THE INTERVIEW: Steve Wightman

SPORTSFIELD AND FACILITIES MANAGEMENT

December 2015

SportsTurf

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VALUED MEMBER OF SPARTY TEAM: AMY FOUTY, CSFM

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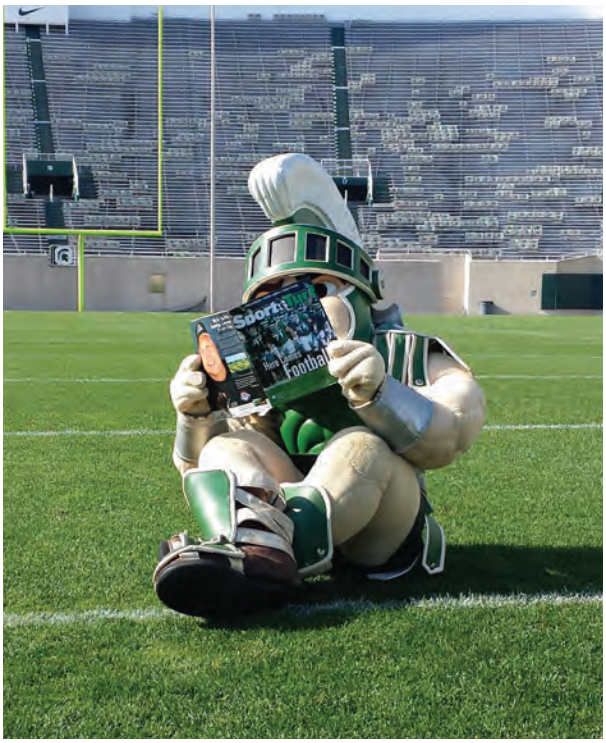
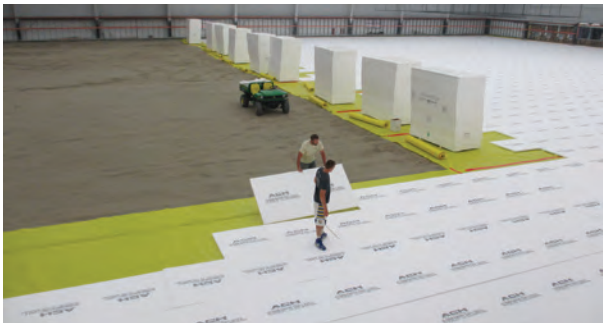
FEATURES

DEPARTMENTS

On the cover:
Amy Fouty, CSFM, Michigan State University's sports turf manager, poses with head football coach Mark Dantonio on the Spartan Stadium field. Fouty is part of a trusted team in East Lansing and contributes more than just great fields to the university's athletic program.





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SportsTurf MANAGERS ASSOCIATION

ARE YOU BURNED OUT?

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Burnout is defined as physical or mental collapse caused by overwork or stress. Here are ways to identify the early warning signs of burnout:

■ High levels of stress or anxiety. Feeling frequently on edge, with adrenaline constantly coursing through your body.

■ Lack of engagement. You don't feel motivated at work. You have difficulty focusing or exhibit a short attention span.

■ Increased cynicism. Feelings of resentment or disconnection. You may notice yourself being more negative and cynical. Feeling cranky and defensive or snapping at people easily. You don't make time to talk on the phone or connect with the people who matter most to you. If you're feeling a lot of resentment toward others, chances are it's because you're not getting your needs met and you're on the path to burnout.

■ Distracted eating. You eat your meals in front of a computer, television or while on the go (in the car, standing up, etc.)

■ Not getting enough sleep. The suggested minimum amount of sleep is 7-8 hours each night; if you're getting less than this, you risk some level of burn out.

■ Low energy and exhaustion. You're tired. Not just sleepy tired, but emotionally fatigued. You may feel exhausted by the end of the day, with no energy left to exercise or even engage with others, you just want to crash and watch television or zone out in some other way.

■ Never enough time. You feel as though you're always in a hurry and never have enough time for all the things you're trying to accomplish each day.

■ Excessive worrying, high level of self-criticism. Your mind cycles through the same worry filled thoughts again and again and you can't seem to stop. The critical voice in your head is very loud, telling you constantly to do more, work harder, and no matter what you accomplish, you're still not doing enough. There is no self-compassionate voice to balance out the critical voice, or if there is, it is very weak and you can barely hear it.

■ Physical illness. Initially, the physical symptoms can be subtle. You may experience headaches, a persistent cold, have a stomach bug or an upset stomach frequently, or a weak immune system in general. If early signs are ignored, your body may hit a wall and receive a more serious diagnosis.

■ Numb feelings. Increase in addictive behavior. Initially, this can show up as an excessive dependence on caffeine and/or sugar to stay alert and boost energy when feeling low. As things progress, an increased dependence on drugs, alcohol, eating comfort foods or watching more television than usual can be signs you're burning out and using these coping mechanisms to avoid acknowledging how you really feel.

■ Inefficacy. Experiencing diminished personal accomplishment, a perceived decline in competence or productivity, and expending energy at work without seeing any results.

■ No breaks or vacation. You can't remember the last time you took a single day off just to relax and do nothing. Or perhaps you haven't had a vacation in more than 6 or even 12 months.

■ Not enough exercise. You aren't making as much time to exercise or move your body as you would like.

This information provided by Vanessa Loder from Forbes.com and appeared in the November issue of *STMA News Online*.

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IT'S UP TO YOU BUT STMA CAN HELP

Allen Johnson, CSFM.
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Nineteen years ago I began in this industry. Before then, I wasn't even aware that it was an industry. Obviously, I had a lot to learn. I learned in various ways, some by my own initiative, some by trial and error. Most of my learning came through other people—by listening, watching, and seeing their end results. From some I learned what to do, and from others, what not to do. Because I learned through others, I learned at a much faster rate. Most of the learning through others was possible because of my involvement with the Sports Turf Managers Association. There is no doubt in my mind that I am a much better Field Manager today than when I first started 19 years ago. A lot of that is a direct result of belonging to this great association. There is also no doubt in my mind that the organization I work for has benefitted by my participation and membership in this association.

When I first started coming to STMA Conferences years ago I can remember learning about the goals of the association and its members. There was a general theme then that still exists today. It had something to do about being respected as a professional. While I believe that gains have been made, I also think that there are more gains to make.

Some may think that it is the association's sole responsibility to achieve on behalf of the Sports Turf Manager; some of you may not realize what you can do to help the cause, either.

I'm here to tell you that if you belong to this association you also subscribe to achieving that goal. We all have a responsibility. We, including the association, all have a part to play.

The association's responsibility is to help improve the knowledge, professionalism, and skill set of our members. It is also the association's responsibility to get the word out on a broad scale about the existence of our profession and how employing a member can positively impact an institution's experience with sports turf surfaces.

Individually, it is your responsibility to make the most of the opportunity that STMA provides and to use those tools to help you gain respect at your specific place of employment. The association cannot make your boss like or respect you more. It cannot argue on your behalf for more resources, less play on your fields, or for better pay. You have to do the heavy lifting at your place of work. You must somehow earn the respect of your peers and superiors.

One of the great strengths of this association is the willingness of its members to help each other, and to lend encouragement, advice, and support. Please take advantage of those traits and push forward in gaining respect at your organization.

This year's annual conference takes place January 19-22 in San Diego, CA. Make your reservations to attend, and take the opportunity to grow as a professional and benefit the organization for which you work. ST

FOUTY DELIVERS OFF-THE-FIELD VALUE TO MICHIGAN STATE

BY **STEVE GRINCZEL**

The best compliment Amy Fouty, CSFM, could hope to receive as Michigan State University's sports turf manager came to her in the form of an unspoken vote of confidence.

Six inches of snow had blanketed East Lansing during the days before MSU's Nov. 22, 2014 home football finale, and Fouty's crew worked around the clock to get the field in Spartan Stadium ready. With a major bowl bid hanging in the balance, it would have made sense for a detail-oriented coach like Mark Dantonio to call for updates on footing or anything else that could affect his game plan.

"There was snow, ice, we plowed the field and we shoveled the stadium in single-digit-temperature conditions," Fouty said while sitting on bench overlooking 72,000-square feet of impeccably manicured turf in Spartan Stadium on a warm, sunny day. "It was an incredible undertaking and the hardest working week in my life."

But the connection between Fouty and Dantonio's phones remained idle right up to kickoff.

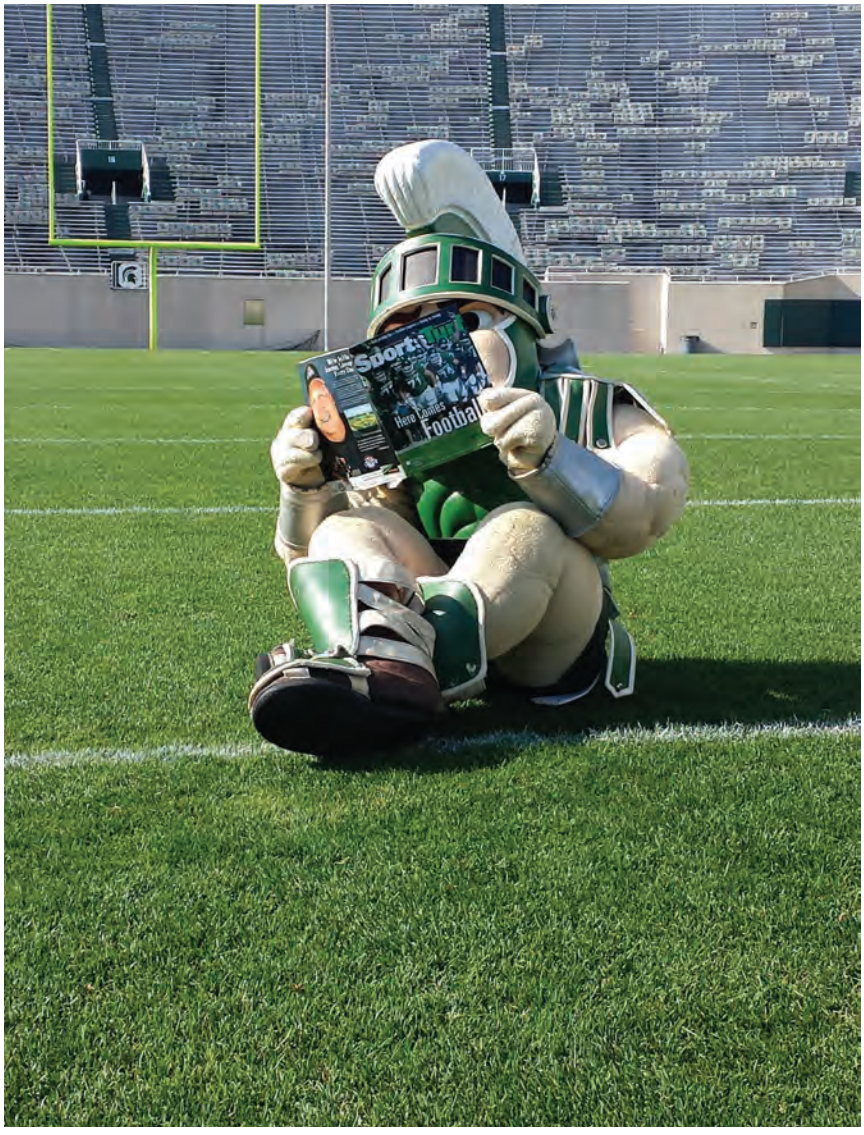
"I never got a call from the football office, so they weren't worried at all about what was going to be waiting here on Saturday for the team," Fouty said. "Personally, that meant the most to me of anything—not getting a call."

Fouty and her crew's contribution to a 45-3 victory over Rutgers helped propel the Spartans into the Cotton Bowl where they defeated Baylor to complete a fourth 11-or-more win season in 5 years and finish with a No. 5 ranking in the national polls.

In her 11 years as the caretaker of MSU's sports fields, including competition and practice, natural and artificial, Fouty has earned the trust of Spartan coaches through her innovation, diligence and leadership.

"Amy and her staff do a tremendous job with the turf," Dantonio said. "This is like her baby, so there's never a question in my mind that she's going to do everything she can to make sure the turf is in a playable condition, and I really think we have one of the greatest fields in the country. I really don't worry about it because she's a perfectionist and that gives me great peace of mind. I've been that way since I've been here."

Nevertheless, Fouty never took her role or the trust of Dantonio and MSU's other coaches placed in her for granted.



◀ **Michigan State's mascot**, Sparty, enjoys an issue of *SportsTurf*.

"I think you have to earn that every day in the trenches with them," she said. "Just like an athlete, you earn the right to be the starter every week in practice, and it only takes one major screw-up to destroy that trust. Coaches want to know that their turf managers see the large picture of success for the program and makes a conscience effort to be a part of that."

Michigan State's turf manager position has reported to Greg Ianni, deputy athletics director for facilities and sports management, since its inception. He ranks MSU's venues among the best he's toured across the nation and said it's important for turf managers to realize they don't just grow grass. They must have an understanding the mindset of the people they work with whether it's a coach, administrator, student-athlete or support staff.

"She's responsible for some pretty heady things around here that are really important to our coaches and our student-athletes," Ianni said. "She gets it. She doesn't have the type of ego where she can't take criticism and if something's not right she wants to know about it. Her ability to build relationships with our coaches is really, really important. Amy embraces that and wants to be a part of those programs and staffs that make those teams successful."

When Dantonio arrived in 2007, all he asked Fouty to provide was 100 yards of "firm, fast field" to facilitate his running attack.

"I explained my philosophy to have this field play consistently from game to game and year to year so when the kids come over here to play, mentally they're confident that what they're walking out onto will give them the best opportunity to be the best athlete they can be," Fouty said. "It is important that as a turf manager you understand the game, can speak in the language they understand, not just 'grass talk.'

"It is important to show up to practice, events, and in the office to just see how things are going. We have to all relate, contribute to benchmarks for success, and achieve goals. We do this together. The turf manager sets the stage for greatness."

As a graduate of Michigan State's world-renowned turfgrass management program and the holder of a bachelor's degree in psychology, Fouty also has an abiding understanding of the bigger picture at a university whose heritage is inextricably linked to agriculture.

"One of the most important things about this field is that this is a representation of our university, our agricultural roots, our history and our tradition," Fouty said.

Many say it's just too hard to grow grass fields anymore and have consistent quality and every location has its challenge. Providing championship-level fields in a climate that isn't conducive to maintaining turf—East Lansing is home not only to highly ranked sports teams but is also one of the top-five cloudiest municipalities in the nation—is a challenge that must be addressed 365 days a year and Fouty and her staff pull it off without many hitches.

"We plan, we prepare, we are supported in our efforts and we achieve the standard set," she said.

▲ **Recent photo of Amy Fouty's crew:** Front row (L to R), Georgeanna Heitshusen, Iowa St. turf student; Andersson Pires Rodrigues, Brazilian turf student; and Shane Keultjes, MSU turf student. Back row (L to R): Dale Reif, equipment operator; Jim Bartolacci, equipment operator; Jake Lowery, student athlete; Jared Knoodle, Groundskeeper II; Andy Flynn, Groundskeeper III; and Ian Bumpus, Groundskeeper I.

"You start with the stadium field," Ianni said. "That's more than a football field to the institution. There's a great deal of pressure to produce a product that's representative of many aspects in the institution. A lot of people watch that and want to see how that field looks and how it performs.

"I think we have the best fields in this part of the country and that impacts those student-athletes. In football, you've seen statistics from the NFL Players Association that 93-94% of those players would rather play on grass, but they want to play on good grass and that's important. Our student-athletes know that No. 1, the surfaces she provides are safe and they can play on them with confidence they're not going to get injured by bad turf, and No. 2, they're in such pristine condition it maximizes their ability to be successful, and that's the bottom line. We want to make sure the fields are as good as they can be so those athletes can be the best they can be."

Michigan State's one-of-a-kind football field was updated to the specifications formulated in a MSU doctoral student's thesis and the Spartans' synthetic practice fields perform more like natural grass thanks to a composition of sand-granulated rubber topdressing created after consultations with the school's kinesiology and human performance departments.

"Collaboration at an academic institution is important," Fouty said, adding that managing personal stress positively is something turf managers do not often think about. "Having other important areas in my life provides perspective and life balance, which translate into confidence and focus on the job."

Fouty, her full-time staff of three, two retired lawn-mower operators and small legion of part-time student employees, are responsible for a lot of acreage Spartan athletes depend upon for their success, but the team concept extends well beyond the white lines at MSU.

"The way I view leadership is I believe you need to be as good a follower as a leader and everybody leads from where they are," she said. "I believe in making sure my staff has everything they need to do what they do every day without frustration or hesitation. I feel it's my job to develop my guys just like I'm a head coach and I've got my own team. I jump in where I can to assist when time is of the essence, but allow the team to also make choices about what is needed and the best way to accomplish those tasks. The only way we learn is to make the decisions and be accountable for them.

"We take immense pride in what we are able to contribute. It's really special to have so much passion for doing what you love to do, doing it for your alma mater, and then watching those programs become part of a national stage. Every piece is so important. I tell the guys, every time you pick up a piece of trash or make something better, we're contributing to that success because you never know when a recruit's going to stop by and be awed and amazed by the opportunity to play at these facilities." ST

Steve Grinczel is an award-winning journalist who covered Michigan State Athletics for more than 20 years with Booth Newspapers who has been writing exclusive content for msuspartans.com since 2011.

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EXAMPLES OF TURF MANAGERS' CONTRIBUTING TO OVERALL SUCCESS OF THEIR EMPLOYERS

Editor's note: *We asked some STMA members for examples of how they or colleagues impact the overall success of their organizations. Here are the responses we received:*

PATRICK "IRISH" COAKLEY, CSFM

Sports Turf Superintendent
Ripken Stadium, Aberdeen, MD

For years in our industry, and especially in Minor League Baseball, our positions were (and still are in some places) viewed as non-revenue positions. We were operations, so we spent money, we didn't bring any in. My argument against this line of thinking has two parts: one is while we may not bring in revenue; we are **revenue insurance**. Our efforts via tarp pulls, grading and all the maintenance procedures we carry out, directly affect a field's ability to withstand weather events and remain safe for play. Anyone that works for a "for profit" company in our business understands that if you don't play, you don't make money. Our jobs insure the revenue coming in.

The second part of the argument directly contradicts the non-revenue title. The field is a revenue generator by itself. Other than a MiLB game, people seek to use the playing surface for college games, high school championships, concerts, etc. The reason people seek out these fields is because of the high quality. You would not be able to generate the extra, or non-traditional revenue, if the field was not of a standard that made it worth paying for.

Another aspect to look at would be the relationships we develop with vendors in our industry—materials, equipment and all the people we are involved with behind the scenes that help us put out good products. Many times these vendors become business partners with our clubs and it is because of the relationships we build. In many cases, sports turf managers become sales people in the off season and bring in money for their clubs by selling advertising, tickets, etc. to the vendors they deal with.

One thing we are specifically doing at Ripken Experience is an educational series that will be going on our website. Many coaches of our tournament teams end up as the sports turf manager of their home field, with no training or education in field maintenance. We are hoping to provide them with some basics and resources to get help. We will be teaming up with our partners to put together a series of short videos addressing fertilization, infield maintenance, mound and plates, etc. This will not only provide some more inventory for advertising sales but also provide some much needed and sought after education for the coaches of our tournament teams and hopefully anyone that has to take care of a baseball field. We are at the beginning of this venture and hope to have the videos up in 2016.

Along the same lines, there probably isn't a sports turf manager out there who hasn't helped or continually helps their local community fields in some way. Whether by giving advice to actually giving their time to provide some needed labor, we are constantly out answering that call for help.

» **Whether by giving advice** to actually giving their time to provide some needed labor, we are constantly out answering that call for help.

WILL ROGERS, CSFM

Sports Turf Manager
Clover (SC) School District

[At the K-12 level] we are asked to do more than just maintain sports turf. We may be asked to move teachers to different classrooms, move furniture from school to school, move bleachers, clean roof drains and gutters, paint inside the schools, help the plumbing department, plant shrub beds, clean parking lots, and a number of other things. We as a group may buy drinks for away trips for our athletes. Frank Falls from our staff heads up Moped to Memphis, a charity group for St. Jude's Children's Hospital. Lee Clinton entered a woman-less beauty pageant to raise money for M2M. We all want to support our athletes. We want our community to have pride in what we do on our fields and in return we want to help in community activities.

ANDY OMMEN

Head Groundskeeper
McLean County (IL) PONY Baseball

We had a large auto dealer buy us all brand new scoreboards in 2013. They wanted to be a sponsor on the scoreboard after we contacted them and when they saw how old our boards were,

they bought us all new ones. They had heard of our complex but really never been physically at our complex. The fall they were installed, they asked if they could host their employee appreciation picnic at our complex and have a softball game. We went "full ground crew" on them including pre-game wet down. They had an absolute blast. They were so blown away with the quality our facility, and the number of games we play and kids we have, they wanted to help us out even more. They have continued to donate money and last year paid for all of our outfields to be fully irrigated. They have come back each year and continue to have their employee appreciation picnic at our place with the highlight being the softball game.

MARTIN KAUFMAN, CSFM

GCA Services
Nashville, TN

Most of the time sports field managers are also event managers/coordinators, assistant (or substitute) facility directors, and backup leaders in emergency situations. In short, we are involved in *logistics*.

In addition we are relied on to manage environmental issues and sustainability inputs.

At every facility where I have worked, I have dealt with parking, crowd management, emergency management, security, winter weather, creating Arboretums, setting up for events like concerts and parties, as well as custodial duties after fundraising and sporting events. In many cases I was the contact for any construction plans and operations as subcontractors arrived. Once I became very involved in implementing a property-wide storm water management plan that included reforesting, remeadowing, and specific turf management for specific spaces in addition to rain garden implementations. I even got involved in permeable concrete!

Sports turf managers are logistical problem solvers and leaders when it comes to resource management be it people, property buildings or equipment. We are required to wear so many hats, including financial, that leading organizations is the next step once we figure out how to deal with politics and media.

I accepted a new job 3 months ago with GCA Services (Tim Moore, CSFM, is the VP of Grounds for this multistate management company). It is great to be valued as an expert to the customer and leader in accountability for the subcontractor. The impact on success of organizations results from STMA members representing their organizations in the community and professional industry. We are the experts and we make our organizations look good!

KEN EDWARDS, CSFM

Sports Turf Manager
City of Gulfport (MS)

For the past 7 years I have volunteered as the baseball and softball groundskeeper for the high school my kids attended. I took on this responsibility because the county I live in built two new schools and they both got new facilities. While attending a school function I overheard the kids saying that they had crappy fields so I decided that I should do something. I contacted the coach and boy, was he overjoyed.

I know that between all the parents someone in the group had access to every item on the list and was willing to donate or loan it to the school.

The first 2 years I did most of the work on the fields during the off-season and on weekends and evenings. The head and assistant coaches would help out when they could. I had an idea that everyone should be involved in the maintenance especially the parents and players. I approached the coaches with the idea of a family and friend workday before the start of the next season. Field work day would be scheduled at least 4 weeks before the start of the spring training and involve players, coaches, parents and friends all working together on the fields. The players and coaches then would maintain the fields.

All the school had for equipment was a mower and four-wheeler for dragging the infield so we did a resource inventory. I made a list of equipment needs and materials and passed it out to all the parents. It included items such as clay dirt, sand, sod, tractor, loader, tiller, compactor and hand tools. Little did I know that between all the parents someone in the group had access to every item on the list and was willing to donate or loan it to the school.

The first workday was a big hit. I had about 35 people ready to work. I created stations; batter's box, bases, pitching mound, outfield, infield, fence lines, bull pens, transition lines and dugouts. I personally walked the group through each station and gave proper instructions on every task required to maintain a ball field.

The biggest hit was the pitcher's mound. Of course it was in the worst shape. I gathered all the pitchers and their families around the mound. I gave them instructions on how to measure and cut out the mound. They did all the work. I pulled out a mound slope gauge and had them set it up. That drew the attention of everyone on the field. They never heard of a slope gauge. Together we built a regulation high school pitcher's mound to exact specifications. According to the head coach, that was the first time to his knowledge it was ever done.

Through this effort those ball fields are in great shape, the athletes and boosters are donating more time and resources than ever before and the kids are no longer calling their fields crappy. Now that everyone is involved I don't have to spend as much time on those fields but I regularly stop by to check on them. I also look forward to family field day at the start of the season. It has become a big event. All the new kids and parents get to learn field maintenance procedures and I get to eat some great southern fried fish. ST

TURNING YOUR PRODUCT IDEA INTO REALITY

BY **CATHY AND CHAD KROPFF**

Have you ever thought, "Oh if someone would just make it *this* way, then it would be great?" or, "This is a great idea; maybe others would like it too?" Four and a half years ago, my husband, Chad, said, "Oh, I wish someone would make a better pitching rubber." After hearing this same statement for more than a decade, I finally said, "Well, let's make it!" In the summer of 2011, our entrepreneurial inventors' journey began. What a journey it has been.

During the past few years, we have often been asked, "How did you do it?" Others have inquired, "I have a great idea, how do I get started?" We want to share with our journey with you, and some tips that we have learned along the way to turning our idea into reality.

There are five major areas to focus on when developing your idea: protecting your idea; marketing and researching; financing; manufacturing; and establishing mentors.

Cathy and Chad Kropff.

PROTECTING YOUR IDEA

Patent rules have changed recently. Now, the first person to the patent office gets the patent. In the past, you only had to document the date and time of your idea creation in an inventor's notebook or journal. This area of focus is very important and can be mind-boggling. Keep your idea to yourself as you research online to see if someone has beaten you to the punch. Also you need to get familiar with your competitors' information.

After you have finished researching online if you are convinced that your idea is still the best, and no one else is close to your idea, the next step is to research current and pending patents at the United States Patent and Trademark Office at http://www.uspto.gov/patents-application-process/search-patents.

There are a variety of patent options available. Make sure to select the right one for your idea. Options include: utility, design, provisional, plant, and reissue. We decided to file for utility patents, which are also referred to as patents for invention. If approved, your idea is protected for 20 years from the filing date of your patent application.

For our first product, the pitching rubber, we filed a provisional patent with Legal Zoom for less than $400. The provisional patent gave us a year to figure out if our idea was feasible before filing for the utility patent. During that year, we met with three different patent attorneys to determine with whom we wanted to work. We filed our first utility patent for the adult and youth pitching rubbers in 2012. After many revisions, interactions with the patent office, gathering testimonials, and a phone interview, our pitching rubber patent was finally approved in 2015. The average cost for a patent ranges from $10,000-$15,000. It is very important to do your idea research before spending money on patent and attorney fees.

Another part of protecting your idea is to make sure to have anyone you discuss your idea with sign a non-disclosure/non-compete form. There are a variety of these forms available online or contact us for a copy of our form. When we first started out, we were very intimidated about asking people to sign the form. To our relief, we found that many of the true business professionals we talked to were used to signing non-disclosure forms. If someone refuses to sign your form, move on. Do not deal with them. They are not worth the risk.

MARKETING AND RESEARCHING YOUR IDEA

Now that you have protected your idea, it is time to do additional research. To figure out your target market, do a Strengths-Weakness-Opportunities-Threats (SWOT) analysis to determine if your idea is feasible in the market. Will people pay for your product idea? This area of focus helps you determine if you can manufacture and distribute your product at a low enough cost so that your retail price is reasonable. It also helps you determine what avenues you can use to market your idea. Many universities have marketing and business students who can help with this step. One important thing to determine in this step is what your main purpose or mission is. We decided that our main company mission is to develop tools and equipment to help groundskeepers save time and money. We use social media, a website, videos, and marketing emails as our main marketing avenues due to our very low marketing budget.

FINANCING

Starting a business is expensive. There are multiple fees such as corporation fees, business license fee, sales tax fees and the list goes on and on. Writing a business plan and projecting your revenue and expenses will help you decide if you want to go forward. Once you decide to go forward, you will need to determine what type of business you want to start, i.e. corporation, partnership, or single ownership.

Getting start-up financing is not easy, but fortunately it is now easier than it was when we started in 2011. Crowd funding, microloans, credit lines and new online options such as Kabbage, Accion USA, SoMoLend, Opportunity Fund, and Kiva Step Ahead Loan Program all help start-ups fund their businesses. Chad and I decided we did not want to ask family and friends for loans or seek investors, so we decided to continue working full-time at Virginia Tech while developing our business. We also used credit cards and recently switched banks in order to secure a line of credit. Financing your business can be very stressful. Don't give up. Work with what you have. After

▲ **Left:** The Kropffs saw a need for a better product and decided to make it themselves. **Right:** To realize their dream, Cathy and Chad had to "get comfortable with being uncomfortable."

hearing "no" many times, we started hearing "yes." Start-up costs vary depending on your business idea, but can range from $10,000-$100,000. We started off at the higher end of that range due to manufacturing and patent costs.

MANUFACTURING YOUR IDEA/PRODUCT

The manufacturing step almost stopped us in our tracks. Actually, it did delay us for about 6 months. The first manufacturers we talked to quoted a cost of $300 for each pitching rubber plus $30,000 start-up fees for tooling, shipping, and packaging. We knew that there was no way we could sell a pitching rubber for a retail price of $350-$400. We continued searching for other manufacturers.

Searching for manufacturers is time consuming. Make sure to understand each quote. Don't be afraid to ask questions. We called and emailed at least two dozen different manufacturers

before selecting on one located 45 minutes from our home. Our selected manufacturer owns a sister company in China, and helped us develop engineering CAD drawings, select a supplier, and produce samples for testing. We negotiated with our manufacturer to pay half of the tooling costs up front and the other half when the samples arrived and were approved. We also arranged for a 30-day/60-day payment plan for inventory.

Manufacturing is an area that can be very frustrating because you have to give up some control of the process to others. Once we place an order, it takes about 6-8 weeks for product to arrive from China. We tried desperately to find a manufacturer in the United States, but the price of natural rubber is so high that we have to continue working with oversea companies. Many inventors recommend having three manufacturers that you work with. We are still working on finding two additional satisfactory manufacturers.

Testing your products is another huge part of manufacturing. We did not test our first product long enough before ordering additional units. This was a costly mistake. We now know to test each product for at least 6 months to a year before placing a large order. As a result of listening to our customers' feedback, we redesigned our products multiple times. Our redesigns were also based upon Chad's own experience with our products. Our first tamp handle was 6 feet tall. After hitting himself in the head while helping at the local minor league ballpark, Chad reduced the height of the tamp handle!

Last December we sold three quarters of our products' shipment before its arrival from China. Once the products arrived, we were devastated when we inspected the shipment. We found the pitching rubbers and home plates discolored; they were not white. We also discovered that the glue used on our home plates was not the correct glue. The supplier had also used recycled rubber and leftover rubber for part of our order instead of using only natural rubber. We worked persistently and tirelessly with our manufacturer to find a new supplier in China. We worked with our customers to make sure they received product they were happy with, or we issued a refund. It was a very tough winter for us, but we have finally found a new supplier with our manufacturer, and recently received a shipment with excellent products that passed our inspection.

ESTABLISHING MENTORS/RESOURCES

Before we embarked on our journey, we sought the advice of many professionals who we now consider mentors. Make sure to take the time to develop your mentoring team. Find the small business and inventor resources in your area. Our team includes: the Roanoke Regional Small Business Development Center, The VT KnowledgeWorks (an entrepreneurship organization at Virginia Tech), a patent attorney, a certified public account, a business insurance agent, a financial institution, our family and friends, and of course the STMA and its members. We continuously are adding to our mentoring team, and recently added a China business consultant.

One of the most important things to remember is that this journey will have setbacks. That is okay, because you can learn from each setback. We certainly have. The best advice we heard when starting out was from one of our mentors, Jim Flowers, director of VT KnowledgeWorks. He said, "get comfortable with being uncomfortable." This is so true. You will be outside your comfort zone during many of these steps, but keep going if your heart, soul and mind are happy. We have enjoyed our journey of ups and downs and continue to learn and love what we do. I hope these tips help you turn your idea into reality.

Cathy and Chad Kropff are founders and owners of Bulldog Field Equipment, www.bulldogfieldequipment.squarespace.com. ST

ANATOMY OF AN STMA CHAPTER FIELD DAY

BY **RICH WATSON**

Every year I am impressed by the quality of the Sports Turf Managers Association (STMA) Conference and Exhibition. This year is no different as I eagerly await the upcoming 2016 conference in San Diego. The amount of time spent planning really shows when you are there taking it all in. The educational sessions, vendor options and opportunity to network with your peers is a great chance to move your career forward. I always encourage anyone who has not been to the STMA national conference to try at some point in their careers to get to one. That may be easier said than done, though.

For those that cannot make it, there is another option: STMA Chapter field days also offer education, vendor participation and the opportunity to network with peers in your local area. I am the president of the Sports Field Managers Association of New Jersey (SFMANJ), the New Jersey Chapter of STMA. We hold spring and fall field days every year. It is an opportunity for our organization to provide education, pesticide and fertilizer credits, equipment demonstrations, food and a fun day away from work.

There are several things that have made our events successful (including but not limited to): a site with indoor and outdoor availability, a quality educational program; food; and a proportionate amount of attendees to vendors. It also doesn't hurt that the event is free to attend. How is that possible? Let's take a look at the formula that has been developed in the Garden State.

PICKING THE RIGHT SITE

When you think of a field day it brings to mind great weather, beautiful fields and an entire day of outdoor activities. Sometimes Mother Nature has other plans. The weather in New Jersey and throughout the Northeast and mid-Atlantic can be somewhat unpredictable in the spring and fall. I know that the folks attending our events are outdoor people but it is hard to concentrate when you have been in the rain for hours at a time.

In addition to having a host sports complex with a variety of sports fields, we have also made it a priority to find a site with an indoor facility for educational sessions and vendor set up if the weather turns ugly. This thinking has turned out to be a good strategy for a couple of reasons. It gives us the ability to have our event rain or shine. The other benefit is subtler; having the ability to hold some of our talks indoors makes it a little more like a classroom talk. This has been important during our talks that receive pesticide credits. The indoor setup keeps everyone in the same location and gives the entire group the opportunity to hear what the speaker is saying. It can be difficult to hear when you are listening to a speaker outside due to wind or other outdoor distractions. It also can be a good way to start the day when the morning temperatures are cold and the turf is wet. Having the right site is the foundation of a great event and should not be overlooked.

EDUCATION

"Sports Field Managers Association of New Jersey is committed to enhancing the professionalism of athletic field managers by improving the safety, playability and appearance of athletic fields at all levels through seminars, **field days**, publications and networking with those in the sports turf industry." That is the mission statement of our chapter. It is something that we take very seriously. Providing education to our members is really what we are all about.

Our Board of Directors goes through a process every year to put together topics that are timely and developed in part by a site visit to the host venue. An example of a timely topic was New Jersey's Commercial Fertilizer Applicator's Certification Program. The state enacted a law in 2012 that requires anyone applying fertilizer as part of their job to be certified and accrue continuing education credits to maintain your certification. As with any new program there was a lot of anxiety and confusion when it was enacted. Our Association took the lead by offering education explaining the law and awards fertilizer recertification credits at our events.

Educational programs also include NJ School IPM Category pesticide credits that are difficult to acquire. Having the ability to provide hard-to-find fertilizer and pesticide credits is a great help in attracting people from all parts of the turf industry to attend our events. In addition to the accredited talks, we also encourage our vendors to provide hands-on education through a variety of field equipment demonstrations. This provides a good balance to our classroom-type education. Everyone enjoys seeing new equipment and envisions how they might make it work on their sites. Recently we have seen a variety of new aerating equipment, fraze mowers, infield groomers, pesticide application equipment as well as the newest mowers on the market. It is a great way for our vendor members to contribute to the educational portion of the event while promoting their products.


TURFACE
ATHLETICS


Sports Field
Managers Association

VENDOR SUPPORT

The vendor members of our organization are the glue that holds everything together. We have a group of talented business people who really respect the industry and are a huge help in promoting the SFMANJ. This group provides the financial backing that makes it possible to hold our field days free of charge for SFMANJ members. I mentioned this earlier as a tease but holding a free event is a great way to give back to the membership. It also allows municipal and school employees, who make up the bulk of our membership, an easier way to get to the event by not having to try and find someone in their business office to go through the process of producing a purchase order for payment. In the past many of our members had complained about how difficult it was to get to our field days because of the paperwork involved. We listened and thanks to our loyal vendor members, more people are able to attend. There are many ways that a vendor can support our field day. We offer a variety of packages that can include having their literature placed in the attendee packet, a tabletop booth to display information and products, a field demonstration with equipment and sponsoring breakfast or lunch. These options allow the vendor to participate as little or as much as they want in our event. We hope that our field days provide a good return on their investment in us.

FOOD

It always amazes me how much joy people get out of having food provided at an event, although it shouldn't be a surprise. The late Dr. Henry Indyk, founding father of our association, made the point that breakfast is the most important meal of the day. Henry made sure that there was food available at SFMANJ events because he reasoned that it made people feel better and think clearer. I completely agree. We offer coffee, doughnuts and sometimes bagels to get our events started. It is also an opportunity to mix and mingle with our vendors that have set up tabletop booths around the area that is serving the food. It gives the vendors direct access to the attendees and keeps everyone in the same area until the educational sessions begin.

While I am a breakfast man, lunch at a SFMANJ field day steals the show and not for an obvious reason like gourmet-type food. The food is great but there is one man that really makes it a special meal. Don Savard, CSFM, and a past president of SFMANJ, puts together a lunch that keeps everyone happy. Don is an extremely modest guy but through his dedication and mobile catering equipment we feed everyone at a very affordable price (i.e., the cost of ingredients). Everyone is given two of Don's "dirty water dogs" with sauerkraut or homemade chili, a bag of chips and a beverage. It is as simple as it gets but most everyone loves this lunch. Don is the maestro in the kitchen but our Board of Directors serves the lunch to the members. It is our way to thank the members for their support and puts a personal touch on the event. In the past we had purchased boxed lunches from various deli operations but nothing comes close to Don's "dirty water dogs."

TIDBITS

There are other things that don't seem important but we have found make a big difference in our events. We have found that if you schedule a field day at the same time every year, it makes it easier for the membership to plan to make it to your event. The people that attend our events are very busy people with changing sports schedules but if they have the information about an event early enough, it makes it easier for them to make plans to attend. The other thing is the structure of an event. We have made a timetable for our field days that stays the same every year and all we have to do is plug in the new speakers or vendors. It saves time and makes the planning portion of the event easier.

The SFMANJ Board of Directors and Executive Secretary Debbie Savard have put a lot of time and energy developing the formula for our field days. It has taken some time to work out the details through trial and error but ultimately it has been very rewarding putting on a quality event for our members.

The STMA has great chapters all over the country. Try and get to a chapter field day near you and see for yourself what they have to offer. ST

Rich Watson retired this past November from the Deptford Township SD in New Jersey. He can be reached at wats100@msn.com.

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LANDSCAPE TURF BATTLE: NATURAL VS. SYNTHETIC

BY **DAVID ROUNTREE**

With Mother Nature in his corner, not to mention a cheering section composed of nine out of 10 Americans, according to a recent Harris Poll, you'd think Tobey Wagner would be content to ignore any limited gains in market share enjoyed by the US synthetic turf industry.

You'd be wrong about that: The owner and president of Sod Solutions (and STMA Commercial Member) is anything but sanguine about artificial grass, which Wagner clearly sees as a pox on humankind. "I can't think of a more harmful thing that we could do to our environment than using synthetics," he says. "The only reason synthetic turf is used at all is just a lack of education about the reality of it."

Based in Mount Pleasant, SC Sod Solutions is a developer and marketer of turf grasses. Its founder talks about synthetic grass like someone who competes against it and Wagner markets natural turf with the same competitive urgency.

For Victor Lanfranco, co-owner of the nation's largest distributor of artificial turf, Synthetic Grass Warehouse (SGW) in Anaheim, CA competing effectively means doing a sufficient job of explaining how much better artificial grass is today than it was 25 years ago. "The engineering, the technology, has come a long, long way, especially in the last decade," he says. "It's now a widely accepted product for the landscape," not just athletic fields.

SGW is 100% focused on the distribution of artificial turf, most of it from TigerTurf, which is owned by TenCate subsidiary TenCate Grass of Union City, GA and the remainder from Dallas-based Everlast Turf. SGW does offer a few accessory products such as chemical treatments for areas used by pets.

Lanfranco says SGW has achieved revenue increases of 15-20% a year for the past decade. "The drought (in California) may take us to 30% this year," he says, insistent that the growth of the industry as a whole is obvious, notwithstanding the scarcity of publicly traded artificial turf companies, which would be required to make key financial information public. And to be fair, the same limitation applies to the natural turf industry.

▲ **Tobey Wagner,** Sod Solutions

"One of the things the healthiest cities in this country have in common is an abundance of natural landscaping," he says. "Are we going to go the route of plastic shrubs, plastic trees?"

— Tobey Wagner

"Keeping up with demand is a challenge," Lanfranco says, not for SGW alone but for all companies that make and sell synthetic turf.

In separate telephone interviews, Wagner and Lanfranco talked about their own businesses as well as the other's. The subject was deliberately limited to landscaping for commercial, residential and governmental customers; in other words, athletic fields, a huge but different kind of business in many respects, were purposely excluded.

Wagner, after graduating from Auburn University with a degree in mechanical engineering, worked his way into the turf industry, eventually starting Sod Solutions about 21 years ago. "Lots of people in the business see us as a marketing company," he says, "but we have horticulturalists and others in that area working with us every day. We're very involved in (the) development" of grasses.

Sod Solutions' clients include turf-growing operations nationwide, with which it forms affiliation agreements. Wagner's company also has a sizable marketing arm that offers tools such as website design and management, helping to ensure turf growers are connected with buyers, he says.

"This is a business that requires knowing the people in our indus-

try and knowing their work," says Wagner. He believes the marketing deliverables provided by his company are anything but a sideline; on the contrary, he sees business-to-business marketing as one of Sod Solutions' highest value-adds for its customers.

Wagner states flatly that he believes the synthetic turf "has peaked" and he's confident Americans will continue to want natural grass in their landscapes. He may be wrong about any topping out of the artificial grass market, but he's almost certainly right about the country's attachment to its lawns: In a May 2015 Harris Poll sponsored by the National Association of Landscape Professionals (NALP), the trade association reported that nine out of 10 people surveyed said they would "prefer to live in a home surrounded by trees, grass and other living plants." Respondents also gave high marks to natural green spaces on corporate campuses and government sites.

Like NALP's membership, both Wagner and Lanfranco are aware the use of natural turf is an issue on which the Environmental Protection Agency (EPA) has chimed in years ago, in fact, through its voluntary WaterSense program. And in California and some other areas of the desert Southwest, no one disputes that water conservation is imperative. How could they? The 4-year-old drought there gives every indication of stretching into five.

Several people interviewed in the San Diego area during the last 2 days of July came around in different ways to saying Californians are simultaneously hopeful and apprehensive about the prospect of an El Niño late this year or early in 2016; hopeful it will bring rain aplenty and especially mountain snow this winter, apprehensive about mudslides, flooding or lightning-ignited fires.

For Wagner, the case for natural grass is a slam dunk, yet he makes it as if he's standing on the floor of the US Senate: "One of the things the healthiest cities in this country have in common is an abundance of natural landscaping," he says. "Are we going to go the route of plastic shrubs, plastic trees?"

Lanfranco, to be sure, is equally prepared to make the case for synthetic turf in landscapes. And as you'd expect, his arguments alternate between water conservation and reduced maintenance costs.

But make no mistake: He's also a salesman who believes in his product. Today, Lanfranco says, the quality and reliability of synthetic grass, coupled with the remarkable improvements in the aesthetics of the best products, have reached a level at which "it just makes sense," whether in commercial and residential applications or on school playgrounds, roadway medians and other government sites.

Lanfranco readily acknowledges that the artificial turf market

▲ **Victor Lanfranco,** Synthetic Grass Warehouse

in the United States is concentrated in the West. "California is ground zero for synthetic grass," he says, "followed by Arizona and Texas, then Nevada and Colorado. Those states account for 80 % of sales" (again, in the landscaping part of the business).

And while he's all too aware of the competition from the natural turf industry, the success of his own has produced plenty of competition for SGW among distributors of artificial grass. When he started SGW 11 years ago, he says, "We were the only major distributor of synthetic grass in California. There are probably 40 today. You can buy it at Costco, Lowe's, Home Depot, and of course that's bringing even more acceptance."

Lanfranco is candid about his industry's dependence on the performance of installers, which are landscaping companies it doesn't own. SGW's marketing division offers workshops on proper installation. "Right now," Lanfranco says, "we sell to about 3,500 installers nationwide. That's an extremely important relationship. We bring in landscapers and show them how to install synthetic grass and how to market it."

The two industries' indictments of each other's products are long, detailed and not pretty. You can read them at their respective trade associations' websites: the Synthetic Turf Council and Turfgrass Producers International.

Lanfranco and Wagner can cite chapter and verse on that front. Among other charges, the natural turf industry points to the creation of "heat islands" wherever synthetic grass is applied and the necessity of using large quantities of water in an effort to cool it down. The artificial turf industry says natural grass uses an unsustainable amount of water, which isn't getting any less expensive, and is bad for the environment because of the chemicals used to fertilize it and kill pests and diseases.

"You can have a beautiful green lawn without watering it," Lanfranco says. "We're proud of how much water has been saved."

Nonsense, Wagner says, "although it's true that people tend to use too much water on their lawns. We've seen research that says 50 to 80% of the water that's put on grass isn't needed. It isn't just wasteful; it's bad for the grass."

With the exception of its use as a substitute for natural turf in areas of extreme drought, a practice he believes will do more harm than good in the long run, and "maybe in some Northern states where the temperatures are bitter cold," Wagner maintains that artificial grass has no place in American landscapes.

"I think the only reason synthetic turf is used at all is just a lack of education about the reality of it," he says. "Can you imagine the heat in a place like Los Angeles as natural grass is pulled back? Besides, they could achieve 25% water savings simply by switching to warm-season grasses."

The artificial turf industry has a very effective lobby, Wagner says, "and they've spent millions to project themselves and their product as normal. It isn't normal, but it is hugely profitable."

For his part, Lanfranco isn't concerned about the market for synthetic turf hitting a peak. He's worried about filling orders. And even without verifiable data to prove it, there's little doubt the demand for artificial grass is high and rising. ST

David Rountree is the editor of Total Landscape Care *magazine, Tuscaloosa, AL. Many thanks to him for letting us reprint this article.*

John Mascaro's Photo Quiz

John Mascaro is President of Turf-Tec International

Can you identify this sports turf problem?

Problem: Soil mound on top of turf
Turfgrass area: High school stadium football field
Location: Windsor, Virginia
Grass Variety: Riviera bermudagrass overseeded with perennial ryegrass

Answer to John Mascaro's Photo Quiz on Page 29

Background illustration courtesy of istockphoto.com

MOLECULAR AND BIOCHEMICAL PATHWAYS OF FOLIAR IRON IN SPORTS TURF

BY **JEFF HAAG**

Most of us, or perhaps all of us as sports turf managers, have been using foliar iron on our natural grass sports fields for many years. We use foliar iron products either by itself, or, as a combination product with other important micronutrients. We use it as a means to help "mask" off the bronzing effects of plant growth regulators and herbicides, as well as an aid to improve turf color. We sometimes use granular fertilizers that contain iron as well, but for the most part, we rely on foliar iron products because granular iron sources are of minimal use because they get "tied-up" in the soil, especially if the soil pH is on the alkaline side, waterlogged, or poorly aerated. Excessive phosphorous in clay soils will drastically limit iron uptake from the soil as well, which is a common occurrence because phosphorous easily becomes immobile. As a sports turf manager, and former golf course superintendent over the past 26 years I have used many different foliar products from various iron sources and various chelating sources, either by itself, or in combination with other micronutrients.

BENEFITS OF IRON

Iron plays a crucial role in metabolic processes, as it is a metal cofactor of many enzymes that carry out oxidation-reduction reactions involving photosynthetic electron transport, nitrate reduction and assimilation, turf metabolism, and chlorophyll biosyn-

thesis. The green-up connection with iron is fairly direct in that iron is required for the synthesis of chlorophyll. While iron is not a component of the chlorophyll molecule, it is required as a cofactor in three reactions leading to chlorophyll synthesis. There is also ongoing research that iron may have some fungicidal properties in helping protect turf from disease pathogens; however, this research is still relatively new and is too early to make any conclusions as of yet.

MEANS OF ENTRY

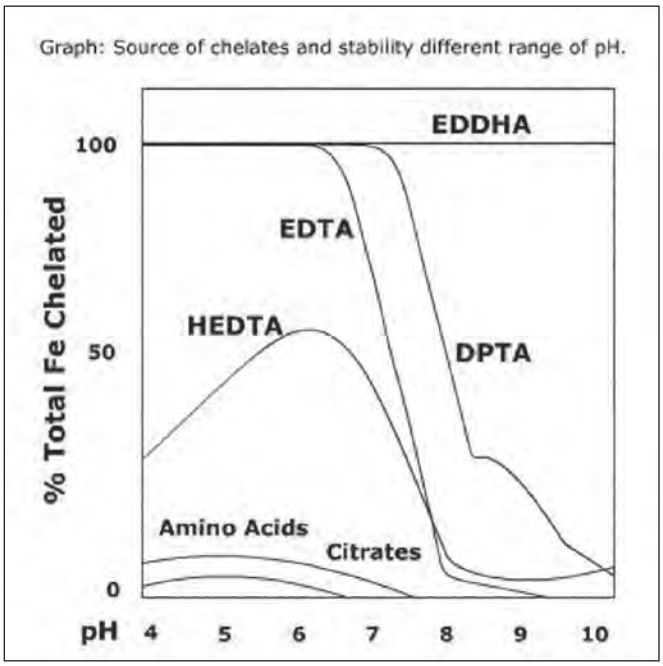
The most commonly available iron foliar sources are ferrous sulfate, mono- or hepta-hydrate ($FeSO_4H_20$) ferric sulfate $Fe_2(SO_4)_4H_20$, and iron chelate (NaFeEDTA, NaFeHEDTA, or NaFeDTPA. To be effective, these foliar iron sources have to enter the turf through the stomata, cuticular layer, or through aqueous pores.

Stomata. The upper (adaxial) and lower (abdaxial) surface of turf leaves consists of numerous stomata, an opening for gaseous exchange (CO2 and O2) between the internal and external atmosphere of leaf blades. The stomatal density is usually higher on the lower surface while a few may be present on the upper turf leaf surface. One problem with stomatal openings as a means of entry is that they are often more closed than they are open.

Transcuticular pores. Turf cuticles are lipid-rich protective layers mainly composed of a biopolymer matrix of cutin, waxes, and some amount of polysaccharides and phenolics. Transcuticular pores have a diameter of less than a billionth of a meter, but are abundant. The molecules of the foliar iron have to be small enough to pass through these very small pores, and they have to be neutral or negatively charged to get through the electro-chemical gradients of the turf leaf and to translocate within the leaf tissue and throughout the leaf plant.

Aqueous pores. Aqueous pores are the openings localized in cuticular ledges, preferentially at the basal cells of guard cells. These pores arise due to hydration of permanent dipoles and functional ionic groups. As the name suggests, aqueous pores are formed only in the presence of water, and are dynamic in nature. Since the atomic radius of ionized iron is 0.126 nm (nanometers) it is very likely that they can penetrate easily through the aqueous pores and reach the epidermal cell walls of the turf leaf.

Biochemical pathway. Once iron enters into the turf leaf and is absorbed, the iron diffuses across the cell wall against a concentration gradient and reaches the apoplast. The ion relation in apoplast varies temporally as a result of changes in metabolic activity caused by day/night transition. Immediately after onset of light, the process of photosynthesis leads to an increase in apoplastic pH (alkalization) as protons are removed from the cytoplasm and apoplast. The change in apoplastic pH



Name	Formula	Abbreviation
N-2 (-hydroxyethyl)ethylenediaminetriacetic acid	C10 H18N2O7	HEDTA
Ethylenediaminetetraacetic Acid	C10H16O8N2	EDTA
Diethylenetriaminepentaacetic Acid	C14H23O10N3	DTPA
Ethlyenediaminedi-o-hydroxyphenlyacetic Acid	C18H20O6N2	EDDHA
Citric Acid	C6H8O7	CIT

also results due to external factors such as drought, flooding, or other stress factors. It is therefore, expected that the rate of diffusion of iron into apoplast would be determined by the pH, and accordingly the application of iron compounds should be planned.

IRON SOURCES

There are three common sources of iron typically used in foliar iron products: Ferrous sulfate, Iron Glucoheptonate where the anion is absorbed and recognized by the turf plant as a key sugar for transport of nutrients, and Iron Citrate which is absorbed and recognized by the turf plant a key component for ATP generation in the Krebs Cycle.

CHELATING AGENTS

In order for a compound to be called a true chelating agent, it must have certain chemical characteristics. The chelating compound must consist of at least two sites capable of donating electrons to the metal it chelates. For true chelation to occur, the donating atom(s) must also be in a position within the chelating molecule so that a formation of a ring with the metal ion can occur.

There are five categories of compounds that are commonly used for foliar applications of iron: synthetic chelates, ligno sulfonates, humic or fulvic acids, organic acids, and protein (amino acids).

Synthetic chelating agents. The most common form is EDTA. One popular form is iron EDDHA. Although some debate the effectiveness of synthetic chelating agents for foliar application, it is known that in a nutrient solution, it is essential to have an excess of total mineral in relation to chelating agent so that the chelating agent does not compete for the mineral with the turf plant.

Advantages: EDTA chelates are very stable and can be mixed with just about any phosphate containing fertilizer at basically any pH. Disadvantages: EDTA is a synthetic compound, not produced by the turf plant.

Ligno sulfonates. Considered to be a water soluble, non-toxic polymer. Polymer usually means the molecule is quite large. Advantage: low cost. Disadvantages: the main disadvantage for foliar application is the size of the molecule.

Humic or fulvic acids. In foliar applications, fulvic acids may not play a direct role in availability and movement of iron in the turf plant; however, they do act as turf plant stimulants and possibly precursors to plant hormones. One of humic acid's known benefits is that it helps the turf plant use applied nutrients more efficiently. Advantages: cost effective. When they are "small enough" to effectively move into the turf plant, they can supply a beneficial source of precursors to important turf plant chemicals. Disadvantages: In foliar applications humic has a definite disadvantage of being too large in size. In trace mineral mixtures humic molecules tend to settle out in the container, largely due to their molecular size and of their poor suspension of these complex colloids in water at lower pH.

Organic acids. These compounds are one of two groups of compounds that are essential for the transportation and solubility of divalent elements (two positive charges: Zn++, Mn++, Fe++, Cu++) in turf plants. The organic acids can be called "anionic organic acids" because of the negative charge. One such popular acid used in foliar iron products is citric acid. In foliar sports turf applications, these anionic (negatively charged) organic acids play an important role in converting cationic (positively charged) minerals such as iron into nonionic (neutral) compounds for increased leaf penetration and movement into the turf plant. Advantages: organic acids are one of the natural systems a turf plant uses to solubilize and translocate minerals such as iron. By neutralizing the charge of minerals, organic acids make mineral uptake more effective. Disadvantages: Commercially produced individual organic acids are quite expensive compared to some other chelating and complexing agents. Compared to synthetic chelating agents and some amino acid chelating compounds, organic acid chelates form weaker bonds with minerals, especially at increasing pH levels.

Protein (amino acids). Amino acids are natural compounds that the turf plant produces to solublize and translocate minerals such as iron. Turf plants manufacture these compounds to make minerals biologically available in the cell. As with organic acids, amino acid compounds also play a role in mineral uptake into plant tissue because of the increase permeability effect of the amino acid on the cuticle. Another important function of amino acid chelated iron and other minerals is that they are less phytotoxic to the turf plant, especially during stress points in turf plant development. One example of amino acid chelation is by the use of polyamines in chelation. Polyamines are less than l nanometer in size and carry a neutral charge and derived from natural plant extracts consisting of nineteen L-amino acid molecules. One advantage of polyamines, when compared to EDTA, sulfates, citrates, and other synthetic chelates is the turf plant can immediately use the organic acids to maintain charge balance, for an energy source, and for a source of carbon skeletons.

Amino acid advantages: Amino acids are one of the natural systems the turf plant uses to translocate and use minerals. By neutralizing the charge of minerals, amino acids make mineral uptake more effective. Disadvantages: Enzymatically hydrolyzed protein is expensive to produce. The actual combination of properly prepared amino acid/peptide compounds and minerals is not 100% complete with simple tank mix procedures. ST

Jeff Haag is Sports Turf Manager at Nova Southeastern University in Davie, FL

John Mascaro's Photo Quiz

Answers from page 25

John Mascaro is President of Turf-Tec International

This soil mound on top of the turf has an interesting story. This high school in eastern Virginia had an enormous amount of rain after the remnants of Hurricane Joaquin came through, 8 inches to be exact. After the clouds cleared the grounds crew went about the regular maintenance procedures and while preparing to mow the stadium football field, the grounds crew saw at least 10 of these piles of sand. After further inspection, they turned out to be towering "hills" or "chimneys" on top of crawfish burrows. According to locals, when this area of the state (only 2.5 miles from Lake Prince, which eventually flows into Chesapeake Bay) gets this much rain, the crawfish move from their normal areas like ditches and retention ponds in the vicinity into the slightly higher and drier elevation of the football stadium. As it turns out, the little critters like their burrows to be dry at the top, but filled with water at the bottom. These burrows can extend up to 3 feet deep or more. When the flood waters retreat, the crawfish go back to their normal marshy areas and after the crew made sure they were gone, they continued to maintain the field as usual knocking down the hills and adding seed to make sure the spots grew back. No crawfish were harmed during the maintenance of the field; good thing it was not in Louisiana or they would be having jambalaya!

Photo submitted by Billy Pipp, regional grounds manager for GCA Services. George Iams is grounds manager, GCA Services at Isle of Wight County Schools in Windsor, VA.

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.

THE *SPORTSTURF* INTERVIEW: STEVE WIGHTMAN

Editor's note: *This month in "The* SportsTurf *Interview," we feature Steve Wightman, former head groundskeeper for the San Diego Chargers and Denver Broncos, and a Past President of the Sports Turf Managers Association.*

SPORTSTURF: You were president of STMA some 30 years ago. What are the most significant changes you have seen in the association over that time?

Wightman: There have been so many changes over the past 30 years within STMA. The association certainly has had a rich history of positive growth from its infancy in the late 1970's to today.

However, I think the most significant change has been the leadership of the association. All of the dedicated sports turf managers who volunteered their time to organize and run the association in the early years really need to be commended. Without their dedicated efforts and the support of the commercial members, STMA would not have survived.

As with most organizations starting out, the leadership is made up of professionals first and volunteers second. STMA was no different … sports turf managers first and association volunteers second. I think everyone in our association would agree that our profession is a 24/7 job that requires a tremendous number of hours and we're always "on call." It is difficult to run the day-to-day operations of a national association when one's time is so very limited.

Because of a small membership and limited resources, both in time commitments and finances, STMA grew very slowly in the early years. The important thing is that it did grow, due, in large part, because the leadership at the time covered all of their own expenses (airfares, hotels, meals, etc.).

STMA struggled financially until we hired a management company to run the daily operations of the association. Trusty and Associates helped take STMA to the next level of professionalism by helping to increase both commercial and sports turf membership which improved our financial status, as well.

▲ Steve Wightman

There have been many changes in sports turf management over the past 30-40 years, for sure. However, I think the most significant change that I have seen in managing sports turf has been in the academic world. Colleges and universities now have degreed sports turf programs. And, most of those colleges and universities have applicable ongoing research focused specifically on sports turf.

Within about 10 years, being in a financial position to hire its own employee, STMA contracted with Kim Heck to serve as the association's CEO running the day-to-day operations. This

was a monumental move within STMA. It was the first time in the history of STMA that the association hired its own full-time employee to run the association. I remember it being a very nervous time for the Board, not fully confident whether or not the association could afford this bold move. As it turned out, it was the best thing for STMA.

With Kim's leadership, the leadership of the many sports turf managers that have volunteered for Board and committee service along the way and the support of the many commercial members, STMA has now grown into a financially sound professional association with a very active Board of Directors and numerous committees all promoting the education and professionalism of STMA … something that all of the old timers envisioned in the beginning.

SPORTSTURF: What are the most important changes you've seen in sports turf management over those 30 years?

Wightman: Wow! Looking back to 1973 when I joined the sports turf industry, it's amazing to me to see all of the changes that have come along.

We used to use gasoline and a match to dry out the pitcher's mound and wet infield areas before a game (certainly not OSHA approved)! Now we have drying compounds and calcined clay.

We used to over-seed everything and hope and wait for the turf to establish. Now we sod areas the morning of a football game without the fear of sod movement.

We used to use heavy mill tarps with large portable heaters that were positioned underneath to heat the field surface in the winter. Now we have sub-surface heating systems that keep the rootzone at the proper temperature preventing frozen fields in cold weather climates and extending warm-season turfgrass growth in other climates.

There were no domed stadiums and most stadiums were combination baseball/football. Now there are many domes and fewer multi-sport venues.

Every field was natural grass constructed with whatever soil was there on site. Consequently, nearly all fields were worn out halfway through the season. Now, most all fields are engineered with specified rootzone mixes that promote optimum drainage and turfgrass growth. Also, many fields today are 3rd and 4th generation synthetic surfaces that support numerous types of field events in open-air stadiums and inside domed stadiums.

There have been many changes in sports turf management over the past 30-40 years, for sure. However, I think the most significant change that I have seen in managing sports turf has been in the academic world. Colleges and universities now have degreed sports turf programs. And, most of those colleges and universities have applicable ongoing research focused specifically on sports turf.

Along with increased formal educational opportunities in sports turf management at the college level, I, also, feel that the computer age has opened up a whole new world for the sports turf manager in educating one's self with easily available information. Anyone can now go online and find information on virtually any subject matter with just the click of a button.

There were no computers when I first got into this business. That's hard to imagine! It's scary thinking about that because now I feel much older than when I started answering these questions!

SPORTSTURF: If you watch old footage from NFL Films what memories are stirred up when you see some of the turf situations from "back in the day"?

Wightman: Seeing old footage of football games 20-30 years ago does bring back memories of how we used to manage fields back then. There was very little information available to a field manager in the "old days." It was pretty much up to the field manager to figure it out himself.

There were no scientifically engineered rootzones and many fields did not have tarps because they did not have the manpower to move them. Consequently, the field managers were left to battle the elements with very little help in terms of manpower and equipment. As a result, the fields became quagmires during rain and snow events making it hard to recognize which team was which by the end of the first quarter.

However, there were many innovative and enormously talented field managers who did figure out how to effectively manage fields in the early years. They made many of the tools necessary to do their job better. They educated themselves in the scientific aspects of turfgrass growth. They became meteorologists, climatologists, soil scientists, agronomists and engineers. They succeeded because they wanted to be the best at what they did and created the means with which to accomplish it. They were our industry's pioneers, for sure.

Many of those shared information with others in the industry and the industry began to grow and field conditions began to improve. And, because of these pioneers and their willingness to share their experiences and information, STMA was born.

Those that were influential in helping me at the beginning of my career included the founding fathers of STMA: Harry Gill, George Toma, Dick Ericson and Dr. William Daniels. There were others that were very influential, as well, including Dr. Jackie Butler, Dr. James Watson, and Dr. Kent Kurtz, among others.

"Back in the day," field conditions were every bit as important as they are today. Seeing old footage only reminds me of how far we have come as an industry in managing sports fields. We have so much more information available to us today.

Sports today have become a much larger business than it was in the old days. Professional and collegiate sports are now a multi-billion dollar business. Field expectations are greater today. Resources available to the field manager today are greater and the industry, as a whole, is stronger.

I see a bright future of continued grow and prosperity for the sports turf industry.

Continued on page 43

TENNIS COURTS AND SYNTHETIC TURF: IS THE GRASS ALWAYS GREENER?

BY **MARY HELEN SPRECHER**

When it comes to grass tennis courts, synthetic turf has a hard act to follow. Purists who follow play at Wimbledon, for example, love the fast game that natural grass provides, the fact that the surface stays cooler than many others, and the fact that there isn't any glare, even on the brightest day. It is, they believe, the way the game of tennis was meant to be played.

Looking beyond all the things the tennis idealists value, however, grass tennis courts have the same limitations as other natural athletic fields, including the need for daily care and regular maintenance, and the requirement that they be allowed to rest between periods of heavy use. Like natural fields, a heavy rain can put grass courts out of action temporarily, since trying to rush them back into use results in a muddy surface that can be dangerous to the athlete and damaging to the grass.

It would seem, then, that artificial turf would be a runaway favorite as a surface in the US. But we don't hear as much about the use of artificial turf in tennis installations as we do in field sports, such as soccer, football, field hockey, lacrosse and more. Why is that?

Depends, say those in the industry. Synthetic turf certainly has several practical points in its favor.

"One of the primary advantages of synthetic turf is the softer, more forgiving nature of the surface but with lower maintenance than expected on most soft courts," says David Marsden of Boston Tennis Court Construction Company, Inc. in Hanover, MA.

In some systems, the turf is manufactured with a cushioned backing, or it is installed over a cushion mat to provide greater player comfort. (The use of such cushioning will affect the final price, as will the quality of the system and the fill).

The good things about synthetic turf in tennis courts are similar to the good things in fields, says Rob Werner of Sportsline, Inc. in Bryn Mawr, PA. "The fibers will be softer and the infill will be better."

ADVANTAGE: SYNTHETIC TURF

In addition, synthetic turf is excellent for installations that are difficult in other circumstances.

"Synthetic turf courts are a good solution for rooftop installations," notes Rick Burke of NGI Sports, Div. of River City Athletics, LLC, in Chattanooga, TN." They can be installed without heavy equipment, and materials are easily transferred to the roof deck.

They are loose-laid so construction joints are easily tended to. Because the finished weight is between three and five pounds, there is sufficient ballast so the courts do not lift. Also in situations where there is moisture, the courts are not affected by hydrostatic pressure or damage from moisture release from the pavement."

One of the charms of infilled turf systems for tennis courts is that they can be laid over existing asphalt or concrete pavements, allowing for reconstruction of badly weathered or cracked courts. It is essential to note, however, that a turf court is only as good as the pavement it is laid on; therefore, a cracked pavement must be leveled to insure planarity. If it is not, the turf will wear unevenly and the cracking will be visible as uneven areas in the playing surface. Once that type of wear becomes apparent, the surface must be completely replaced; resurfacing is not a possibility.

"The newer arena we now consider in the national turf marketplace is the municipal, cracked hard court market. Some of these entities, like boroughs, swim clubs and townships may not have the funding to repair hard courts. They now do consider synthetic turf for these areas for tennis and soccer surfaces for youth," adds Rob Werner. "Also, with the USTA 30- and 60-foot format, synthetic turf will be a great market to retrofit smaller kids' areas, and to provide portable, rollout turfs as a solution for parking lot areas. It's easy to install and to use for other sports, including golf."

FINE-TUNING FOR PLAY

According to Burke, a synthetic turf tennis court surface provides an enjoyable experience, and can be adjusted to provide the type of play the owner wants it to have.

"Generally, most players enjoy the comfort of play," he states. "The surface provides great shock attenuation. Most of the shock from impact is not returned to the body. Because the surface is loose granules, there is great foot release without footlock. There are three basic options for playability: First, a tight nap, short pile with the infill below the tip of the fiber for a quick grass court type play. Second, a more open pile with sand just below the tip of the fiber for a medium-paced play. Third, a shorter pile with a colored infill over the top of the fibers for a clay court slide and slow play."

But according to the book, *Tennis Courts: A Construction and Maintenance Manual*, adjustments have to take place on the part of the athlete as well:

Players sometimes complain that the infilled turf surface is so unique that it requires a considerable adjustment to their game. Also, unless the surface is well-groomed, any imbalance of fill will result in irregular ball bounce and non-uniform traction.

As with turf facilities used for other sports, there are multiple advantages, including the ability to permanently line the

facility for play, and not needing mowing or weeding. There are also the disadvantages including the warmer playing surface, the need to keep the turf clean of impurities, and the higher cost to repair damages caused by improper use, vandalism, etc. And while NFL players have been surveyed regarding their preferences of natural vs. synthetic fields, tennis players have never been given such a poll, so player opinion data isn't available.

MAINTENANCE: THE COMMON DENOMINATOR

No question about it: an artificial turf surface (when built well) will drain beautifully and have a deep, green color without the wear at the baseline and in other spots common to natural grass courts. But like its natural counterpart, it's not going to stay in peak form without work on the part of the owner.

Preseason maintenance will include looking for standing water (a sign of non-functioning drains) that can result in slick areas, and ascertaining that playing lines are still bright and visible.

Regular maintenance includes brushing to make sure infill is distributed consistently over the court surface, and to keep the turf fibers standing up. Periodic watering will assist in compacting the fill uniformly. Club courts should be brushed every week to maintain optimal playing quality.

Regularly remove debris including leaves, pine needles and more by using a leaf rake and shovel, a leaf collector or a blower. Courts may need to be checked for torn or loose seams, repaired as necessary, and to have algaecide and/or fungicide applied as necessary.

After a heavy downpour, check the surface for bubbles that may develop, indicating that water has managed to get under the carpet. A builder can advise you on the best course of action in such a case.

The book advises,

To prevent maintenance problems, require players to clean their shoes before entering the court. No food or drink, except water, should be allowed on the court surface. Any spill should be cleaned immediately with plain water or a diluted cleaner and rinsed thoroughly. Absolutely no smoking should be permitted in the court area. Burnt areas on the carpet are unsightly. For superficial burns, the carpet pile can be carefully clipped below the blackened or melted tips. For larger burns, the area may need to be replaced and patched. Contact the contractor for assistance.

The book's Annual Maintenance Planner notes that owners should plan to resurface these courts every 12-20 years.

Like all other tennis courts, a turf tennis court should drain in one true plain. In order of preference, it should drain from side to side, end to end, or corner to corner. Like asphalt, concrete and grass courts, its finished slope should be between .83% (1:120) to 1% (1:100).

The first mistake an owner can make, say builders, is assuming that an artificial turf tennis court will produce the same game as a grass court. The second is that it requires no maintenance. Neither is true. Artificial turf produces its own unique game, and accordingly, it takes a unique upkeep regimen.

"Depending on the region, always look for moss and algae growth," says Rick Burke. "Courts should be groomed with a drag mat regularly. I recommend that the courts be opened in the spring by a qualified contractor to prepare them for the season. We have a detailed maintenance manual for the owner."

Some builders outside the US say that artificial turf tennis courts are more popular in Europe than in the United States. Lacking a demographic study, however, that's a difficult claim to verify. What we do know is that most of the natural grass courts in the US are either privately owned, or are in clubs. Artificial turf can be used in both these settings as well. However, because of the higher initial installation cost than a standard hard court, and because of the inability to repair extensive damage without total replacement, it is not recommended as a tennis surface in installations that will not be supervised, or which might be subject to vandalism.

As with all sports surfaces, owners are advised to work with a professional partner who has experience with tennis courts. There isn't one right answer, only the right answer for a given installation, and the grass is always greener on your side of the fence if you feel you've made the right decision.

"We replicated the look of Wimbledon on a synthetic court for a private residence for an owner who wanted tennis and other sport usage," says Werner. "It has turf in that same 'mowing pattern' two-tone green surface. We like to say we brought Wimbledon here to the states without the dirt-like play Wimbledon has."

"Regardless of its use, there are basic advantages and disadvantages to both artificial and natural turf," says Norris Legue of Synthetic Surfaces, Inc. of Scotch Plains, NJ. "We think that natural grass is preferred when there is little or no heavy foot traffic, when maintenance costs are low, when there is plenty of water for irrigation, and when run-off of fertilizers and/or pesticides are not a problem. Conversely, artificial turf has the advantages of being able to withstand heavy traffic, to require less maintenance, and to not need mowing, water, fertilizers or pesticides. Beauty is always in the eyes of the beholder when choosing natural versus artificial turf." ST

The American Sports Builders Association (ASBA) is a non-profit association helping designers, builders, owners, operators and users understand quality sports facility construction. The ASBA sponsors informative meetings and publishes newsletters, books and technical construction guidelines for athletic facilities including tennis courts and sports fields. It also offers voluntary certification programs in sports facility construction and maintenance. Available at no charge is a listing of all publications offered by the Association, as well as the ASBA's Membership Directory. Info: 866-501-ASBA (2722) or www.sportsbuilders.org

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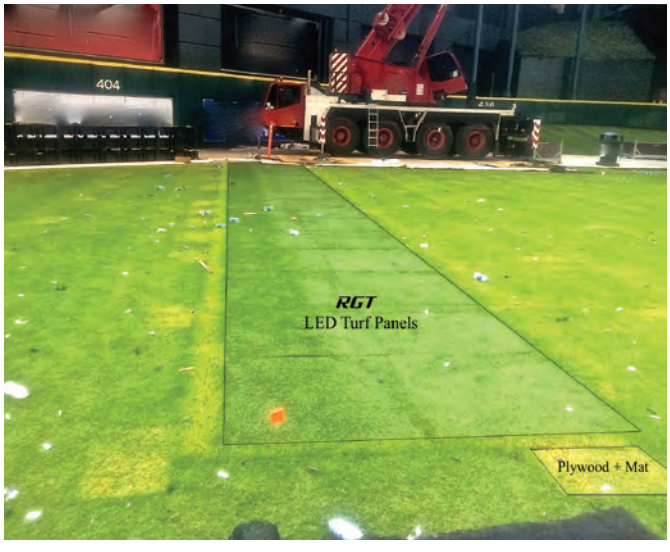
Using light energy to protect covered turf

Having your turf covered for a concert or other special event is stressful for even the most experienced turf manager. A new protection system that the manufacturer says reduces or even prevents turf deterioration is now available and has been used successfully.

When grass is covered for periods greater than 2-3 days, physiological and morphological responses to reduced irradiance begin to manifest themselves in turf grass as follows: 1) shoot etiolation characterized by reduced pigment, 2) decreased evapotranspiration, 3) reduction of nonstructural carbohydrates, 4) reduced tillering and shoot density, 5) longer internodes with reduced stem diameter, 6) increased leaf length and decreased leaf width, 7) thinner leaves, and 8) decreased root growth. With all these processes happening at once or in close succession, the plant is weakened and there is little hope for a healthy turf after an event.

RGT has developed the new tool, LED Turf Panel, to combat these stresses. The panels provide Photosynthetically Active Radiation (PAR) via light emitting diodes to the grass during the event and also serve to spread the load from traffic to the grass. Providing light energy to the plant while it is covered helps to maintain its health and integrity and, thus, improves the playability and safety of the turf surface after an event.

The manufacturer says the system is easy to set up and teardown with a small crew and waist high T-wrench. Power is provided to each panel through an intergraded plug that is tucked away during installation. When panels are linked together they create a non-slip, temporary floor free of trip hazards and provide a uniform surface for building stages, walkways, and vehicle roadways. Panels may be pre-assembled on pallets in one, two or four panel sections and moved on small carts for fast installation. Panels may also provide illuminated walkways and VIP and refreshment areas that may be linked to show production lighting controls.



Here are some comments from users:

"The LED panels were great. We tried them on the outsides of our playing field for a series of concerts that included two Kevin Hart shows and a One Direction concert. The panels sat underneath the delay towers that were built 8 days before their getting off the field. I spoke with John Royce [RGT president] and decided to give them a try. The set up was not difficult, and similar to any other flooring system. When we pulled the flooring after being down for 8 days, the grass was still green. It was a little off color compared to the rest of the field but after a few days you would have never known we had the grass covered for that long of time. I would recommend the LED panels. Our situation was a bit extreme for the amount of days covered and we were still ok."--Tony Leonard, Director of Grounds, Philadelphia Eagles

"Our Taylor Swift concert trial was actually our third trial of these LED panels; we also used them on a trial basis in late fall of 2014 for a smaller concert and over the winter. We were highly encouraged by the results we saw in the fall of 2014, so we were ready to give them a full test under the stage towers for the Taylor Swift show here in Houston (during baseball season) September 9, 2015.

"We installed the LED panels under the towers at approximately 3 AM Monday as they were being built, and the panels were lit at that time to the purple color, which is a combination of the red and blue colors that are used by the plant for photosynthesis. The panels stayed on the turf continuously through noon Thursday, so a total of 81 hours give or take for the order they were installed and removed.

"We had panels under four different areas of the stage, and all four ended up with different treatment levels of light due to real-world electrical challenges, including breakers tripping, cords being damaged, stage crews unplugging cords, and concert production crews moving cords.

"We saw turf benefits under all the panels, but especially the panels that ran for 81 hours straight. That picture has been shared quite a bit, I believe.

"I was also encouraged by the fact that the grass did not regress after it was uncovered. Often times in turf management, we are able to create a false sense of a beautiful stand of turf using growth covers or other protective covers, only to find later the grass regresses as it re-adjusts to the harsher outdoor environment from the protected growth environment we created. We did not see any negative effects or regression in the days or weeks after we uncovered the LED-treated turf.

"Installing the panels is very similar to installing any other drivable floor product with the notable exceptions of having to connect the power cords between each panel and having to plan out the power circuits for the floor well in advance.

"Overall, the results were exactly what we hoped for; our grass under the LED panels was in better condition coming out of the concert than it was going in. Anyone who has had a large stage with towers on their field for more than a couple days can attest that normally the grass under the towers is the most damaged and yellowed, and takes the longest to recover from the concert. Our turf under the Taylor Swift towers was green, vibrant, strong, and TV-ready as we pulled off the LED panels.

"I remain excited about the future with LED grow lights for use in stadium turf management, and we expect to use these LED panels more going forward here in Houston."—Dan Bergstrom, Senior Director Major League Operations, Houston Astros ST

New indoor flooring option available

More than 6 years since the flood of 2008 destroyed the University of Iowa's Voxman Music Building, the Hawkeye Marching Band is finally enjoying the benefits of a new indoor practice facility. This new $15 million facility features a full-scale artificial turf practice field that additionally provides much-needed indoor athletic facilities for the University's intramural and club sports, as well as some athletic department teams.

Iowa's intense weather produces temperatures swings that range from below zero in the winter months to above 90 degrees during the summer. As a result, designers and builders need reliable, durable insulation strategies that perform well in both extremes. During the project development phase, the design-build team recognized that a key consideration for the University would be how to mitigate long-term heating and cooling costs for a building roughly the size of a football field for the life of the facility. For a space that size, a PEX (crosslinked polyethylene) in-floor radiant heating provided a lot of advantages over forced-air.

"Because this was a design-build project, there was a lot of opportunity to provide value analysis-based solutions during the preconstruction phase," remarked Jim Seelman of MBA Incorporated (MBA), the subcontractor responsible for the indoor turf scope of work under Russell. MBA was familiar with a variety of architectural grade expanded polystyrene (EPS) insulation products that would support the radiant heating system. Since the design called for some 80,000 square feet of under-slab insulation, Seelman recommended ACH Foam Technologies' Foam-Control Plus+ as an ideal solution.

In part, Seelman's recommendation centered on the product's favorable cost compared to XPS alternatives. Seelman estimates that selecting Foam-Control Plus+ saved the project more than $100,000 in material costs alone over the original specified product.

In addition, the selected product had to meet the University's performance criteria. Compressive strength was one key consideration since the design called for a 6-inch layer of rock aggregate on top of the insulation, followed by the artificial turf. Placing the aggregate on top of the insulation required large trucks to drive onto the already placed foam to dump the material, which was then finished in place. Other factors were the superior R-value of Foam Control Plus+; the ease with which the radiant heating piping could be laid into the insulation; and the product's 50-year warranty. Seelman remarked that one of the advantages of ACH's product was how well it works with the PEX tubing fasteners that hold the product in place. It is also the first EPS insulation on the market to come in uniform pre-scored pieces, increasing the ease and flexibility of installation.

"This product is extremely easy to install," continued Seelman. "We actually hired the local high school football team to help with the installation, and the kids were able to use the work as a team fundraising project." Under MBA's guidance, all 80,000 square feet of under-slab foam insulation were installed in a single 12-hour night's work, tallying roughly 250 man-hours of labor. "There were about 20 players from the team and those boys worked so hard, we actually were pressed to keep the materials coming to them fast enough. They laid out the foam, taped the joints, and kept the overall grid really straight. They also ate about $300 of pizza, but it was a great experience for all of us."

The evenness of the product was also crucial. Since the insulation was being installed below grade, any inconsistencies in level could contribute to an uneven foundation. MBA used an Apache Dual Plane Laser System, tractor-mounted grading box to ensure a highly precise finish grade that remained flush within a quarter of an inch to support the aggregate and turf layers. Seelman also touted Foam Control Plus+'s uniformity, calling it "the most square" foam product on the market.

Though the design-build methodology is tried and true for builders and clients across the county, for the University of Iowa it was an unfamiliar process. That meant increased attention paid to every design and construction decision, including material selection and procurement. According to Seelman, the University wanted all long-lead items accounted for well before they were actually needed on site.

"When we made the switch from the original specified product to Foam Control Plus+, the University wanted actual photographic proof that we would have the required volume of materials on hand and ready for installation," noted Seelman. "When you are talking about pre-purchasing 80,000 square feet of foam insulation, it's not the kind of thing that can be brought to a congested construction site and simply stored until it's ready to be installed."

Working with Seelman and the local product distributor, Whitecap, ACH Foam Technologies processed the material order and then stored the foam until the foundation was ready. Knowing that many contractors find themselves in similar situations, ACH Foam Technologies often works with distributors to warehouse purchased materials and transports them to construction sites for a just-in-time delivery. ST

PRODUCTS

NEW K-VERTIBLE UV FROM KUBOTA

Kubota Tractor has introduced the new RTV-X1140, featuring an innovative Kubota K-Vertible cargo conversion system, transforming the vehicle with minimal effort and time from two passengers and a large cargo bed to four passengers and a cargo bed. Kubota is the top-selling diesel utility vehicle in North America, 10 years running, according to Power Products Marketing. The new five-point ROPS design increases RTV-X1140's workhorse characteristics allowing for more cargo volume and side loading. The RTV-X1140 also comes standard with hydraulic dump bed with 19.1 cubic feet/9.9 cubic feet capacity, two-seat and four-seat configuration, respectively. The RTV-X1140 delivers a powerful 24.8 horsepower Kubota liquid-cooled diesel engine, work-proven for dependable performance even in the harshest terrains. With convenient tilt steering and simple inline shifting, the RTV-X1140 has a Variable Hydraulic Transmission that offers wide torque band and large oil cooler that boost performance and durability.

Kubota

NEW SPORTSWEAR ACTION CAMERA

U-HWK announces the launch of its first product, the U-HWK Show, a sportswear action camera that allows athletes to capture in game, point of view footage. Unlike other cameras, which are bulky and obtrusive, the U-HWK Show is customized to fit seamlessly with the athlete's equipment across more than eight different sports including basketball, baseball, CrossFit, football, hockey, lacrosse, running, and tennis. The U-HWK Show is inspired by the training models followed by fighter jet pilots, giving athletes the ability to re-evaluate their in-game decision making in order to provide new solutions for performance and preparation. The product has a patented mounting system that is lightweight and flexible with no profile, allowing the camera to absorb impact in physical conditions and remain flush with the helmet. The camera is simple to install, curved to fit on a variety of equipment, and easily removable to charge and/or download video via USB.

U-HWK

2016 GATOR XUV 825I SPECIAL EDITION

John Deere is offering a new XUV 825i Special Edition Gator with two integrated cargo toolboxes, plus LED roof lights for added visibility. The two cargo boxes are situated on the driver and passenger side of the 50 hp., 812 cc vehicle. The driver's side box opens from the top and has two divided compartments with a removable tray. The passenger side box opens from the side and features one open compartment. Both toolboxes boast 75 lb. capacity. The special edition Gator also features two integrated LED roof lights designed for customers who are out early in the morning or late at night. The new LED lights use one-quarter the amps of equivalent halogen work lights and last 250 times longer.

John Deere

UNDERHILL INTRODUCES QUICK COUPLER KIT FOR SYNTHETIC COOLING AND CLEANING

The Mirage QCV, a new quick coupler kit that includes key components, is now available from Underhill International. The kit is designed to provide easy access to water in order to cool and clean synthetic turf fields and to hose down surrounding areas, such as perimeters and bleachers. The kit includes: a sprinkler box in a choice of in stainless steel or 100% recycled HDPE material; 1" quick coupler; and 1" schedule 40 PVC swing joint. QCV sprinkler boxes install below grade on the field perimeter for safety and are designed to withstand abuse from maintenance equipment and vehicles. Tight lid tolerances increase safety for players and spectators. Kit accessories are also available and feature: QCV key and hose swivel; ¾" or 1" industrial-strength hoses in various lengths; and high-powered hose-end nozzles.

Underhill International

FLORATINE PRODUCTS GROUP OFFERING NEW SPORTS TURF SOLUTION

Floratine Products Group is partnering with Growing Innovations, LLC, to develop new products and services specifically for the sports turf industry. This collaboration combines Floratine's product development and manufacturing capabilities with Growing Innovations' expertise in grass maintenance to bring clients and distributors new and improved sports turf management programs. Initial successes include the Ana-Lync Soil Analysis System for sports turf, which combines the standard acid extraction test with a water extraction/nutrient availability test, and Fight's On, a recently launched soil-based product for improved cellular strength and stress and wear tolerance. Growing Innovations principal Jerad Minnick will also be providing consulting and technical support to Floratine as a component of the partnership.

Floratine

HONDA POWER EQUIPMENT INTRODUCES VERSATTACH MULTI-PURPOSE SYSTEM

The Honda VersAttach multi-purpose system features two powerhead options and six different attachments, combining the power and reliability of Honda 4-stroke engines with a robust lineup of tools. Each model can be paired with an optional interchangeable edger, line trimmer, blower, hedge trimmer, pruner and cultivator that fit quickly and securely into the attachment shaft by way of Honda's SureLoc joint locking system. This two-position joint mechanism operates with a click and a twist, no tools required. The VersAttach UMC425 powerhead features the best-in-class Honda ultra-lightweight GX25 Mini 4-Stroke engine, and the VersAttach UMC435 model offers the Honda ultra-lightweight GX35 Mini 4-Stroke engine. The innovative design of the Honda Mini 4-Stroke engine provides for full, 360-degree operation, allowing the VersAttach to be used and stored upright, sideways or even upside down.

Honda

KUBOTA INTRODUCES COMMERCIAL MOWERS

Kubota Tractor has introduced three new commercial walk-behind gas-powered mowers as well as the all-new ZD Series zero-turn diesel-powered mowers featuring Kubota's latest patented innovation, an Aerodynamic Cutting System (ACS), which provides for more efficient use of power resulting in better fuel efficiency and faster cutting performance. The walk-behinds are available in three deck widths and each model is powered by a Kawasaki V-twin gasoline engine with outputs ranging from 14 to 19 horsepower. The WG14-36 features a five-speed gear-drive transmission with reverse assist, and the WH15-48 and WHF19-52 use proven Hydro-Gear variable displacement pumps with Parker wheel motors. All three mowers feature fabricated welded steel decks and are equipped with a powerful 125 ft.-lb. electric clutch, maintenance-free spindles, and easy-to-use controls. The WG14-36 utilizes a traditional pistol-grip control, while the larger WH15-48 and WHF19-52 models utilize a twin lever hydro control similar to those found on zero-turn mowers, enhancing ease of use and improving maneuverability in tight spaces.

Kubota

CHAMPIONSHIP FIELD,
Pleasant View Sports Complex, Boulder, CO

Category of Submission: Sporting Grounds
Sports Turf Manager: John Cogdill (currently); original entry was made by former sports turf manager Dan McGhee
Title: City turf/Irrigation and sports field manager
Education: Bachelor of Arts, CLIA
Experience: 29 years of City Park and Sports Field development, softball, soccer, multi-purpose installation, renovation

Original construction: 1993
Rootzone: 80% sand, 20% organic
Turfgrass variety: A mixture of RPR bluegrass and RPR ryegrass
Overseed: Broadcast seeding, slit seeding and spot seeding
Drainage: Underground full herringbone design with 8" mainline tied with flexible 4" coiled plastic

WHY STMA SHOULD CONSIDER YOUR FIELD A WINNER?

This field is consistently featured as the premier and championship field at the complex. This field is consistently rated significantly higher than other area complexes and fields in the area. In addition, no herbicides are used on the field allowing all users to play without personal risk to known or unknown allergies. The field is managed to produce quality grass with high wear resistance, the lack of pesticides being used and consistent overseeding and fertilization practices provides for a field where there are absolutely no weeds present. Also, root depth of 12-18" is common, on this field, which provides adequate foot traction and enhanced resistance to wear.

All worn areas are enhanced weekly with additional seed, topdressing and aeration in order to promote safe fields that reduce player injuries.

An irrigation audit is performed in early spring in order to better provide appropriate water delivery and promote water conservation.

There is a weather station on site that provides updated information about the site in order to appropriately schedule Irrigation programs.

The field is soil tested three times a year to ensure appropriate, yet not excessive, nutrient delivery.

The field is consistently checked via a Clegg tool to insure safety compliance, both before and after major tournaments.

Additional field value is achieved and surfaces are impressive considering the financial resource limits, location, level of play on the field, quality and conformance to ASTM standards, as well as location. The venue speaks volumes as it relates to users experiencing a holistic play experience that can be enjoyed by the entire user group with the backdrop setting of the Rocky Mountains, featuring the Boulder Flatirons.

SportsTurf: What channels of communication do you use to reach coaches, administrators and users of your facility?

Cogdill: We use different channels of communication including online and print media. We currently maintain two social media platforms (Twitter with 5,000 followers and Facebook with 1,000 followers). We also distribute our eBlast, an external listserv mainly consisting of more than 30,000 subscribers who are en rolled in our recreational programs, and contribute to partner leagues' listservs (including frequent user groups). Pleasant View has also been featured in national turf and sports management magazines and our quarterly recreation guide that is published each season and sent to approximately 50,000 Boulder households. Finally, and most importantly, we value close

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

working relationships with our user groups and spend a lot of face time.

ST: Any tips on communicating well?

Cogdill: We are very engaged with our contractors including program, camp and tournament managers. One tip that has proven as successful is to spend face-time with our contractors and user groups. For example, we have a standard for facilitating one-on-one walkthroughs before athletic tournaments and programs. The walkthroughs have proven as important to learn more about our user groups' needs and to share information about department and city resources. For example, we use walk-through time to address last minute questions and to alert our contractors of facility highlights, our amenities, and to emphasize our commitment to community health. We comply with the city's Integrated Pest Management (IPM) policy and sustainable practices and our fields have been maintained without the use of pesticides and herbicides for nearly 15 years and are free of products that can cause allergic reactions. We also promote our water conservation efforts. Additionally, we communicate frequently with the Boulder Convention & Visitor Bureau to support visitor engagement in Boulder.

Finally, we use our social media network to post satellite weather updates and field conditions to keep our user groups in the loop. Our department's social media team also strategizes monthly outreach that is timely and educational. Visually engaging content including dynamic photographs capturing family and community activities are very popular.

ST: What are your specific job responsibilities? What do find most enjoyable? What task is your least favorite and why?

Cogdill: My field maintenance responsibilities include mowing, fertilizing, coordinating soil samples, Clegg testing, seeding, irrigation, trash removal, and the lining of fields. I'm also involved in public relations, education, and outreach activities to help promote our great amenities and the city's Integrated Pest Management (IPM) standards and sustainable practices. This includes exploring current field maintenance industry trends and innovative tools like our satellite monitoring app that we recently adopted into our daily irrigation maintenance routine.

Our District Services and programming team coordinates all of our contracts, payments, schedules, walk-throughs and provides most communications.

The most enjoyable aspect of the job is a happy customer, regardless of age and background, and watching our community enjoy the benefits of our high-quality fields and physical activity. We care for our user groups and have built strong relations with them. It is wonderful to see inclusive community pride unfold on our fields. It's all about empowering our local youth and engaging our future generations through the fun of play!

Cleaning up trash and recycling potentially hazardous materials can be challenging at times. However, we are committed to provide a clean and safe environment to our user groups.

ST: How do you see the your job changing in the future?

Cogdill: I think that there will be continued emphasis on field attenuation, field safety, and academic development with a greater focus on overall player health and organic pest control in compliance with our city's IPM standards. I will also be more involved in sustaining Boulder's tree resilience efforts in response to the Emerald Ash Borer (EAB) infestation. We will diversify our urban canopy and plant trees in areas surrounding public parks and fields in 2016 and years to come.

ST: What changes are you planning to make to your maintenance plan for 2016, if any?

Cogdill: I'm planning a greater emphasis on deep time core aeration and topdressing, with a greater focus on field drainage. We will also increase our biodiversity efforts for the fields' soil tilt.

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

Cogdill: Ross Kurcab, former Denver Bronco turf manager, once said to me: "Just broadcast your seed in your heavy use and wear areas and let the players' foot traffic provide the rest."

Ross was our consultant and helped us with our turf management plan. We wanted to improve our turf to prevent concussions and to enhance overall play safety standards. We were fortunate to have Ross on board. Our department appreciates working with local, experienced experts and Ross offered invaluable advice regarding our turf maintenance's efforts.

ST: How do you balance your work and personal time?

Cogdill: I am very busy during growing and scheduled play season. However, when not at Pleasant View you can find me with my family exploring the Park Canyon and Washakie Wilderness area in Wyoming. I'm a big outdoor enthusiast and love to hike and fish.

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

Cogdill: As mentioned, sustainable practices are at the core of the city's and our department's facility maintenance efforts. Our turf has been pesticide and herbicide free for nearly 15 years and is free of products that can cause allergic reactions. The facility is also equipped with a field drainage system that can accommodate many sports and play activities, even during inclement weather.

We also maintain large native borders around the field complex to encourage native plant growth. Our sand-based irrigation system plays a major role in our natural lands preservation and water conservation efforts. The fields' drain system captures extra water and redirects it to the fields' native borders and nearby Four Mile Creek enhancing its riparian and wildlife habitat areas.

Other sustainable practices include recycling of our clippings, reuse of paint buckets for snow removal (approx. 600-800 gallons per year for field lines), and turning of fields and goals every spring and fall season to align with local wind and weather systems to improve overall quality of play. ST

Continued from page 31

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

Wightman: The biggest obstacles, or challenges, of the sports field managers that I've talked to is the number of events being held on game fields. With the advent of new multi-billion dollar stadiums that promote the ultimate sporting experience for the fans, the owners are constantly looking for additional revenues to help pay for it.

The sports turf manager has to figure out ways to minimize field damage from numerous other sporting and non-sporting events that take place.

The successful field managers will require a comprehensive understanding of the science and the art of field management. This would include both, natural grass and synthetic surfaces. In that same vain, another obstacle, or challenge, facing the sports field manager today is the ability to communicate with all of the various stakeholders of the stadium or facility. All stakeholders have their own goals and objectives that will make them successful.

Whether it is the team, the city, the county or whomever, understanding that communication and compromise is a big part of our job. And, our ability to communicate our concerns and challenges to the stakeholders is as important as proper field management. Success comes to those who can come to a compromise that yields the least detrimental effect to the field.

SPORTSTURF: What wisdom can you share with younger turf managers about being successful in the profession?

Wightman: To answer that question, I looked back to when I first became a sports field manager, in 1973. Not knowing many people in the industry and not having much experience managing a sports field, the first thing I did was contact the head groundskeepers, as we were called back then, at the various stadiums that had both baseball and football asking for information they could share with me on field management. I was pleasantly surprised that everyone I spoke with was willing to share their experiences and help guide me toward academic information that could further enhance my knowledge of turfgrass management.

So, for those new young turf managers seeking more information on sports field management, don't be afraid to pick up the phone or send an email to the sports turf managers at major facilities. I'm certain they can and will share their experiences and information with you. It will help you be more successful.

Also, young sports turf managers need to get involved in the STMA. I was reading through a landscape magazine in 1976 and came across an article about sports turf managers getting together to form an association where it would be easier to share information. I called the number and became a part of that organization.

I can say that I would not have had such a wonderful career in sports turf management had I not made that call. Being a member of what would later become STMA has given me the tools, information and friendships that help shape my 39-year career in sports turf management.

Of course, it also helps to get a degree in Sports Field Management where the technical and scientific knowledge of turfgrass management and soil science is paramount for your success, especially, in today's world.

And finally, STMA offers a certification program for Sports Field Managers. Become certified. It will validate your professionalism in the industry and help make you even more successful.

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

Wightman: Within the next 10 years I think the profession of sports field management will grow into an even more scientific approach to the management of sports turf.

At the professional sports level, having a formal education and experience will be a requirement for the sports field manager. Because of the complexities of field construction, all of which help promote a safer surface, the field manager will be required to manipulate field systems and management practices that ensure the optimum playing conditions in all types of weather and multiple-event schedules.

In addition, I see the industry continuing to expand and develop various types of multi-use fields, as well as, portable fields that can be moved in and out of stadiums (as in Arizona).

Research on natural grass will continue to improve its ability to withstand greater usage. Rootzone construction, subsurface drainage, field heating and cooling systems, innovations in lighting, fertilizers, pest management and equipment will all continue to improve.

Synthetic surfaces will, also, continue to improve. They have come to be because they provide for greater weather and multiple event field usage than many natural grass surfaces exposed to the same or similar usage. I think synthetic field research will continue to improve on the playability and environment issues and will continue to be a part of our industry.

SPORTSTURF: How are you keeping busy now?

Wightman: Well, I've been retired now for nearly 3 years and have not had one moment where I became bored (something I was worried about).

Most of my time is now spent playing golf and babysitting my 3-year old grandson one day a week. He is teaching me many great things like, how to get what he wants from grandpa with just a smile or an all-out crying fit (both seem to work). He has also taught me the art of feeling bad about doing something wrong without saying a word. He just simply drops his head down.

I'm also staying involved with STMA, which has given me so much over my career. I'm currently volunteering on a couple of committees and serving on the board of the SAFE Foundation. ST

Attend the STMA Conference for FREE

The STMA has a special promotion for its 2016 conference. Join the association now and receive a FREE Conference Registration, a $375 value, to be used within 3 years. The only restriction is that you must be a new member of STMA, which is defined as not having been a member since 2000. The student, retired and affiliate categories also are not eligible for this benefit.

Take advantage of this special offer now and enjoy all of the benefits of attending the 2016 National Conference and Exhibition, January 19-22, 2016 in San Diego.

If you are a current or previous member and not eligible for this promotion, you can still attend conference virtually for free. Refer a new member to STMA, and receive $100 toward conference, your annual membership dues or certification fees. Refer two people, receive $200…etc. If you refer four people, your conference is paid for! Just remind those whom you refer to list your name in the referral box on the printed and electronic membership applications.

STMA's Eligible Membership Categories & Costs

Sports Turf Manager, $110
If you are primarily responsible for managing or maintaining a sports field(s)

Sports Turf Manager Associate, $75
If you are primarily responsible for managing or maintaining a sports field(s) AND your organization already has an STMA Sports Turf Manager member employed. This Associate has the same benefits and privileges as the Sports Turf Manager; dues are lower because of multiple members

Academic, $95
If you are in teaching, extension or research

Commercial, $295
If you work for a company engaged in a commercial enterprise providing services and/or products to the sports turf profession (consultants, architects, designers, contractors, management companies, distributors and manufacturers, etc.)

Commercial Associate, $75
If you are the 2nd person (or more) from a Commercial company. All commercial associates **must first have** an STMA Commercial member at their company before this lower dues category can be selected ST

STMA introduces a customized Conference app

STMA's new Conference app, sponsored by Barenbrug, Graff's Turf, John Deere and World Class, is now available at the Apple Store; just search "2016 STMA Show." This customized app streamlines everything there is to know and do before, during and after the Annual Conference and Exhibition. The association's 27th Annual Conference and Exhibition will be January 19-22, 2016 in San Diego at the San Diego Convention Center.

You can easily build your schedule by date/time/location, session tracks, and speakers. The reminder feature will notify you of the sessions you want to attend. The app also has interactive maps to help you easily find your events and locate exhibitors on the trade show floor.

While at the Conference you can use the quick app messaging system to communicate to friends and colleagues; no need to go outside the app to stay connected. The app lists all of the Conference participants, too. There is a feature that helps you build your expense reports in real time so you don't have to remember what you did or go through notes and receipts when you return home. Rating speakers and sessions will be quick and easy through its survey and polling options.

Join your peers in using this free app now! ST

Ft. Wayne TinCaps' Parkview Field

STMA announces its MiLB Sports Turf Manager of the Year winners

STMA and Minor League Baseball (MiLB) announced the winners of the Sports Turf Manager of the Year program, a program they have co-partnered on since 2000.

THE WINNERS ARE:
Short Season or Rookie: Spokane Indians, Sports Turf Manager **David Yearout**

Class A: Ft. Wayne Tincaps, Sports Turf Manager **Keith Winter**

Class AA: Springfield Cardinals, Sports Turf Manager **Brock Phipps**

Class AAA: Syracuse Chiefs, Sports Turf Manager **John Stewart**

At the conclusion of the season, each of the 16 MiLB leagues vote on the top sports turf manager from their league. The league winners are invited to enter the Sports Turf Manager of the Year program, sponsored by STMA and MiLB. The applicants submit their cultural practices, staffing, events, game day routine and equipment utilization, plus photos documenting events on the field. In addition, letters from the teams' general manager and league presidents are included in the submittals.

Members of the STMA Awards Committee independently score each entry, and the results are compiled by the STMA Headquarters. Awards are presented to the winners in each classification during an awards luncheon, held in Nashville on December 7, during the Baseball Winter Meetings. Winners are also recognized during the STMA Awards Banquet on January 22, which will be in San Diego at the conclusion of its 27th Annual Conference and Exhibition. ST

Northwest/Pioneer League All-Star Game at Spokane's Avista Stadium

SAFE FIELDS FOR ALL

that's the root of our mission

7 MILLION
SPORTS AND RECREATION–RELATED INJURIES OCCUR IN THE U.S. EACH YEAR

62% of injuries happen during practice

50% IN KIDS UNDER THE AGE OF 15

AS AN STMA MEMBER, SAFE IS YOUR CHARITABLE FOUNDATION. We work to enrich communities by championing safe, sustainable fields for all athletes – providing research, educational programs and scholarships to help meet the industry's need for more qualified sports turf managers.

SO FAR, WE'VE GIVEN OVER

$225,000

in scholarships & travel reimbursement to 120+ students

96% of SAFE scholarship recipient graduates work full time in sports turf management

TOGETHER, WE CAN DO SO MUCH MORE.

OUR GOAL: $1 MILLION OVER THE NEXT 5 YEARS FOR NEW PROGRAMS AND RESEARCH

80% of the 2,600 STMA members from 33 chapters around the country have never donated

We rely on individual donations for **60%** of our total funding

PLEASE DONATE TODAY

SAFE
The Foundation for Safer Athletic Fields for Everyone

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WWW.SAFEFIELDS.ORG

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

STMA recognizes its Commercial members who missed the STMA Directory

The following companies missed being included in the 2015-2016 STMA Membership Directory and Sourcebook, which was published in July. STMA thanks them for their membership and encourages you to support all of its commercial partners. New and renewing commercial members include:

- A-G Sod Farms, Joel Addink, Riverside, CA
- The Andersons, Inc., Tasha Hussain Black, Maumee, OH
- Australian Sports Turf Consultants (ASTC), Matt Roche, Brisbane, QLD, Australia
- Avant Tecno USA, Craig Gustafson, Arlington Heights, IL
- Cygnet Turf & Equipment, Douglas Hess, Bowling Green, OH
- Ecologel Solutions, Inc., Richard Irwin, Ocala, FL
- Gill Athletics, Darren Clare, Champaign, IL
- Growth Products, Nicole Campbell, White Plains, NY
- Jacobsen, A Textron Company, Glenn King, Charlotte, NC
- Knox Fertilizer Company, Jim Hague, Westfield, IN
- Liberty Tire Recycling, Amy Brackin, Pittsburgh, PA
- Magnation Corp., Mike Jenzeh, Oakland, CA
- Premier Sports Fields, LLC, Bob Benyo, Remington. VA
- Rainout, LLC, Mike Baker, Las Vegas, NV
- S & J Farms, Wallace Skipper, Aynor, SC
- Sportsfield Engineering, Laur Olvera, Warrenville, IL
- Spyker Spreaders, Greg Mayfield, Jerffersonville, IN 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.

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1 What is your company's primary business? (*check **ONLY ONE***)

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

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

A ❑ EXECUTIVE/ADMINISTRATOR — President, Owner, Partner, Director, General Manager, Chairman of the Board, Purchasing Agent, Athletic Director
B ❑ MANAGER/SUPERINTENDENT — Superintendent, Landscape/Ground Maintenance Manager, Foreman, Supervisor
C ❑ GOVERNMENT OFFICIAL — Government Commissioner, Agent, Other Government Official
D ❑ SPECIALIST — Architect, Designer, Consultant, Agronomist, Horticulturist, Certified Specialist
F ❑ COACH
E ❑ Other (please specify)_____

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

4 Yearly operating expenditures (excluding salaries)

F ❑ Over $1 million C ❑ $50,001 - $100,000
E ❑ $500,001 - $1 million B ❑ $25,001 - $50,000
D ❑ $100,001 - $500,000 A ❑ $25,000 and under

5 Please also send a free subscription to the following people at the same location

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Name _____Title_____

DECEMBER 2015

SportsTurf Magazine ADVERTISERS' INDEX

Q&A with Pamela Sherratt

Questions? Send them to 202 Kottman Hall, 2001 Coffey Road, Columbus, OH 43210 or sherratt.1@osu.edu
Or, send them to Grady Miller at North Carolina State University, Box 7620, Raleigh, NC 27695-7620, or email grady_miller@ncsu.edu

Gray leaf spot woes—have a plan for 2016

This fall I was asked to visit a university with a large soccer complex in southeast area Ohio. There has been a history of gray leaf spot (caused by the pathogen *Pyricularia oryzea*) in that area for many years with no sign of it letting up. The fields are unfortunately located at the bottom of a hill, in a bowl, and so hot and humid conditions prevail. The purpose of the visit was to come up with a plan for 2016, to prevent the utter destruction of fields observed in August 2015.

Gray leaf spot is a serious disease of perennial ryegrass, with outbreaks typically occurring in the late summer and early fall. The assumption is that the spores are carried north by the jet stream each year during hurricane season. This theory is being tested by Ohio State pathologists Francesca Hand and Joe Rimelspach, who have set spore traps to see if they are indeed carried by the wind, whether they survive the winter, and if the spore traps might be a viable way to predict an infection. Gray leaf spot epidemiology has shown that the optimal temperature for infection is between 82-90°F, especially when leaf tissue is wet for prolonged periods of time. Leaf wetness/continuous leaf moisture parameters required for infection at 68-75°F is 36 hours, and at 82-90°F is 9 hours. New seedlings are also more at risk from infection than mature turf.

Since gray leaf spot on cool-season turf was confirmed a decade ago, it has become one of the most important turfgrass diseases. This unforgiving disease kills the plant from severe leaf blight and can destroy an entire athletic field in days. So while initial leaf-spot symptoms appear not too bad, the disease quickly progresses to look like drought, then dead turf. In later stages of disease development, the sward may take on a gray color as a result of the mass production of conidia by the pathogen. Water drop-shaped conidia can be found on leaves infected by gray leaf spot and this feature is a key to accurate diagnosis of the disease. Once environmental conditions are favorable for gray leaf spot to occur, turfgrass should be scouted regularly, and appropriate and immediate actions should be implemented. This is critical for gray leaf spot because a rapid outbreak can occur in a very short period of time.

There are many ways to both *prevent* and *control* gray leaf spot disease. First and foremost, if the disease is causing utter destruction to perennial ryegrass fields each year it's a good idea to think about switching to Kentucky bluegrass, either through an aggressive overseeding program or by complete renovation with seed or sod. Even if perennial ryegrass continues to be used as an overseeding tool during the playing season, a sound base/foundation of Kentucky bluegrass should be established whenever possible. Any perennial ryegrass used for overseeding should have genetic resistance to gray leaf spot. A list of those cultivars can be garnished from the National Turfgrass Evaluation Program website (NTEP.org) or Extension materials produced by University turfgrass breeding programs. If a prepackaged GLS-resistant blend of ryegrasses is being used, make sure ALL varieties are resistant and not just a couple.

The second best defense against gray leaf spot is to grow healthy turf. Healthy turf is accomplished by growing it in free-draining & fertile soils, by mowing at the correct height and by applying fertilizer and irrigation judiciously. Over-applying water and fertilizer can result in lush, weak plants susceptible to the disease. Growing healthy turf also means limiting any kind of practices that cause plant stress during the hot summer period, like scalping, scarifying/verti-cutting and herbicide/PGR applications. Since gray leaf spot infection is so reliant on leaf moisture, it's also a good idea to adopt practices that minimize leaf wetness, such as well-timed irrigation (avoid prolonged, over-night leaf wetness), dew removal by mowers or drag brushes, and cautious use of rain tarps. Rain tarps in particular provide the perfect growth chamber for gray leaf spot.

Fields that have a history of gray leaf spot, or are covered with rain tarps frequently during periods of high disease pressure, should be protected with preventative applications of fungicides. Applications of fungicide should begin before the onset of disease and continue every 1 to 3 weeks as needed when the muggy weather prevails. The extent of disease pressure will greatly influence fungicide performance. If gray leaf spot outbreaks are in an advanced state by the time fungicide sprays are initiated, it is likely that levels of control will be unacceptable. Since fungicide-resistant strains of the pathogen have been identified it's critical that a fungicide program is put together that addresses resistance and maximizes efficacy. This includes: (1) minimizing consecutive applications of fungicides having a similar mode of action, especially during the period of highest disease pressure; (2) tank-mixing products with different modes of action during periods of high pressure; and (3) switching from strobilurin fungicides and thiophanate methyl to other products during periods of low disease pressure. Current fungicide efficacy ratings for grey leaf spot control can be found online via Dr. Paul Vincelli at the University of Kentucky.

In summary, the best defense against gray leaf spot is to switch to Kentucky bluegrass and/or use GLS resistant ryegrasses. A sound cultural program coupled with cautious use of tarps, fertilizer and irrigation should be implemented, and finally a budget and plan in place for a fungicide program leading up to, and during the period of highest disease pressure. ST

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