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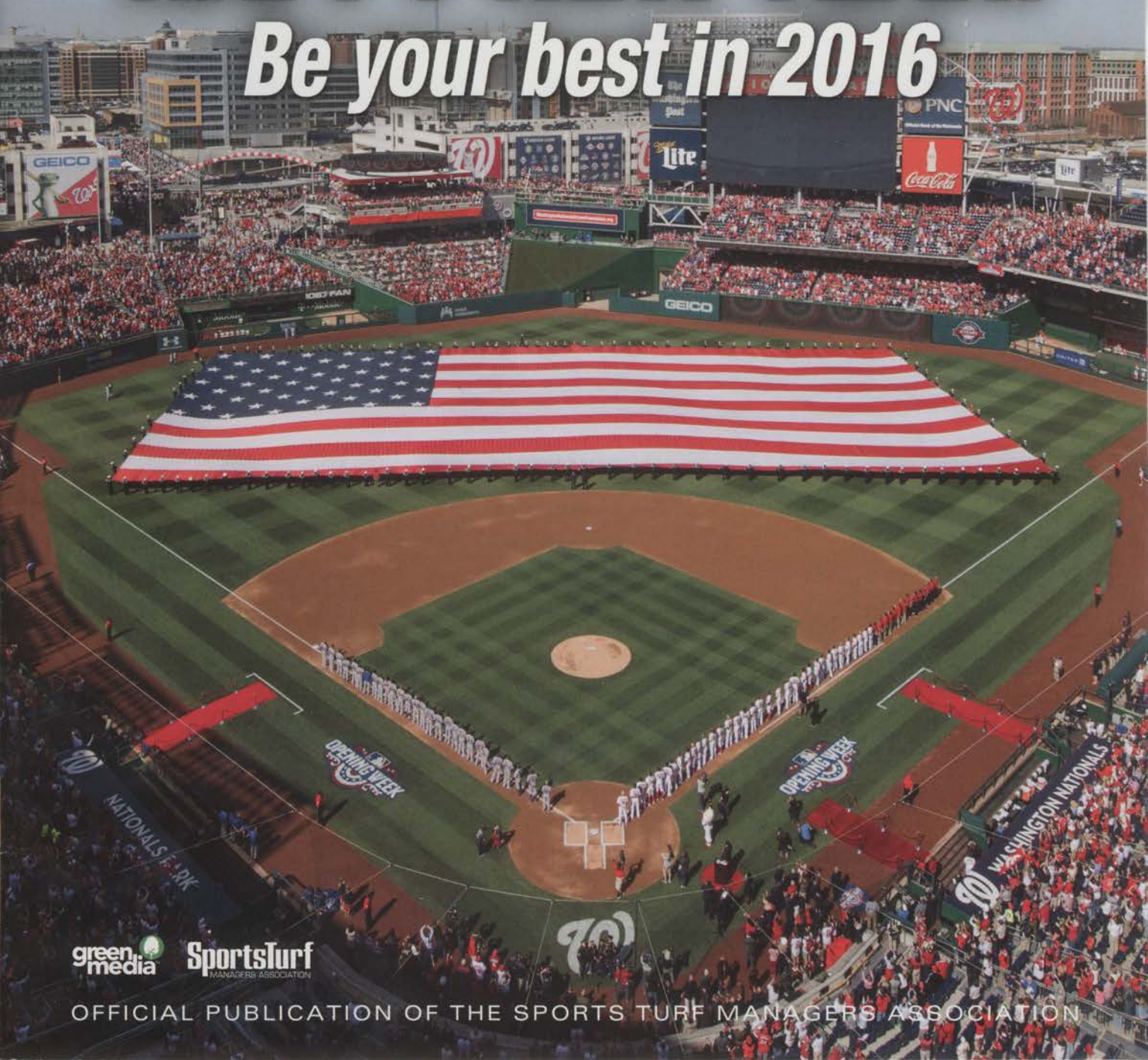
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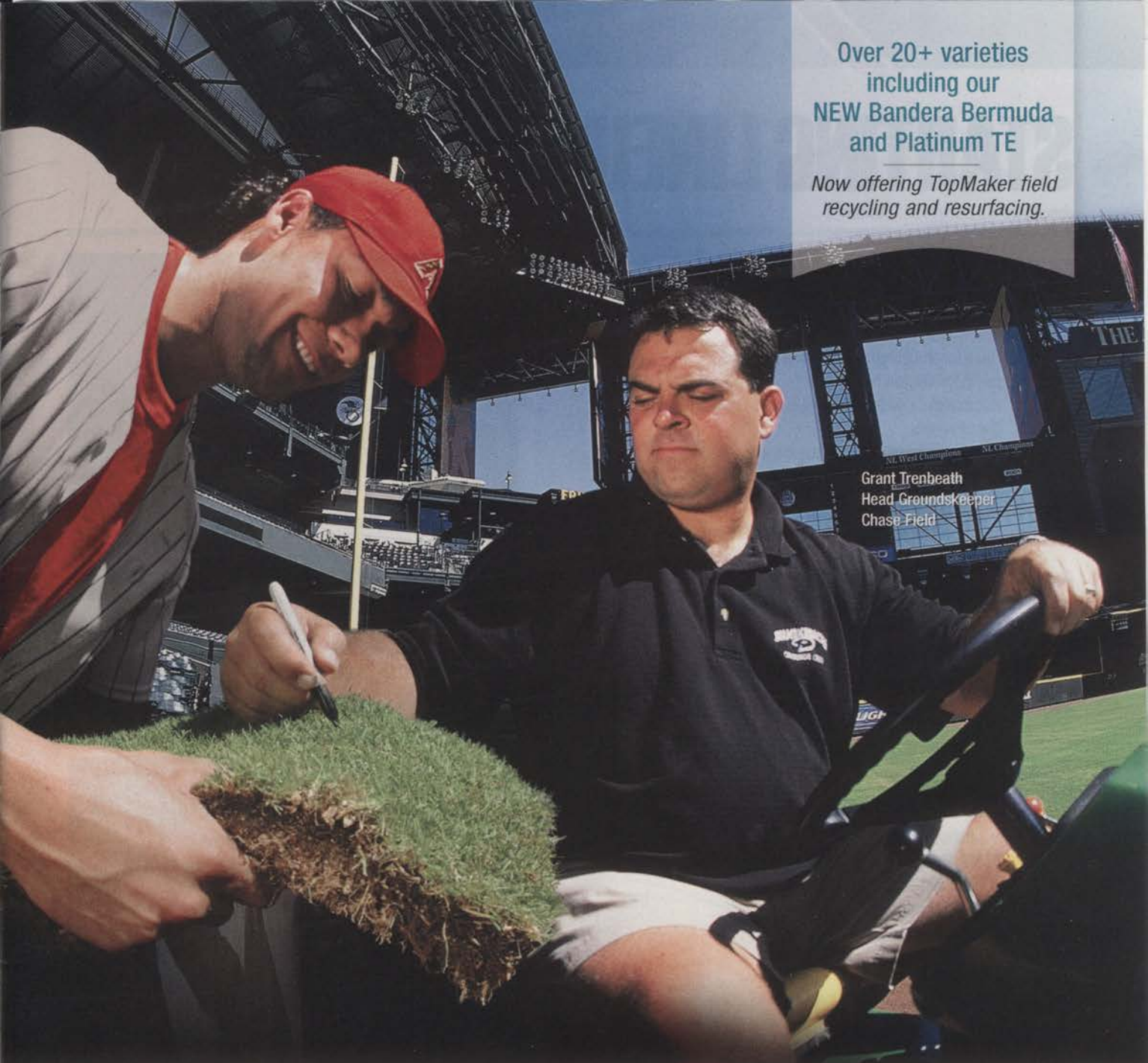
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On the cover:

Opening Day at Nationals Park last season in Washington DC. John Turnour, Director of Grounds Operations for the Washington Nationals and an STMA member, is profiled in this issue and shares how he grows cool-season varieties in the southern transition zone. Photo courtesy of Washington Nationals.



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CALLING ALL PARENTS: ARE YOUR KIDS' FIELDS SAFE?

Eric Schroder
Editorial Director

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Last month the US women's soccer team refused to play an exhibition match in the University of Hawaii's Aloha Stadium because they deemed the aging synthetic surface unsafe. This stance was preceded by one of their teammate's suffering a torn anterior cruciate ligament in a noncontact injury while practicing on a natural turf university field that the team also called unsafe.

The Baltimore Ravens recently announced they are switching from an artificial turf field to natural grass at M&T Bank Stadium for the 2016 season. According to news reports, the Ravens made the change after players expressed a desire to play on grass (though fear of injury was not specified).

While a report here and there doesn't prove anything, as an avid sports news follower and father of three young athletes, I wonder if there is an increased awareness of and concern for the safety of athletic fields. Unfortunately my kids have played baseball and soccer on some fields that were clearly unsafe, and every time I see it I make sure the other parents in attendance realize it, too. My kids acknowledge when they have just competed on a field in good shape; it's obvious to even heads-in-the-clouds teenagers.

The explosion in the number of youngsters competing in many sports year round should be good for the sports turf management industry; more fields means more jobs, right? There are "destination" sports complexes being built all over the country. But again, in my limited experience, especially for baseball, most of the facilities I've visited with my oldest son's

travel team would not come close to passing an STMA safety/maintenance checklist.

I think the outrageous cost of college education today is one reason there are more and more travel teams and events now; whether they admit it or not, many parents are hoping maybe their son or daughter will develop into a good enough player to get some financial help from an institution of higher (revenue).

If only all these wishful parents would insist that the surfaces on which their young athletes compete were safe!

RIP Leo Goertz

Last month veteran Texas A&M field manager Leo Goertz passed away, much too soon. Many STMA members will especially feel the loss at the San Diego Conference this month since Leo was the epitome of what the organization stands for: strengthening the industry through professionalism and education, along with a big gulp of camaraderie.

Leo was always a visible presence at the 14 STMA Conferences I've attended; a big man proudly wearing Aggie Maroon with a friendly word to even hangers-on like me who wanted to talk football. No one in the room was surprised in 2011 when he was named the Harry C. Gill Memorial Award winner, STMA's highest honor; Leo was the ideal of what an STMA member should be. To quote from his obituary: "Called upon to speak at many teaching situations, Goertz hired outstanding assistants and students who have gone on to become groundskeepers across the country. One of his greatest joys was passing along his knowledge to young turfgrass students." **ST**

Eric Schroder

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ACHIEVING GOALS ONE SHOVEL-FULL AT A TIME

Allen Johnson, CSFM.
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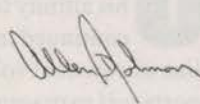
The job would start in the fall after the growing season ended: climbing up the silo to throw down the nightly meal of silage (that's chopped corn for you city folks) for the cows' dinner. It would take approximately 20-30 minutes to throw down enough food with a pitchfork for all the animals to get their measured share. Upon the completion of doling out the silage in the mangers, the next task was to scrape the barn, shovel the gutter's contents into a wheelbarrow, haul the manure outside the barn into a nearby field, and dump into a pile that would freeze during the winter. In the spring that pile would thaw and then be spread as fertilizer.

I share these two childhood memories with you because I think of them often when I think of long-term goals. If someone had told me that I needed to climb to the top of that silo and start unloading it with a pitchfork until the silo was completely empty I simply could not have achieved that. If you could have seen how large that manure pile had become by the end of winter before it was spread, you almost wouldn't believe that someone had personally shoveled every ounce of that "&\$%^."

But I did. I did it all; I just didn't do it all at once. I accomplished it by doing a little each and every day for quite a long time. And so that's how it goes with most goals, especially lofty goals. Typically they aren't achieved overnight.

When our association first began I'm sure the goals were quite modest. It started with providing a networking opportunity for individuals engaged in the sports turf industry to exchange ideas, better themselves, and the playing surfaces they were charged with maintaining. In time the association grew, and the next goal was for the association to achieve financial stability. Fast forward to today; while we still are engaged with the earlier goals we are also trying to influence public perception about our industry, trying to influence our employers' view about our roles. We are trying to make people realize that the condition of an athletic surface and the level of ongoing maintenance has just as an important impact on the safety of the athletes that play on it as the seatbelt does in keeping you safe in your vehicle.

We can all be proud of the STMA's accomplishments over its 35-year history. Achieving lofty goals does not happen overnight, but they can be achieved by steadily working toward them. Given what we have accomplished already, I look forward to seeing the STMA achieve even loftier goals in the future.

I am proud of my peers in this industry for their everyday accomplishments, their willingness to improve themselves and their profession. I am also very grateful to them for allowing me the opportunity to serve our association in this capacity. Thank you. 



HERE FOR THE PLAYERS: JOHN TURNOUR OF THE WASHINGTON NATIONALS

■ BY STACIE ZINN ROBERTS

John Turnour, who played baseball in Little League and sports through high school, found his affinity for team sports continued into college—this time as a student volunteer for the sports turf management team while studying turfgrass management and horticulture at North Carolina State University.

“Ray Brincefield and his staff were more than welcoming and allowed me to shadow them. They paved the way for me and provided a great introduction to sports turf management,” Turnour says. “During football season, it was exciting prepping the field and painting it. Ray and his staff were very helpful to me. They really were the ones who inspired me to pursue this as a career.”


▲ This was from the MLB Field Maintenance Clinic that the Washington Nationals hosted at Nationals Park in 2014. John Turnour instructed area coaches and field care volunteers a variety of ways to care for and maintain infield edges.

Upon graduation, Turnour found a job as an assistant groundskeeper for the Durham Bulls, (AAA affiliate of the Tampa Bay Rays), and then went back to NC State for 2 years as a sports turf employee.

When he felt he was ready for the “Big Leagues,” he sent his resume to every MLB club in the nation.

“I had one team in mind that I wanted to work for and they were the one team that called me and offered me a job. Completely luck,” Turnour, a member of the Sports Turf Managers Association, says.

The Baltimore Orioles hired him



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▲ John Turnour, head groundskeeper, Washington Nationals.

as an assistant groundskeeper and he worked with them for three seasons. From there, he went to the San Diego Padres for four seasons as an assistant. At the end of his fourth season with the Padres, he saw a listing for a Director of Field Operations with the Washington Nationals. By then, he had the training and confidence necessary to manage the big show. He applied.

"I went through the interview process and things happened to work out," Turnour says. That was six seasons ago.

Is it luck, persistence or tenacity that takes a sports turf manager to the highest level of the profession?

"It's certainly not going to be presented to you. It's something you have to work for, like anything else in life. Hard work, dedication, taking initiative and knowing what your career goals are," Turnour says. "I think it's a matter of putting yourself in the right situation and pursuing that goal. Pick your path and go after it. I really don't know what it was that drove me to pursue a job in Major League Baseball. I enjoyed my time working at the university level and I enjoyed my time working in Minor League ball. Since I've been in Major League Baseball, there hasn't been a day I've looked back and second-guessed it."

At Nationals Park, Turnour's crew consists of himself, three full-time assistants, 15 tarp crew members, and six interns from turf programs all over the United States.

"Our ultimate goal for interns is to set a foundation for them as they start thinking about their career and which path they may want to pursue upon graduating. We encourage our interns to take initiative, ask questions, and get involved. We have been extremely fortunate over the past six seasons to have a great group of interns and we look forward to continuing that moving forward," Turnour says. Hosting interns gives him the opportunity to teach others and pay it forward, the way Ray Brincefield did for him at NC State.

Nationals Park supports 81 home games a season. In between home stands, and during the off-season, the stadium hosts one to three concerts a year, as well as non-baseball events like the NHL Winter Classic on New Year's Day 2015.

Preparing the field and keeping it in good shape takes year-round effort and planning.

Located just south of the capital in Washington, DC, Nationals Park sits in the southernmost region of the transition zone. While the weather there could have supported a warm-season turfgrass, instead the field was planted with a cool-season grass. Nationals Park consists of a four-way blend of Kentucky bluegrass: P-105, Moonlight, Bewitched and Ginney. It's grown from seed at Tuckahoe Turf in New Jersey. The field has only been completely resodded twice since it was originally installed during the fall of 2007. Areas of wear are either seeded or resodded, as needed.

"The growing season for grass mirrors the months of the baseball season here in the Mid-Atlantic area, and with us being located in the transition zone, we have the ability to grow either a cool-season or warm-season grass. Both options have their challenges; however, our experience with Kentucky bluegrass has provided a consistent surface that we are comfortable with presenting for play," Turnour says. "Growing a cool-season grass in the southern portion of the transition zone allows us to be fairly aggressive with our cultural practices during the spring and fall months. Summer months are a little more sensitive which results in us managing the turf based off of current weather conditions in conjunction with the baseball and non-baseball event schedule."

Managing a cool-season grass in his region allows him to forego overseeding, which he sees as a benefit. "From the start of the season to the end, we are playing on one variety of grass," Turnour says.

Height of cut varies throughout the year, from as low as 7/8 inch during the season on up to 1-1/4 inch in the winter. The turf is mowed every day when the team is in town. When the team is on the road, Turnour says he backs off to mowing "as needed."

The infield dirt mix at Nationals Park is conditioned and topdressed with calcined clay. "We topdress the surface with a calcined clay product that enables us to manage the moisture to provide a safe, consistent playing surface," he says.

Turnour has used a calcined clay infield conditioner from Turface Athletics, and other brands, as a "moisture management tool."

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Day games pose a special challenge in keeping the playing conditions consistent from the beginning of the game through the last out. Any combination of dry air, wind, and sun will dry out an infield much quicker than a cloudy day or a humid night. Preparing the infield surface and managing moisture during the pregame hours of a day game will ultimately have an effect on improving the playing conditions in the later parts of the game.


"For a day game, we'll apply a little more conditioner, which is our calcined clay product. One of many things I learned out in San Diego is we'll get as much water on in the morning as we can, and we'll come back over top of that water with what we call a "mulch layer," putting out dry conditioner over top of a wet surface. It acts kind of like a mulch layer to trap that moisture in and then we'll continue our watering practices after that," Turnour says.

Depending on the amount of conditioner already on the infield, as well as the environmental conditions for that day, Turnour says they'll apply another 10-20 bags of calcined clay for a day game.

"It would certainly be more of a challenge to manage moisture without a calcined clay product," Turnour says. "It holds moisture up on the top and it gives the players a nice, consistent surface to play on. It prevents it from being muddy

or sloppy when it's wet. It provides traction."

When it comes down to it, playability is Turnour's main focus.

"At the end of the day, for the game, we know what kind of a field we want to present to the players so anything we can do to get it to that, we do. Our main goal is making sure that we provide a safe, consistent playing surface for them day in and day out," Turnour says. "Ultimately, we are here for the players. We want to make sure when they come out on their home field they know what to expect. They can rely on the field that they are going to be playing on. For half of their games they are here at Nationals Park and we want them to feel comfortable out here. We want them to feel at ease. When the ball is rolling across the infield we want our infielders to know how that ball is going to react. The more consistent we can make that for them, it makes their job a lot easier. Aesthetics, certainly we all strive for an aesthetically good-looking field. But on the list of priorities, it's down past safety and consistency." 

Stacie Zinn Roberts is a writer, speaker and marketing consultant. Her company, What's Your Avocado?, is based in Mount Vernon, WA; she is the author of "How to Live Your Passion & Fulfill Your Dreams."

▼ Opening Day 2015 head groundskeeper, Washington Nationals.



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SUCCESSFUL SEEDING OF COOL-SEASON GRASS COMING OUT OF WINTER

■ BY JOHN TORSIELLO

The success of cool-season grass seeding can be, if we use the current buzzword, problematic.

Thus, it is crucial to understand that cool-season turfgrass seed germination and establishment is highly sensitive to the cool soil and air temperatures that persist during late winter and early spring, making turf establishment during this period challenging, says Brad Park, sports turf education at research coordinator at the Center for Turfgrass Science at

Rutgers University. "Among cool-season turfgrass species used for sports fields, Kentucky bluegrass is the most sensitive to cool soil/air temperatures, and perennial ryegrass is less sensitive." He advised implementation of growth blankets that can be used to enhance seed germination and turf establishment through early spring.

Jeff Fowler, cooperative extension district director at Penn State University, believes one must select the proper varieties of grasses to get the

best results for cool-season seeding. "Certainly, some varieties perform better than others. I recommend using the NTEP (National Turfgrass Evaluation Program) results when selecting varieties for use on athletic fields."

Selecting a variety can be tricky. Knowing varieties that perform well in NTEP enhances the selection. He also sagely recommends not only looking at a state's NTEP results, but also those of surrounding states and not limiting selection to a single characteristic. "Another great resource for variety selection is other sports turf managers. Contact other managers area to see if they have varieties that have worked well for them in their area."

According to Mark Frever, director of grounds at Albion College, a blend of seed is better than selecting a single variety since each variety has strengths and weaknesses. For example one variety may have great drought resis-



Aggressive tining to get seed to soil.



Dragging seed and cores.

tance and one might have better insect resistance. This will provide a better chance of the lawn surviving different conditions. Also, a local turfgrass extension specialist or college representative can provide tremendous practical or research-based information to help a turf grower/manager be as successful as possible.

Timing of the seeding is also important, says Dr. Brian Horgan, extension turfgrass specialist at the University of Minnesota, "Often, soil moisture dictates the time in which we can get onto our fields to seed. Too wet and you will do more damage. If your fields tend to be wet in the spring, consider dormant seeding to have the seed in place when conditions are right for germination. Soil conditions and air temperatures drive much of your ability to be successful with early spring seedings."

Frever opines that soil conditions can spell the difference between success and failure. "To understand your soil means to test your soil. Spend some extra money and work with a consultant to make corrections to the soil for optimum turf performance. Match your soil to the sport and never stop learning about soil."

On sand-based fields, turf growers/managers have more control on when to seed, assuming there is an irrigation system to keep the seeds moist. Heavier textured soils can stay cooler longer or wetter longer. Use lightweight equipment to seed or dormant seeding may be a best option. In highly worn areas, seed often and don't worry about the seeding rates. Says Dr. Horgan, "You are, in effect, managing an annual grass system, treat it like an annual and don't worry about competition by plants. This is not to say that you should do this across the entire field, but identify those areas that should be treated differently and don't be afraid to treat them differently."

Although the time of year that the leaves fall has traditionally been considered the best time to seed for the following year, "we seed whenever conditions are favorable," says Randy M.

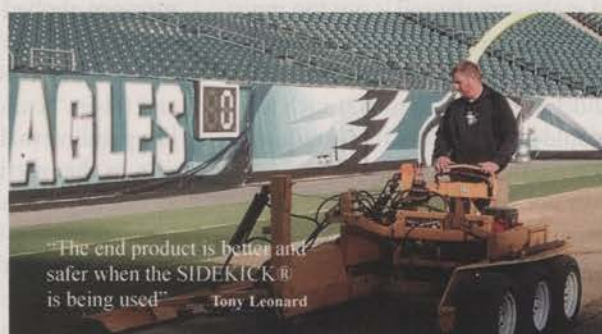
Haffling, general services manager at Moravian College, "We look at the long-range forecast to determine when to seed, so that temperature and moisture will ensure a successful establishment of new grass."

Tongue placed firmly in cheek, Fowler recommends not planting during a "thunder and lightning storm or a tornado," but other than that any day is a good day to put seed in the ground. "If you don't have irrigation, time the seeding so that rain will speed up germination. Waiting until too late in the spring to plant without irrigation will put your success rate in jeopardy." Early seeding gives the new seeds a chance to mature before they are played on. "If you are overseeding an already established field your reentry for play is sooner than when seeding an entire field. If you are seeding a new field make certain that you have enough time for the seed to mature before it receives

play pressure."

Brad Jakubowski, instructor of environmental sciences at Doane College, concurs that even though fall is considered the optimum time to establish grass by seed, spring can be a good opportunity to give fields a "kick-start" to the season. "Remember, if in doubt apply seed."

Jakubowski advises studying the condition of the field; fill low spots, or make corrections to prescribed grades to ensure proper surface drainage and safe playing conditions before seeding. "As we know, seed-soil contact is paramount to getting grass growing efficiently. This can be accomplished in a variety of ways. Seeding in conjunction with aerification and verticutting are two of our best methods. Seeding in multiple layers or combining aerification and verticutting is also very good. Lately, we have been preseeded fields before aerification or verticutting."



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Park says grade soil when wet, and that lime, organic matter, and nutrients should be incorporated via tillage prior to seeding. "Tilled soils should be firm at the surface but just loose enough to allow good seed-to-soil contact. When overseeding into existing turf (including very poor/thin turf cover) core cultivate and reincorporate cores to create a seedbed at the surface."

Pamela Sherratt, sports turf specialist at Ohio State University, says slit seeding is ideal. "Disturbing soils in the spring by tilling creates a nightmare with weeds, so it should be avoided."

A blanket recommendation is difficult for when to water. Too much or too little will delay or sometimes destroy a new seeding. Insure proper moisture by monitoring soil conditions. "Most people do not keep the seedbed wet enough during the first few weeks," says Fowler. "If they can, I want the soil surface to be continually damp for the first 2 weeks. After that, reduce frequency of irrigation but increase intensity. Start off with a little often and end with lots infrequently. The trick is how you get from a to b."

The first mowing of newly germinated seed should be done with care. Says Jakubowski, "The seedlings will be at a tender stage and severe scalping should be avoided. If the grass is to be maintained at 2 inches, let the grasses reach a 3-inch height, then mow." If possible, avoid sharp turns on the newly grown grass and make sure the soil is not too moist, because wheel and foot traffic can create a compacted surface area. This can make it difficult for younger grasses to break through the surface. For shorter mowing heights, 1 inch for example, the first cutting could be at 2 inches then gradually reduced after each subsequent cutting.

Fowler believes that "under normal conditions" a new seeding should be mowed following the "one-third rule," i.e., never remove more than one-third of the plant tissue in a single mowing. Allowing the new seedlings to grow to 3-4 inches before the first mowing won't hurt as long as the rule is followed. Desired final height can be achieved after the plants have had some time

to mature. "I find most people wait too long. I'd suggest mowing as soon as the leaf blades reach the mower, even if they aren't removing much plant tissue. Mowing signals the plant to start tillering and the new seeding will fill in much quicker."

Sherratt says to apply starter fertilizer with seed then again 3-4 weeks after, based on soil test results. "Only a couple of pre-emergents will be useful at time of seeding. Tenacity and siduron are both pretty good." Post-emergent herbicides could be used after about the third mowing. If weed pressures aren't too severe, holding off until the fifth or sixth mowing would help reduce any potential setbacks caused by herbicide applications.

Fertilizer should contain phosphorus to speed up the germination and establishment. A typical starter fertilizer with a 1-2-1 ratio is best at 1 pound phosphorus pentoxide per 1,000 square feet. Do not use a pre-emergent herbicide with the fertilizer, as doing so will impede germination of new seeds. Also, if weed pressure is a concern during grow-in, follow the herbicide label for proper timing.

Jakubowski says a starter fertilizer, such as a 12-25-10 with water soluble sources of nitrogen applied at 5-7 pounds of product per 1,000 square feet will be an effective nutrient source. "If a soil test revealed a deficiency in phosphorus, an application of a product like 18-46-0 would be useful. Subsequent fertilizer applications of water soluble sources of nitrogen applied at a rate of 0.25 to 0.5 pounds of nitrogen per 1,000 square feet every 2 weeks for the first couple of months would be recommended to ensure effective growth and fill-in. "Avoid using common pre-emergent herbicides like pendimethaline or prodiamine before the seeding process, as chemistries like these will prevent your grass seed as well as your target summer annuals. On areas with grass cover, the active ingredient siduron can be applied before seedling application. On bare ground, mesotrione can be applied before seeding as an effective tool to help prevent summer annuals as soils warm. Be sure to follow the labeled instructions for any of these herbicides during establishment."



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Slow-Release Fertilizer

Park believes a complete starter fertilizer that contains nitrogen/phosphate/soluble potash (N-P2O5-K2O) starter fertilizer should be applied at the time of seeding. Following germination, use of phosphorous-containing fertilizers should be guided by soil testing; nitrogen becomes the most critical nutrient to encourage turf to fill-in and establish. "Mesotrione (Tenacity) and siduron (Tupersan) can be safely applied at the time of perennial ryegrass, tall fescue, and Kentucky bluegrass seeding to provide pre-emergence control of the weeds indicated on these products' labels. Quinclorac (Drive XLR8) and fenoxaprop (Acclaim Extra) can provide

postemergence control of grassy weeds; herbicide rates and timing are dependent upon the age and species of turf. Several mowings are typically required before traditional broadleaf herbicides (such as Trimec Classic and Confront) can be applied to newly seeded turf." ■

John Torsiello is an independent writer/editor living in Torrington, CT and part-time in Mount Pleasant, SC. He has written on turfgrass maintenance issues for a number of years, and has won two First Place Awards from the Turf and Ornamental Communicators Association for pieces he authored.



Using a simple spreader to seed.



Slit seeding.

TIPS FOR BEST SEEDING RESULTS

Brad Jakubowski's (instructor of environmental sciences at Doane College) tips for seeding into soil and growing as quickly as possible:

1. Mow the grass shorter than usual.
2. Apply grass seed to the area at the recommended rate or slightly less.
3. Aerify.
4. Follow aerification with an application of grass seed.
5. Aerify again.
6. Follow aerification with another application of grass seed.
7. Repeat steps 5 and 6 again if you prefer (like with shampoo: wash, rinse, repeat!)

8. Topdress area with compost.
9. Drag or work areas with rakes to distribute seed and compost.
10. Apply starter fertilizer.
11. Irrigate.

This process could easily include a verticutting step or steps intermixed with aerification. If possible, cover bare areas with a thin layer of mulch like pine needles (the acidity will not be a problem and will actually help) or straw to protect the new seedbed from wind, washing, or mowing. Hydromulching can also be an effective tool to ensure quicker germination. Diverting from the standard hydromulching process of

mixing the grass seed in with the tank mix of water, mulch material, and fertilizer, I would recommend applying the grass seed to the field surface prior to the hydromulch application. Following the seed and hydromulch application, finish with a light rolling. This sequence aids in helping guarantee good seed-soil contact.

Priming or pregerminating (a process of soaking and draining seed prior to application) uncoated grass seed can also speed up the germination process and there are a number of 'recipes' available.



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▲ Potential herbicide resistant annual bluegrass observed at a golf course in Texas. Susceptible plant is showing severe herbicide injury with a healthy resistant plant right next to it. Image courtesy Dr. Casey Reynolds, Texas A&M University.

UPDATE ON PESTICIDE RESISTANCE IN SPORTS TURF

■ BY JOEY YOUNG

With HD cameras and the best views of athletic field playing surfaces, sports turf managers' fields are inspected closely by many. These high visual quality expectations have increased our reliance on effective pesticides to manage playing surfaces.

It is easy to continually use the same product or class of products when they have provided exceptional control of the pest in the past; however, this can lead to some very serious problems. Pesticide resistance is becoming much more common and prevalent in a number of our common turf pests including weeds, diseases, and insects.

HOW DO PEST POPULATIONS BECOME RESISTANT?

All pesticides have a mode-of-action (MoA) that describes the biochemical process or physical cells the product will target in controlling the susceptible pest. Most pesticides are grouped based on the specific MoA with similar products in the same pesticide class. There are generally some individuals within a pest population that are naturally resistant to a pesticide class. It is nearly impossible to recognize these individuals when initial applications of an effective pesticide are applied according to label recommendations. However, if the same pesticide or a



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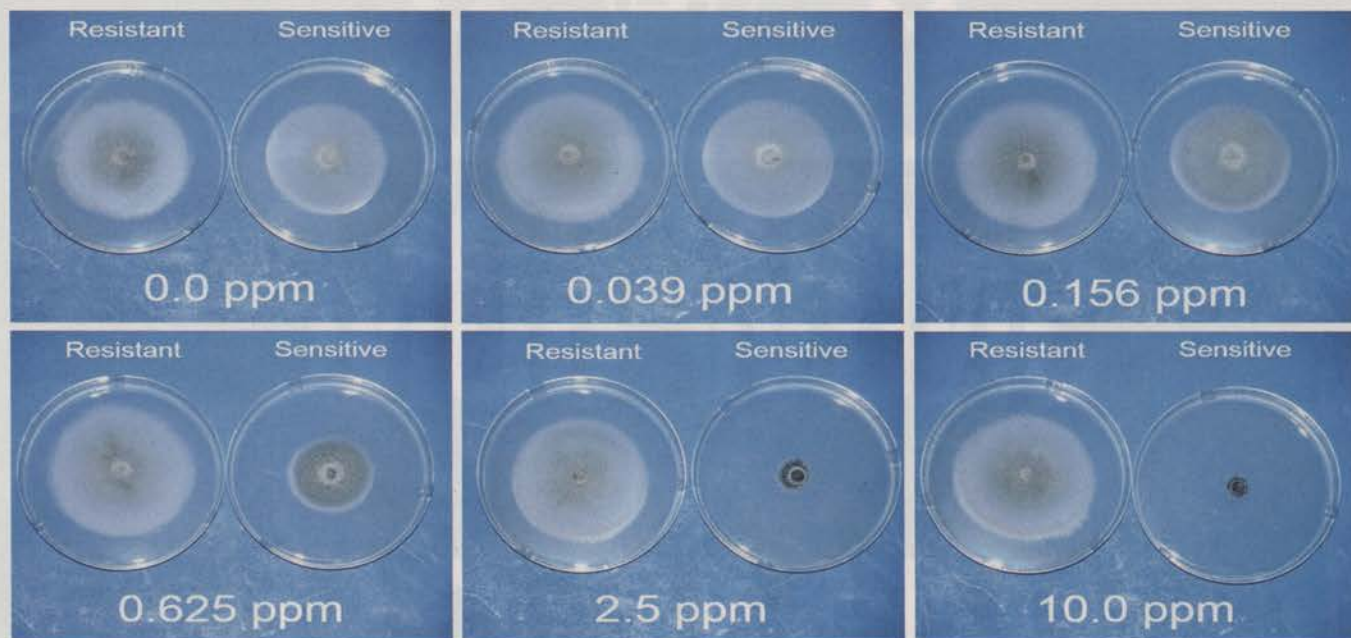
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▲ A resistant (left) and sensitive (right) fungal isolate growing on increasing concentrations of a single-site mode of action fungicide. The resistant isolate's mycelial growth is not impacted by higher fungicide concentrations, which indicates qualitative resistance. Image courtesy of Dr. Joey Young, Texas Tech.

pesticide class is continuously applied for a given pest problem, selection pressure for the resistant population will continue to

grow. The individuals that naturally carry the resistance will reproduce increasing the resistant population over time.

This process may take a number of years to become evident or it can happen very rapidly for pesticides that have highly specific MoA and pests that can produce multiple generations fairly quickly. Some highly specific pesticides have developed resistance within 1 to 2 years of consistent use for a pest.

TERMINOLOGY

When a pest population is dominated by resistant individuals, this is termed practical resistance. Once a pest population reaches practical resistance, the pesticide will no longer control that pest for a long period of time. Additionally, many pesticide resistant pests will exhibit cross resistance, which means the population is resistant to other pesticides within that class. There are also numerous turf pests that have developed multiple resistances. Multiple resistances occur when a pest population exhibits high levels of resistance to pesticides in two or more pesticide classes with different MoA.

The specificity of the pesticide MoA can alter the significance of resistance and reduce the time required for practical resistance to occur. There are two general terms used to describe pesticide resistance. Qualitative resistance occurs with pesticides that have highly specific MoA, potentially targeting a single gene or amino acid group within the susceptible pest. Think of qualitative resistance as a simple "yes" or "no" answer. An individual within the population will be resistant (Yes), and no amount of that pesticide will control the pest any longer. If you were to apply two times the rate of a product or shorten the interval between applications, there will be no injury on those resistant individuals.

Quantitative resistance occurs with pesticides that target multiple locations within a target pest, but still have some

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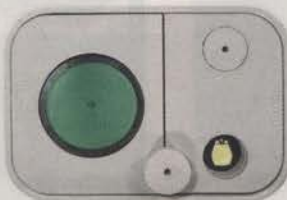
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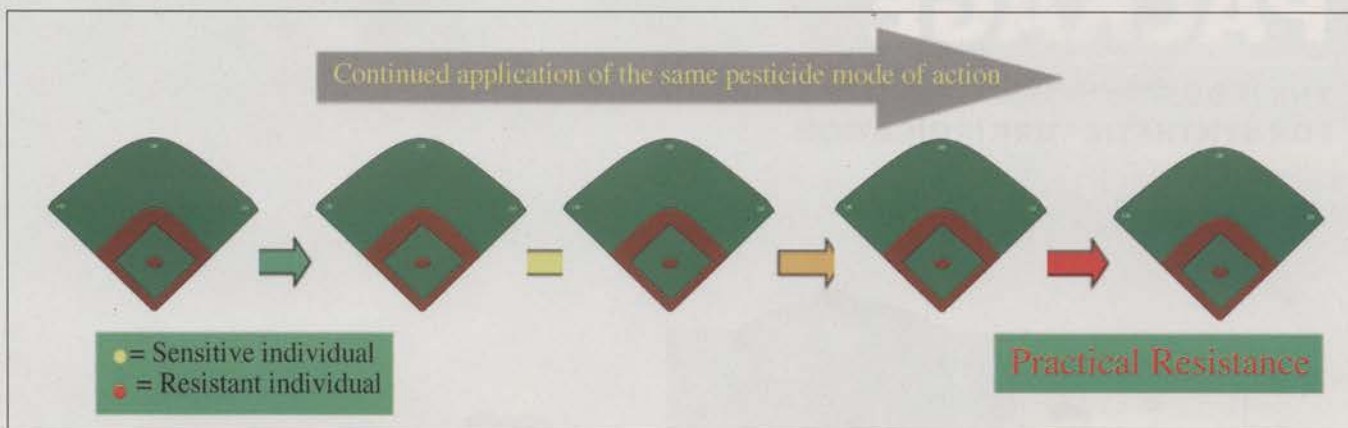


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▲ **Illustration** to demonstrate the progression from initially small resistant populations to practical resistance following many applications of the same pesticide or pesticide class.

specificity to a biochemical process. Any pests that carry quantitative resistance may be controlled with increased pesticide rate or shortened application intervals allowable on the pesticide label.

Strategies to avoid pesticide resistance or manage potentially resistant populations:

1. Do not use any one product or mode of action exclusively
This type of action may quickly result in the development

of a resistant population. Many of our current pesticides are highly effective and control an overwhelming majority of the target pest population. The lack of susceptible individuals remaining after application can provide greater selection pressure for the resistant population to expand quickly. You can quickly review the "Group" number on many pesticides to determine if they have different MoA or if they are the same. Pesticides with the same group number have very similar MoA

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and multiple applications should be avoided to the same target pest.

2. Be sure to follow the manufacturer's label recommended application rate

Avoid using rates that are below the manufacturer's labeled rate to control the problematic pest. The rates on the label are developed from years of studies by the chemical companies and their partners to determine the most effective rates to manage the pests on the label. Applying lower rates can expose the pest population to the chemical but may not control the pests sufficiently enough, which could provide a greater number of individuals for reproduction and growth of the pest.

3. Use preventive applications for common pests based on prior experiences and environment

Once you have managed fields in your area for a number of years, you likely have a strong grasp on the common pests you are working with and when they will appear on your fields. Using that prior knowledge of environmental conditions or seasons when the pests become problematic, you can

schedule preventive applications for those common pests. Managing the pest in this manner before the populations explode in size requiring curative applications can extend the livelihood of the pesticides you currently use.

4. Consider tank-mixing single-site mode of action pesticides with multi-site products

Tank-mixing various MoA into single products at purchase or mixing compatible pesticides on your own is a great way to manage populations that may have some resistance building up. The more specific MoA products will effectively control all the susceptible individuals in the population, but the alternative product can provide some detrimental effects to the resistant individuals to keep them in check as well.

5. Incorporate an integrated pest management (IPM) plan using cultural practices and other resources to inhibit disease formation

Pesticides are always going to provide short-term benefits when managing common turf pests. Even before any concerns of pesticide resistance may arise, the application of a pesticide should effectively control a target pest. However, the pest will normally come back at some point when the environment is favorable for it again. Longer-term control requires changing the management practices and environment to make the athletic field less desirable for the pest and more desirable for the turf growing on it. Some things are out of your control as a turf manager, but your cultivation and management practices can alter the environment to be less favorable for pests. **ST**

Joseph Young, PhD, is an assistant professor in the department of Plant and Soil Sciences at Texas Tech University, and the technical editor for SportsTurf.



▲ Annual bluegrass plants sprayed with a 2X rate in a research greenhouse using a commonly applied herbicide. Image is courtesy Dr. Matt Elmore, Texas A&M Extension in Dallas, TX.

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THE *SPORTSTURF* INTERVIEW: KIM HECK

Editor's note: This month in "The SportsTurf Interview," we feature Kim Heck, CEO of the Sports Turf Managers Association.

SPORTSTURF: Your being hired by STMA signaled a leap into the "big leagues" for the association; what factors did you consider when deciding whether to take the job?

HECK: I was really excited about all of the possibilities for STMA. The STMA Board was working so hard to move the association forward. To have their confidence that I could execute their vision was energizing, and I couldn't turn that down. In some associations the Board second guesses and micro-manages the CEO and staff. I knew that wouldn't happen at STMA. I knew I would be given the leeway to do my job and there was a commitment to providing the resources I needed. Another factor that was important to me was being able to re-establish the headquarters in my hometown of Lawrence, KS. I still had kids in high school.

SPORTSTURF: What experiences in your career prepared you to take over leadership of a national organization?

HECK: Being in a high position at the Golf Course Superintendents Association of America really helped to prepare me for CEO at STMA. I had great role models there in CEO Steve Mona and COO Joe O'Brien. Just about everything I've done in my career is useful, though. My background in marketing and advertising really helps, especially since we are a small-staffed association. Many of the programs that we provide need these skills.

I worked for one of the fastest growing companies in the US, as defined by *Inc. Magazine*. I was employee number 12 when I joined and when the company was sold 5 years later, it had 3,500 employees. You can imagine the changes that organization went through. The word "fast-paced" does not come close to describing that environment! It was really great prep for non-profit work because although our pace may not be as frenetic, an association exec really has a lot of balls to keep in the air at one time.

There are always experiences that make you uncomfortable, and those, too, are great prep for leading an association. One comes to mind: I was in the advertising business and meeting with a client who asked me in front of a huge group of people to give my next pitch in my swimsuit—these situations really help hone your diplomacy skills.

SPORTSTURF: When you started the job how did you come to understand all aspects of the industry?

HECK: I had basic knowledge of the green industry, and specifically the golf course superintendents' roles and challenges.



▲ Kim Heck, CEO of STMA

Sports turf management definitely has similarities, but has vast differences, too. I read a lot and listened hard to my Committees and Board members and asked a lot of questions. Many were quite dumb, I'm sure.

I am often asked to give interviews by Buffalo Communications, our public relations firm. I always make it clear that I can speak about STMA and its vision, but that for questions on field management practices and technologies, I will find an expert to provide comments. I would certainly not be credible speaking to those subjects without a formal education in turfgrass science or experience as a field manager.

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THE INTERVIEW

I think I am a fairly good time manager, spending my time on the things that are important to advancing the association.

SPORTSTURF: How do you help shape the STMA's "vision" or strategic direction?

HECK: I have been so lucky to be included as an equal player in the strategic planning sessions by all of the Boards of Directors for whom I have served. These sessions give me the opportunity to weigh in on important issues facing the association and its membership. However, at the end of the day, it is the STMA Board who governs the association, and I am charged with executing their decisions.

A board member's tenure on the board is maximum 7 years, and that means our board is constantly changing, with new board members coming on and others rotating off. New board members bring wonderful perspective and insight, yet for some organizations this fast rotation could be dysfunctional. The reason it works so well for STMA is that we have a 3-year strategic plan that guides the work of the board. That plan is the road map that helps to steer the board in its decision-making, resource allocation and priorities. The Board evaluates its progress to the current plan during each board meeting, and when we are in the final year of the plan, we usually have a facilitator help us go through the planning process to develop the next iteration of the plan.

SPORTSTURF: What is your role in building the culture and values of the association?

HECK: Our culture and values stem from those of our membership, and they have been set for quite a while. Our members are collegial, friendly and all-around really good people. My team and I work hard to mirror those qualities through our work at Headquarters. Many times when a new CEO comes to an organization, there are huge issues with the culture and the exec has to change the culture. This is the easiest part of my job. Those who served before me did an excellent job in sustaining the culture set by our Founders.

SPORTSTURF: CEOs have ultimate responsibility for an organization's success. How do you prioritize all the functions you perform?

HECK: Association management is all about planning, project management and customer service. I think I am a fairly good time manager, spending my time on the things that are important to advancing the association. I have a great staff who do their jobs really well, so that I can concentrate on my responsibilities.



▲ The STMA Headquarters staff takes in a game at Royals Stadium in Kansas City. From L to R: Kim Heck, Leah Craig, Nora Dunnaway, and Eric Maydew. Kristen Althouse telecommutes and was not at the game.

We have a genuine team environment and if there is something that needs immediate attention, we can turn-on-a-dime and tackle it together. We are all crossed trained and that is important. I am a notorious list keeper and calendar scheduler. These help keep me on track.

SPORTSTURF: What are the most important issues facing your members in the next few years and how is the STMA approaching those issues?

HECK: Right now, there are five issues that keep me up at night!

First, the rapid and increasing pace of technological change makes it harder for our members to keep up. STMA is working on streamlining all of our continuing education offerings. We're planning an STMA app that will bring information to members when and where they need it. Our website is evolving to a more user friendly and responsive environment; we are pushing out technical information via social media; and at our physical conference each year, we have sessions on technology to help our membership become more effective.

Second, information is so electronically available that associations are no longer the only source for its membership. That can have huge ramifications for retention and growth. We are countering this trend by making member connectivity an extremely vital component of membership. A member might be able to Google information, but members connecting with members on real world solutions provide the highest value and that's where STMA is focused on making a difference.

My third concern is about students: enrollment in turfgrass

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science is declining. The profession may be faced with a shortage of qualified sports field managers in the future. This could result in unqualified people managing fields, which could impact how the profession is viewed externally. Conversely, higher demand coupled with lower supply can drive higher salaries for qualified managers. STMA has developed a turf-grass science curriculum targeted to high school students to introduce them to the profession. We are working hard to get it into programs that are not only aged, but into mainstream science classes.

Next, increasing environmental regulations affect the work of our mem-

bers. As more governmental regulations affect use of products, and require more stringent management practices, STMA has the opportunity to become the go-to resource for information. We are rolling out an Environmental Facility Certification Program that has the opportunity to promote our members as the environmental stewards they are and bring more credibility to the profession. This certification can help to counter the wave of indiscriminate restrictions that have no basis in fact.

Lastly, synthetic turf is top-of-mind. The issue isn't with synthetic turf; it is with the employers' not understanding

the value of a sports field manager and the job that they do. Our members are not being invited to the table when decisions are being made about field surfaces. STMA is focused on promoting the value of a sports field manager to employers, sportscasters, and spectators. We are taking a leadership role in the sports world by creating awareness that the quality of the playing surface is essential to the game and the athlete's safety. To do this we need professional help. We hired Buffalo as I mentioned previously. They are a top-notch PR firm that is gaining publicity for individual members, the association and the profession. They are helping us to tell success stories about natural grass fields. We also aggressively promote our members' technical expertise as speakers, presenters and authors. Our primary targets are associations and organizations (and their publications) that our members' employers interact with, such as NRPA, the Athletic Business Conference, and the Green Sports Summit, to name a few.

SPORTSTURF: What do you do outside work?

HECK: I bought a house within walking distance of STMA's headquarters (so you can guess where I spend my spare time!) My neighborhood is one of the oldest in Lawrence, where I serve as its association's Secretary. I get together with friends often, sometimes in our official capacity as a book club and a wine club (our book club reads wine labels!) I practice yoga and do cardio, weights and Pilates in formal classes weekly. I tried boxing, but that didn't work out so well. One of my daughters "gifted" me her mastiff, Bella, when she got a puppy, so that dog rules my life. Two of my children were married within 14 months of each other (the most recent was September) and those weddings were whirlwinds. However, cheering on our Kansas City sports teams takes up most of my spare time—love the Chiefs, World Series winners Royals, and Sporting KC! But, I'm an even greater fan of the KU Jayhawks. Rock Chalk! 



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John Mascaro's Photo Quiz

John Mascaro is President of Turf-Tec International

Can you identify this sports turf problem?

Problem: One-foot green circles
Turfgrass area: Home lawn
Location: Tampa, Florida
Grass Variety: St. Augustine grass

Answer to John Mascaro's Photo Quiz on Page 37



Background illustration courtesy of istockphoto.com



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Russ Chandler Stadium,
Georgia Tech

Any changes in field maintenance for 2016? **STMA MEMBERS RESPOND**

Editor's note: We asked some STMA members via email if in 2016 they were planning on changing or adding to any of their maintenance practices, agronomically or for playability or field appearance reasons. Here are the responses we had space for in this issue:

CHRIS MAY, baseball field manager, Georgia Tech

We will not be changing much agronomically. We are very happy with our current plan of attack. We might try and get an extra application of IDBU down during the winter months to help feed our ryegrass more effectively. We will continue with our same fungicide regiment. This is the first year we have not used two ryegrass blends. We went with our favorite blend Champion GQ. This is the same blend Augusta

National uses. We think it performs better during the colder months of the beginning of the baseball season.

Our biggest improvements have been focused on playability. We had a complete infield renovation done this summer to maximize our drainage. This included removal of all contaminated sand profiles in the infield, hip and radius areas. We also excavated our infield clay to remove all of the older mix below our current DuraEdge professional blend. Our infield is now

100% Dura Edge professional. This should really make us more consistent with moisture and improve the corkboard effect we are trying to achieve. During our renovation we removed all of our mounds (including bullpens) and rebuilt them with the new Turface Professional red mound and home plate clay. We hope this new clay will cut down on repair time and clay prep.

I think we have tried to get too fancy in the past. The biggest thing with baseball is consistency and we were not accomplishing that. We tried multiple gumbo clays and I don't think their upside is worth the extra prep time to make them usable. At the college level it is hard to spend 2-3 hours a week making clay, especially with softball, track and spring football practice all going on at once.

As far as appearance we decided to really simplify things and become even more traditional. We changed our infield cutouts to mimic the candy cane look of Busch Stadium in St. Louis. We have also removed our home plate walk-ups. Due to the smaller size of our crew we are going to keep our mowing patterns very simple this season. By doing this we will be able to focus more time and energy to mound, edge and infield clay maintenance. I want Russ Chandler Stadium to set a new standard in playability at the college level. When a team leaves our field I want them to know they just played on the best surface college baseball has to offer.

Budgets have been lower the past few years, and have cut out almost completely our contracted services budget.

— Ben Polimer

BEN POLIMER, sports turf manager, Worcester (MA) Academy

I would like to add a few things to [this] year's maintenance practices, all budget-dependent of course. I would like to add more spray applications next year, and use some more foliar products, humates, and maybe another application of growth regulator (we have had great success with the regulator). We also haven't seeded entire fields in a few years, so hopefully can do that to introduce better cultivars.

We contract out our spraying normally three times a season. We apply products when the school is out of session; it's just easier for us to do that based on state law. Adding one more spray especially with a growth regulator right before the fall season starts will help us get through the first full month of fall sports. More and more has been talked about humid acids and humate products. Depending on budget, we can



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After the field renovation last year we are not planning on any changes. We had a really good year and hate to change things when they seem to be working.

— Brock Phipps, head groundskeeper, Springfield Cardinals

spray or put out a granular app. Budgets have been lower the past few years, and have cut out almost completely our contracted services budget. That being said, our fields get used more and more, and we haven't seeded an entire field in 3 years. We had great success with a late summer slice-seeding. Keeping my fingers crossed!

Bruce H. Suddeth, director building & landscape services, University of South Carolina Upstate

As far as the 2016 plans I can only think of a couple things we are going to change up:

This year we used some quick release Ag-grade fertilizers after we transitioned out the rye to give the bermuda a quick boost along with another shot in July once the grass began to run horizontally. This seemed to push the fertilizer more along with our standard fertilizer program with slow release materials. These combined with a PGR in July, August, and early September really made the turf fill in great.

We are also going to get more aggressive with aerification in 2016 as long as field schedules will allow. There may have to be some camps that will have to deal with aerification holes and topdressing, but we feel it's going to benefit the health, playability, and safety when it comes time for game day.

Tim VanLoo, CSFM, manager, athletic turf and grounds, Iowa State

I have no major differences planned. I may change things if the weather dictates me to change. Basically, I start with an idea of what I want to do, usually close to what we have done in the past and let the weather dictate if that plan needs adjustment or not. Seems like some new technology every year sparks enough of my interest to try something new. It's one of the reasons I never want to miss an STMA Conference! New technology that makes our expectation of perfection closer to a reality is always something I am willing to try.

Michael Boettcher, director/grounds, Milwaukee Brewers

We had a great growing season here in Milwaukee during the 2015 season. The turf seemed to respond well to our agronomical practices as it relates to our fertilization and cultivation/aerification. Though we had a good year, we are always looking for ways to improve. We will re-evaluate our fertilizer program and see where we can make some modifications to get a more consistent, quality surface every game of the season, although Mother Nature usually has the most impact at the end of the day. For our clay surfaces, we will continue to patch and level our surfaces every day to maintain them at a high level. As new

products continue to emerge, we will test certain ones here at the park that has potential to perform better within the arches of our retractable roof here at Miller Park! A lot change isn't necessarily desired at this time as the input from players has been quite good about our current playing surface, but like I stated, always looking to improve!

Brian F. Bornino, CSFM, sports turf crew chief, Purdue University

I sit down with my staff each winter to discuss the previous year and the upcoming year for each facility that we maintain. I'm a firm believer in making adjustments no matter how bad/good the year went; things could always be made slightly better! With that being said, we will look at any new technology or advancements made in the previous year and how that might fit into what we are doing.

The past 2 years we've been very fortunate that our budget has allowed us to incorporate fraze mowing into the maintenance practices for our Bermuda soccer and football fields. We've discussed possibly expanding that to our Kentucky bluegrass baseball and softball fields immediately after their seasons end for the removal of *poa annua*. By changing the type of fertilizer (to polymer coated), we were able to reduce the amount of fertilizer used on our cool-season fields this past season; this will be something we will look more into this winter to see about expanding further.

Lastly, as a crew, we've had a few conversations about making an attempt to grow one of our Bermuda fields without transitioning out and trying to manage both grasses year round since we've experienced some pretty harsh winters and below average summer temperatures over the past 2 years; not exactly ideal bermudagrass growing conditions.

Andrew Siegel, groundskeeper, University of Texas-Arlington

As we are getting ready for spring with baseball and softball about to kickoff, we are doing a few small things differently. We are finishing up fall practices this week [mid-November] and getting ready for a second round of rye to put down. In the middle of October we put out half of the rye so we could get a decent stand in case we had an early freeze. This was something we tried last year and it worked well. This season, however, I still went back and aerated the infield, and areas of compaction before seeding the second time. Last season I did not do it and, I believe I paid the price when those areas wore quicker in January before we began warming up again.

We have also raised the mowing height on rye from 5/8" last year to 3/4" this season. I am hoping this coupled with a more intense fertility program focusing on root growth and hardi-

John Mascaro's Photo Quiz

Answers from page 33

John Mascaro is President of Turf-Tec International

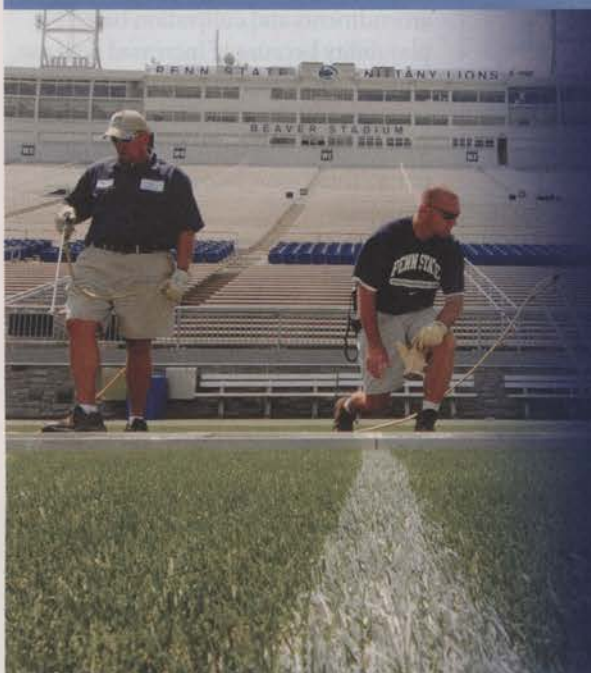
These one-foot green circles on this St. Augustine grass lawn in southwest Florida are a great indicator showing insufficient nitrogen amounts on the turf. The yellow, chlorotic turf shows very low amounts of nitrogen while the green spots were actually caused by dog urine that delivered just the right amount of nitrogen to green up the turf in these spots. The amount of nitrogen in this homeowner's healthy puppy shows just how nutrient deficient this St. Augustine lawn has become. Many times female dogs get blamed for damaged turf or "brown dog spots" as compared to male dogs. For years I heard the reason for this was a factor of pH. The reason many people have given the female dogs a bad reputation killing more grass than male dogs is not actually based on pH. In fact, there are three primary reasons why dog urine burns grass: the alkalinity of the urine, the concentration of the urine (how well hydrated the dog is) and its nitrogen load. Concentrated urine has more solutes (particles of nitrogen) than dilute urine, which can adversely affect grass health. The reason why female dogs create more damage as compared to male dogs is actually because females typically squat and pee in one spot (depositing a whopper load of nitrogen solutes), whereas males tend to urinate in smaller amounts as they wander from spot to spot. Now, if this homeowner can train their dog to alternate the favorite spots better, perhaps they can continue to save money on fertilizer.

Photo from John Mascaro's collection.



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.

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ness will help with what could be a wet and cold winter.

Throughout the season, we will try to solid tine aerify a few times before dropping the mowing height in late April. As soon as seasons end, we will spray out rye to aid in transition. We have not done it before but the hope is to transition fully

before summer ball begins in June. Last year, the rye hung on with all the rain we had and it hurt in the long run.

Noel T. Brusius, CSFM,
field maintenance supervisor,
Waukegan (IL) Park District
In 2016 our complex will be going on its

6th year of operation. Over the course of the past 5 years we have developed a fairly successful maintenance routine that includes a strong emphasis on cultural practices including aeration, overseeding, topdressing, etc. As we do every year, we will tweak our fertility schedule based off the latest soil tests and anticipated use. We also hope to do some experimenting with new herbicides to help us develop a strategy to reduce *poa annua* populations. Lastly we anticipate finishing up a complete complex irrigation head replacement and when finished new soil sensors will be installed to give us another tool to monitor turf conditions and enhance water conservation.

Rebecca Auchter,
grounds maintenance manager,
Cranberry Township, PA

You caught me right on the cusp of considering how best to implement some changes based on grounds management issues that arose over the 2015 season. I really have two categories that need some serious consideration over the winter when I have time to think and develop an operational plan: 1) agronomic program changes related to soil amendments and cultivation based on playability because of increased field use, and 2) combining different classes of growth regulators to achieve sustained suppression of plant height without diminishing wear recovery or seed germination.

On the first point regarding amendments and cultivation, the driving factor is an increase in field use; for example our soccer fields have increased from about 160 events per season to more 200 and climbing. For a field with a sand rootzone I wouldn't be struggling; we have a pretty sophisticated maintenance program. But the fields in question are native western Pennsylvania clay that compacts easily and has the water infiltration capacity of my desktop.

For 2015 we increased aerification but restricted our choices to primarily solid deep tines on a 30-day schedule. Only twice, in July and November, have we used hollow tines. I am trying to fig-

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Without growth regulators,
I cannot drop to twice weekly
mowing without suffering through
grass clipping problems.


— Rebecca Auchter

ure out a way to pull cores at least 4 or 5 times annually as well as solid tine at least 6 times. Without closing fields! Right now we only have a brief closure in July and the fields are in play from March to November.

Additionally, I have been considering which way to best change the soil physical properties to meet the new, higher demand. Sand is certainly an option but takes a LOT of product and a lot of time. It would take about 1,000 tons of sand to sufficiently modify the rootzone of one soccer field and we have seven. Not to mention football, lacrosse, etc. The labor and cost add up to beyond our means. I am looking at some of the Turface, Zeolite, Axis products as an alternative. No decisions yet.

The second concern is using growth regulators more effectively. Labor is always the limiting factor in a municipal setting (as far as I can tell) and mowing 40 acres of sports fields three times weekly severely inhibits our ability to meet other responsibilities. Without growth regulators, I cannot drop to twice weekly mowing without suffering through grass clipping problems. So, we use growth regulators every 14 days to help keep labor free as well as all the other benefits they provide for turf.

Due to constant seeding of highly used sports fields, conventional wisdom says not to use Class B PGR's (late GA inhibitors) like Cutless and Trimit because of their root uptake and *poa annua* killing properties when used on the label recommended program. Only Class A PGR's (early GA inhibitors) like Primo are prevalent on sports fields for a continuous program of growth suppression. The problem with Primo alone is that it has a life span of only 5-7 days in the heat of the summer.

Back to the labor issue: it is not practical for us to spray more than every 14 days. So, through experimentation with a combination of Class A and low continuous rates of Class B PGR's tank-mixed, we were able to achieve fairly consistent suppression on a 14-day spray schedule WITHOUT damaging *poa* or impeding seed germination throughout 2015. But only on fields that are predominantly perennial ryegrass or predominantly Kentucky bluegrass. Fields with a patchwork of the two grass types did not fare well as the KBG takes much lower rates to suppress than the perennial ryegrass. So, 2016 will be dedicated to fine-tuning the rates and products to achieve ideal suppression that allows twice weekly mowing as well as aesthetically pleasing turf. 

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Editor's note: This article was supplied by Magnation Water Technologies.



It's widely known that the serious drought conditions in California and other western states have taken a critical toll on the agriculture industry. But did you know that many K-12 schools and universities throughout these regions have had to drastically curtail and, in some cases eliminate, their outdoor sports activities due to the sustained lack of rainfall? In Santa Cruz, CA restrictions were imposed on all residents and businesses starting in 2014, in order to cut overall use by 25% (in June of the same year it became a statewide mandate). Businesses and organizations with large landscaped sites, including schools and city parks using outdoor irrigation systems, were required to limit themselves to one-third of the water that was needed to maintain their gardens, lawns or fields. As a result, fields were closed at UC Santa Cruz as well as local high schools. Athletic programs were put on hold. This may sound like an extreme scenario, but it is far from being an isolated case. Throughout California and other drought-ravaged states, the dwindling supplies of water for landscape purposes are responsible for the closure of parks, playgrounds and sports fields.

Aesthetics aren't the only thing at risk when restrictions are imposed on land-

scaped grounds. When outdoor school and recreational areas are not adequately watered, the ground becomes rock hard and for those playing soccer or football, or even children playing at recess outside of their elementary schools, the results of falling on such hard ground can be injurious. For this reason, parks, recreation and grounds superintendents and maintenance managers are clamoring for solutions that will allow them to make their limited irrigation water go further. The following report highlights one such solution that is not only rescuing landscaped areas, but is also saving groundskeepers a substantial amount of money by eliminating the cost and labor of using wetting agents.

THE DISCOVERY SCHOOL, BAKERSFIELD, CA

In the Fruitvale School District, located in northwest Bakersfield, Brian Prine has been Director of Maintenance, Operations and Transportation, for almost 11 years. Brian oversees the irrigation of six different campuses in this region. When state requirements forced him to cut his watering time from 6 days a week to 3 days a week, the results were soon evident. The turf on some of the grounds and fields turned brown and, in localized areas, dis-

appeared altogether. One of the campuses, the Discovery Elementary School, was particularly troublesome. The soil there was clay-based and the lack of water was slowly turning the ground to brick.

Before the drought restrictions were imposed, Prine used to water the grounds 6 days a week in the summer. Now, he is limited to 3 days of watering per week. "I can't increase my watering," said Prine. "And because my campus is so big, I need the full watering time allotted to me. So I had to find a solution that could keep the soil and turf healthy, using half as much water." However, after doing some research, Prine was hard-pressed to find a solution that was within his budget. "I could use a 'liquid gypsum' product on the grounds that has been known to work. But the cost was beyond what my budget allowed. The cost of one year's worth of applications would be \$7,860, and that's not even considering the added expenses of time and labor needed to apply the wetting agent about every other month."

Prine also heard about a water treatment product from a company called Magnation Water Technologies, which claimed to save water, support healthy soil and grass and eliminate the need for wetting agents. Figuring that it was worth a try, he put Magnation to the test on his most problematic campus. He found that the Magnation system could easily be integrated with his existing irrigation set-up at the Discovery School. The company claimed that the product can last for as long as 15 years without needing replacement. The cost? \$3400. Compared to the \$7860 for one application of a wetting solution that would only cover one year, it was well worth the trial, according to Prine.

When students returned to school last fall, the grounds were healthy and looking good. To ascertain just how well this new irrigation treatment is working, Prine and his crew take monthly samples from

different outdoor locations around the school. The sod roots in September were more than twice as long as they were in July, and the average ground moisture extended almost three times deeper from July to September. According to Prine, "It's clear to me that this product is doing what I was told it was going to. We have restored our soil and turf back to a healthy condition using half as much water, with the Magnation product. And it's much more time- and cost-effective than using any type of wetting agent to try to get similar results. The product is already paying for itself after only several months."

DICK'S SPORTING GOODS PARK, COMMERCE CITY, CO

To verify the results that Prine experienced at the Discovery School, we traveled to a completely different location to investigate another recent customer of this seemingly incredible water treatment

system. Commerce City is home to Dick's Sporting Goods Park, also known as DSG Park, a soccer-specific stadium that hosts the Colorado Rapids professional soccer team. In addition to the stadium, DSG Park offers 25 soccer fields; 23 of them use natural grass that must be consistently maintained and kept healthy. Phil McQuade, the current director of turf at DSG Park and Stadium, has been employed by the complex since it opened in 2007, and was looking for a solution to help maintain healthy coverage on these fields.

"We're located in a particularly high-wind area and because of this we often experience dry spots in the turf. Since people who use these fields expect the grounds to be in top shape, we needed to find a sustainable solution to this problem." McQuade discovered the Magnation products at a local trade show and decided to experiment. "Surrounding the stadium, we have four pods with six fields in each

pod. These fields are regularly used for soccer, lacrosse, football, you name it. We decided to test out the product by installing a Magnation unit in the irrigation system to just one of our pods. That was in April of 2015, and now we (myself, my assistant and our irrigation consultant) are definitely seeing a reduction of dry spots. Not only have the areas of dryness shrunk, but the turf is now coming in thicker."

Convinced by the tangible results they got on these six fields, McQuade just purchased an additional unit to install for another pod of fields. "We think there is a definite benefit to using this water treatment," said McQuade. "We're also testing an area inside the large stadium; a couple of berms that are south-facing and right by a building. They are constantly being baked by sunlight all day. So we wanted to see what would happen if we put Magnation on the irrigation heads in that section."

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McQuade and his colleagues installed Magnation on one side of this problematic section, but not on the other, and again found evidence of how well this treatment worked. McQuade sums it up by saying, "Everything being equal on both sides, the one side treated with Magnation appeared to have less dry patches and the turf was denser. I honestly believe that the Magnation treatment helps water penetrate the soil and therefore we're getting deeper roots and healthier turf."

With such compelling testimonies from the users of this unique water treatment system, one can't help but be curious why, especially during these times of severe drought conditions, Magnation has not yet gained a higher level of ubiquity. According to Mike

Jenzeh, the co-founder and CEO of the Oakland, CA-based company, "Change happens gradually, especially with products that are disrupting the status quo of the way things have been done for decades. But, when you have something that is proven to work again and again in a variety of applications; when the evidence collected from hands-on experience by agricultural experts, landscape managers, golf superintendents and the like, becomes undeniable, then people are more willing to give it a try. We're not quite at the tipping point yet, but word is spreading fast and more and more people are turning to us. We have demonstrated that we can help a wide range of water issues, and the proof is in the results." **SI**

Magnation Water Technologies

Portable indoor synthetic turf



Sports turf and indoor training as we know it is about to change. Dollamur Sports Surfaces recently introduced its newest product, GymTurf 365, developed in partnership with Shaw Sports Turf. This portable, indoor synthetic sports turf will answer many high school coaches' prayers by addressing the need for sports teams to practice safely and effectively inside during periods of inclement weather or field scheduling issues.

Mobility. GymTurf 365 provides athletes and coaches with a safe and playable surface to compete on year-round at the same intensity as an outdoor practice. It's portable and can be installed in 30 minutes or less, turning any building into an indoor practice facility. Next time it rains or snows, GymTurf 365 enables your team to continue practicing, bypassing any weather roadblocks.

"We are excited to launch a product that currently doesn't exist in the sports turf arena," says Dave Rossi, Dollamur Senior Vice President. "GymTurf 365 addresses the needs of coaches and athletes across the country by offering a safe, efficient and mobile way to train indoors."

Safety and playability. Safety and playability are two of the most important qualities in sports turf. GymTurf 365 offers low-impact, anti-abrasive flooring that is engineered to reduce injury and impact. It requires no infill, so even those annoying loose, rubber particles are absent.

GymTurf 365 features Dollamur's patented FLEXI-Connect technology, an integrated feature that connects turf sections without additional fasteners or tape. The patented system, which uses built-in hook and loop connections to join turf rolls, expedites set-up and tear down. It ensures the turf will not separate between seams for a "no slip, just grip" surface. GymTurf 365 meets international soccer standards for artificial surfaces. The grip of the turf and the bounce of the ball pass requirements for competitive play as well.

In northern regions, it can be a challenge to practice baseball and softball. Even if the snow has melted, you still have to contend with the cold rain. Players risk injuries from slipping on slick surfaces as well as illness from exposure to weather conditions. In the past, the only alternative was to move indoors, which forced players to use plastic practice balls on a hardwood or concrete surface.

With GymTurf 365, baseball and softball teams can practice indoor on a padded turf surface with official balls, resulting in a true bounce that will simulate an actual field. Consequently, practice is more productive and players are better protected.

There really is no limit when it comes to who will benefit from the development of this revolutionary solution. Schools, park districts, multi-sport facilities and fitness clubs will all see positive results.

The battle for school budget dollars can be fierce. One coach wants a new piece of equipment that will benefit his or her team, while another coach is requesting money for something else. Unfortunately, position specific gear can be expensive and, in many cases, it is only used by a few athletes. One of the most exciting aspects of GymTurf 365 is the number of athletes who benefit from using it.

When it is not being used by team practices, it can be used for physical education classes during bad weather or summer sports camps. It's a purchase that benefits nearly every student. Those types of expenditures are rare among sports equipment. **SI**

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STMA's host hotel is sold out, but it has secured additional hotels within walking distance. For the most up-to-date hotel information, go to STMA.org.

The STMA Exhibition is the largest trade show dedicated to sports field management. The show floor is sold out, and attendees will be able to meet with product, equipment and technology developers to solve specific field challenges. The trade show does not compete with educational sessions so you can give your full

attention to each; there are several innovative sessions being held on the trade show floor.

Other events are held in conjunction with the conference and exhibition. The Diamond Pro SAFE Golf Tournament and the Fields, Inc. SAFE Bowling Tournament benefit STMA's 501(c) (3) charity. The SAFE Foundation awards scholarships, grants and funds educational outreach. Register now at STMA.org to reserve your spot.

STMA offers a variety of registration options: full conference \$450 (best value); 1 day packages, \$140 (only two packages allowed); Trade show only \$45 each day; Non industry Spouse/Companion Registration-full conference \$140.

Register by January 8 online at STMA.org. Onsite registrations can be accommodated; however, prices increase. 

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STMA also offers the opportunity for leadership. It has more than 20 committees that meet typically via conference calls. Their work directly impacts the programs and services that STMA provides to its membership. Volunteers report that they learn project management, team skills, collaboration strategies and more from participating on these committees.

Resources available from STMA include:

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- Employment & career resources

- STMA Industry Sourcebook
- A subscription to Michigan States Turfgrass Information File (TGIF)
- Chapter resources
- Leadership opportunities: Committee and Board of Directors service
- Membership directory

Finally, STMA is offering a special benefit to new, first time members, who are defined as not being a member since the year 2000. With this new membership, you are entitled to receive one FREE conference registration to be used within 3 years. This is a \$375 value. For more information, or to sign up as a new member, go to STMA.org, and click on New Visitor at the top of the page.

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Sources: Centers for Disease Control and Prevention (www.cdc.gov)
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STMA'S 2015 Award Winners

Field of the Year

Since 1992, STMA's Field of the Year Award is given to members who manage baseball, football, soccer, softball and other sporting grounds at the professional, collegiate or schools (K-12) and parks and recreation level. This year there were 11 winning fields.

"The Field of the Year Award is a testament to the personal and professional contributions by a select group of sports turf industry leaders," says Kim Heck, CEO of STMA. "The process of selecting winners each year becomes more difficult as the candidate pool grows and the industry continues to progress with innovative technologies, state-of-the-art equipment and best practices."

A panel of 15 judges independently scored entries based on playability, appearance of surfaces, utilization of innovative solutions,

effective use of budget and implementation of a comprehensive agronomic program. Judges may not award a field in each category.

The 2015 winners noted below will each be featured in a 2016 issue of *SportsTurf*.

Professional.

■ Baseball—Daniel Thomas, Baltimore Orioles, Ed Smith Stadium, Sarasota, FL.

■ Soccer—Weston Appelfeller, CSFM, Columbus Crew SC, MAPFRE Stadium Pitch, Columbus, OH

College and University

■ Sporting Grounds—Shane Hohlbein, CSFM, Kennesaw State University, 5/3 Bank Stadium, Kennesaw, GA

■ Football—Brandon Hardin, Mississippi State University, David Wade Stadium, Scott Field, Starkville, MS

■ Softball—Bruce Suddeth, University of South Carolina Upstate, Cyrril Softball Stadium, Spartanburg, SC

■ Soccer—Jesse Pritchard, CSFM & Phil Bathalon, University of Virginia, Klockner Stadium, Charlottesville, VA

Schools and Parks

■ Baseball—David Presnell, CSFM, Gainesville City Schools, Ivey-Watson Field, Gainesville, GA

■ Football—Sun Roesslein & Christie Clay, Jeffco Schools Athletics, North Area Athletic Complex, Golden, CO

■ Softball—Will Rogers, CSFM, Clover School District, Blue Eagle Softball Complex, Clover, SC

■ Soccer—Allison Moyer, Collegiate School, Varsity Soccer Field, Goochland, VA

■ Sporting Grounds—John Cogdill, Pleasant View Championship Field, Boulder, CO

The Field of the Year Awards program is made possible by the support of sponsors Carolina Green Corp., Ewing, Graff's Turf, Hunter Industries, Pro's Choice and World Class Athletic Surfaces.

Minor League Baseball

Sports Turf Manager of the Year

Since 2000, STMA and MiLB have honored members who manage fields in Triple-A, Double-A, Single-A and Short Season or Rookie divisions. This year, three of the four honorees are multi-year winners, exemplifying a commitment to excellence and an unwavering dedication to maintaining world-class professional baseball playing surfaces.

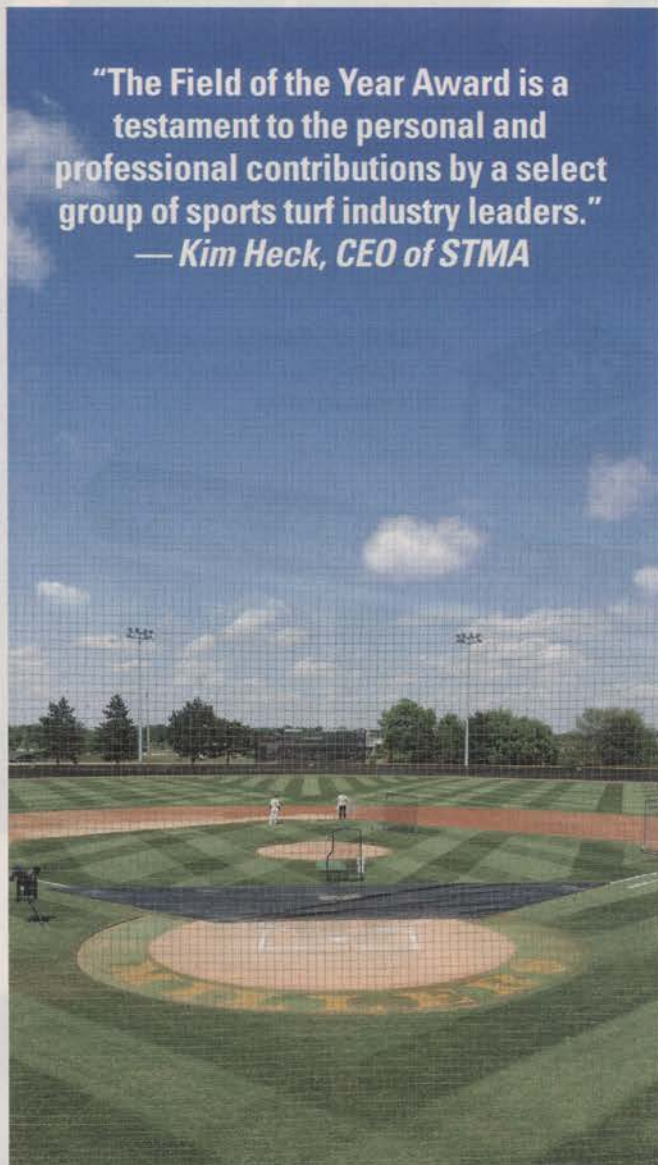
Winners are:

■ Class AAA – John Stewart, Syracuse Chiefs, International League

■ Class AA – Brock Phipps, Springfield Cardinals, Texas League

■ Class A – Keith Winter, Fort Wayne TinCaps, Midwest League

"The Field of the Year Award is a testament to the personal and professional contributions by a select group of sports turf industry leaders."
— Kim Heck, CEO of STMA



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305-235-5101 (Bruce Bates) or
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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

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):
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Sports Field Managers Association of 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

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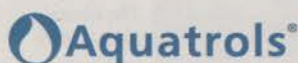
Tennessee Valley Sports Turf Managers Association (TVSTMA): www.tvstma.com

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■ Short Season- David Yearout, Spokane Indians, Northwest League

Phipps and Winter are both being honored for the third consecutive time (2013, 2014). Yearout is a second-time winner (2014) and Stewart is a first-time winner, joining an elite class of sports field managers.

Winners are selected via a 16-member awards committee, whose independent scores are compiled by STMA. Each nominee is independently scored on cultural practices, game day routine, resource utilization, staff management and the groundskeeper's involvement and support of the sports turf industry.

President-Elect Jeffrey Salmond is presented these awards at the Baseball Winter Meetings awards luncheon December 7 in Nashville.

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- ☐ F Sports Complex ☐ G Athletic Field and/or Park Architect/Designer
☐ T School, College or University ☐ P Park
☐ H Other (please specify) _____

2 Which of the following best describes your title? (check **ONLY ONE**)

- ☐ A EXECUTIVE/ADMINISTRATOR — President, Owner, Partner, Director, General Manager, Chairman of the Board, Purchasing Agent, Athletic Director
☐ B MANAGER/SUPERINTENDENT — Superintendent, Landscape/Ground Maintenance Manager, Foreman, Supervisor
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☐ E Other (please specify) _____

3 Do you have the authority to buy, specify or recommend products and/or services for your business or organization? Y ☐ Yes N ☐ No

4 Yearly operating expenditures (excluding salaries)

- ☐ F Over \$1 million ☐ C \$50,001 - \$100,000
☐ E \$500,001 - \$1 million ☐ B \$25,001 - \$50,000
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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

Cut quality using a zero-turn mower

We use zero-turn mowers for our bermudagrass athletic fields because they are more economical and we can mow a lot of the town's fields pretty quickly. The cut quality is not so great, especially in the fall. Do you have any suggestions on improving the cut quality considering the mowers we are using?

North Carolina

Your question reminds me of a story I recently read in a magazine. The author was about my age and he was telling a story about mowing the family yard when he was a teenager. One time when he came around the house on the mower he heard his dad shouting to him about doing the job "half-fast." He was a bit surprised to hear the comment because he had the mower engine fully revved and the accelerator pedal to the floorboard. He did not think he could mow it any faster.

I chuckled reading the story because I can remember a few times when my father shouted to me while I was mowing. There was no mistaking my father's terms of displeasure. Following a few of those episodes, I learned to do a better job. Slowing down was just part of the equation.

Over the past couple of years I have been researching the parameters that represent "cut quality" and how it may be influenced by rotary mower design and use. We looked at numerous individual factors but the desired end result was always a uniform turf on top with minimum to no visible clippings on the surface. Our research found that many factors can influence cut quality with rotary mowers, including mowing speed.

Most of our work has been with traditional lawn tractors, but in 2015 we ran a series of tests with zero-turn mowers. Since

many people do tend to operate zero-turn mowers faster than lawn tractors, we used mowing speed as one of our primary test parameters. In our studies mowing at 3 mph resulted in a 16% improvement in cut quality compared to mowing at 5 mph. So to improve mowing quality with your zero-turn mowers you may want to start by clocking mowing speeds and slowing down the operators if necessary. Paint lines on the turf 50 feet apart and use a

Even with frequent mowing at the same height of cut **it is not unusual to start having some scalping come mid-September.**

stopwatch to time them in action. It should take about 11 seconds for a 3 mph rate and only about 7 seconds for a 5 mph rate.

Of course different mowers may perform differently at different speeds. Individual mower set-up can also impact cut quality. Time should be given to set up mowers according to manufacturer's operating manual. Mower deck levelness and rake should be checked and adjusted appropriately. Blades should be balanced and sharpened frequently. That interval will largely depend on mower use, turf density, and soil conditions (sandy soils are harsh on mower blades). I have noticed that some mower blades just seem to last longer than others, so regular inspections are necessary. It is a good habit to check the mower blades each day before the mower is used.

Mowing height can also influence turf quality after mowing. This is especially

true when the ground is uneven. Zero-turn mowers often have fairly wide decks (72 inches is pretty common) and do not have a great deal of float. As the mowing height starts to move below 1.5 inches with a wider deck, the likelihood of scalping goes up. This is made even worse if mowing at a high speed since the mowers have a tendency to bounce more. For this reason you may have to adjust the height of cut to match the levelness of the ground in addition to slowing down.

The poorer quality of cut in the fall is often due to the shorter day length causing the bermudagrass to "stretch" more looking for light. Even with frequent mowing at the same height of cut it is not unusual to start having some scalping come mid-September. This is very hard to totally avoid, but you may try slightly bumping up your mowing height to counteract the plant's tendency to elongate in the early fall. Most modern zero-turn mowers are easily adjusted for different mowing heights.

Lastly, if your mower has a mulching deck design and you are using it in that mode, then you may experience lower cut quality. Our experience found that a turf manager interested in maximizing cut quality would be much better off using a traditional side-discharge (and the appropriate side-discharge blades) if they are mowing very dense turfgrass.

Set up your equipment appropriately and adjust for your given mowing conditions. If a mowing cycle is missed then adjusting the height of cut up may be necessary to get back on a schedule and maintain a high quality of cut. The same may be necessary in the early fall. With a little adjustment to the equipment and how it is used, you can achieve an acceptable quality of cut with zero-turn mowers and not be accused of doing it "half-fast." **ST**



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