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December 2016

SportsTurf

SPORTS FIELD AND FACILITIES MANAGEMENT

SportsTurf Managers Association

green media

A STEP AHEAD

Columbus "Crew" wins 3rd FOY Award

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OFFICIAL PUBLICATION OF THE SPORTS TURF MANAGERS ASSOCIATION

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STARTING LINEUP

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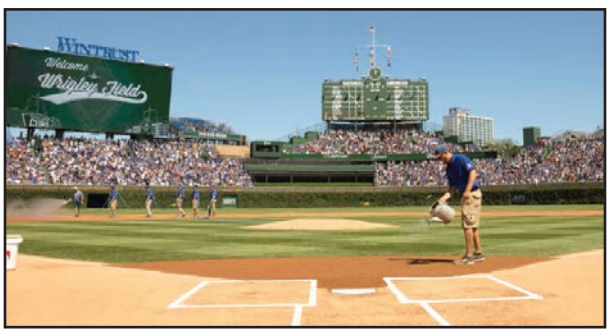
FEATURES

DEPARTMENTS

42 ON THE COVER:

2015 Field of the Year

Professional Soccer: MAPFRE Stadium Pitch, Columbus Crew SC, Columbus, OH — Weston Appelfeller, CSFM, and crew overcame budget cuts and staff losses to win their 3rd Field of the Year Award, a first in the history of the STMA award program.

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SUPPORT PROJECT EVERGREEN

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Please see page 8 in this issue for details on Project EverGreen's "Healthy Turf. Healthy Kids." program that is just one of the non-profit organization's initiatives, one supported by the Sports Turf Managers Association. Two other important programs include GreenCare for Troops and SnowCare for Troops.

In October the organization announced that it is taking on an even bigger role, one that encourages consumers to join a movement of individuals who make a difference in their communities through managed yards, parks and green spaces.

With the vision of creating a greener, cooler earth that results in healthier, happier people, Project EverGreen recently conducted national consumer research to gauge consumer interest and intent to participate and support Project EverGreen's new mission of bringing people together to make a difference in how our yards, parks and communities create a greener, cooler, healthier earth.

The results of the study reveal that consumers understand the importance of working together with neighbors and businesses to create green spaces for the physical and, equally important, psychological benefits.

"Regardless of company and what you sell, who you serve, one of the ways we're united is our universal belief that a greener earth results in a cooler earth," said Dan Carrothers, Project EverGreen's board chair, and global business manager at Emery Oleochemicals. "And we know, greener and cooler contributes to make each of us healthier and happier as it assures we'll have access to areas that feed our physical and psychological needs, whether that's a plant on a balcony, a well-maintained yard, or a park that is the center of activity in a community. That's why working together is so important. It's up to all of us to do our part for a greener, cooler, healthier earth."

"The new mission for Project EverGreen more accurately reflects who we are and what we do," said Cindy Code, executive director of Project EverGreen. "Since our inception, we have been the conduit to bringing like-minded groups and individuals together to revitalize yards, parks and green spaces and to share the physical, psychological and social benefits of those areas with consumers."

In addition to reshaping its mission, Project EverGreen was committed to assessing consumer interest and ultimate engagement, in the good work of those represented by Project EverGreen. Consumers surveyed confirmed they are ready to partner with Project EverGreen and work together toward a greener, cooler, healthier earth.

"The mission and vision are ideally suited for consumers who are ready to join this movement," Carrothers said. "We know many industry partners are doing consumer outreach and we welcome opportunities to collaborate."

Beyond Project EverGreen's mission and its programs, as well as the many other industry initiatives and educational resources, the focus of this movement is to help raise the social consciousness about creating a healthier earth for future generations.

To learn more about Project EverGreen and to join us in our efforts to restore and revitalize green spaces in cities nationwide, visit www.ProjectEverGreen.org.

SportsTurf
SPORTS FIELD AND FACILITIES MANAGEMENT

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IT'S A GREAT TIME TO BE AN STMA MEMBER

Jeff Salmond, CSFM
jsalmond@ou.edu

As members of STMA, we have many association programs and educational opportunities available to us, — *SportsTurf* magazine, a top conference experience, Michigan State's TGIF, employment and internships postings, awards, scholarships, webinars and topical bulletins — to name a few.

The sports turf industry has seen changes over the years. Recently we have seen a slight increase in the influx of people coming to STMA from other areas of the turf industry. STMA has grown to more than 2,600 members from the US and countries from all over the world. The STMA Board and Committees, along with HQ and Buffalo. Agency, have been working hard to provide membership with a great present and future. We are mindful of the importance of our members; they are at the forefront of every decision we make. As we approach the third year of the strategic plan, I am pleased to report that we are on schedule to complete its initiatives, as well as new ones your Board added to further progress STMA. As we accomplish these goals and objectives, we arm our members with the tools to advance the professionalism of our industry.

We have been working to retain members and attract new members. One of the latest projects your Board has undertaken is to conduct a "State-of-the-Industry" survey in cooperation with Turf Republic. The results will show where we are as an industry so we can influence where we want it to go. This is critical as we structure future strategic plans. Our Committees have been extremely valuable in helping us achieve our plan. The Membership Committee completed a Compensation Survey and the results indicate a $7,000 salary increase for sports field managers since the last survey, in 2012. We have targeted technology as an essential component to serving our members. Our newly focused Technology Team is helping to develop a comprehensive plan, of which our website and social media presence are key; this will also heavily influence the next strategic plan. The International committee is developing a plan to develop relationships with international field managers that will lead to membership in STMA. A newly formed committee, the Turfgrass Educators' Council, composed of academics, has developed strategies on how STMA can help our college and university programs recruit students to the turfgrass industry. Our Environmental Committee successfully rolled out its facility certification program.

I encourage you to continue your membership, invite others to join to show them the cool things STMA is doing, and to serve on a committee to help build this great association for the future.

I want to thank our Board and all our committee chairs for their remarkable work this year. I also want to thank Kim Heck and her staff at HQ for their relentless efforts in executing the strategic plan and STMA's programs. I am indebted to you for your dedication and commitment to STMA.

I hope to see you at the STMA Conference and Trade Show in Orlando in January, as a member or soon-to-be-member.

STEPPING UP FOR KIDS AND ATHLETIC FIELDS

Providing safe playing surfaces is only part of the mission for Project EverGreen's "Healthy Turf. Healthy Kids."

BY **CINDY CODE**

With more than a million and half acres of parkland in the United States one would assume that children would be able to easily find a safe outdoor place to play and compete. Unfortunately, assumptions can be misleading.

Changing lifestyle choices, economic constraints, shifts in population bases, crime and the lack of interest have made the athletic and recreational fields that were enjoyed by the parents of today when they were growing up outdated, unsafe and in dire need of renovation.

Take for example the playing surface at Steve Patterson Field in Hazlet, NJ. The field, home to the Hazlet Youth Athletic League, had been closed for nearly a decade, and an exceptionally hot summer and fall, punctuated by recurring extreme rainfall, immediately left dead turfgrass and erosion damage that made playing surface unsafe and threatened to extend the field's closure.

That's when non-profit Project EverGreen and its "Healthy Turf. Healthy Kids."™ Initiative stepped in.

With the help of Hazlet-based Performance Nutrition, professional landscape contractors and suppliers, Project EverGreen secured more than $20,000 in donations of expertise, materials and services to improve the playability and safety of 100,000 sq. ft. of playing surface. The project includes aeration, reseeding, and topsoil applications to build up the unsafe runoff low spots to spec, and applications of organic soil amendments and fertilizers.

The field provides upward of nearly 1,000 Hazlet Youth Athletic League football players, cheer squads, their parents, and coaches with a greener, safer, sustainable place to play. The field renovation will also provide significant environmental, economic and healthy lifestyle benefits to Hazlet's children and their community.

"Healthy Turf. Healthy Kids." is a nationwide initiative to renovate and revitalize athletic and recreational green spaces in urban areas to ensure children have access to safe and healthy green spaces on which to play and exercise.

Since the program's inception in 2015, renovation projects covering more than 700,000 sq. ft. of athletic and recreational green spaces have been completed across the country including Atlanta; Houston, San Antonio, Round Rock and Ft. Worth, TX; North Chicago, IL; Cleveland; Durham and Greensboro, NC; Milwaukee, Minneapolis, Portland, Oregon, East Harlem, NY, and the previously mentioned Hazlet, NJ.

Numerous studies have shown that managed parks, sports fields and recreational playing areas provide the following environmental, health and lifestyle benefits:

- Lawns and sports fields are 30 degrees cooler than asphalt; and 14 degrees cooler than bare soil.
- Parks and sports fields are gathering places that create close-knit communities, improve well being and increase safety.
- Managed grass playing surfaces help minimize concussions and sports related injuries as well as reduce quantities or populations of mosquitoes, ticks and stinging insects.
- Physically active young people are more confident and demonstrate higher academic performance at school.

Beyond Project EverGreen's mission and its programs, as well as the many other industry initiatives and educational resources, the focus of this movement is to help raise the social consciousness about creating a healthier, greener, cooler earth for future generations.

"There's only one earth; we get only one chance at this," says Dan Carrothers, president of the board of directors for Project EverGreen. "We're confident that as an industry, partnering with consumers, we can create an earth that is greener and cooler; and assure that we're leaving an earth to

the generations to come that will contribute to the healthiness and happiness for all."

A SIGNIFICANT IMPACT

When a storm drain under the driveway to Red Maple Park in Durham, NC collapsed in early 2014, access to the athletic and recreational green spaces was cut off and the city was forced to shut the park down.

During that time, vandals stripped the park of virtually everything of value from grills and picnic tables to the copper piping from the restrooms that eventually had to be torn down. This left community residents frustrated and without a place for their kids to play.

"This is a very engaged community and when we didn't hear much after the initial park closing. I thought it was odd,' says Rhonda Parker, director of Durham Parks & Recreation.

Parker shared this with the city's Recreation Advisory Commission and it decided to meet with the community. The commission took its August meeting outdoors to the park to get a read on the situation.

What Parker and the commission arrived at the park, they were met by more than 50 neighborhood residents and 30 plus children on bikes that came to say they were ready to take their park back.

Parker and the commission learned community residents were fearful of going into the park because of the gang-related crime and vandalism, and felt powerless to do much about it until this meeting was called.

"We didn't know what to expect but when more than 80 people came out to tell us how important the park was to them and their children," says Parker. "It was important for the commission to hear how inspired the community was to take their park back."

Once the driveway was repaired the community sprang into action helping with the cleanup work and starting a petition to receive a grant for a new playground. The city replaced the picnic tables and grills, and repaired and painted to park's shelter.

They also organized community events in the park to get local residents to come back to the park with their families.

In November, the grant for the new playground came through and on a cold, rainy day neighborhood residents and volunteers helped install the new playground.

What was missing was the renovation of the grass baseball and softball outfields and the clay infields at Red Maple Park. That's where Project EverGreen's "Healthy Turf. Healthy Kids." initiative came in. In April of this year, green industry volunteers — including Albaugh, Brickman, Cardinal Chemical, Nufarm and Sipcam-Rotam — excavated, graded and replaced the infield surface with a new clay mixture, installed new sod and also applied weed control and fertilization treatments to the outfield turf.

The newly renovated field plays host to the city's Long Ball baseball program and girls' softball program, both of which involve hundreds of budding athletes who play on the field daily throughout the spring and summer.

"We have developed a gem of a field for the kids and the park has become a nucleus for the community," says Parker. "Having access to safe, well-maintained athletic green spaces to play on gives kids the chance to be active and involved and that means a lot for their health and well-being."

Parker credits the neighborhood residents, especially the senior citizen community who enjoyed the park with their own children in years past, for stepping up and getting the ball rolling.

"The community has sweat equity in the park's rebirth and that has made all the difference in the park's transformation," adds Parker.

For more information on Project EverGreen's "Healthy Turf. Healthy Kids." initiative, visit www.ProjectEverGreen.org ST

Cindy Code is executive director of Project EverGreen. She can be reached at cindycode@projectevergreen.com; 877-758-4835.

SAFE LOOKS FORWARD TO THE FUTURE WITH OPTIMISM

Editor's note: *We recently caught up with Jay Warnick, CSFM, Chairman of the SAFE (The Foundation for Safer Athletic Fields) Board to talk about the state of the foundation and what we can look forward to in the future. SAFE champions safe, sustainable sports and recreation fields for all athletes. As part of its mission, SAFE funds scholarships, research and outreach programs.*

SportsTurf: Can you give us a synopsis on some of the SAFE highlights from the past year?

Warnick: As usual, the STMA Annual Conference was great for SAFE and record-breaking fundraising was the result. In typical fashion, Conference attendees and commercial sponsors stepped up and supported all of the foundation fund raising activities with a sold-out SAFE Bowling Night, a successful golf tournament, and an outpouring of gifted items for raffle.

Post-conference, the SAFE Board has been active in analyzing ways to improve current processes while looking to build a message for the future. Focus groups have been formed within the board to take some very specific looks and discussions on the issues facing the industry and foundation in the future. A Vision Task Group was formed to examine and refine scholarships and grants, including the formation of the Leo Goetz grant, and how such gifts can best benefit the STMA members. In addition we are looking at how to best carry the message of the importance of field safety to communities. An Innovative Fundraising Group has formed to review current practices and strategize ways to expand the fund-raising donor base and increase resources to support expanding goals.

SportsTurf: How has SAFE changed in 15 years of its existence?

Warnick: While I'm certainly not the complete encyclopedia of SAFE, I have noticed a trend toward a much greater demand for field safety and playability information from the general public. I believe in the early years our focus was perhaps more inward or directed to STMA membership and now we are able to respond more fully to the needs of field user-groups nationwide with expanded media outlets and networking. As an example, SAFE has produced and circulated brief videos depicting basic field safety items to be aware of.

SportsTurf: What do you see as the main role or purpose of SAFE?

Warnick: I see multiple roles. However, first and foremost is our validation and support of the message that sports fields cared for by trained and professional mangers is the key to safe surfaces. This begins with an ongoing commitment to scholarship and the need for strong students and turfgrass education programs. It is great to see the students who were some of the first SAFE Scholarship recipients taking the leadership roles in the STMA and the industry.

SportsTurf: How can Sports Turf Managers help to spread the SAFE mission and message?

Warnick: We have relied largely on the financial support of STMA members over the years, and we hope that continues by selling out our bowling and golf tournaments. Also, we encourage your feedback and ideas and participation in this cause. Please log onto www.safefields.org and leave your ideas in the "contact" area. We are poised to make great gains in our mission and we know that it will only happen with many more dedicated and talented hands on the team.

SportsTurf: What do you think the future holds for SAFE?

Warnick: There is much work to be done. Never before has the safety of athletes using our fields been more in the public eye. Governmental studies have been commissioned, prominent sports leagues have convened committees to review athlete protection and care, and field-testing and certification practices are already in place for some of our membership. We must take a prominent role to ensure that as information begins to swirl, it is communicated properly, and accurately represents the reality of sports turf management.

SportsTurf: What makes foundations like SAFE successful?

Warnick: It begins with an identification of the vision and purpose and then a communication of that purpose outwardly. We are fortunate that the name of our foundation is a constant reminder of what we are all about—providing safe playing surfaces for athletes of all skill level everywhere. The most important factor though, is every day, in every corner of the nation, we have an industry of people with the highest level of professionalism quietly going about their business showing what it looks like to care about the work they do. ST

A BREAKTHROUGH IN SUSTAINABILITY

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USDA drought-tolerance trial (left to right): TIFTUF™, Latitude 36™ and Celebration™.

"While researching TIFTUF™, I was impressed by the cultivar's tolerance to adverse conditions, particularly drought, low fertility, traffic and cool weather. In the trial work I conducted, TIFTUF™ was the first cultivar to green up in the spring, the last to go dormant during drought conditions and the most tolerant to traffic. Other notable characteristics of TIFTUF™ include fine leaf texture and high turf density, as well as aggressive growth and establishment rates."

Alec Kowalewski, Ph.D.,
Oregon State University

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Grady Miller, Ph.D.,
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Jared Hoyle, Ph.D.,
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Brian Schwartz, Ph.D.,
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TEAM UGA

WHAT THE NEW OVERTIME RULES MAY MEAN TO YOU

In May, the Department of Labor announced updates to the Fair Labor Standards Act. One change in particular took effect December 1 — the minimum salary for exempt white-collar employees more than doubled, from $23,660 to $47,476. What does that mean? To be exempt, an employee must receive a salary and have executive, administrative or professional duties. Previously if you made at least $23,660, you were considered exempt and an employer could make you work as much overtime as possible. Now, anyone making less than $47,476 would need to be compensated at time and a half for working in excess of 40 hours during a workweek.

The new rules may force employers to reevaluate their current staffing plans, change employees' hours and shifts, and alter employee compensation packages to minimize potential increases in overtime obligations.

The overtime law will not affect facilities that have all non-exempt employees with the new threshold. Non-exempt employees always need to be paid overtime for working more than 40 hours per week.

"I am far from an expert on this topic, but I can tell you that our team qualifies for a 'Federal Amusement & Recreational Exemption,' so the new overtime rules and salary requirements do not apply to us," said one Minor League Baseball head groundskeeper. "It is up to each individual state to mirror the exemption, so whether a team is affected depends on what state they reside. In the US, eight states do not have minor league baseball, five states are without a minimum wage, 15 states use the seasonal exemption, and for 22 states there is no seasonal exemption, meaning they will be impacted by the new overtime rules. That list includes Arkansas, California, Colorado, Georgia, Kentucky, New York, and North Carolina, states that have numerous minor league teams," the source said.

Four ways employers may comply

- Increase exempt employees' salaries to $47,476 so they can keep their exempt status.
- Switch newly non-exempt salaried employees to hourly employees. This will make overtime wage calculations easier.
- Limit the number of overtime hours employees are allowed to work. This will reduce the amount of overtime wages you have to pay.
- Do a combination of any of the above methods.

"The Amusement & Recreational Exemption is based on months of operation, number of off-season employees, average receipts (the slow 6 months need to be no more than 33% of the average receipts for the busy 6 months), and many other factors. That information comes from Minor League baseball attorneys."

"Our salaried people make more than the minimum threshold and we're blessed to have an experienced hourly staff that also makes more than the minimum threshold very quickly once overtime is accrued," said a facilities director at a Power 5 conference university. "Students are restricted by law to 20-hour weeks though so we end up juggling a lot of student schedules. We rely very much on student labor and our need for pseudo full-time labor is non-existent now. I'd say the new rule has tabled our desire to hire what we call XH employees (those allowed to work up to 750 hours in a 12-month period). We used to be able to add XH staff at the stadium during fall and at [indoor arena] during winter sports season but that option went away 5 years ago or more. Other units in our department are reevaluating how they compensate employees. Some have historically used a semester stipend as currency and others have used class credit as currency.

"My personal opinion is, Pay the people you depend on a living wage!" continued the facilities director. "I'd rather have thoroughbreds and pay them what they're worth than split the budget up by hiring a whole bunch of underpaid workers and asking them to be loyal. People change jobs frequently these days, there's no reason to give them a major reason to do so even as we depend on them!

"If we want to implore our professionalism and be considered professionals then we need to treat others the same way. We reap what we sow."

If you become non-exempt with the new salary threshold, the hours you work need to be recorded. But some employees, especially salaried workers, might be unfamiliar with time-keeping systems so you will have to learn how to keep track of hours worked. This means a timekeeping system, which could be on paper or a spreadsheet, though the simplest timekeeping option is online time and attendance software.

One big problem may be employers' understanding exactly what their employees do and how much time they spend doing it. Exempt employees may not have been keeping track of their hours so email records or other sources of information may have to be reviewed to begin to understand when employees are working. Time spent traveling should

also be considered. Employers also need to determine whether the duties the employee conducts fall under the white-collar classification, or whether some other exemption may apply.

Also important is an understanding of seasonal employees, or those who work only a portion of the year. In such cases, the weekly paycheck may be less than the $913 minimum but not an accurate reflection of salary. For example, a 9-month employee who earns $45,000 over those 9 months meets the requirement even though the weekly paycheck, because it's spread out over 12 months, falls under. Employers can pay the salary over a longer period of time and still meet the test even though it falls under the weekly requirement. What is very important is that employee cannot perform work outside of that period of time.

The most straightforward option would be to raise salaries to the minimum required for exemption, a potentially expensive move, especially when looking beyond the scope of those employees immediately impacted.

The new rule does allow some flexibility as applied to salaried positions. The Department of Labor is allowing employers to satisfy up to 10% of an employee's salary with non-discretionary bonuses, incentive pay or commissions, if paid on a quarterly basis at least. The bonuses don't allow an employer to skirt the minimum salary requirements, but it does offer some flexibility on how employees are paid.

Just raising all salaries to the minimum required is also a short-term solution. After remaining at $23,660 for 40 years, the new minimum will be adjusted every 3 years.

Employers may choose to keep employees' salaries and duties the same but treat them as hourly employees and work to minimize overtime, or adjust employees' hourly pay to account for expected overtime. If someone is making $23,660, there's no way employers are going to be able to double their salary most likely, so it's possible a lot of jobs will be switched to hourly and benefits will drop. Even if benefits don't change, going from salaried to hourly may feel like a demotion to some employees and affect morale. ST

Wrigley Field grounds crew at work.

RENOVATION CHALLENGE: JUSTIN SPILLMAN HONORS HISTORY AT WRIGLEY FIELD

BY **STACIE ZINN ROBERTS**

The week after the 2016 World Champion Chicago Cubs season ended, Manager of Grounds Justin Spillman and his crew of 75 planned to rip up the turf at Wrigley Field. There wasn't anything wrong with the grass, the field played great this season. Rather, they tore out every blade of bluegrass to make way for construction crews renovating the 102-year-old stadium.

"The week after the season ends, we'll tear all of the grass out and the construction companies will come in and they'll overrun the whole field with trailers. They'll actually mat the whole field with material that's almost like butcher block to protect our drainage and irrigation. In the spring, we're going to have to put it all back together," Spillman says. "It will continue over the next two to three years where, going into the off season, we'll tear out the field and put it back in the spring."

While some cities choose to knock down their stadiums and start fresh, the Ricketts family, owner of the Cubs, decided to invest $750 million to restore and expand Wrigley Field and develop the area around the stadium, all without taxpayer dollars. The renovation plan, known as The 1060 Project, which started at the conclusion of the 2014 baseball season, includes structural upgrades, improved player facilities, new fan amenities, outfield signage including two video boards, new premier clubs, expanded concessions, new and improved restroom facilities, and much more. To accommodate the construction around the edges of the field, construction crews, their trucks and equipment need access to the interior of the stadium and use the playing field surface as their staging area.

To build an MLB playing surface once is a challenging enough task. To have to do it over and over and over again seems almost overwhelming. But for Justin Spillman, who has had a hand in building more than 70 sports fields under the tutelage of famed Chicago White Sox groundskeeper Roger Bossard, inventor of a patented drainage system now used by 19 of the 30 MLB teams, perhaps the task isn't so daunting.

"I think that's one of the reasons why I was brought in, honestly. They knew this was going to take place and needed someone onboard with a little more experience," Spillman says.

Spillman originally set out to be a golf course

superintendent. He worked at a golf course and earned an internship at the St. Louis Cardinals. It was there that everything changed. He says, "I fell in love with 2.5 acres."

From St. Louis he went to Jupiter, FL and built a 13-field complex for the Cardinals and Expos. He never looked back. "Glad I switched to grounds," Spillman says. He was immediately taken with the process of field construction. "Seeing a field come to fruition from just bare ground or a cabbage patch, leveled out and then erecting a field, drainage, irrigation, growing media, laying of the sod, infield mix, soil conditioners implemented into the infield mix, building of the mounds."

It was on that first job in Jupiter that Spillman met Bossard who became his mentor and "like a second father" to him. In the off-season, he worked with Bossard to build fields from Pennsylvania to Arizona. He even assisted in the 2007 renovation of Wrigley Field, but at the time, he never even considered that one day he'd be maintaining the home of the Cubbies. Bossard was grooming Spillman to become his successor at the White Sox when he got a call in 2013 from the Chicago Cubs. They asked for a recommendation for a new assistant manager of grounds. Bossard gave them Spillman's name.

"It was a shock, honestly," Spillman says. He and his wife, Tanya, and their two children, Shay and Spencer, had "set down roots" in Arizona. "I was content to stay there until Roger retired."

Spillman got the call from the Cubs on June 20, 2013. He reported for work as an assistant groundskeeper on July 15. Two years later, he was appointed to the big job.

Even with the renovation at Wrigley Field, some elements will not change. The outfield ivy wall, a fixture of the Chicago Cubs psyche, remains. It takes up to three crewmembers to trim the ivy along the brick wall. One person is lifted in a bucket, pulls the ivy away from the wall and trims it with hand sheers, while the others on the ground gather up the clippings. Spillman watches for cooler temps that might make the ivy go dormant and drop leaves prematurely, which could be a hazard to players.

"Seeing a field come to fruition from just bare ground or a cabbage patch, leveled out and then erecting a field, drainage, irrigation, growing media, laying of the sod, infield mix, soil conditioners implemented into the infield mix, building of the mounds."

Justin Spillman recognizing Fred Washington, who retired this year after a long career of operating Wrigley Field's famous scoreboard.

On game days the field is mowed, patterns designed into the turf to wow the fans. While the patterns are impressive, it's on the infield clay that most of the crew's time is invested. "We may have 10 guys on the clay and only three guys on the outfield," Spillman says. Time is spent on moisture control, dragging the clay with a cocoa mat, and following that with another coat of dry material put overtop to seal in the moisture below.

Although the look of the stadium may be kept retro through the renovation, Spillman says it's important to keep up with technology in field maintenance. He networks with the 29 other MLB head sports turf managers to share tips and compare notes. "Every day there's new technology in turf and you have to stay up with new fungicides, new fertilizers. You have to keep up with that. If you don't, your field will start to decline. You've got to always stay ahead of the next new thing," he says.

This spring, the Chicago Cubs invested in an Air2G2, an aerification machine that injects air below the soil surface at six-inches and 12-inches deep, fracturing the soil laterally without disturbing the turf above. As the Air2G2 does not damage the turf, is possible to aerify and play on the field the same day. The Cubs bought the Air2G2 in April and by October they'd already logged 100 hours on the machine. "It takes about 9 hours to do the whole field," Spillman says.

"With the Air2G2 we are seeing less compaction. It creates porosity in the soil. It's a little bit different than a regular aerifier. It's pushing air. You can see the sod heaving in certain areas," Spillman says.

Wrigley grounds crew singing "Take Me Out to the Ballgame" during the 7th inning stretch, a tradition at the landmark ballpark.

Along with using the Air2G2, Spillman also deep tines the field as often as possible when the team is at away games so that the procedure doesn't interrupt play.

Spillman says aerification is critical for turf health.

"We are always trying to find different ways to decompact it. We have so much activity, foot traffic. We probably have well over 1 million-plus people on the field a year for events and concerts. Aerification is huge in order to save your filed from compaction. Compaction is the number one issue of dead turf."

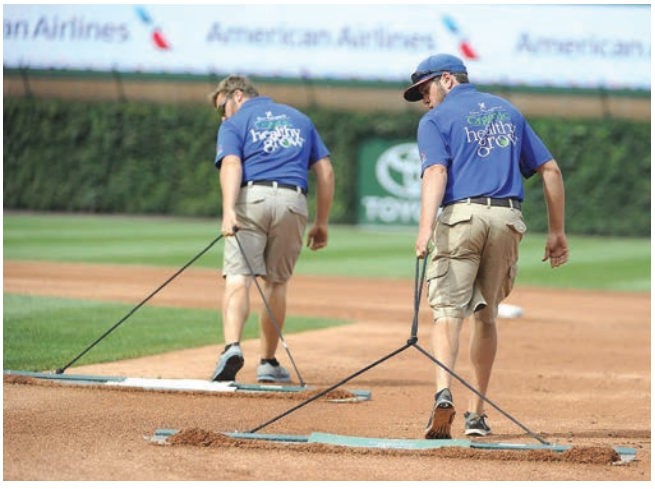
Along with innovations in equipment, Spillman says he's also rethinking his fertilization program.

"We are leaning more toward less aggressive on nitrogen and more of a nutrient package, rather than years past. I think everyone was pushing nitrogen all the time, and now we're leaning more toward a nutrient package with manganese, calcium and numerous other minor and macro ingredients rather than just pushing the heck out of the plant with nitrogen," Spillman says. He's been using this program for the "past two, three years and seeing a lot greener, darker, more dense plant."

In addition to the reduction in N, this past year Spillman added in Legacy, (a combination of Cutlass and Primo), a plant growth regulator (PGR) into his program.

"Trying to incorporate that with a multitude of other ingredients to try to combat all of the stress of the plant from traffic, heat and wear tolerance. The PGR is tillering the plant out more laterally than upward so you're getting more of the leaf tissue. The plant seems to tiller out more where you're getting a stronger and more dense plant. It's had a tremendous value to us, having that incorporated."

Now that Spillman has made it to the Majors, he hasn't forgotten the help he received along the way, especially from his mentor, Roger Bossard. "He took me under his wing and taught me what he knew from his father and grandfather, and made me the groundskeeper than I am today."



Dragging infield dirt.

Spillman mentors other sports turf managers, guys who've interned or worked for him, the way Roger Bossard brought him along. He revels in the success of the professionals he's helping to succeed in their careers "because you know you were there at one point looking for guidance. To give back means a lot."

With the renovation of the more than a century old Wrigley Field underway, the history of the place, and his role in that history, is not lost on Spillman.

"It's a pretty prestigious thing, too. There are only 30 of us in the whole country," Spillman says. "Sometimes I have to step back and realize where I'm at and how far I've come." ST

28th Annual

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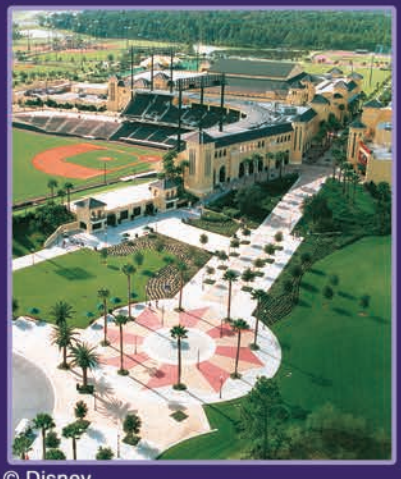

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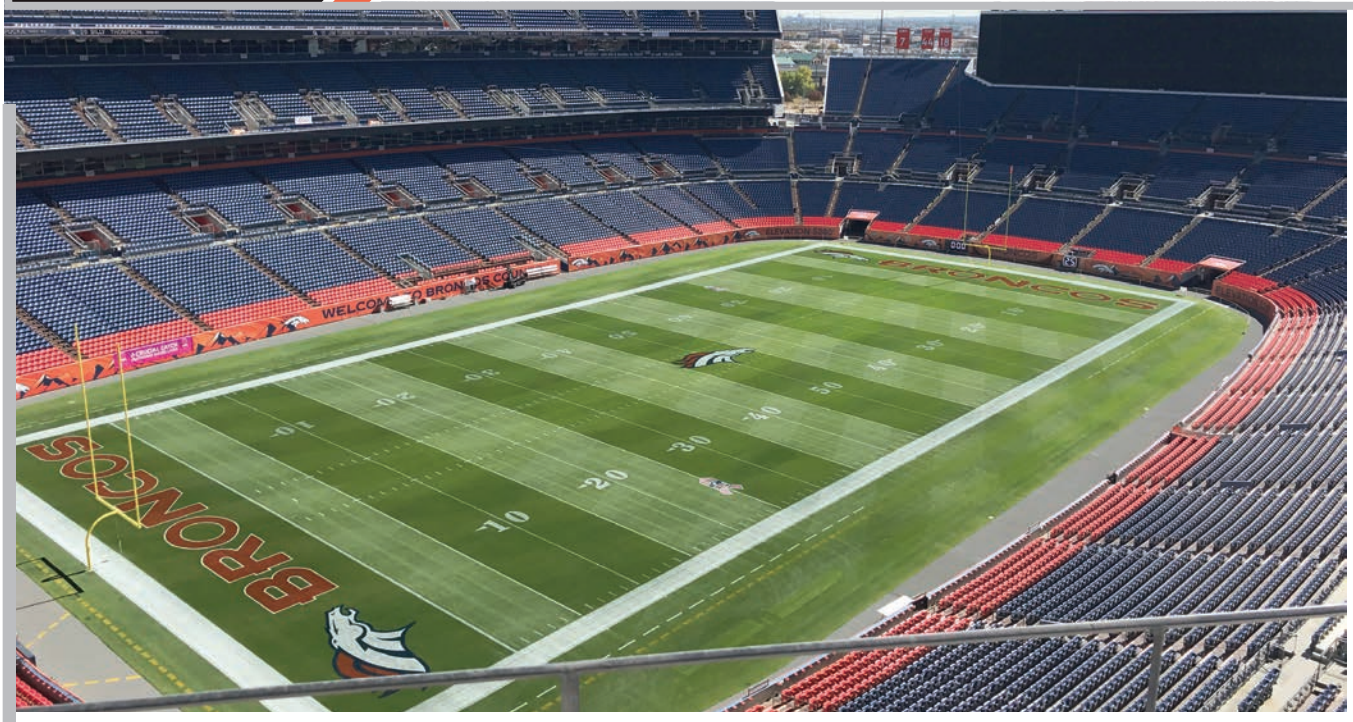


CATCHING UP WITH CHRIS HATHAWAY OF THE DENVER BRONCOS

SportsTurf: How did the hot and dry summer affect your maintenance plan heading into this season?

Hathaway: The weather is always tricky to work around throughout the year. This summer was a little warmer than average and the rain fall was also short of our normal totals for the summer months. One of my big priorities throughout the year is planning. I try to plan a week or so ahead for weather and events on the field. That will determine how much we water; when we will water the field depends on the weather and what events are on the field that week. It was a dry summer for us so we needed to give the field more water than normal this summer. We rebuilt the field in February 2015 and being a sand base field it drains really well. It does not hold as much water as our old field did. We are also a bluegrass sports field as well and bluegrass needs more water than some of the other cool-season grasses. We try to give the field the water it needs to survive but we are also trying to conserve water as best as we can.

SportsTurf: Did you have to work around non-football events on the field this summer and if so, how did you protect the field from any damage?

Hathaway: A lot of people hear Sports Authority Field and Mile High and think Denver Broncos football. That is a small portion of what we host on the field during the year. We also host the major league lacrosse team

Denver Outlaws. Not only did the Denver Broncos win Super Bowl 50 but the Denver Outlaws also won the championship as well this year. We hosted a soccer game this summer and around 60 special events. These events range from Punt, Pass and Kick on the field to a wedding on the field. This summer we did not host any concerts as we have in years past. There was a couple of events we were able to cover the field with field flooring but most of them we were not able to. We started getting the field back together in March from a busy football season. Our main goal is to have the field in the best shape it can be in for our busy summer. We knew we would have a lot of events on the field that would damage some parts of the field. We are always planting new seeds to stay ahead of the bad wear areas. We re-sod the worst areas as needed throughout the summer.

We try to give the field the water it needs to survive but we are also trying to conserve water as best as we can.

SportsTurf: Do you believe the Desso GrassMaster system still works well in Denver or would you prefer to have another type of surface?

Hathaway: GrassMaster is great system. It held up great for us for many years. We started to have some issues with our field heating system in late 2014. We decided to remove our 10-inch rootzone along with GrassMaster to rebuild our soil heat system. We host a lot of different events throughout the year and the wear and tear was harder to overcome with GrassMaster in the ground. There was not a lot of time between our last Broncos game and our first lacrosse game in May 2015 to rebuild the field and install GrassMaster. We decided to put GrassMaster on hold for the year and see how the new field held up to the demands of our busy events schedule. We realized the field held up really well throughout the year and we only need to replace a little of the field during the football season. There are a lot of other stadiums that GrassMaster work really well in. It was just not the right fit for us and the demands on the field.

SportsTurf: Are you planning anything new this season to keep the grass growing into January?

Hathaway: As of now we do not have anything new. Our NFL home schedule is a lot better for us towards the end of the year. We only have four games after October 30. One of those games is the high school championship game. We have a lot of home game toward the beginning of the season that makes for a little better end to the season. The weather is always a problem late in the year. Last season we ended up a few games in the snow/cold (Nov. 29 Sunday Night Football). Those conditions are never good for any natural grass field. Then you add two playoff games to an already busy few months and the field is never going to look its best. My biggest priority throughout the year is player safety. There are a lot of people out there that just judge a field by how it looks but that is not the case in my eyes. The field might not look the best but if it is safe and playable that is all I look for. Now don't get me wrong, I like it to look its best, but sometimes you have to forgo what it looks like to make it safe and playable for not only your team but the visiting team as well.

Thanks to the Sports Turf Managers Association's public relations agency, Buffalo Agency, for setting us up with Chris. ST

Advances in tree healthcare application technology are making treatments faster, easier, and safer for applicators.

5 TECHNOLOGIES THAT ARE CHANGING TREE CARE

BY **BRANDON M. GALLAGHER WATSON**

It wasn't that long ago that a chain saw was all you needed to be in the tree care business. Okay, you probably needed a truck, too; but, in general, tree care was a pretty low-tech industry. The past decade has seen new developments in the equipment for preforming pruning and removal services, as well as the computerized world that surrounds everything we do these days. The following are five different types of technology that are changing the way arboriculture is practiced today.

1. GIS/MAPPING

Data is king, as they say, and the data of tree care is getting better all the time. Much of that is related to advancements in geographic information systems (GIS). GIS is the general term for data that is tied to digitized spatial information — a map that can tell you many things about the content it contains. Many people collapse GIS with GPS — the Global Positioning System satellite network that can find your exact location in a matter of seconds. In the world of GIS, GPS provides an important data point of knowing where something, such as a tree, is located; when combined with other data points such as species, size class, health condition, etc., GIS becomes an invaluable tool for arborists.

Tree care companies are using GIS data to gain insights on everything from tracking long-term changes in urban forest health to gathering information on their customers' buying habits. For example, GIS can let us know how many trees are in a certain sales territory, or how many of those trees are susceptible to a certain health issue, or what percent of those tree's owners are opting for a service on them. This allows us to do sales forecasting, and also gives us information on what services should be marketed to a certain geographic region. If we are interested in sending out a postcard to treat for, say, Japanese beetles, we can use GIS to pull out all the customers we have with lindens or birch trees, and then overlay data such as median income or median property value to determine where our marketing dollars are best spent.

Tree inventories have become commonplace for just about every municipality and large, landscaped campus. Many companies have started marketing tree inventories as a stand-alone service offering, and are able to deploy a small team of trained technicians to complete a survey in a matter of days. There are even savvy municipalities that are including "Provide detailed map of treated trees" as a requirement in their bid specifications for large-scale treatment programs. This is allowing them to get valuable GIS data on their urban forest while rolling the cost of it into their treatment budgets.

2. MOBILE TECHNOLOGY

Part of the reason GIS has become so common in the industry is the technological barrier to entry is significantly less than it was just a few short years ago. Taking all the information available on the Internet and putting it into a device that fits into your pocket has been one of the great leaps forward in recent memory. Considering how universal smart phones and tablet computers seem today, it wasn't that long ago when all your cell phone could do was make phone calls. Today, arborists are using their phones for just about every part of their business. We are using phones and tablets for collecting GIS data for inventories that used to required specialized, often expensive and cumbersome, equipment. We also use our phones for diagnosing health issues, writing up bid estimates for the client, and checking the rates for a treatment application. Mobile devices are chock full of possibilities with millions of apps available that can help with a specialized task such us tree ID or learning to tie a new knot. They are also extremely valuable for helping pass the time waiting for a client who is late to the appointment.

3. TRACKED LIFTS

If you aren't familiar with a tracked lift by name (they also go by mini-lift or spider lift) they are boom lifts that are mounted onto small tractor-like bases. They fold small enough to get through an average backyard gate, but then they have support legs that telescope out, providing a wide, stable base. From there it works just like a bucket truck would, allowing the arborist to access a tree's canopy up to 72 feet above ground.

I had the chance to see this type of lift in action in late March. The tree was one of the largest American elms our tree care service, Rainbow Treecare, has ever taken down. The tree was massive — a 57-inch DBH tree in a tiny backyard in south Minneapolis with no alley access and a tree that went over several adjacent properties. Our team was able to access portions of the tree overhanging the next-door neighbor's home by driving the tracked lift up their cobblestone driveway, set up in the backyard, and perform the necessary limb removals without the need for a team of climbers and/or a crane. No other piece of equipment could have allowed this. This technology presented not only safer working conditions for our technical arborists, but the time and labor reduction significantly reduced the final cost to client.

Tracked lifts can squeeze into sites impossible for other equipment.

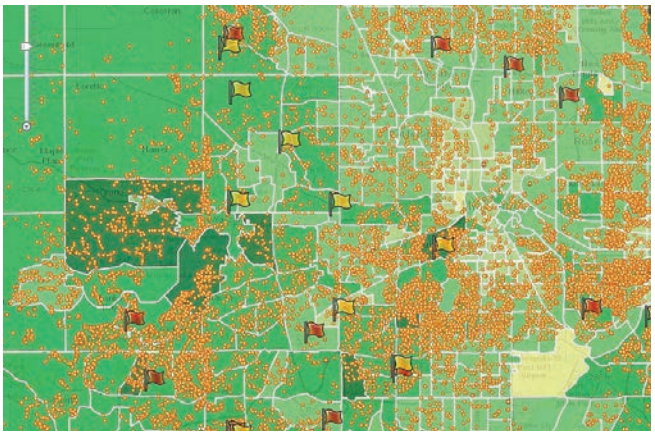
4. MODULAR TRUCK MOUNTS

Spray application equipment was formerly attached to heavy trucks that could only be used for the purpose of spraying. New versions are mounted on removable bracket systems that allow you to use a pickup truck as a spray rig when needed, or remove it and have another truck available when it is not. Modifiable systems such as these are popular with tree service companies for good reason — they are less expensive and more flexible, which, in the end, makes them more profitable as well.

Several different manufactures are producing their versions of this concept; and with tanks ranging from 40 gallons to 500 gallons you can start small and go bigger as your plant health care business grows. The entry cost for modifying a pickup truck into a spray truck is anywhere from $500 to $2,000. Compared to the price of a dedicated spray tank truck — which ranges from about $20,000 for a used vehicle to $60,000 for a new model — the modular truck-mounted system is allowing many more companies to expand their operations.

5. TREE HEALTH CARE TECHNOLOGY

Modern tree health care is built around the diagnosis of issues and the prescription of their treatments. To many, the idea of using any type of chemical treatment for tree health rings of the "spray and pray" era when chemicals were utilized in an



Map showing the location of client trees (dots), the location of large commercial campus accounts (flags), and the median household incomes of the communities (darker green = higher MHI).

Modular spray tanks can turn a pickup into a plant health care tool for significantly less than a dedicated vehicle.

This tracked lift was able to access the tree from a small location, saving the customer thousands on the removal, and providing a safer workspace for the technical arborist.

irresponsible manner. The past decade has seen significant advancements in the treatments used, with new products for some of the most challenging pest issues arborists face. Up until 15 years ago, the treatments available for tree health care were products developed for other industries such as agriculture and golf. Rates for tree care were often added to the label with no scientific backing. Today, advancements in chemical technologies are formulations developed specifically for arboriculture, focusing on the pest they are targeting, the method by which they will be applied, and the safety of the person applying them. For example, not more than five years ago, scale insects and caterpillar pests were only acceptably controlled by spray applications, but the operational and public relation challenges of spray treatments saw more and more arborists moving away from them all together. New research led to systemic treatments becoming available, allowing a technician to apply a treatment to the base of the tree and control damaging insects 100 feet up in the canopy. These technological advances improved the tree's health; made the tree care company's job easier and more profitable; and offered the tree's owner the same beautiful, healthy tree they desired.

The technological advancement of chemical formulations has been evolving hand in hand with the equipment used to apply them. It wasn't that long ago when all tree health care application devices looked like they were cobbled together from hardware store surplus. More application devices are available today for tree care than ever before, and are being designed better all the time. The early generations of tree injection equipment were focused on getting the treatments into the tree and that's about it. Devices today are being designed with a focus on ergonomics, ease of use, and safety of the applicator from start to finish — including how easily they are cleaned back at the shop.

As you can see, technology for tree care comes in many forms. Technology is not just computers and phones, but the tools we use every day get to the trees and perform our work. The most important advancement in tree care is not a single device, tool, or application we use, but our knowledge of how and when to use it. Although there are undoubtedly more tools and knowledge available to tree care professionals now than at any point in history, arboriculture is still an evolving science. What technology will we be talking about the next 10 years? Only time will tell. ST

Brandon M. Gallagher Watson is creative director at Rainbow Treecare Scientific Advancements.

SportsTurf

SPORTS FIELD AND FACILITIES MANAGEMENT

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Editor's note: *This month in "The* SportsTurf *Interview," we feature STMA member Patrick Jonas, CSFM, a parks maintenance director for St. Andrew's Parks & Playgrounds in Charleston, SC.*

THE SPORTSTURF INTERVIEW: PATRICK JONAS, CSFM

SportsTurf: What are the biggest obstacles to overcome for parks and rec professional turf manager to be successful today? And how are you doing that?

Jonas: Hiring the right people and building a strong crew. Just as making good decisions on purchasing quality tools and equipment from manufacturers that provide good customer service is important. But that is easy. It's difficult to find people that have an interest in this type of work; so much of this work is not glamorous. Also being a good leader and communicator is something I constantly work on. I depend on my crew and take care of them. I make sure they have what they need so they can be successful at their jobs.

SportsTurf: Are there specific challenges that turf managers at the Parks & Rec level face that differ from your peers from other STMA membership categories?

Jonas: Turfgrass is just one of many different parts that I have to maintain [since I'm responsible for] the lights on the fields to the buildings and our fleet of vehicles. The turfgrass part of my job is one of many competing for my time. I consider working on the fields the most enjoyable part of my job and the most therapeutic. I can never get enough time to work with the turfgrass as I would like to.

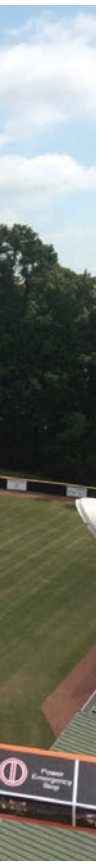
I also manage distractions like a waterline main breaking in our Fitness Center, or the AC in the gymnasium not working, those things become priorities.

SportsTurf: How do you think the profession and industry will change in the next 10 years?

Jonas: On the Parks and Rec level I don't really see it changing that much turfgrass wise. The same challenges will exist, hiring people that have a passion for the maintenance and turfgrass profession. Mowing, painting and dragging fields are not going to change that much in 10 years. But I do see more emphasis on multi-use fields, and LED lighting will be a big thing in the next 10 years. And of course water conservation will only get more intense.

SportsTurf: How has social media impacted your work?

Jonas: It gives me the ability to showcase daily what we do to people that otherwise would never know. Pinterest and Instagram are great for sharing ideas to a very specific audience and those are the two apps that I use the most. I'm not big into Facebook or Twitter, I tend to be more of a private person.



> **"It's difficult to find people that have an interest in this type of work, so much of this work is not glamorous."**

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

Jonas: It has helped me to be more professional. Attending a national conference is incredible because you get to see and tour the venues that otherwise you would not have access to. Also, the networking and education opportunities are great.

SportsTurf: How has your career benefitted from being a CSFM?

Jonas: It shows to your employer that you are serious about what you do, which leads him or her to trusting you to make good decisions, for example on field usage or equipment that is needed. The agency has goals we want to reach.

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

Jonas: I love woodworking and photography. My wife and I love to travel and try different types of food. ST

SPORTS TURF PROFESSIONALS:

What do you want for Christmas?

Editor's note: Once again this year we asked, for fun, a stocking full of sports turf managers what they would like for Christmas that they might use in their work. Here are their anonymous responses:

Always want new equipment: new tractor, new pickup truck for me. A few more grounds crew, losing even one crewmember a pain. Linked irrigation controllers so I don't have to drive across town to shut them off or turn them on.

A dome over the stadium. Time. No firework shows.

For Christmas, I would like world peace! And an irrigation booster pump…

Above all, my top Christmas request would be full-time STAFFING! There have been so many new facilities built in the past 5 years that we oversee and of course, with that, higher expectations, but no additional staff. It's the usual "you do so well with the staff that you have, why do you need more?" response. We have a good amount of turf science students working for us through the spring and fall semesters but that only takes you so far due to them being in classes at random times throughout the day/week. Increasing the full-time staff size would not only help meet expectations but would help elevate burnout from an increase in outside activities at these new facilities (i.e. external rentals, camps, etc.).

What I would love would be a new commercial grade turf core sweeper.

I would enjoy going to a bowl game for Christmas and if we're talking crazy, a new workshop would be nice.

Would love predictable weather, whether it's good or bad.

It would be nice to have an early spring. We have battled snow and rain in our spring sports here in VA for the past few years. ST

WHAT'S CHANGED IN SPORTS TURF MANAGEMENT IN 40 YEARS — AND WHAT HASN'T

BY **BOB CAMPBELL, CSFM**

It was on an April afternoon in 1990 that I sat across the desk from University of Tennessee Athletic Director Doug Dickey when he offered me a position to manage the athletic fields. I was the first person hired by Tennessee in probably 40 years whose primary responsibility was to be a sports turf manager.

I had a tremendous amount of respect combined with fear for Coach Dickey, who was a Hall of Fame football coach at Tennessee and Florida and one of the last college athletic directors who actually understood sports and the importance of the game. He was a leader, a man you wanted on your side when things got tough, so tough that he once turned down letting the Rolling Stones perform at Neyland Stadium because he was not willing to take the chance of damaging the field during Peyton Manning's last season.

Doug Dickey, former UT football coach and athletic director

He offered me the job, saying he would equal my teaching pay. That was acceptable, but considerably less than I was making when combined with my pay as the groundskeeper for the Knoxville Blue Jays, Toronto's Double A baseball team.

I quickly accepted, believing he might withdraw the offer. I was 45 at the time with two children and this was my dream job. He proceeded to tell me what was expected and that basically I could not fire any of the hourly state employees working with me. As I prepared to leave, he said, "Don't forget I can fire you tomorrow."

Dr. Tom Samples, University of Tennessee

Welcome to big time college athletics!

Needless-to-say, as an old high school coach with a major in accounting, I was definitely in over my head. I am especially grateful to Dr. Tom Samples and many others who took me under their wing and guided me through a 20-year career. Everything I know about turfgrass I learned from him. He was my mentor and friend who patiently guided me through many minefields.

It has been more than 26 years since my first day at Tennessee and a great deal has changed and remained the same in our industry. I hope I do not come across as a cantankerous old man, but I do care for our profession and its future.

AMAZING TECHNOLOGY

The most amazing change that I have witnessed is the new technology that has developed. You need to know that I started before the Internet became a part of our daily routines. My best friend and close confidante during those early years was Bucky Trotter, who started at Kentucky about the same time I started at Tennessee. We sent our first e-mail to each other: "Ain't this a wonder." There have been books written on how technology has changed the world. As a person who does not understand Twitter I have no intention of trying to explain the role technology has played in changing our profession.

The most basic and important turf equipment, such as aerators and reel mowers, was around long before I started. (What ever happened to the wheelbarrow?) It's just that the equipment manufacturers are manufacturing better and more effective equipment (along with other innovations) that make our jobs much easier. Obviously there have been other great advances such as more efficient irrigation systems to help use this precious resource in a more environmentally conscious manner.

I was lucky to manage bermudagrass my entire career. I always had a tremendous amount of respect for my friends who had to deal with cool-season grasses. I am proof that you have to be a real dope to screw up bermudagrass. From a chemical and fertility standpoint during my career, the development of POLYON fertilizer technology has had the most benefit from a fertility standpoint. The expanded use of Primo plant growth regulator has had a profound impact, not only on sports turf, but on golf courses as well. When I started, it was very difficult to transition from ryegrass-overseeded turf, especially as the ryegrass varieties improved. The development of the sulfonylurea herbicide

family made this no longer an issue. We also have many more options for herbicides and fertilizers.

SOD ON PLASTIC

The biggest innovation from a groundskeeping standpoint is the development of "sod on plastic." For the first time, we have a way to repair or build a field and play on it immediately. That would have saved me a lot of sleepless nights and an easier way to repair our field at Tennessee in September 1998 when the fans stormed the field and took chunks of turf for souvenirs after Tennessee defeated Florida in overtime.

This is where I am going to sound like an old fuddy-duddy. I am afraid that we may have a tendency to rely too much on the new technology and products. Sometimes we are inclined to forget sound agronomic principles that have been around since before my career began.

In fact, these principles have not changed since 1973, when Dr. James Beard published *Turfgrass: Science And Culture*, which is still the standard by which all other texts are judged. It remains the best-selling reference book in the field. Today there are so many toys to play with that we refuse to let the grass just grow. We are always picking at it. I challenge all of you to leave it alone, let it rest and grow for a while.

The first Sports Turf Managers Association (STMA) Conference I ever attended was in Indianapolis in 1992, which was held in conjunction with the National Federation Conference of High School Athletic Directors. Dr. Gil Landry was president of STMA at that time. We were a small group then, but it seemed big time to me. That is where I first met Bucky Trotter, who has become a lifelong friend, and Dr. A.J. Powell, who was a mentor and friend until his death a few years ago.

Dr. Powell had a way of making the most complicated things seem simple. We both were sitting in on a presentation by Chuck Dickson on sand and construction of sand fields, which were starting to become popular at the time because the professional teams and colleges were going back to grass. At the end of the presentation, he raised his hand and said, "That was certainly interesting Chuck, but I didn't understand a thing you said."

George Toma also gave a presentation in a small classroom that was not full. All I knew about George at the time was what I had read in *SportsTurf* magazine, so I was in awe. I have had the opportunity to talk with George many times over the years and I believe that all of us in this profession owe him quite a lot.

The next conference I attended was in Colorado Springs in 1997. We were on our own at the Red Lion Hotel and there were a few hundred attendees. Mike Schiller was President. Steve and Suz Trusty had taken over the management of the association. Many college and professional grounds keepers attended, and the education was greatly enhanced with speakers such as Dr. Powell and Dr. Coleman Ward of Auburn. Many consider this Conference as the birth of STMA as we know it now.

Dr. Ward became a friend and mentor for the rest of my career. Talking with him or sitting in on one of his presentations was like sitting in his classroom. Unfortunately, Dr. Ward, as with many of our pioneers, died a few years ago.

At the Colorado Springs Conference, I met my hero, Tom Burns. While I was moonlighting as groundskeeper for the Knoxville Blue Jays, and still teaching, there was an article in this magazine about Tom when he was at Port Charlotte, FL. That sounded like the greatest job in the world to me while I was in my classroom teaching math and accounting. It made me more determined to get out of the classroom and pursue my dream job.

Tom and I remain friends to this day, and anytime I want advice about baseball fields or history of our profession he is the first person I call.

If we want to be treated as professionals we must act like professionals and be proud of our profession.

Steve and Suz did an outstanding job of promoting STMA and nurturing its growth. For that, we should always be thankful. I am especially thankful for their help and guidance while I served on the STMA Board. In 2004, the Board decided it was time to have our own staff and management team, and this is when Kim Heck and her team were hired to be employees of STMA with a mandate was to guide us to the next level.

I think all of you will agree that they have done just that. Kim and her staff of four have helped change the external perception and image of our profession. We are now on sound financial standing with a reserve fund equal to the annual operating expenses of $1.2 million. Under the leadership of David Rosenberg, the trade show at the annual Conference has gone far beyond what any of us ever dreamed of a few years ago. This has also had a huge positive influence on the association's revenue. We currently have approximately 2,600 members. The 2016 conference attendance was 1,600 with a sold-out trade show boasting 175 exhibitors.

The Certified Sports Field Manager (CSFM) program, which was started during the Trustys' tenure, is steadily growing and becoming more accepted and respected. In fact, some job postings require a CSFM or that the applicants attain it within a given time-period. Currently, there are 205 CSFMs. We still have a long way to go, but we are on the right path with our profession.

Early on you didn't see many women in our profession. But, women have had much involvement and influence in our industry. Although the percentage of female sports turf managers hovers at about 3%, as the number of members grow so do the number of females. I remember Amy Fouty, CSFM, as one of the first women in the industry who I met at our Mesa conference. I'm proud of the fact that STMA is one of the first primarily male-dominated organizations to elect a female president; Abby McNeal, CSFM, served in that role in 2009. She did an excellent job for STMA. Our association has outstanding women in every segment of our membership: students, sports turf managers, academics, and commercial companies.

I know from speaking with these very talented colleagues that they want to be treated no differently because they are women in a male-dominated profession. They are professionals. Lynda Wightman, Hunter Industries, has been one of the most loyal sponsors and supporters of STMA for as long as I have known her. The first time I met Lynda was at my first Board meeting and she scared me to death. She still does!

WHAT'S STILL THE SAME

The more things have changed the more they have stayed the same. Sports turf managers are still not looked upon as professionals in many places. I hate to admit it but in many cases, it is our own fault. If we want to be treated as professionals we must act like professionals and be proud of our profession.

We still have a long way to go, but we are on the right path with our profession.

There are still some unscrupulous artificial turf salesmen who avoid sports turf managers and go directly to administrators, who know nothing about sports turf. Regretfully, there are also still a few salesmen promising that they have the cure for all turf problems in a jug. There are still too many "field builders" and designers who know little or nothing about athletic fields. Unfortunately, their work shows it and causes problems for everyone. Thankfully this small group does not represent those in our profession who do things the right way and have always been a pillar of support for our profession and organization.

Sports turf managers take tremendous pride in their work and spend countless hours on the job, in many cases at the expense of their family. No one is more disappointed when a field does not play as well as expected than the sports turf manager.

Most times it is the result of circumstances beyond their control. However, when we screw up, e.g., applying too much or the wrong chemical, or picking at the field too much like aerating a football field during the season and making the surface too soft, we must take the responsibility and be willing to share these mistakes with our colleagues so the same mistake won't be repeated by someone else. With the technology available and professionals eager to help there is no excuse for stupid mistakes.

When I am around sports turf managers, the discussion often becomes a gripe session about their job, the coaches, or the administrators. We are truly a brotherhood of woe and that has not changed.

The most rewarding thing that has not changed is the appreciation that players and fans have for our efforts. That is, and should be, what it is all about. As someone once said: "We are in the fun industry. We are truly the creators of dreams and memories."

Bob Campbell, CSFM

To show how things have not changed, I am going to close with something Dr. Coleman Ward told me more than 25 years ago. "All bermudagrass is still compared to 419." ST

Bob Campbell, CSFM, is a Past President of the Sports Turf Managers Association.

John Mascaro's Photo Quiz

Answer on page 39

John Mascaro is President of Turf-Tec International

Can you identify this sports turf problem?

Problem: Worn out turf next to the yard lines

Turfgrass area: Varsity practice football field

Location: Weston, Massachusetts

Grass variety: Kentucky bluegrass/ryegrass mix

BACKGROUND ILLUSTRATION COURTESY OF ISTOCKPHOTO.COM

TURF-RELATED RESEARCH AT THE UNIVERSITY OF MASSACHUSETTS AMHERST

Editor's note: *Thanks to Scott Ebdon, PhD, professor, agronomy-turfgrass science, Stockbridge School of Agriculture, University of Massachusetts, for providing this update:*

The University of Massachusetts Turf Program conducts a wide range of research at both the UMass Joseph Troll Turf Research Center as well as at various field sites throughout the Northeast. Our goal is to enhance the functional use of turfgrasses while reducing the environmental impact of turf management practices. Presented below are summaries of selected projects that may be of particular interest to sports turf managers.

Wear Trials on Natural Grass Tennis Courts, by J. Scott Ebdon, PhD, Michelle DaCosta, PhD, and William Dest, PhD. Three official size single courts (78 by 27 ft.) were established with each court evaluating the same eight species and cultivars: Rubix Kentucky bluegrass, Keeneland Kentucky bluegrass, Karma perennial ryegrass, Wicked perennial ryegrass, Puritan colonial bentgrass, 007 creeping bentgrass, Villa velvet bentgrass and the Chambers Bay Dunes mix (creeping red and Chewings fescue). The study is maintained at 0.45-inch height of cut (HOC). Net posts and base lines will be installed to allow for natural wear from actual match play as well as simulated wear from machines to be applied beginning in the spring of 2017. Professional maintenance personnel from the Longwood Cricket Club (Director of Grounds Mike Buras and crew) have been assisting in the court design and installation. In addition, surface characteristics such as ball bounce resiliency, ball roll, surface hardness (firmness), physiological and morphological measurements, and water use as evapotranspiration from the different species-cultivar surfaces will also be measured. Sponsor: New England Regional Turfgrass Foundation.

Wear Trials in Fine-Leaf Fescue and Bentgrass Golf Turf, by J. Scott Ebdon, PhD. Evaluations were conducted on some 42 entries of fine-leaf fescue as part of the National Turfgrass Evaluation Program (NTEP) test. Many of the more wear tolerant cultivars were cultivars of hard fescue, followed by Chewings fescue, with creeping red fescue among the least tolerant species-cultivars to wear. Wear was applied using 90 passes with a grooming brush during each season including spring, summer, and fall. Perennial ryegrass checks were also included in the fine fescue test which showed that the all fine fescue species and their cultivars were not as tolerant as perennial ryegrass. In the golf fairway test maintained at 0.375 inch HOC most colonial and creeping bentgrass species that were most tolerant of wear (50 passes of the grooming brush) were experimental cultivars. Generally, creeping bentgrass entries were superior to colonials in their tolerance to wear. Similarly for the NTEP greens test (0.125 inch HOC), experimental cultivars were superior in their overall tolerance to wear. All of these NTEP wear trials will continue over the next two growing seasons. A new (NTEP) wear trial was also established in the fall of 2016 to assess the wear tolerance of some 114 perennial ryegrass cultivars. These 114 entries will be assessed for their wear tolerance over the next four growing seasons beginning in the spring of 2017. Sponsor: National Turfgrass Evaluation Program.

Organic Land Care Practices in Maintaining Sustainability of Athletic Field Turf, by William Dest, PhD and J. Scott Ebdon, PhD. The objective of the study is to examine the long-term effect on turfgrass sustainability, playing quality characteristics and soil quality. An organic land care system (compost tea, corn gluten) for athletic fields is being compared to a conventional (synthetic) maintenance system using Integrated Pest Management. After 4 years of

Tennis grass courts at UMass-Amherst showing two of three experimental single-courts.

UMass-Amherst: Height of cut was the single most import factor affecting ET and Kc values in the irrigation of recreational turf.

study, the significant ingress of crabgrass and clover into the organic management system diminished wear tolerance, and recovery while summer patch disease was suppressed by the organic management system. There was significantly higher soil organic matter and soil available P (well above optimum) introduced with the organic management system compared to the conventional system. Soil physical properties such as soil infiltration rates, soil stability, aeration porosity and soil bulk density were unaffected by the two management systems. Sponsor: New England Regional Turfgrass Foundation.

Efficient Irrigation for Recreational Turf in New England: Evapotranspiration and Crop Coefficients, by J. Scott Ebdon, PhD and Michelle DaCosta, PhD. This is a recently published study that was planted in the fall of 2009 to measure evapotranspiration (ET) losses from pure stands of Kentucky bluegrass (Touchdown) and perennial ryegrass (Exacta) maintained at sports and lawn grass height of cut (1.25 and 2.5 inch, respectively), and creeping bentgrass (Memorial) maintained at fairway (0.375 inch) and greens height (0.125 inch). Different N fertility rates including 2 and 4 pounds per 1,000 ft2 per year were also compared. Daily and monthly crop coefficients (Kc) derived from reference ET values from a near-by weather station and actual turf ET (weighing lysimeters) were measured during the summer irrigation season. Crop coefficients are values used to estimate ET rates for specific crops, in this case, for turf under different HOC and N. After 4 years of study the effect of HOC was the single most important cultural factor affecting ET and Kc values. Golf green and fairway turf used as much as 20% less water than taller HOC sports and lawn turf. Taller fairway HOC and lawn HOC turf used only 5% more water than their shorter HOC counter part maintain as either green or sport grass HOC. Fertilizing in summer with as much as 1.0 lb. N/1,000ft2 had little influence on turf water use because most of the total N used was in a slow-release form (i.e., 80%). Diminishing leaf growth rates and leaf area is one of the most effective strategies for lowering water use from recreational turf. Sponsors: New England Regional Turfgrass Foundation and the United States Golf Association.

Improving Winter Hardiness of Annual Bluegrass Golf Green Turf, by Michelle DaCosta, PhD and J. Scott Ebdon, PhD. Annual bluegrass is a cool-season turfgrass species that is problematic on short cut turf such as golf and athletic turf due to its sensitivity to low temperature and ice cover. Different pigments and plant growth regulators and their rates are being compared to assess their effectiveness in preventing winter

injury especially during the transition from late winter to early spring. This research is currently under investigation but early results indicate that some pigments and PGRs may increase low temperature injuries. Sponsor: New England Regional Turfgrass Foundation.

Organic Fertilizer Promoted Mobility of Phosphates on Sand-Based Golf Green Turf, by Baoshan Xing, PhD and J. Scott Ebdon, PhD. This is a recently published study investigating natural organic fertilizer and the effects of dissolved organic carbon (DOC) from plant and animal residues and their potential to promote mobility of phosphates. Sand rootzones are especially prone to leaching because of their poor soil moisture and nutrient retention capacities. Biosolids, like Milorganite, where shown to significantly increase mobility of phosphates in large part because biosolids contained 3 times more DOC when compared to other natural organic N-sources or synthetic N-fertilizer. The presence of DOC in fertilizer or composts was shown to promote greater phosphate mobility. The results will be used to develop BMPs and DOC guidelines to diminish phosphate mobility for natural organic fertilizers and composts. Sponsor: New England Regional Turfgrass Foundation.

Simulated wear-tracking and associated injuries on the 2014 NTEP fine-leaf fescue test at UMass-Amherst. Note the more wear tolerant perennial ryegrass check-plots in the immediate foreground.

The Use of Constructed Wetlands for Reclamation of Wash Water for the Turf Industry, by Lesley Spokas, PhD, Michelle DaCosta, PhD and J.S. Ebdon, PhD. There is increased pressure on the turf industry to use more environmentally sustainable approaches in turf management. To that end, constructed wetlands have the capacity to remove significant amounts of organic matter, nutrients, heavy metals, and pesticides through chemical, physical, and biological processes. In 2011 we constructed an artificial wetland onsite at the UMass Turf Research Center for the primary purpose of the remediation of wash water used on turf machinery. Because the surface of the constructed wetland is composed of sand with selected vegetation, equipment such as mowers and sprayers can be washed down directly on the wetland area. This technology is capable of removing fertilizer, pesticide and hydrocarbon residues from wash water, thus allowing it to be reused or safely released back into the environment. Treatment wetlands have few if any electrical or mechanical parts and are either carbon neutral or have a "positive" carbon footprint since plants consume carbon dioxide and produce oxygen while treating the waste.

Kentucky bluegrass drought research at UMass Amherst. Cultivars are evaluated under irrigated and non-irrigated conditions using an automated rainout shelter. Total irrigation amounts and frequency to maintain acceptable quality lawn and sports turf are being measured.

Constructed wetland at UMass Amherst. Testing is underway to evaluate effectiveness of an artificial wetland system to remove contaminants (e.g. nutrients, pesticides) associated with wash water from spray equipment and mowers.

Current data and information that is being gathered will be used as part of a larger set of best management practices for minimizing the impact of pesticide and nutrient use on water and soil quality. Sponsor: New England Regional Turfgrass Foundation.

In addition, the UMass faculty and staff are conducting a number of other research projects spanning the gamut of disciplines within the field of turf management. These include: (1) studies conducted by Geunhwa Jung, PhD including rolling studies in the management of dollar spot; fungicide management of snow mold; and fungicide resistance management (2) studies conducted by Michelle DaCosta, PhD including the screening for drought resistant cultivars; quantifying ET and irrigation frequencies of turfgrass species (3) studies conducted by Pat Vittum, PhD including the biology and management of annual bluegrass weevil, oriental beetle and other turf damaging insects and (4) studies conducted by Robert Wick, PhD on nematode management and biological alternatives to nematicides in reducing pesticide exposure to turf users. For more information on these and other projects, visit the UMass Turf Program website at www.umassturf.org and click on Research. ST

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STARTING UP YOUR IRRIGATION SYSTEM NEXT SPRING

Editor's note: *This article was supplied by Hunter Industries.*

When it comes to the startup of spring irrigation systems at large sports fields and municipal parks, careful planning goes a long way toward the successful seasonal start for fun and games.

No one knows this better than Michael Boettcher, director of grounds for the Milwaukee Brewers, and Abby McNeal, CSFM, operations supervisor at Ruby Hill Southwest District Denver Parks. Both Boettcher and McNeal say that proper winterization translates directly into how well you can expect your spring startup to go.

"A good spring startup starts with a good fall shutdown," said Boettcher, who is in charge of Miller Park, a main field with a retractable roof structure, 60 acres of landscaping, and a Little League Field sitting on a 250-acre park.

"Baseball season starts April 1, so we try to get everything going around March 1 but Mother Nature doesn't always think we should be doing that," he added.

McNeal said the winterization irrigation shutdown of the 80-acre park, including six Tier A athletic ball fields, takes 4 to 5 weeks, and involves lots of deliberate planning. These preventive efforts are done for good reason.

"We rely on the strength of winterization to make our spring startup easier," McNeal said, echoing Boettcher's sentiments.

Boettcher and McNeal reveal their strategies from early preparations in the fall to actual steps for achieving a successful spring startup and offer valuable tips for dealing with potential issues, including the unexpected challenges of spring startup.

CAREFUL PLANNING

Before freezing conditions arrive at their respective homes in Lake Michigan and the Rocky Mountain areas, both Boettcher and McNeal say they blow out their irrigation network thoroughly with compressed air.

Boettcher relies on an outside company to blow out each system in November to get all the water out and prevent the water from freezing in the pipes.

McNeal said she hires a contractor to ensure the pump system, which is one large pump serving the entire park, functions properly. She relies on her own staff of six full-time employees and eight seasonal workers to complete the process of winterization and spring startup.

"Each park has a varied number of quick couplers," she explained. "Depending on the size of the park, we have three to four quick couplers for smaller parks and up to 12 quick couplers for the larger parks. We start at the point of connection to turn off the incoming water, then use the quick couplers to drain the mainline. After that, we connect the air compressor and go station by station opening each one, using air to force the water out of the lateral lines."

Only when the staff feels that all the water has been pushed out of the system will they turn off the compressor. Backflows that are two inches or smaller are removed and secured in a backflow cage over the winter. All this is necessary to ensure a safe spring startup, she noted.

> "We don't just do our spring startup and leave it at that"— Michael Boettcher

Spring startup checklist

This checklist for spring startup for automatic irrigation systems is courtesy of Lynda Wightman, industry relations manager for Hunter Industries:

Automatic Controllers: In all climates, certain yearly procedures should take place with your control system.

- Change battery and/or fuses
- Check wiring compartment for any rodent damage, etc.
- Change battery and check wiring for remote control units
- Plug in controller and run through each zone (in winterized climates)
- Check for current date and time
- Create spring watering schedule on controller
- Check the sensing devices: rain shutoff; ET; wind, etc.

Electric Valves:

- Check wiring and waterproof connectors for wear, rodent and water damage, etc.
- Open flow control handle to maximum, and then turn back down 1½ turns for optimum open and closure speeds
- When operating valves manually/electrically from controller, check to make sure each valve opens and closes with appropriate speeds
- If valve doesn't close, check solenoid and diaphragms for debris or damage
- Clean out valve boxes and put new gravel in bottom of box

Sprinklers:

- While sprinklers are running, check for proper arc alignment (not spraying on hardscapes, other landscapes, etc.)
- Take a dynamic pressure reading while sprinklers are running to ensure proper operating pressure
- Raise and/or lower sprinklers to appropriate depth. Sprinklers buried too low will invite liabilities/accidents and will not allow water to clear tops of turf and plant material. Sprinklers buried too high are unsightly and may cause liabilities and vandalism.
- Check nozzles for clogging and matched precipitation
- Add drain check valves, if necessary
- Clean screens in bottom of sprinklers

Miscellaneous equipment:

- Make sure all isolation valves (ball and/or gate valves) are open and allow water to flow freely through them
- Re-install backflow prevention device (in Northern regions) and have a professional conduct proper safety checks
- Check for leaks in hose bibs, quick couplers, etc.

Ongoing maintenance:

Develop a "checklist" that can be quickly and easily conducted for ongoing system maintenance. This list can be laminated and re-used with a dry erase pen on a monthly basis. Following is an example that can certainly be customized to meet an individual's specific needs.

- Adjust heads to correct grade
- No missing heads or broken sprinklers
- No dissimilar sprinklers zoned together
- No interference to sprays by landscaping materials
- Annual equipment inspection
- Check filter screens

Don't forget that an efficient irrigation system relies upon an even distribution of water, the entire year. Site inspections are "cheap insurance policies." Get out and take a visual look at your sprinklers at least once a month to ensure a safe and healthy playing surface. It is also critical to hire irrigation professionals that are Irrigation Association-certified to ensure your work is done properly.

GETTING READY FOR SPRING STARTUP

Boettcher said just like during fall shutdown, in the spring, he relies on an outside company to fire up the system.

"The benefits of hiring an irrigation company is that they know the intricacies of an irrigation system and can diagnose any issues that could be starting," Boettcher explained. "They are trained professionals and having their trained eye look at our system is always great at the start of the year." It also makes the process more efficient, he added.

A first visual inspection of the entire landscape system lets the company assess potential issues.

"Ninety-nine percent of the time, the system is ok after visual inspection, except for occasional head damage from the snowplows or from construction," Boettcher said.

This is also the time to address issues that were already noted during their preliminary inspection in the fall.

"When we blow out the system, we look at the heads, and if there is little damage on seals of heads or nozzles, we make note of it. It's not necessary to fix those issues before winter," he said.

After the visual inspection of the landscape system, it's time to begin filling the mainline. Boettcher said that he typically

goes to the clock to fire up the system at the furthest zone from the water source. Slowly filling the system is key to allow all of the air in the pipes to evacuate through the quick coupling valves or sprinklers.

"Once the water is in the landscape system, we know the pipes are purged," he said. He then starts firing up the individual zones and checks that the heads at the zones work as well, an area comprising 45 zones and some 500 heads total.

Boettcher said in his many years at Miller Park, he's encountered very few issues with spring startup.

"The biggest problems were physically damaged heads and isolation valves that had gotten some particles stuck in their components, resulting in a leaky valve," he said.

Meanwhile, in Denver, McNeal said she typically starts firing up her irrigation system around April 15, starting with the athletic fields.

"We have a small checklist we use as a guide," McNeal said. She also encourages her staff to create their own documents with photos to ensure the system is ready.

"We work with our facilities plumbing staff for backflow issues and larger irrigation issues that may occur during startup or shutdown," she said. "The contractor handles the pump system maintenance and startup."

One of the trickiest parts of spring startup in Denver is timing, she noted. "It's tricky in Colorado when the temperatures can reach 60 degrees in March, then drop to the upper 40s for a high and low 20s in April," she said.

She said she watches the weather every spring to make the call, but noted while the larger backflows can handle the temperature swings, the smaller ones cannot. Knowing where the shallower pipes and smaller backflows are located is key to monitoring the system and prioritizing where water needs to be turned on and where not, she said.

MAINTENANCE TIPS

Like Boettcher, McNeal said a good winterization process is the best policy for a trouble-free start into spring irrigation, but regular maintenance of the entire system is as important.

"We don't just do our spring startup and leave it at that," Boettcher said.

Weekly inspections of the grounds throughout the season ensure that the system is functioning properly and that issues are addressed as they come up. "Our managers do the inspection," he said, primarily adjusting arc or spray patterns.

"The technology in spray patterns and irrigation distribution and overall quality construction of the heads has allowed for great success of our irrigation system throughout the entire site," he noted.

When baseball season hits, the pressure is also on McNeal and Boettcher to get their large irrigation systems up and running, so the fields will be green and playable and the fans can enjoy the games. ST

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Sources: Centers for Disease Control and Prevention (www.cdc.gov) & The American Academy of Orthopaedic Surgeons (www.aaos.org)

John Mascaro's Photo Quiz

Answers from page 29

John Mascaro is President of Turf-Tec International

PHOTO SUBMITTED BY BEN POLIMER, FIELDS & GROUNDS COORDINATOR, TOWN OF WESTON IN WESTON, MA.

This Fields & Grounds Coordinator oversees several different complexes for this municipality just west of Boston. When he was making his rounds and looking at various fields he noticed these brown marks and worn out turf areas on this varsity practice football field next to the yard lines. At first he thought the damage might be from football practice; however the damage turned out to be caused by the Physical Education classes. The coach at this school decided that golf would be a good addition to the PE classes so he purchased several golf driving mats and placed them on each sideline at the yardage lines. As the kids would hit the golf balls they would stand on the grass in front of the golf driving mats and the damage was from the wear of kids' shoes on the turf. To resolve the wear issue the Fields & Grounds Coordinator asked the PE teacher to move to the opposite side of the field and hit. To repair the worn areas, the maintenance crew overseeded the areas with ryegrass seed and applied some starter fertilizer.

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.

BACKGROUND ILLUSTRATION COURTESY OF ISTOCKPHOTO.COM

INNOVATIONS

Novel use of infield conditioner adds flavor to Little League Softball World Series

Editor's note: This article was supplied by Turface Athletics.

To go home with the championship trophy, teams in the Little League Softball World Series have to win seven games over 8 days against the world's toughest competitors from Canada, Latin America, Asia, Africa, Europe, and all 50 US states. Mike Hebrard, owner of Oregon-based Athletic Field Design (AFD), knows that nothing about the field preparation for this annual worldwide event can be ordinary.

"The girls competing in this series deserve the best field we can provide. What's more, it's broadcast to a global network cable audience," said Hebrard. "It's one of our biggest challenges in terms of quality, creativity and performance."

Every year, Hebrard and his prep team descend on Alpenrose Stadium in Portland, OR to prepare it for the series. After removing the infield grass, the team skins and manicures the surface, then follows with applications of Turface Athletics' Pro League infield conditioner. Pro League's calcined clay particles provide a uniform surface that minimizes the potential for injury from sliding and diving as well as bad hops. It also absorbs moisture exceptionally well to reduce rainouts.

"Our goal is to make the diamond really special for the players, the fans, and the TV cameras, so we make use of Pro League colors. We use Pro League Champion Brown outside the baselines and Pro League Red in the batter's box, pitcher's mound and on-deck circles, which shows up well on television," he

notes. "Of course it's the infield that gets the most attention."

To give the infield visual interest, the AFD team echoes the cross-hatched pattern mowed into the outfield grass by applying a combination of two other Pro League colors, Natural and Heritage Red, inside the baselines, in a subtle cross-hatch. The result is a festive and highly attractive diamond that also performs at the level the players, coaches, umpires and sponsors expect.

"I've been using this product for more than 20 years. Its consistent color, particle size, and moisture absorbency are the best in the business," said Hebrard. "During the Series, four games a day are played at Alpenrose. We have to have a product we can depend on."

Because of the heavy competition schedule—games are played at 10 AM, 1 PM, 4 PM, and 7 PM—there are times when AFD has only minutes to fix the field between games. "One time we had just 12 minutes," Hebrard recalled. "We know as soon as we detail the overall design and wet down the infield, it will be packed and ready to play again."

Jeff Langner, business manager for the sports, golf and landscape division of Profile Products, Turface Athletics' parent company, says Athletic Field Design is an innovator in the use of materials to add interest and a festive atmosphere at athletic fields of all types.

"What Mike Hebrard and his staff are doing is unique. No one else creates this kind of infield design work. The visual 'pop' is exceptional and it offers a singular backdrop to the action," Langner states. "The time and effort Athletic Field Design puts in, produces results that are very special. It's a big reason why the Little League World Series organization looks forward to coming to this facility each year for its most important softball tournament."

The work of the AFD team has helped to spread the hottest trend in athletic field preparation—using materials to create distinctive, proprietary and attention-getting field designs. As Hebrard points out, the pursuit of creativity is a way for groundskeepers to add value, and to keep customers coming back.

"To us there is no such thing as a 'perfect' field. We're very detailed in our approach and we're always looking for something new," said Hebrard. "We're never satisfied and I guess that's a good thing."

New university research shows product means water savings and more

New research from the University of Illinois proves Hydretain significantly reduces water use while enhancing plant quality, says Ecologel Solutions, LLC.

In some cases, Hydretain benefits may be far greater than they initially appear. Such was the case for this University of Illinois research study. Initially, the researcher noted water savings of 33%, 30% and 13% for Hydretain treated versus untreated peppers, tomatoes and turfgrass respectively. Upon further observation the researcher noted that the Hydretain treated plants were substantially superior in size and quality than the untreated controls. When comparing the reduction in water use to relative plant mass, Hydretain treated plants significantly outperformed their untreated counterparts. Hydretain treated turfgrass, irrespective of formulation, used 52-65% less water than controls per gram of dry matter produced. Hydretain treated turfgrass exhibited significantly greener color and turf quality than untreated controls.

At no time were any negative effects of Hydretain observed on treated plants. "Taken together the measurements of dry matter yield and water use, there was a clear advantage to the use of Hydretain in enhancing plant growth while using much less water than control plants to generate plant tissue," said Shelby Henning, research specialist in agriculture, University of Illinois Department of Crop Science.

55 YEARS OF TOPDRESSING WITH METE-R-MATIC

Turfco introduced the Mete-R-Matic topdresser in 1961. As the first mechanized topdresser, it revolutionized the industry by decreasing the amount of time and physical energy needed to care for turf.

"Prior to the introduction of the Mete-R-Matic in 1961, literally the only way to topdress was using a shovel," said Scott Kinkead, executive vice president of Turfco. "It was how far you could throw a scoop of sand or dirt."

The original self-propelled Mete-R-Matic featured a wooden hopper that held 11 cubic feet of material and used wooden slats on the conveyor belt, for which Turfco will still occasionally receive requests for replacements. The durability of the machine increased when the wood was replaced with a metal hopper and slats.

In 1981, Turfco debuted its patented ground-drive to the Mete-R-Matic. This was also the first year the machine became towable, an important feature for sports turf because it could be hooked up to most turf vehicles and wasn't dependent on hydraulic power. The ground-drive ensures that the drop rate remains consistent whether operators are moving faster or slower, which makes it one of the best machines for topdressing with crumb rubber, in comparison to hydraulic-powered topdressers that change the rate based on the operator's speed.

"It's tried and true," Kinkead said. "The ground-drive is still an integral piece of the Mete-R-Matic."

Hopper capacity also doubled in 1981 and spreading width increased to 60 inches to help turf managers get jobs done without stopping to refill as often. In the late 1980s, Turfco added six wheels to the Mete-R-Matic to reduce ground pressure.

Eventually, a smooth rubber belt was used to convey materials until the patented Chevron belt was introduced in 1993. Unlike a smooth belt, the Chevron pattern would carry consistent loads of any material, wet or dry. This allowed turf managers to evenly topdress using calcined clay, crumb rubber, wet sand, compost, even with ryegrass seed. The self-cleaning roller ensures that none of the material ever builds up or causes an uneven spread.

All of these changes have led up to the current line of Mete-R-Matic machines. Each

features a galvanized metal hopper that is bolted together instead of welded, because it's more efficient for turf managers to replace just one side instead of an entire hopper if damages occur. Electronic controls have also made using the topdressers easier on operators.

"We used to have a rope pull. You could tell who was manning the topdresser because their right arm was bigger than their left," Kinkead said.

Kinkead said that when he started at Turfco in 1991, the Mete-R-Matic had more name recognition than the company itself. The reliability of the machine is reinforced by Turfco's 3-year warranty, including the belt, showing the confidence the company has in the durability of each piece of equipment.

"Realistically, it doesn't need to be complicated, no hydraulics, no engine. Those are the bones of it," Kinkead said. "You just hook up and go."

How research and technology has changed product development

BY **SCOTT KINKEAD, EXECUTIVE VICE PRESIDENT OF TURFCO**

The challenges are constantly changing for sports turf managers whether it's new practices, labor or increased field use. Our job at Turfco is to listen, observe and figure out how to make the job for turf managers more productive and their tasks easier. Every feature on our products comes from the direct input of sports turf managers so our research is built on a 360-degree view of their challenges and work.

Labor and productivity is a big issue facing sports turf managers, so Turfco added MagnaPoint Technology to the Torrent 2 debris blower so managers know when they send someone out, the job is done right. In our research, we found if you're 10 degrees off the optimal blower angle, you lose 33 percent of distance. With the right blower angle, the job gets done faster with less fuel consumption, and an operator can move on to the next job.

In today's world, maximizing the use of a machine is important by making it versatile and fast, as well as minimizing maintenance. We made the TurnAer XT8 riding aerator fast enough to do up to 2.5 acres in an hour, but nimble enough to get around a campus to improve overall turf conditions. Sports turf managers told us that minimizing maintenance is a critical need for them, so we eliminated grease zerks and have a covered drive chain on the outside. The new auto-depth control keeps operation simple and straightforward because operators can set the depth once and the machine will adjust to meet ground conditions.

There's a lot of new technology to help our research and development but still nothing beats being in the field talking directly to sports turf managers about their work, and watching the products in use to come up with the best solution. In development, we see the benefits of using 3-D parametric modeling computer programs to develop products faster, and videotape products and performance in the field.

Much of Turfco's equipment has benefitted from technology, too, but we don't make changes to machines just to say something new. Technology for the sake of technology isn't a solution to increase productivity and all development at Turfco goes toward making the job easier and more efficient for turf managers. To share experiences or help us know about issues facing your field, contact us at 800-679-8201.

MAPFRE Stadium Pitch,

Columbus Crew SC, Columbus, OH

Category of Submission: Professional Soccer
Sports Turf Manager: Weston Appelfeller, CSFM
Title: Director of Grounds
Education: Bachelor of Science from The Ohio State University; field of study, Turfgrass Science
Experience: MAPFRE Stadium, Director of Grounds, January 2012 to present; PPL Park/Philadelphia Union, Assistant Groundskeeper, May 2011 to December 2011; Boston Red Sox, Grounds Crew Supervisor, March 2008 to May 2011; MAPFRE Stadium, Director of Grounds, June 2007 to February 2008; MAPFRE Stadium, Assistant Groundskeeper, February 2006 to June 2007.
Full-time staff: Weston Appelfeller, CSFM; Ben Jackson, CSFM; Andrew Northeim; Mitch Litz (left in July; and Nick Roe (started September 2015).
Part-time staff: Gary Rasor, Brandon Pelletier, Michael Sanders, and Ian Smith
Original construction: August 1998 – May 1999
Rootzone: Loamy sand; 85% sand & 15% other
Turfgrass variety: Kentucky bluegrass, perennial ryegrass
Overseed: This year in an effort to help reduce our expenses we have overseeded less. We have overseeded bluegrass in April and September at a rate of 2lbs/1000 sq. ft. We have also overseeded rye at a rate of 3 lbs/ 1,000 sq. ft. once a month between April and October.
Drainage: We have a longitudal drainage system. Water flows through 4" pipes to the middle of the field and meets the 8" main that carries it from the field.

WHY STMA SHOULD CONSIDER YOUR FIELD A WINNER?

The more things change, the more they stay the same. It's a very broad statement, but when you think about it, everything is changing all the time. Philosophies, budgets, staff and activities change from year to year, but our field quality has continued to stay consistent.

We have experienced several challenges this year. For example, our budget for field products shrunk by $8,000. This has strained our ability to manage our field like the past.

Also during the year we have replaced two full time staff members. While promoting growth is a key for any turf manager, losing half our staff is tough.

This year has also provided terrible weather. Over the winter, we experienced extremely cold temperatures. Normally in the winter, we have a warm spell that allows us to make a mid-winter snow mold spray. This year the warm-up never came and our snow mold damage was more severe than normal.

Columbus experienced on of the five coldest months of February in history. Our first game was March 14. We had a snow storm of 6 inches on March 1. The following day we plowed the field and tarped it using our 16-year-old rain tarps. These tarps had not been used since 2003. The Velcro on the tarps would not hold, so we decided to sew these tarps together using ropes. From March 4 to March 8, I lived at the stadium. Each night I would walk the field at 11 pm, 2 am, and 5 am to make sure the heaters were working and the tarps were holding together.

How have we managed to keep the turf in top quality condition with all of these challenges? Our staff is committed to this surface and are committed to becoming better turf mangers. With a nine year old surface our ownership has asked us to preserve the life of this field and we believe we will make it to 15 years.

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

Being able to face issues, come up with a solution, implement it, and see the results makes coming to work each day enjoyable.

Annual maintenance plan

JANUARY

No Activity

FEBRUARY

No Activity

MARCH

03/04/15 - 03/08/15: Tarp on Field, Blowing Heat to Field
03/09/2015: - Par 16oz/ Acre -Green Lawnger 5.5Gal/Acre
03/10/15: Aerified (Deep Solid Tine)
03/12/15: 12-0-0 .05lbs N/ 1000 ft. sq. -46-0-0 1.0 lbs. N/1000 ft. sq.
03/13/15: Rolled Pitch
03/16/15: 26GT 3.5 oz. /1,000 ft. sq.
03/31/15: Aerified (Shallow Tine, Cores)

APRIL

04/08/15: Daconil Action 2 oz. /1,000 ft. sq.
04/10/15: Topdressed (9.7 Tons/Ac.) -19-0-19 .25 lbs N/1000 ft. sq.
04/16/15: 12-0-0 .07lbs N/1000 ft. sq. -Harrells Calcium – 6.4 oz. /1,000 ft. sq.
04/20/15 – Secure Fungicide - .5 oz. /1,000 ft. sq.
04/21/15: Aerified (Deep Solid Tine)
04/29/15: Aerified (Shallow Tine, Cores)- Overseeded (Perennial Ryegrass - 3 lbs. /1,000 ft. sq.) (Kentucky Bluegrass - 2 lbs. 1,000 ft. sq.)

MAY

05/01/15: Topdressed (9.7 Tons/Ac.)
05/04/15: Holganix 12 oz. /1,000 ft. sq. -30-0-0 .08lbs 1,000 ft. sq.
05/06/15: ProMag – 222lbs/Acre
05/08/15: Segway .45 oz /1,000 ft. sq.
05/11/15: Subdue .5 oz. /1,000 ft. sq.
05/13/15: Tartan 2.0 oz. /1,000 ft. sq. -Overseeded (Perennial Ryegrass - 3 lbs. /1,000 ft. sq.)
05/15/15 – 05/17/15: Rock on the Range Concert
05/18/15: Potassium Silicate – 3.2 oz. /1,000 ft. sq. -12-0-0 0.07 oz. /1,000 ft. sq.
05/19/15: Rolled Field - Aerified (Deep Solid Tine) -19-0-19 .50 lbs N/1000 ft. sq.
05/25/15: Shockwave Machine
05/28/15: Daconil Action
05/29/15: Chipco Signature

JUNE

06/04/15: Secure - Curlan EG 2.0 oz. /1,000 ft. sq. 4.4 oz. /1,000 ft. sq. .5 oz. / 1,000 ft. sq. 1.0 oz. / 1,000 ft. sq. .8 oz. / 1,000 ft. sq. - Pennamin High K
06/08/15: Aerified (Deep Solid Tine) - Overseeded (Perennial Ryegrass - 3 lbs. / 1,000 ft. sq.)
06/09/15 – Primo Maxx - .25 oz. /1,000 ft. sq.
06/15/15: 3336 F 3.2 oz. / 1,000 ft. sq.
06/23/15: Primo Maxx
06/29/15: Banner Maxx -Daconil Action .30 oz. / 1,000 ft. sq. 1.28 oz. / 1,000 ft. sq. 2.0 oz. /1,000 ft. sq.

JULY

07/06/15: Aerified (Deep Solid Tine) -19-0-19 .25 lbs N/1000 ft. sq.
07/07/15: Primo Maxx .35 oz. /1,000 ft. sq.
07/13/15: Segway .45 oz. /1,000 ft. sq. -3336F 3.20 oz. /1,000 ft. sq.
07/20/15: Aerified (Deep Solid Tine) -Overseeded (Perennial Ryegrass - 3 lbs. /1,000 ft. sq.)
07/28/15: Insignia .7 oz. /1,000 ft. sq.

AUGUST

08/04/15: Shockwave Machine
08/07/15: Primo Maxx .2 oz. /1,000 ft. sq.
08/14/15: Subdue .7 oz. /1,000 ft. sq.
08/18/15: 3336F 3.2 oz. /1,000 ft. sq.
08/24/15: Aerified (Shallow Tine, Cores)
08/25/15: Topdressed (9.7 Tons/Ac.) -Overseeded (Perennial Ryegrass - 3 lbs. /1,000 ft. sq.) -19-0-19 .50 lbs N/1000 ft. sq.

SEPTEMBER

09/02/15: 3336 Plus 4 oz. /1,000 ft. sq.
09/03/15: Daconil Action 3.2 oz. /1,000 ft. sq.
09/07/15: Shockwave Machine
09/08/15: Topdressed (9.7 Tons/Ac.) -Overseeded (Perennial Ryegrass - 3 lbs. /1,000 ft. sq.) (Kentucky Bluegrass - 2 lbs. /1,000 ft. sq.)
09/17/15: Primo Maxx - .25 oz. /1,000 ft. sq.
09/21/15: Aerified (Deep Solid Tine)
09/28/15: Aerified (Shallow Tine, Cores)
09/30/15 – Plugged Poa (402 Spots)

OCTOBER

10/02/14: Aerified (Shallow Tine, Cores)
10/03/14: Topdressed (9.7 Tons/Ac.)
10/06/14: 19-0-19 .75 lbs N/1000 ft. sq.
10/13/14: Deep Tine Solids
10/23/14: Harrells 12-0-0 .05lbs N/1000 ft. sq.

NOVEMBER

11/03/14: Aerified (Deep Solid Tine)
11/04/14: Topdressed (9.7 Tons/Ac.)
11/17/14: 46-0-0 .75 lbs N/1000 ft. sq.
11/18/14: Par 16oz/Acre -Green Lawnger 5.5Gal/Acre

DECEMBER

12/05/14: 26GT 5.5oz/M

Also, for the first time we used a growth regulator. This helped make the turf stronger, while limiting our mowing. We have topdressed and aerated more, making the turf stronger from the bottom up.

2015 has been a challenging time for us; however, we continue to challenge ourselves to be smarter, more sustainable groundskeepers. We serve our community, fans, team, and players by providing the safest, most consistent playing surface possible. We feel we have earned the 2015 Professional Soccer Field of the Year Award because though budgets, staff, event load, and management practices may change, our Pitch, which has won this award twice, has not. Thank you for taking the time to evaluate of application to be the first three-time winner of this award.

SportsTurf: What attracted you to a career in sports turf management?

Appelfeller: When I was in high school I had a love for two things, taking care of lawns and sports. When I found a career that combined both, my future was set.

SportsTurf: What are your biggest challenges in providing excellent playing surfaces? And how do you approach those challenges?

Appelfeller: Two things. First is extra events. Managing extra events while attempting to limit field wear can be rough. We have four times more extra events than Major League Soccer matches. We try to strategically schedule events so that we allow ourselves windows to do field work.

The second challenge is the weather. It's uncontrollable. We try to prepare the field as much as possible to handle heavy rains or extreme heat/cold weather, but you can't control the severity.

SportsTurf: Did you implement any changes to the field in 2016?

Appelfeller: We are always reviewing what we have done in the past and trying to make improvements. This year we made a conscious effort to cut back on fungicides used.

SportsTurf: What's the greatest pleasure you derive from your job?

Appelfeller: Succeeding through the challenges. Being able to face issues, come up with a solution, implement it, and see the results makes coming to work each day enjoyable.

SportsTurf: What's the biggest headache?

Appelfeller: Weather. I hate looking at weather forecasts and making plans based on weather.

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

Appelfeller: Not necessarily turf advice, but how to deal with extra events and field requests. That advice was to "say yes to everything you can, and save the no's for when you absolutely need them." I think this has helped build our relationships with our front office and ultimately helped with our organization's success while limiting our potential damage.

SportsTurf: Are you yet involved in "sustainable" management practices? If so, what are you doing?

Appelfeller: One way we have helped our sustainability is with growth regulators. In using these we have been able to limit our mowing and build a healthier plant. Also, using some stronger cultivars in overseeding has helped with our disease pressure, which in return has helped us use fewer fungicides.

SportsTurf: How are using social media at work?

Appelfeller: We started a Twitter account last year to share our work. We are somewhat active. Please follow us @GroundsCrewSC.

SportsTurf: How do you see the sports turf manager's job changing in the future?

Appelfeller: I think it's clear that the industry is becoming more high tech, which is exciting. With new technologies comes new thinking and new ambitions. I think as sports turf managers becoming more intelligent toward the technologies, our industry is going to produce some great athletic surfaces in some of the hardest environments to grow grass. ST

Help SAFE fulfill its mission: donate & participate!

STMA's charity, The SAFE Foundation, relies on its fundraising events to help it achieve its mission: "To enrich communities through championing safe, sustainable sports and recreation fields for all athletes."

SAFE holds five fundraising events during the annual STMA Conference: golf tournament, bowling competition, silent auction, live auction and large item raffle.

Each year, STMA members generously donate items for the SAFE silent auction, live auction and the large item raffle.

SAFE
The Foundation for Safer Athletic Fields

HERE'S HOW YOU CAN HELP!

If you are a commercial company consider donating products and equipment, clothing and other logoed merchandise, golf packages, gift cards, electronics, and sports tickets. Join forces with other exhibitors and pool your donation dollars to provide a larger item. Of course, cash donations are always welcome, and new this year, if you would like your cash to fund a particular item, SAFE will "shop" for you. Just let STMA HQ staff know what you'd like to have purchased.

SAFE wants to recognize all commercial donations, so please let us know what you plan to bring and we'll publish it. Your company will get recognition for the donation, and our members can get advance authorization to purchase equipment and products for their facilities.

As an individual, bring logoed clothing and merchandise that highlight turf management and your sports teams. Let members know if you are willing to exchange the item for a different size. Female specific items are highly desired, such as quality designer handbags and accessories. Bring a gift card, wine, sports memorabilia, or offer a unique

STMA Nominating Committee announces 2017 slate of candidates

The STMA Nominating Committee announces the slate of candidates for the 2017 Board of Directors election. The election will be open during late November to mid-December and conducted through an electronic ballot that will be sent to voting members.

Three offices are single slate and automatically ascend to the next office. These candidates are: President Jeff Salmond, CSFM, University of Oklahoma, to the office of Immediate Past President; President-Elect Tim Van Loo, CSFM, Iowa State University, to President; and Secretary/Treasurer Sarah Martin, CSFM, City of Phoenix, to President-Elect.

Slated in the Secretary/Treasurer race are Jody Gill, CSFM, Blue Valley School District, Overland Park, KS and Jimmy Simpson, CSFM, Town of Cary, Cary, NC.

For the Director representing the K-12 category, Sun Roesslein, CSFM, Jeffco Schools, Golden, CO is slated opposite Peter Thibeault, CSFM, Noble & Greenough School, Dedham, MA.

In the race to represent Facilities Used by Professional Athletes, those competing for the Director position are Weston Appelfeller, CSFM, Columbus Crew SC, Columbus, OH and Phil McQuade, Kroenke Sports Enterprises/ Colorado Rapids, Commerce, City, CO.

In the Commercial Director contest, incumbent Randy Price, Tri-Tex Grass, Granbury, TX is slated opposite Boyd Montgomery, CSFM, CSE, The Toro Company, Bloomington, MN.

For the first time since 2009, there are three candidates for the At-Large Director. These members can be from any voting category of membership. They are Matt Anderson, CSFM, University of Arizona, Tucson, AZ; Weston Floyd, University of Texas, Austin, TX; and Scott Stevens, CSFM, Elon University, Elon, NC.

Doug Schattinger, Pioneer Athletics, Cleveland, OH is serving a second term as Commercial Vice President. Academic Director Beth Guertal, PhD, Auburn University, Auburn, AL and Higher Education Director Nick McKenna, CSFM, Texas A&M Athletics, College Station, TX are not up for election. They are serving the second year of their terms.


Jeff Salmond, CSFM


Tim Van Loo, CSFM


Sarah Martin, CSFM

The ballot also allows for writing-in candidates for any Board seat.

At the STMA Annual Meeting, Thursday, January 26, in Orlando during the annual STMA Conference and Exhibition, the new Board will be announced to the membership. After STMA's new President Tim Van Loo, CSFM, takes office, he will appoint an At-Large Director to fill the final board opening.

STMA's Nominating Committee includes: Chairman Allen Johnson, CSFM; Chris Calcaterra, MEd, CSFM, CPRP; the late Darian Daily; Amy Fouty, CSFM; Dale Getz, CSFM, CSE; Jody Gill, CSFM; Mike Goatley, PhD; Abby McNeal, CSFM; Andy McNitt, PhD; Mary Owen; David Pinsonneault, CSFM, CPRP; Don Savard, CSFM; Don Scholl, CSFM; Troy Smith, CSFM; and Lynda Wightman.

experience. We've had fishing trips, hunting blinds, African safaris and much more! SAFE's auction and raffles always have a diverse mix of items.

Please bid on items and purchase raffle tickets! SAFE raised more than $47,000 this year in San Diego from its fundraising events, with a net of $30,000. That success has allowed SAFE to increase its scholarship award amounts this year by $3,500, bringing the total that it awards in scholarships and grants to $16,000. It has also increased the amount it awards to the winning Student Challenge teams by $2,000. Now the winning 2-year and 4-year teams will each take home $5,000 to enhance their turf programs. ST


Jody Gill, CSFM


Jimmy Simpson, CSFM


Sun Roesslein, CSFM


Peter Thibeault, CSFM


Weston Appelfeller, CSFM


Phil McQuade


Randy Price


Boyd Montgomery, CSFM, CSE


Matt Anderson, CSFM


Weston Floyd


Scott Stevens, CSFM


Doug Schattinger


Beth Guertal, PhD


Nick McKenna, CSFM

ST

STMA Affiliated Chapters Contact Information

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

Colorado Sports Turf Managers Association: www.cstma.org

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

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

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

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

Georgia Sports Turf Managers Association: www.gstma.org.

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

Illinois Chapter STMA: www.ILSTMA.org.

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

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

Iowa Sports Turf Managers Association: www.iowaturfgrass.org.

Kentucky Sports Turf Managers Association: www.kystma.org.

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

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

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

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

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

Sports Field Managers 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.

Southern California Chapter: www.socalstma.com.

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

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

Texas Sports Turf Managers Association: www.txstma.org

Virginia Sports Turf Managers Association: www.vstma.org.

Wisconsin Sports Turf Managers Association: www.wstma.org.

Chapter Sponsors

Q&A WITH PAMELA SHERRATT *continued from page 50*

the importance of being able to adjust the application frequency based on GDD, to avoid the rebound growth surge. Dr. Karl Danneberger recently put together a TE application frequency program for a talk he gave in Spokane, WA. He plotted the GDD between March 1 and September 30th and showed that using the 200 GDD model, 17 applications of TE would be made over that period. In the spring and the fall intervals between applications were between 13-27 days but those intervals were much shorter in the hot summer months (~ 8 days). By comparison, 29 applications of TE would be made over that time period using a 7-day application schedule.

While it is possible to determine and track GDD yourself, based on a local weather data, it's far easier to use an online tool. Search the Internet to find your local GDD tracker. Most will allow you to type in your zip code and it will tell you what the GDD is. The Midwest region is served by the GDD Tracker (GDDtracker.net) developed by Michigan State University. MSU's GDD tracker also has updates on weed and insect problems. The GDD data will be in degrees F and you will have to convert to degrees C if you want to use the model above.

In summary, my advice to you would be to use the 250 GDD model with a base of 0C as a starting point and then build your own model around it, based on local weather data and by measuring field conditions that you think are most important. Good luck! ST

SportsTurf magazine DECEMBER 2016 Advertiser's Index

Q&A with Pamela Sherratt

Questions? Send them to 202 Kottman Hall, 2001 Coffey Road, Columbus, OH 43210 or sherratt.1@osu.edu
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PGRs and GDDs

Q: After many years of consideration and discussions with colleagues from around the country, we are finally going to start into a Primo program. I've gotten fairly consistent thoughts on rates, but application frequency has become a more interesting topic. It's been recommended to base intervals on growing degree days rather than calendar days. That absolutely makes sense to me. My question is, how many actual growing degree days should be the basis? Is there a chart to base this off? And does it differ based on species of turf? In our few test applications this fall, we've seen significantly different response from the KBG (which is the vast majority of our field) compared with rye (in wear areas) and *Poa*.
Wes Ganobcik, Columbus Clippers

A: Wes, as you quite rightly point out, it's difficult to predict plant growth based on the *calendar* because temperatures can vary greatly from location to location, year to year. Growing Degree Days (GDD) are considered more precise because they are based on local, daily air temperatures.

To review, GDDs are used to estimate the growth and development of plants and insects during the growing season. The basic concept is that development will only occur if the temperature exceeds some minimum development threshold, or base temperature. The base temperatures are determined experimentally and are different for each organism. In essence then, GDD modeling will vary among location and also plant species. Plant growth responses are monitored and correlated with the accumulated GDD. For example, GDD modeling for applications of plant growth regulator are created by monitoring turf growth suppression and rebound following a plant growth regulator application.

GDD modeling has been used in the green industry since 1958 when it was first used to predict corn harvest times. Since then there has been much research done in relation to turfgrass maintenance & GDD, including the timing of growth regulators for *Poa* seedhead suppression, the timing of pre-emergent herbicides for crabgrass control, and timing of amine or ester formulations of herbicides. The most recent GDD model for turf management is in relation to growth regulator applications.

Applications of the growth regulator trinexapac-ethyl (TE) are becoming more commonplace in sports turf management and the advantages have been long reported. A reduction in clipping yield was the original goal but there are many other added benefits that can be used to improve sports fields, like an increase in tillering and lateral shear strength, and improved turf quality. Applications of TE have historically been made on bi-weekly or monthly intervals at the recommended label rate. The goal is to suppress grown evenly and to avoid the "rebound" effect that occurs if a timely re-application isn't made. The efficacy of TE is dependent on air temperature. This means that applications of TE made in the summer months may not give the suppression duration that's expected. Research by Dr. Branham found that turfgrass plants break down TE faster as air temperatures increase, leading to a reduction in suppression over the summer period. This variability in TE efficacy during hot weather means that calendar based TE re-application intervals are not efficient at maintaining consistent growth suppression.

The most recent published research on using GDD to apply TE has been developed by Dr. Bill Kreuser and Dr. D.J. Soldat. As an STMA member, you can access their research report on Michigan's Turfgrass Library (https://tic.msu.edu). They found that re-applying TE every 200 GDD (base 0C) maintained season-long yield suppression (no rebound) and good turf quality regardless of season. Their model of TE at 200 GDD, based on a 0 Celsius base may confuse some people but it can be adapted to fit your own needs. The 0 Celsius base is used because it is most convenient not to have to subtract a base temperature. Once the application of TE has been made, the model is reset to 0. So as an example, the accumulation of GDD starts with the first application of TE in the spring and when 200 GDD is reached a subsequent application is made. At this point GDD is reset to 0 and accumulation starts again. The method used to calculate GDD in their report is the "Average Method": the actual daily GDD calculation is the average daily temperature minus the base (0C). Keep in mind that this model of 200 GDD is specific to creeping bentgrass putting greens (and likely *Poa annua*. Other species like Kentucky bluegrass and perennial ryegrass are still being determined experimentally. They are currently evaluating GDD models for low-mow Kentucky bluegrass culitivars and Dr. Kreuser had the following to say: "The ideal interval is roughly 250 GDD with a base of 0C. Generally, plant growth regulator application intervals for greens are shorter than they are for higher mowed turf."

Using the 200 GDD model, application frequency will differ greatly from a traditional 7-day, 14-day or 1 x month application schedule. For example, 200 GDD may occur in 14 days in the month of May and as frequently as every 9 days in July. During a heatwave with high temperatures of 100°F and lows around 75°F (average daily 89°F) 200 GDD occurs in 7 days or less. This reiterates

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