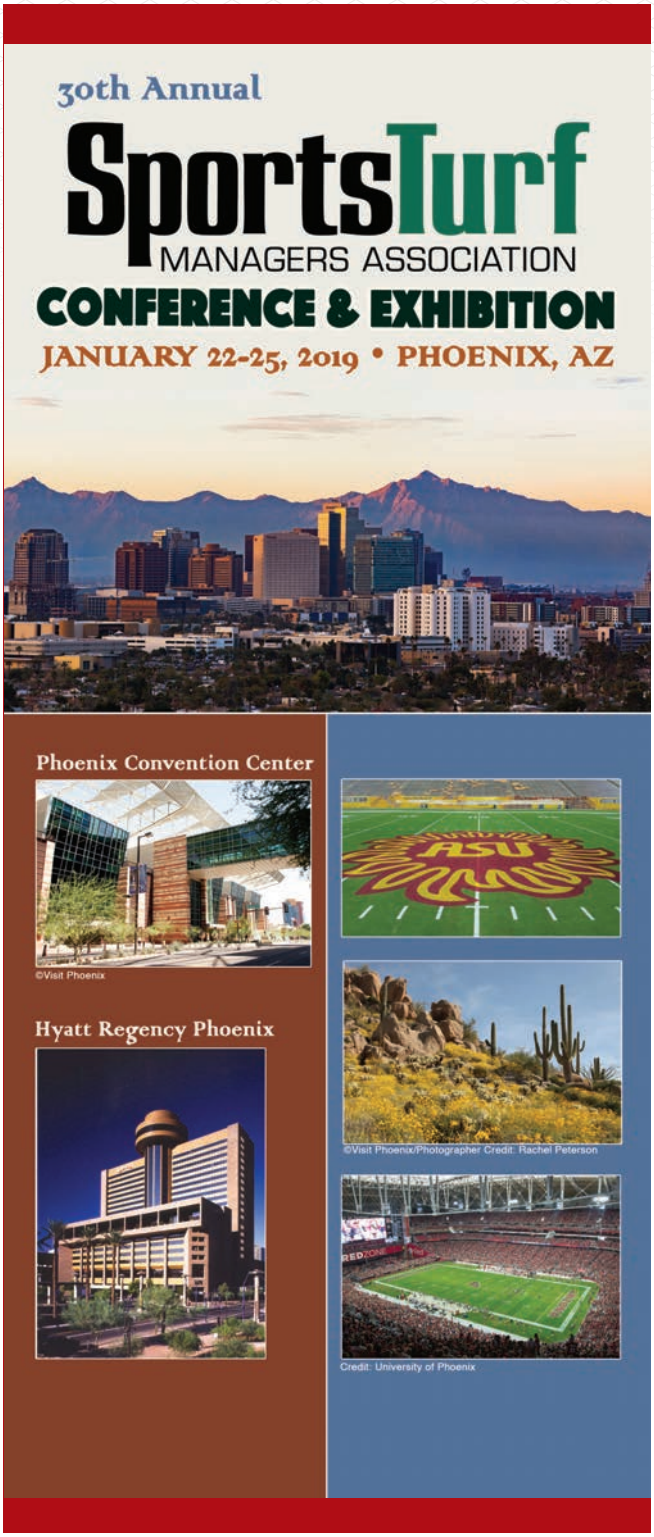
The following measurements will be taken:

- Volumetric Water Content: 3 subsamples per location
- Canopy Temperature: 3 subsamples per location
- 2.5 kg Clegg Impact Tester: 3 subsamples per location
- Visual Quality of each test location on a 1-9 scale following NTEP Guidelines
- Image collection at each test location for Canopeo app or lightbox imagery analysis (percent green cover)

The researchers involved are Joey Young, PhD, Texas Tech University; Adam Thoms, PhD, Iowa State University; and (lead) Chrissie Segars, PhD, University of Tennessee at Martin. The results will be reported in an upcoming issue of *SportsTurf* magazine.

SAFE's Board includes Chairman of the Board, Chad Price, CSFM, CFB; Mike Andresen, CSFM; Scott Bills, CSFM; Jon Butler; Marcus Dean, CSFM; Jeff Fowler; Kim Heck, CAE; David Houseknecht; Nick McKenna, CSFM; Craig Potts, CSFM; Jimmy Simpson, CSFM; John Sorochan, PhD; Chris Sperry; Vickie Wallace; and David Yakes.

At the upcoming STMA conference in Phoenix, SAFE will be raising money to provide funding to colleges and universities for research projects. Please participate in the live and silent auctions and raffles, and the golf and bowling events.



SAFE's Mission is "To enrich communities through championing safe, sustainable sports and recreation fields for all athletes." Scholarship, educational outreach and research are the three areas of focus that SAFE directly impacts from your donations.

To donate now to SAFE, go to *SAFEFields.org*.

STMA Affiliated Chapters Contact Information

Sports Turf Managers Association of Arizona: www.azstma.org

Colorado Sports Turf Managers Association: www.cstma.org

Florida #1 Chapter (South): 305-235-5101 (Bruce Bates) or Tom Curran CTomSell@aol.com

Florida #2 Chapter (North): 850-580-4026, John Mascaro, john@turf-tec.com

Florida #3 Chapter (Central): 407-518-2347, Dale Croft, dale.croft@ocps.net

Gateway Chapter Sports Turf Managers Association: www.gatewaystma.org

Georgia Sports Turf Managers Association: www.gstma.org

Greater L.A. Basin Chapter of the Sports Turf Managers Association: www.stmalabasin.com

Illinois Chapter STMA: www.ILSTMA.org

Intermountain Chapter of the Sports Turf Managers Association: http://imstma.blogspot.com

Indiana: Contact Clayton Dame, Claytondame@hotmail.com or Brian Bornino, bornino@purdue.edu or Contact Joey Stevenson, jstevenson@indyindians.com

Iowa Sports Turf Managers Association: www.iowaturfgrass.org

Kentucky Sports Turf Managers Association: www.kystma.org

Keystone Athletic Field Managers Org. (KAFMO/STMA): www.kafmo.org

Mid-Atlantic STMA: www.mastma.org

Michigan Sports Turf Managers Association (MiSTMA): www.mistma.org

Minnesota Park and Sports Turf Managers Association: www.mpstma.org

MO-KAN Sports Turf Managers Association: www.mokanstma.com

New England STMA (NESTMA): www.nestma.org

Sports Field Managers Associationof New Jersey: www.sfmanj.org

Sports Turf Managers of New York: www.stmony.org

North Carolina Chapter of STMA: www.ncsportsturf.org

Northern California STMA: www.norcalstma.org

Ohio Sports Turf Managers Association (OSTMA): www.ostma.org

Oklahoma Chapter STMA: 405-744-5729; Contact: Dr. Justin Moss okstma@gmail.com

Oregon STMA Chapter: www.oregonsportsturfmanagers.org oregonstma@gmail.com

Ozarks STMA: www.ozarksstma.org

Pacific Northwest Sports Turf Managers Association: www.pnwstma.org

Southern California Chapter: www.socalstma.com

South Carolina Chapter of STMA: www.scstma.org.

Tennessee Valley Sports Turf Managers Association (TVSTMA): www.tvstma.com

Texas Sports Turf Managers Association: www.txstma.org

Virginia Sports Turf Managers Association: www.vstma.org

Wisconsin Sports Turf Managers Association: www.wstma.org

Chapter Sponsors

Continued from page 15

and fuel management for more than 100 operations and maintenance vehicles and the fleet of 50 student activity vans, traffic signage, school zone signal installation and programming and much more. We have always strived to be the department that our organization can't do without.

THOMAS: One example is always being organized. Providing an employee work calendar in advance taking all factors into consideration forms the foundation for being organized. Next, each day's plans are tailored specifically around the team's workout/game schedule. This helps determine the size of the crew I need and what projects can get done that day. Once I know the teams expected schedule I can plan the fieldwork list for that day accordingly. I take an hour each night and plan out the next day specific to each grounds crew employee working that day. Staying organized helps keep the crew on task working efficiently, which directly affects the number of labor hours each week. Overtime pay is kept under control and the boss is happy!

HARSHMAN: In 2017 Berea College made the transition from NAIA to NCAA DIII. Once the transition took place is when I was asked to formulate a budget/management plan. I honestly feel my bosses played a vital role in my taking over the athletic complex. They trusted that I would take all the necessary steps to ensure the absolute best for the field and for the student athletes. They trusted my decisionmaking and have fully supported me from day one.

WEIGEL: I am in a unique situation in which my boss is the assistant superintendent of one of the largest school corporations in the state. He is in charge of operations as well as human resources. In order to alleviate some of his operation duties, I help manage the outdoor athletic facilities budget, the school grounds budget, and also some of the indoor athletic facility budget. The ADs and coaches come to me first with problems, ideas, or suggestions as far as outdoor facility needs go. I want to be able to take care of most of their needs daily without them taking up their time in person or on the phone. At times he does need to get involved, but my goal is to help take as much pressure off of him as possible. **/ST/**

Q&A *with* DR. GRADY MILLER

Professor, North Carolina State University

Questions?
Send them to Grady Miller at North Carolina State University, Box 7620, Raleigh, NC 27695-7620, or email grady_miller@ncsu.edu

Or, send your question to Pamela Sherratt at 202 Kottman Hall, 2001 Coffey Road, Columbus, OH 43210 or sherratt.1@osu.edu

What are you looking for?

Q: We just had our annual turfgrass field day that showcased some of our ongoing field research. This event was a great chance for nearly 800 people with turfgrass interests (e.g., sports turf managers, turf product salespeople, golf course superintendents, landscape managers, homeowners) to see the latest turfgrass research. We rotate groups through "field stops" every 30 minutes for half a day. I hear several new questions from each group. I thought I would address a question that I found particularly interesting from one attendee. It came from a person standing on the NTEP bermudagrass trial, and he asked, "When you are conducting research, what are you looking for?"

A: For those not familiar with NTEP (National Turfgrass Evaluation Program) trials, there are studies that are designed to gather data on new germplasm compared to industry standards. Trials are often duplicated in 10 to 15 places across the US. (Editor's note: A more complete explanation of NTEP can be found in the recent interview with the executive director of the NTEP program that is on page 12 of the August issue.)

A second point I would like to make is that research usually starts with a question. It may be as simple as, which turfgrass handles wear the best? In order to try and find an answer to a question, a study is designed to test a concept (e.g., relative wear tolerance). During the research planning phase, funding often must be secured to do the research. A study is then implemented to gather data. The data usually consists of visual ratings and objective measurements. Data are then analyzed using proper statistical techniques. From these data, conclusions and recommendations may be made based on the scientists' knowledge. In most circumstances, summarized data are disseminated through conference talks, publications, field days, etc.

The question asked by the field day attendee could be applied to each and every study. Determining the appropriate data to collect is very important. Often the type of data collected is specified by the sponsor of the research. In the case of NTEP trials, there is a requirement that each researcher collect specific standard data using consistent methods. In addition to standard data, some NTEP sites are designated to conduct ancillary trials to gather additional data. For instance, turf quality, color, texture, density, disease incidence is considered standard data, whereas wear tolerance would be an additional test.

It should also be recognized that research data will not have the same level of importance for everyone. For instance, in our bermudagrass trials a sports turf manager can appreciate the wear tolerance data whereas a homeowner or landscape contractor may prefer to know how a turfgrass will handle shade. Even within those management groups there will be differences based on perceived needs. If one sports field manager has an unirrigated field, drought tolerance may be a primary interest, whereas a field manager that has an irrigation system may put less value in those data.

So as researchers, we try to develop a list of traits or performance characteristics that we should and can test considering our research budget limitations. Some tests (within a study) require specialized structures, equipment, expertise, or labor that make them cost prohibitive. I think most researchers try to answer as many questions as they can afford to research.

When I have asked turfgrass breeders what is the most important trait for a new turfgrass, several have told me the number one trait they breed for is rapid growth. Their explanation is if a plant "grows fast" then it can often overcome insect pressure, recover from disease, have fewer weeds, and handle/recover from wear better than slower-growing turfgrass. Add in increased density at lower mowing heights and a dark green color and the grass is almost sure to be a winner. But there may need to be more. For some a turfgrass must also be able to withstand some level of freezing temperatures or they will be replacing grass after average winters. In other cases, the turfgrass will need to maintain density under stresses such as shade and drought.

We also look at traits related to the production side of the business. The grass must be affordable to produce in order to be successful. Most new turfgrasses are tested for at least 10 years before they are ever released. Along the way we try to figure out a grass's limitations, although often the full extent is not known until it has been under management in a multitude of environments for several more years. With today's capacity for research, I do not expect there will be another grass that can stay on top like Tifway bermudagrass did for so many years. In this modern age, grasses will likely be popular only until a better grass comes along. So attendees at our field day were looking at a grass they may be planting a few years from now. ***/ST/***

Teamwork wins. East Chapel Hill High School in North Carolina has one of the best Varsity Field Hockey Teams in the state. It's only fitting that these girls compete at home in a stadium just as amazing. See how hard work, dedication and John Deere can offer a fine, sharp edge.

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