

IN THIS ISSUE: What you missed at STMA Conference in Fort Worth
THE OFFICIAL PUBLICATION OF THE **SPORTS TURF MANAGERS ASSOCIATION**

MARCH 2018

SportsTurf

SPORTS FIELD AND FACILITIES MANAGEMENT / www.sportsturfonline.com

*"Has to be seen
to be believed"*

Parkview Field, Fort Wayne, IN



See
pg 38

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- » Frazee mowing update
- » New herbicides for 2018
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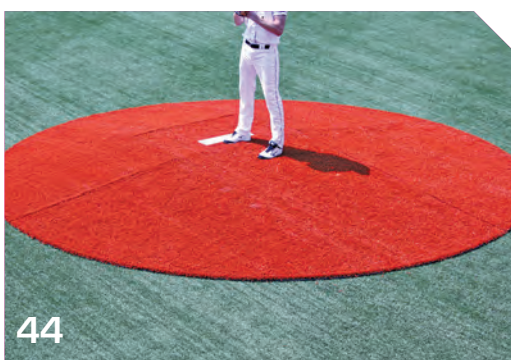
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ON THE COVER

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On the cover: Keith Winter, head groundskeeper for the 2017 Pro Baseball winning field in Fort Wayne, says, "One thing remains constant no matter who is on the field, and that is we DO NOT cut corners. Each day, each week, each month, each season, we maintain a work ethic and pride in our field that, as one visiting manager said, "Has to be seen to be believed."

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NEW

FROM THE SIDELINES

Why aren't you an STMA member?



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

\$130. THAT'S THE ANNUAL COST of membership in the national STMA organization; it's even less if someone else in your organization is already a member (\$85), or if you're a student (\$30), athletic director, coach – someone not directly responsible for managing or maintaining a sports field (\$60).

\$130 is not nothing of course but let's compare that to what you might spend on something else of value to you, say a solid, middle-of-the-line deer rifle, scope and sling; that's probably \$800. Or a new driver in your golf bag, \$500. How about a more-than-respectable separate rod and reel at Bass Pro, \$200?

Ask your employer if they will pay; a few clicks through the STMA website or the pages of this magazine might be enough to convince them it's worth it to your facility or organization.

There's a long list of member benefits and it starts with:

- Networking – join the ultimate group of peers willing to share their best practices.
- Continuing education – content that is timely, relevant and cost effective to help you do your job better. These educational resources are created in a variety of formats including educational bulletins, podcasts, webinars, videos, DVDs and in-person conference presentations. You'll learn from leading academics, practitioners and commercial innovators.
- Easily accessible information – quickly find resources to help you save time, e.g., access to Michigan State's Turfgrass Information File, the green industry's greatest resource for up-to-date technical information, which would cost you \$100 to access on your own.

Other reasons to join:

- Job security – taking advantage of STMA's programs and services is proactively enhancing your value to your employer.
- Career success – the knowledge, skills and abilities you gain by accessing all the available education and information prepares you to take the next step; the STMA offers more than just agronomic advice!
- Recognition of your professionalism – tired of others thinking you just cut grass and paint hashmarks? STMA has tools that can help you get the recognition you deserve, and their advocacy efforts are shedding more positive light on the industry every day. And don't forget about STMA's two certification programs: Certified Sports Field Manager and Environmental Facility Certification. Both programs demonstrate a commitment to excellence that should mean a lot to front offices, coaches, volunteers, and communities.

Among other membership benefits: access to a members' only online section that has a real-time membership directory and hundreds of technical educational resources that are specific to sports turf management; significant savings on registration to STMA's annual and regional conferences, and discounts to other organizations' education; this magazine (\$40 value); monthly electronic newsletter from STMA HQ with association and industry information; weekly e-newsletter from me with industry news; ability to apply for student scholarships and grants; and the opportunity to participate in volunteer leadership positions.

I urge you to give membership a shot and take advantage of the benefits; you'll never spend a smarter \$130 on your future. **/ST/**

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PRESIDENT'S MESSAGE

What is leadership?



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

I'VE BEEN THINKING quite a bit about leadership in the past couple of months. What does it take to be a good leader? Can leadership be learned or is it something you just do?

What I've come to believe is that the best leaders don't consciously lead. They do what is best for the majority without having to spend a lot of time thinking about what that is. It is servant leadership, which I define as a person who places the desire to serve over their desire for personal gain.

Robert Greenleaf defines these leaders as people who initiate action, are goal oriented, are dreamers of great dreams, are good communicators, are able to withdraw and re-orient themselves, and are dependable, trusted, creative, intuitive, and situational.

As we look back over the history of STMA, you can see that from the very beginning, all of these traits are in every one of our board and committee members, presidents, and especially in our founders.

The great vision of a group of people sharing their knowledge without fear or arrogance is what continually drives us as an organization today. Nowhere is this more evident than at our annual STMA Conference and Exhibition. Members come together and share our knowledge freely, with only the desire to raise every sports turf manager to a higher bar. These efforts to learn and advance our profession through continuing education truly make us ALL leaders. The conference is where we also recognize those who have gone above and beyond the expected: our Field of the Year Award winners, scholarship and grant recipients, and those who have achieved certification, personally as a CSFM, or those who attained Environmental Facility Certification. This recognition, along with the efforts of all members, helps to gain respect and appreciation of our work and our leadership from those outside our industry.

I for one cannot do what I do at my own facility without the help and guidance of my crew, my supervisors and the other staff that keeps our sports complex thriving. And in the same vein, I could not lead without the time and efforts that the Board of Directors and STMA headquarters staff put in to make STMA so very great.

I'll leave you with this: "The quality of a leader is reflected in the standards they set for themselves."- *Ray Kroc, founder of McDonald's.*

Let us all continue to set those standards high. **/ST/**



[Above] Like father, like son: L to R, Andy & Mike Hebrard, Kenneth & Keair Edwards, enjoying time together at STMA Welcome Reception in Fort Worth.

[Left] STMA recently hosted its 29th Annual Conference & Exhibition in Fort Worth; this cowboy hat sculpture hangs inside the main entry of the city's convention center. More than 200 exhibitors and 1,200 attendees from 14 countries attended the show. The association's charitable foundation, SAFE, raised more than \$23K through an outing at Topgolf, a "Night of Bowling" and silent and live auctions.



[Above] OK, these guys are nuts. Tom Nielsen's annual Fun Run/Walk "ran" into the low wind chills in Fort Worth. Tom says there were eight runners on Wednesday and they had great conversations! It's got to be warmer in Phoenix next year, right?

[Right] A new STMA.org. STMA unveiled its new website during the STMA Conference in January. A 12-month project, the website underwent a total redesign in look and feel, and in functionality. Sporting a contemporary design, the site is now mobile responsive, search friendly, and its updated technical content is easy to find and download. A new feature is the Job Board, which is searchable and available on the public side of the website for anyone to view the listings.



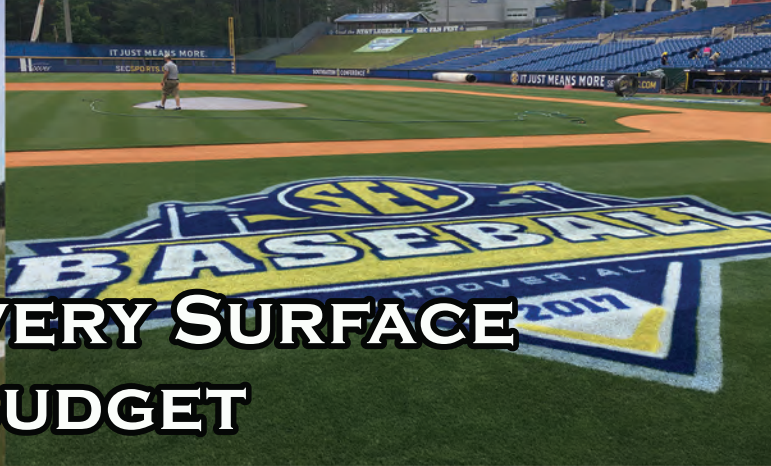
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WHAT YOU MISSED AT STMA CONFERENCE IN FORT WORTH

The Sports Turf Managers Association 29th annual Conference & Exhibition reached record participation in Fort Worth, TX January 16-19. The Fort Worth Convention and Visitors Bureau confirmed the community received an estimated \$3.2 million monetary injection from the event. This included \$1.46 million in direct sales from food and beverage consumption, business services expenses and lodging costs. The event contributed nearly \$300,000 in taxes, while creating demand for 363 jobs throughout the week.

More than 200 exhibitors and 1,200 attendees from 14 countries participated in the 4-day event. A “Seminar on Wheels Tour” at professional, collegiate and youth sports complexes in Dallas-Fort Worth complemented nearly 50 education sessions, sports turf exhibits and networking with environmental science leaders.

“Thousands of members traveled domestically and across oceans to share innovative ideas and best practices,” said Sarah Martin, Certified Sports Field Manager (CSFM), the newly elected STMA President and Foreman I and Turf Manager at Reach 11 Sports Complex for the City of Phoenix. “The knowledge our members gained during the conference is extremely valuable in helping them manage field surfaces at the safest level possible for their athletes.”

SAFE, the association’s charitable foundation, raised more than \$23,000 through an outing at Topgolf, a “Night of Bowling” and silent and live auctions. Proceeds benefit educational programs, scholarships and grants enriching communities through safe, sustainable sports and recreation fields.

Since 1989, STMA hosted its annual convention in major cities across America. The 2019 and 2020 editions will be in Phoenix and West Palm Beach, FL, respectively.

Founders Awards

STMA’s top honors, the 2017 Founders Awards, were presented at the Annual Awards Banquet January 19. The winners, who exemplify the leadership traits of STMA founders Dick Ericson, George Toma, Dr. William H. Daniel (deceased), and Harry C. Gill (deceased), do not know they are being honored so there’s a nice “surprise” factor in the presentations.

STMA’s highest honor, the Harry C. Gill Award, was awarded to **Tim Moore, CSFM**, of GCA Services. Cited as one of the most influential professionals in our business, Tim’s involvement in the profession has been immeasurable: committee service, chapter involvement, serving on the STMA Board of Directors and much more. Tim has been a champion for the Certification Program,



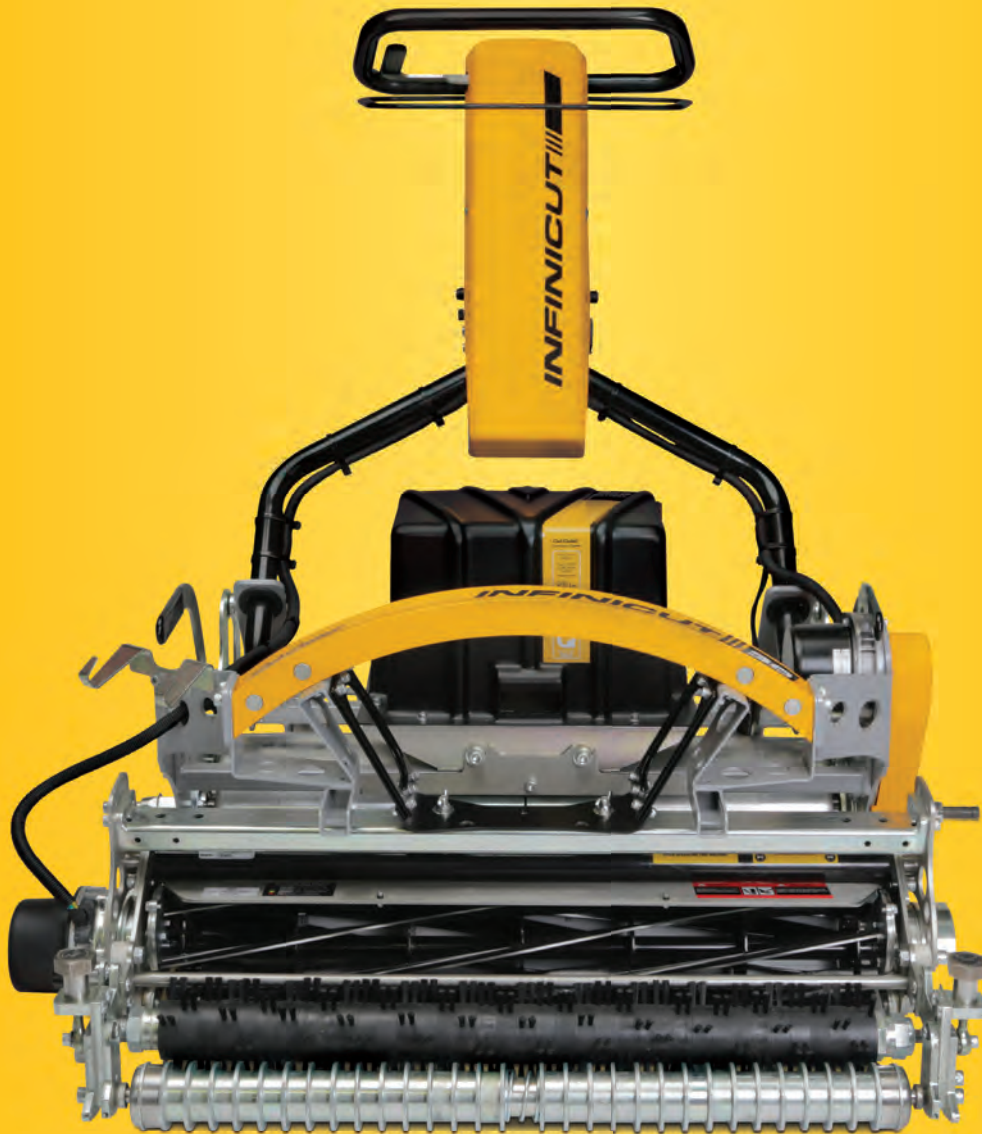
The Harry C. Gill Memorial Award was presented to Tim Moore, CSFM, of GCA Services, left; center is Carole Daily, wife of the late Darian Daily who posthumously won the award for 2016, and Dr. Mike Goatley, Virginia Tech, the 2015 recipient.



Paul Burgess, CSFM, left, of Real Madrid and Estadio Santiago Bernabéu, in Spain, received the 2017 Dick Ericson Award from the founder himself.

becoming one of the first members to receive the CSFM designation. He has written articles that have advanced the professionalism of the industry, was a board member for the Mid-Atlantic chapter as well as the STMA Board and served on STMA’s Awards Committee and helped that program to mature to the level it is today.

Paul Burgess, CSFM, of Real Madrid and Estadio Santiago Bernabéu, in Spain, received the 2017 Dick Ericson Award. Paul is known for a strong work ethic and commitment to the sports turf industry, and the results are what his peers call, “world class” playing surfaces. As head groundskeeper for one of the largest



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STMA CONFERENCE 2018



The new STMA Board of Directors. Back row from L to R: W. Appelfeller, N. McKenna, J. Bergdoll, B. Montgomery, M. Anderson, J. Gill, S. Roesslein, R. Price. Front row from L to R: J. Simpson, S. Martin, T. VanLoo, J. Kruse. Not pictured, T. Nielsen.

sports clubs in the world, Paul has taken his position and used it to promote our industry. He achieved three certifications in 2017. He became a Certified Sports Field Manager and had two sports facilities achieve Environmental Facility Certification. All three are a first for STMA – the first time that certifications have been achieved by a European sports turf manager.

Dan Bergstrom, CSFM, of BBVA Compass Stadium, Houston, received the 2017 George Toma “Golden Rake” Award. The Toma Award is known as the “and then some” award, because this honor goes to an individual who goes above and beyond what is required. Dan was cited by his peers as someone who has always been willing to give time and expertise to the industry. He has given and continues to give numerous presentations, locally, regionally and nationally, and host events at his facility. In a career that is primarily in baseball, Dan has led field rebuilds at inner-city facilities and assisted many sports field managers in their careers at minor league facilities and in the Dominican Republic. His vision for the association exemplifies the George Toma philosophy.

James Brosnan, PhD, from the University of Tennessee received the 2017 William H. Daniel Award. Speaking to the mentoring capacity of Dr. Brosnan, three PhD students who studied under him are now faculty members at land-grant universities specializing in turfgrass. He has authored many peer-reviewed journal articles, frequently contributes to *SportsTurf* magazine, and annually speaks at the STMA Conference. As an Associate Professor with an appointment in turfgrass weed science, his research and extension activities span all turfgrass specialties, but a significant portion of his efforts focus on athletic field research. He has completed multiple projects to quantify the effects of weed infestations on playability, and he works proactively to educate athletic field managers on the importance of herbicide rotations. He developed the Mobile Weed Manual, a free application for mobile devices.

New Board of Directors

The 2018 STMA Board of Directors officially took office during the association’s Annual Meeting Thursday, January 18. The elections were held electronically in November to mid-December.



Dr. John Sorochan, University of Tennessee, and Paula Sliefert, The Toro Company, catch up on the trade show floor in Fort Worth.



A real Texas cowboy greets Susan Haddock, University of Florida Extension, and John Mascaro of “The SportsTurf Photo Quiz” fame at the Opening Reception.

Sarah Martin, CSFM, Foreman I and Turf Manager at Reach 11 Sports Complex for the City of Phoenix, was elected President.

Other Officers elected include:

President-Elect: **Jody Gill, CSFM**, Grounds Coordinator, Blue Valley SD, Overland Park, KS

Immediate Past President: **Tim VanLoo, CSFM**, Manager of Athletics Turf/Grounds, Iowa State University, Ames, IA

Secretary / Treasurer: **Jimmy Simpson, CSFM**, Town of Cary, Cary, NC

Vice President Commercial: **Boyd Montgomery, CSFM**, Certified Sales Executive, Regional Business Manager, The Toro Company, Minneapolis, MN

Members elected to Director positions include:

Academic Director: **Jason Kruse, PhD**, University of Florida, Gainesville, FL

Higher Education Director: **Nick McKenna, CSFM**, Baseball Field Manager, Texas A&M, College Station, TX

Director Parks and Recreation: **James Bergdoll, CSFM**, City of Chattanooga Public Works, Chattanooga, TN

Elected-at-Large Director: **Matt Anderson, CSFM**, Grounds Superintendent, University of Arizona, Tucson, AZ



The Women's Forum brings together leaders of the industry to network and participate in a facilitated discussion.

Members appointed to the Board by new President Martin include: **Weston Appelfeller, CSFM**, Director of Grounds, Columbus Crew, Columbus, OH to Director representing Professional Facilities

Tom Nielsen, Head Groundskeeper, Louisville Bats, Louisville, KY to represent the At-Large Appointed Director

Randy Price, Tri-Tex Grass, Granbury, TX to the Commercial Director

Sun Roesslein, CSFM, Jeffco Schools, Golden, CO is fulfilling the second-year of a 2-year term as Director for Schools K-12.

Grants and scholarships

A new scholarship was introduced by the SAFE Foundation this year, The Darian Daily Legacy Scholarship, which is to be awarded to deserving members' children who are pursuing degrees other than in sports turf management. Darian passed away unexpectedly in August 2016. He was very active in STMA, previously serving on its Board of Directors and numerous committees. Darian was dedicated to his family and spoke often of his love of spending time with them. The inaugural winner of this scholarship was **Haley Churchill**, daughter of Joe Churchill. She is pursuing sociology and geography at the University of Wisconsin-Eau Claire.

SAFE gave away the internship grant named in honor of Gary Vanden Berg, CSFM, who was the Director of Grounds at the Milwaukee Brewers until his death in 2011. This grant commemorates Gary's contributions to the industry in promoting internships and creating excellent learning experiences for our student interns. The winner of the 2017 Gary Vanden Berg Internship Grant was **Kirstin Burnett** from Texas A&M University.

Another highlight was the presentation of the Terry Mellor Continuing Education Grant, which was presented to **Jason Puopolo** from Clark University. Terry passed away as a young man. SAFE has awarded the grant since 2009. Sponsored by Turface Athletics, it funds an STMA-affiliated chapter member's attendance to the conference.

SAFE awarded eight scholarships to 2-year, 4-year and graduate students. SAFE's top scholarship in a 2-year program is named after Fred Grau, the first turfgrass extension specialist in the

US, and this year's winner was **Zacary Baladenski**, State Tech College of Missouri. SAFE's other winner in a 2-year program is awarded a scholarship that honors Dr. James Watson. Dr. Watson, who was with the Toro Company for 36 years, is considered to be the catalyst for the development of the SAFE Foundation. That winner was **Raymond Martinez**, Mt. San Antonio College.

Due to the generosity of The Toro Company, SAFE was able to award five additional scholarships to honor Dr. Watson this year. The winner of the Graduate Dr. Watson Scholarship was **Chase Straw**, University of Georgia. The Dr. Watson undergraduate winners in a 4-year program were **Nicholas Chamberlin** from Penn State, **McCoy Savage** from the University of Georgia, and **Conlan Burbrink**, from the University of Tennessee.

The SAFE Foundation awarded two additional scholarships to the top students in 4-year institutions. The SAFE Scholarship 4-year Program Scholarship was awarded to **John Betts** from Penn State University. The SAFE Scholarship Graduate Program Scholarship was awarded to **John Thomas** from the University of Tennessee.

Student Challenge

Congratulations to all STMA Student Challenge participants for their exceptional performance on the 2018 exam. The Student Challenge is presented by SAFE, founding partner Hunter Industries, and supporting sponsor Ewing Irrigation. The funds raised go to the Student Challenge winning teams from a 2-year school and also from a 4-year school. They each are awarded \$5,000 to develop a hands-on learning lab at their respective institutions. This year we had 33 teams sign up for the event with more than 120 students.

Mt. San Antonio College – Team 208 won the 2-year competition. Mt. San Antonio College – Team 203 took second place, and Penn State University – Team 204 took third.

Iowa State University – Team 401 won the 4-year competition. Purdue University – Team 418 took second place, and University of Maryland – Team 423 took third.

Women's Forum

Barbara Churchill, a master certified executive coach, presented "Masterful Communication. Uplevel Your Presence On and Off the Field" during this annual Conference luncheon. See page 24 for a summary of that presentation. Repeat Forum attendee Abby McNeal, CSFM, commented on Barbara's presentation, "Barbara gave a very insightful presentation on communication styles. She reminded us how important it is to understand there may be a difference in how we perceive ourselves and how the rest of the world perceives us. Being self-aware is really important to developing a successful team, improving communication and building relationships. The assessment that she shared during her presentation has helped me understand my supervisors and how we can better work together to build our teams and programs. It's sessions like this I look forward to attending every year at the conference to help me be better a better leader and team member." */ST/*



Mike Hebrard's use of infield mix material to create a pattern at Softball Little League World Series at Alpenrose Stadium in Oregon.

Union City's version.

The art of sports turf management

// By ERIC SCHRODER

Stephen Crockett, CSFM, the director of Union City Sports Turf, Union City, TN looks like a fun guy, and he certainly has a big personality. You wouldn't know by seeing him that he's a thief.

Crockett admitted as much in front of a full meeting room at January's STMA Conference, saying he "steals like an artist" and has a "swipe file" that includes thousands of photos of other people's fields.

"Early on in college, I was working at the local park complex, and really getting into turf, so I would go to the library, and color copy pictures, articles and anything that was useful," he shared with us in an email. "When I started, before the advent of the Internet, I had four huge folders with pictures and notes. When I took over as a director in Dresden, TN those folders were on the shelf. As the Internet became prevalent, I eventually got rid of the actual folders, and started putting everything on computer files; as I've upgraded computers

I keep moving them to the next step up by whatever means was used at the time. Currently everything is backed up on zip drives. I have amassed more than 3,500 pictures and have numerous yellow legal pads full of ideas and information."

Crockett's presentation included many examples of his thievery, as he showed photos of what others had done side by side with how he copied it on his fields in Union City. "We all do the same things, no matter what level we are on," he told

the audience. "If you attend a game or event at another person's facility, let them know you're coming and meet them. Don't be intimidated."

We asked Crockett if he'd ever had a disaster trying to recreate a paint scheme or mowing pattern. "We have never had any problems trying to recreate something, because any mistakes are usually covered up easily, re-mowing or changing the pattern, or covering up any major problems," he replied. "Once one of the staff accidentally spilled an entire 5-gallon bucket of paint on the field; we made it into a large circle and put the graduation date of a class reunion inside the circle. Fortunately there were two reunions that weekend, so we matched the location on the other side of the field and put the other date on it. Everyone, especially the alumni thought it was the greatest thing we could have done, with no clue that it was a huge mistake.

"The only problem we have had that could not be fixed was switching pinks during our annual 'Pink Out' game; we had never used the particular shade

WORDS OF WISDOM

Stephen Crockett, CSFM, shared some pearls from his experience painting and striping fields at the STMA Conference:

- Share the process, not just the results
- Do good work, and share it
- It doesn't have to be perfect
- Teach what you know
- Have fun with it



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before, and on Friday we realized that it had dried maroon instead of dark pink. Only a few people noticed, and it was too late to paint over it with purple.”

DURING THE Q&A SESSION Crockett was asked how he paid for all the costs associated with his copying. “In 2008, we started painting full color end zones as well as multiple on-field logos; the budget did not account for this that year. I had the paint company do mockups of end zone designs for regular home games, military appreciation night, and Pink Out on their stencil design proofs. I believed that if we could get this done through game day sponsorships for paint that it would become the standard expectation for the field. I used the mockups to directly solicit sponsors for each home game before the season. We gave sponsors fence signs and announced them as the “Game Day Field Sponsor” and it worked out great. Most sponsors did a full game sponsorship, while others went in together to cover a game. The sponsors had signage, and were announced as the game night field sponsor throughout their specific game. Following the sponsorship year, fully painted end zones, mid-field and special logos were included in the standard operating budget.

“Our superintendent was so happy with the field, and the positive feedback from the community was so good that in 2009 all paint was covered in the actual budget. I felt that if we started doing full field painting, it would become part of the budget and it did, and is now just an expected part of football operating expense.” /ST/

GOOD THEFT VS. BAD THEFT

| Good | Bad |
|-----------------|----------------|
| Honor | Degrade |
| Study | Skim |
| Steal from many | Steal from one |
| Credit | Plagiarize |
| Transform | Imitate |
| Remix | Rip off |



Boise State has its “Smurf Turf” blue field and Eastern Washington University its “Inferno” red turf. Crockett was inspired and painted his field the home team’s purple, which became known as the “Barney Turf.”



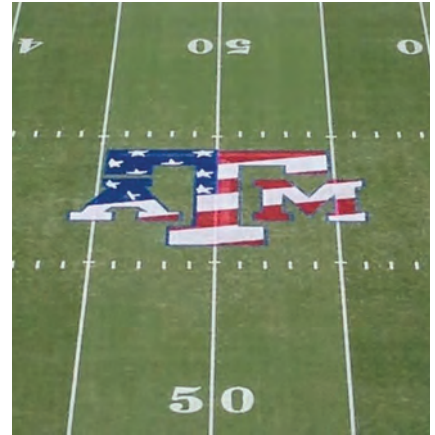
Stephen Crockett working—without the bow tie.



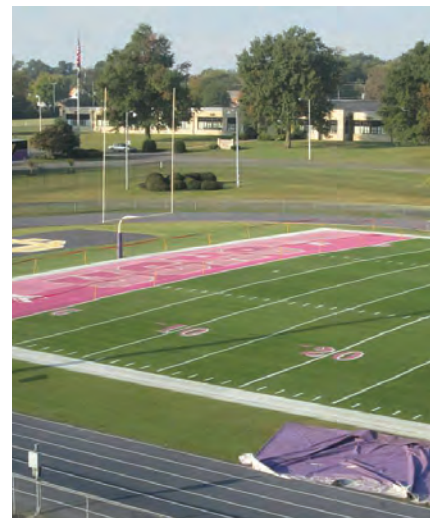
Patriotic logo at Union City.



Stephen presenting at this year’s STMA Conference.



The inspiration to change flag angles on the logos came from Texas A&M’s Nick McKenna’s Twitter feed.



“Pink Out” at Union City.



**JOHN
MASCARO'S
PHOTO QUIZ**

JOHN MASCARO
IS PRESIDENT OF
TURF-TEC
INTERNATIONAL

////////

ANSWER
ON
PAGE 37

CAN YOU IDENTIFY THIS SPORTS TURF PROBLEM?

PROBLEM:

Brown areas of turf

TURFGRASS AREA:

Baseball infield

LOCATION:

Bloomington, Illinois

GRASS VARIETY:

Kentucky bluegrass
blend



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Fraze Mow of thick 419 in Miami, FL by Green Source, Inc.

5 YEARS OF FRAZE MOWING EVOLUTION

// By JERAD MINNICK

March 23 marks a birthday of sorts in the USA sports turf management industry. On March 23, 2013 at FC Dallas Park, fraze mowing made its debut in this country. *SportsTurf* featured the event in our August issue of that year (p. 26).

During the past 5 years, fraze mowing has been used by a wide range of field managers on a wide range of fields. Before we examine those, let's review the development:

Fraze mowing history

Fraze mowing (f-r-a-i-s-e) was pioneered in 1996 in Holland by Mr.

Ko Rodenburg with his invention of the original KORO Field Topmaker. Rodenburg's original goal with fraze mowing was to remove *poa annua* seed from his field surfaces; he also saw benefits from the removal of thatch and organic material early on as well. Traditional fraze mowing continues to be extremely popular in Europe for removing all three.

With the popularity of the practice in Europe, multiple equipment companies produce machines that can be/are used for traditional fraze mowing. A field

surface "cleaned" with fraze mowing is allowed to re-generate and/or is re-seeded. To "clean" a field surface and then re-sod is **not** fraze mowing.

Fraze mowing establishment

Fraze mowing (f-r-a-z-e) was first discussed in January 2013 in reference to a September 2012 trial of traditional fraze mowing of bermudagrass at Maryland SoccerPlex, Boyds, MD and the newly created Universe rotor that Campey Imants introduced that month for a Koro Field Topmaker.

The Universe allowed for the cleaning out *poa* seed, thatch and organic like traditional fraze mowing but at the same time did not remove stolons and rhizomes of established, spreading grasses (specifically bermudagrass). In addition, a fraction of grass leaf blades remained intact to allow photosynthesis and speed the grass re-generation.

Using the same “cleaning out” concept, the first Kentucky bluegrass/ryegrass field fraze mowed was in Paris at Parc des Princes in July 2013. Sports field manager Jonathan Calderwood worked with Simon Gumbrell from Campey Turf Care to clean *poa* and thatch that had accumulated before Jonathan was hired as head groundsman. The Kentucky bluegrass and rye was able to re-generate, very similar to bermudagrass, to reinforce the pitch surface and support improved field condition through the long French winter. Seashore Paspalum, Kikuyu, and St. Augustine have all been cleaned out with a fraze mow as well. It is important to never get below the growing point of the grasses.

Allen Reed, CSFM

Through the 5 years since the concept came into active practice, the original goal of fraze mowing has remained clear: remove 100% of a desired depth of thatch and organic buildup on a field surface. The benefits from this are increased field strength and durability as well as improved water infiltration.

Allen Reed, CSFM, along with Director of Complex Grounds Miles Studhalter, were the very first to use fraze mowing in the US.

Minnick: How were you feeling that first time you fraze mowed?

REED: Being the first ever to utilize the practice, obviously we were nervous. But most of the nervousness came from the weather issues. Temperatures were in the mid-40’s the day we cleaned the surface. And the next 2 weeks continued to stay below average.



That made us nervous. But I was still extremely confident it would “work”... meaning that we weren’t going to “kill” the field. Bermudagrass wants to grow.

Bermudagrass will grow. But being first, we just had no idea how long it would take for it to grow. Especially with the cold weather, but 7 weeks later, the field was open and was perfect. That 7 weeks has now gone to a maximum of 21 days for full re-generation. So obviously we have evolved and we grow even more confident with every time we clean it out.

Minnick: Have you had a good or bad surprise fraze mowing?

REED: We fraze mowed to remove a significant thatch and organic buildup. The increased durability and strength was more significant than expected. But the *poa* control was the most remarkable change. The year prior we had the largest infestation of *poa* that we had ever had. Fraze mowing completed

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2 weeks post-fraze mow in Miami.

eliminated that it, and eliminated the only weed control program we believe in: a knife and a bucket. My back and the guys all appreciate that impact a lot! Also the ability to manage surface moisture and footing has been more dramatic than we expected. To even the moisture and footing even more, 2018's clean out is going to utilize GPS mapping of moisture content and vertical deformation of the surface under the foot. With that data, we will be able to re-set the machine depths to correspond with data to make the field 100% consistent for footing.

Reed continued, "Just. Do. It. With bermuda, we know that it needs beat up and cleaned out to make it stronger. If you do it 1x, you will absolutely 100%

be doing it again. On the complex fields, we have cleaned the top during the day and had training on the field at night. There is no excuse for being scared at this point with all the success that has been documented."

The conclusion of the 2013 *SportsTurf* article posed a question: "Can fraze mowing bermudagrass become an accepted practice in a regular maintenance program to advance the durability of fields for them to sustain more traffic?" Five years later, we have learned that bermudagrass isn't the only grass that benefits, so it seems the answer is "yes," fraze mowing can become an accepted practice.

But the solutions need to continue to be improved. Use of GPS mapping

for surface conditions, moisture, and grass strength can simplify the process and "prove it" to skeptics. In 5 years we can answer the question, "Can fraze mowing (of any / all spreading grasses) become an accepted practice in a regular maintenance program to advance the durability of fields for them to sustain more traffic?" **/ST/**

Jerad Minnick is Lead Advisor for the Natural Grass Advisory Group (www.NaturalGrass.Org). Minnick, along with Simon Gumbrill (then of Campey Turf Care/Imants BV), pioneered the evolution of traditional fraise mowing into fraze mowing in the USA and worldwide. That evolution is publicly documented at GrowingGreenGrass.Net

DATA POINTS

A FEW INTERESTING DATA POINTS COLLECTED BY NATURAL GRASS ADVISORY GROUP:

■ **24: AVERAGE # OF DAYS FOR A BERMUDAGRASS FIELD TO RE-GENERATE TO 100% COVER FOLLOWING ITS 1ST CLEAN OUT**

■ **15: AVERAGE # OF DAYS FOR A BERMUDAGRASS FIELD TO RE-GENERATE TO 100% COVER FOLLOWING ITS 2ND CLEAN OUT WITH FRAZE MOW (WITHIN 2 YEARS OF 1ST)**

■ **23: AVERAGE PERCENT SHEER STRENGTH/ROTATIONAL STRENGTH INCREASE ON BERMUDA FROM FRAZE MOWING**

■ **11MM-3.5MM: AVERAGE DECREASE IN VERTICAL DEFORMATION (AMOUNT THAT THE SURFACE "GIVES" UNDER FOOT). HIGHER VD INDICATES A "WATERBED" TYPE SURFACE THAT MOVES UNDER A PLAYERS' FEET.**

■ **200+: FIELDS THAT HAVE BEEN FRAZE MOWED IN PARKS ACROSS THE COUNTRY, BOTH BY CONTRACTORS AND BY PARKS STAFF WITH MACHINES PURCHASED BY THE DEPARTMENT.**

■ **90: PERCENT OF FACILITIES THAT HAVE UTILIZED FRAZE MOWING THEN REPEATED AND/OR CLEANED MORE FIELDS**

■ **65: SIXTY-FIVE INCHES/FOOT IS AVERAGE CONTRACTOR PRICE FOR FRAZE MOW MACHINE, TRACTOR, AND OPERATOR FOR 1 FULL DAY OF WORK TO CLEAN OUT A 2-ACRE FIELD**



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Herbicides: what's new for 2018?

// By JIM BROSNAN, PHD

Editor's note: Jim Brosnan, former Technical Editor of this magazine, was honored at the STMA Conference in January by receiving the Dr. William H. Daniel Founders Award, which recognizes an individual who has made significant contributions to the industry through research, teaching or extension. Congratulations, Jim!

A hot topic of conversation among all turf managers each winter is what “new” products will be entering the marketplace in the coming year. Many scour the trade show floor at the Sports Turf Managers Association Conference visiting with vendors from across the globe about what new technologies they may have available in the coming year that will help in improving field conditions.

From an herbicide standpoint, there hasn't been a true “new” product for more than 30 years. The last new mode of action (i.e., mechanism an herbicide uses to eradicate a weed) was discovered in the 1980s in hydroxyphenylpyruvate dioxygenase (HPPD) inhibition. This mechanism has since been commercialized in turfgrass herbicides such as Tenacity (active ingredient, mesotrione) and Pylex (ai, topramezone) that cause bleaching of green leaf tissue in susceptible weeds.

What we regularly see each year are new entries into the turfgrass marketplace that employ existing modes of action, often formulated in novel combinations that deliver unique attributes to turfgrass managers. This will certainly be the case in 2018 as several new herbicides are scheduled to enter the marketplace for use on both warm- and cool-season turfgrass athletic fields.

This article will provide a brief overview of some of the new herbicides slated to enter the turfgrass marketplace later this year. Turfgrass managers should consult their local University extension specialist for more information about

how these technologies best fit into athletic field management in their region.

Vexis

Vexis is a trademarked term for pyrimisulfan, a new herbicidal active ingredient from PBI-Gordon Corporation. Trade names for herbicides containing Vexis have not been made publically available but field managers will likely see “powered by Vexis” messaging associated with these products. Vexis is an acetolactate synthase (ALS) inhibiting herbicide that enters plants via both root and shoot absorption. Vexis will be available in combination with other herbicides.

In the transition zone and southern United States, field managers will see a combination of Vexis + penoxsulam (another ALS-inhibiting herbicide) for use on athletic fields. This combination will have postemergence activity on array of broadleaf weeds and sedge species. It should be noted that penoxsulam can be injurious to perennial ryegrass (*Lolium perenne*), which will limit use of this product on overseeded bermudagrass (*Cynodon* spp.) football or baseball fields. Combinations without penoxsulam are also being developed for use on cool-season fields that contain perennial ryegrass in mixtures with other species.

A unique attribute of Vexis products is that they are formulated on granular carriers. Granular application may be particularly useful in situations where spray applications are discouraged (e.g., certain school grounds, etc.). Our research team at the University of Tennessee has evaluated Vexis + penoxsulam on an inert granule as well as on fertilizer. In both cases, these products can be applied to dry turf (without dew present), which is abnormal for granular herbicides. Usually granular herbicides need to be applied with dew present to adhere to leaf tissue and enter weed foliage. Root absorption



Jim Brosnan, PhD.

of both Vexis and penoxsulam allow for weed control to be achieved without this requirement for dew. However, adequate soil moisture at the time of application is needed for Vexis products to perform optimally. Moreover, applications of Vexis will need to be watered in (via irrigation or rainfall) within 48 hours of treatment.

Federal labeling for Vexis use in turfgrass has been submitted to the US Environmental Protection Agency (EPA) and is awaiting approval.

Relzar

Relzar is a new herbicide mixture from DowDupont that contains Arylex Active (ai, halauxifen-methyl) and florasulam, an ALS inhibitor. Arylex Active is the first member of a new class of synthetic auxin herbicides, the arylpicolinates (HRAC group O, WSSA group 4), with unique binding affinity that is different

from other auxin herbicides. Formulated as a water dispersible granule, Relzar is designed to control broadleaf weeds in nearly all warm- and cool-season turfgrasses used on athletic fields. The use rate of Relzar will be 0.72 oz/A for all labeled weeds. Relzar offers turfgrass managers a broadleaf weed control option that does not contain 2,4-D and that is rainfast within 1 hour after application. Relzar is scheduled to become available in late 2018 after receiving approval from EPA.

GameOn

GameOn is another new herbicide mixture from DowDupon that contains Arylex Active (ai, halauxifen-methyl) in combination with the synthetic auxin herbicides 2,4-D choline and fluroxypyr. GameOn will be labeled for use on all major cool-season turfgrasses, as well as bermudagrass and zoysiagrass (*Zoysia* spp.), at rates ranging from 3 to 4 pts/A. GameOn will be labeled for control of more than 100 different broadleaf weeds and will offer athletic field managers a broadleaf herbicide mixture that has a "Warning" signal word on the product label; this is unique given that many 2,4-D containing herbicides have a "Danger" signal word, indicative of greater toxicity. GameOn is scheduled to become available in late 2018 after receiving approval from EPA.

SwitchBlade

SwitchBlade is a new liquid herbicide mixture from PBI-Gordon that contains the synthetic auxins fluroxypyr, dicamba, and halauxifen-methyl. This herbicide can be used postemergently to control an array of different broadleaf weeds in nearly all warm- and cool-season turfgrasses used on athletic fields. Rates will range from 1.5 to 4 pt/A, with a maximum application rate of 8 pt/A per year. The herbicide is rainfast within 1 hour after application. SwitchBlade will offer turfgrass managers a broad-spectrum herbicide mixture that does not contain 2,4-D; this may become important as public pressure and potential legislation against 2,4-D use increases in certain parts of the country. Federal labeling for SwitchBlade use in turfgrass has been submitted to the EPA and is awaiting approval.

Dismiss NXT

Dismiss NXT is a postemergence herbicide mixture from FMC Corporation that combines carfentrazone and sulfentrazone in a 1:9 ratio. Dismiss NXT can be used to control yellow nutsedge (*Cyperus esculentus*) postemergence and manage kyllinga (*Kyllinga* spp.) applications via sequential applications. This herbicide is labeled for use on bermudagrass at rates of 10.2 to 15.25 fl oz/A; use rates on cool-season turfgrass are slightly lower, ranging from 5.1 to 10.2 fl oz/A. When applied to bermudagrass fields overseeded with perennial ryegrass, a maximum application rate of 5.1 fl oz/A is recommended. A unique attribute of Dismiss NXT is rapid activity after application. Treated weeds will show symptoms within 3 to 5 days after application. **/ST/**

Jim Brosnan, PhD, is an Associate Professor in the Plant Sciences Department at the University of Tennessee and Director of their Weed Diagnostics Center; jbroshan@utk.edu; Twitter- @UTturfweeds.

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Uplevel your communication on and off the field

// By BARBARA CHURCHILL

Editor's note: Barbara Churchill is a leadership development facilitator, master certified executive coach and speaker. Her areas of expertise include work/life integration, communication, clarity of vision and confidence. She lives in a suburb of Minneapolis with her husband and STMA member, Joe, and their dog, Winston. She presented "Masterful Communication. Uplevel Your Presence On and Off the Field," to attendees of the Women's Forum during the STMA Annual Conference in January. This is a summary of her presentation.

"The single biggest problem in communication is the illusion that it has taken place." – George Bernard Shaw

How many times have you had a situation where miscommunication occurred?

Frustrating? You bet.

You're dealing with coaches who are creatures of habit. They like to do the same things in the same way and playing fields can get ruined.

You're also dealing with the pressure of high expectations from athletic directors and maybe even high school superintendents or the board of regents at a university. Each one with a different personality and style of communicating.

In our fast-paced society, we're so used to going a mile-a-minute. Lots of texting and emailing – the world seems to move at warp speed. We're on autopilot most of the time.

How do we ensure we are communicating effectively?

When we aren't, it can cost tens if not hundreds of thousands of dollars.

Miscommunication happens because we all have differing ways of connecting with each other.

What if you took the time to understand those differences and learned how to connect with them?

Upleveling your communication effectiveness starts with knowing yourself first and how you're showing up and being perceived in the world.

Everything we do is based upon our perception of the world. It's what filters the lenses from which we see the world. And yet, we come together as a group or as a team, and we expect everyone to see things the same way, when in fact they don't because their lenses are different.

Sometimes how you perceive yourself and how the rest of the world perceives you is very different. Are you really aware of your



Barbara Churchill and Women's Forum founder Lynda Wightman of Hunter Industries

style of communication and how you're showing up? Stop being on autopilot and start noticing the impact you're having on others.

Pay attention to those signs and signals people show you every day. People are showing you every day how to make a connection with them, mostly by their body language. Over half of whether you're going to be successful in building rapport with someone is based on if you pick up the cues from their body language. In addition to body language, the tone and pace of what you're saying plays a huge role in connection. The old saying, "it's not what you say but how you say it" rings true.

What style are you?

Ever wondered why some people "get" you and others don't? We all have preferred styles of communication that we use daily that may or may not be a good fit for those with whom we interact. Let's look at these more closely:

DOMINANCE: If you're someone who is driven, results oriented, loves a challenge and take action, this may be your communication style. You set a goal, make the goal and set a new one. You speak in bullet points and are quick to move to the next thing on your to-do list.

INFLUENCE: You've been told you are high-energy, a big-picture thinker and fun. People just love being around you! You enjoy working collaboratively and taking action. Your enthusiasm is catching and you love to draw people in with your stories.

STEADINESS: You are all about relationships. Your pace leans toward being calm and centered. You need stability and value support and collaboration. You are the best listeners of all the styles.

CONSCIENTIOUSNESS: Data and facts. That's what drives you. You love to research, get the right answers and collect everything into nice neat packages. You take your time to process information. No decisions are made until you have all the facts. You keep others in check with your questioning mind.

Do any of these styles sound like you? I invite you to look at yourself a little deeper. Ask others what their perception of you is and what style they think you most closely match.

And this is how you show up when everything is flowing. What happens when you're having a challenging day?

It all changes and that is where problems arise. With so many different ways to communicate paired with all our distractions both human and electronic, is it any wonder why there is conflict and miscommunication in our workplace?

What about your customers? Which style category would coaches be in? Athletic directors? Can you see how important it is to know whom you're dealing with? When you do, you'll be able to better understand them and give them what they need. If your pace is slower and you value collaboration, dealing with someone who wants you to bottom-line it and decide quickly may create stress for you. Try preparing for the interaction ahead

of time by gathering your facts and deliver the information in a bullet-point format. Flexing to their style, even just 5%, makes a huge impact on your effectiveness of not only getting



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your message across, but also understanding their responses.

Look for the gifts in every style. All the high-performance teams have diversity on their team. It makes a huge difference and makes the team unstoppable.

Celebrate that diversity.

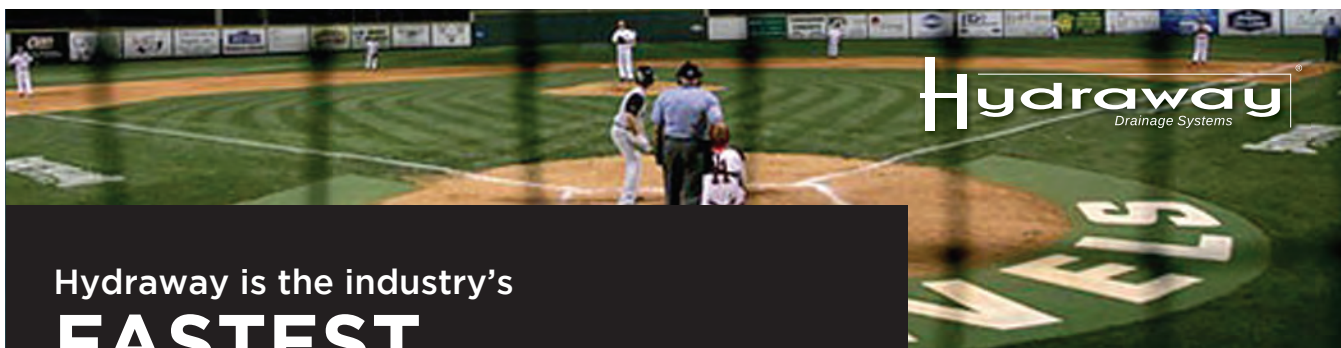
It takes effort to change your mindset.

It's about flexing to other people's style and giving them what they need for a successful connection.

It's about showing up authentically and empowering others to do the same, on and off the field. **IST/**

For more information on executive coaching, leadership programs and communication styles, please contact Barbara Churchill at info@

barbarachurchill.com. Bring Barbara in to work with your team or organization today and experience powerful transformation. Please visit her website, barbarachurchill.com



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Kauffman Stadium in Kansas City gets a new surface

Editor's note: We asked Evan Fowler, manager, grounds and landscape for the Kansas City Royals, for some details about the first new surface at Kauffman Stadium in 24 years.

ST: Why was it decided to build new field?

FOWLER: After back-to-back World Series appearances in 2014 and 2015, there was no doubt that the field was ready for a re-surface. Playing that late into the season, we lost our window to be as aggressive with cultural practices as we normally would. With our stadium shade line and limited bluegrass overseeding window, we were forced to rely on ryegrass more than we would have liked, and in the transition zone we all know that would've eventually come back to haunt us.

This project got brought to light when the stadium was undergoing some other renovations, including the installation of LED lights that required some heavy crane traffic on the field. Originally the lighting work was going to limit the timeline of our project, and that in turn limited our scope of

work. Fortunately for us, there were some changes to the lighting install plan for the use of a helicopter rather than a crane. We were still able to go through with our project after some extensive testing that revealed more aging than we originally anticipated.

Some undisturbed core samples, and an underground survey service called "Below the Turf" laid out what exactly we were working with. The original drainage, rootzone and irrigation systems were still in place from when the field was converted from artificial turf in 1994, and over that 24-year span the infiltration rates had decreased, fine sand particles had settled, and a thicker-than-desired organic layer had formed. The underground sonar imaging revealed an intact, fully functioning drainage system and depths of all the different materials to allow us to accurately prepare an updated scope of work. With these detailed test results, it was an easy pitch to the Royals to rebuild this field ensuring them that it would outlast the 15 years remaining on the current stadium lease.

ST: What all was done?

FOWLER: One of the ideas with the project was to flatten out the grade on the entire field. Luckily we had an excess amount of rootzone sand depth that we were able to cut in half, giving us the ability to cut the grade tremendously. In order to keep the rootzone sand at a consistent depth across the entire field, we had to add some extra pea gravel in areas that previously had the lowest elevation. Aside from the new grade, we were able to recycle the top 4 inches of our old warning track and infield dirt as they were recently updated with DuraEdge. The recycled material was used as new base for the track and infield clay, and topped with a fresh 3 inches of the same products, giving us a solid profile in both areas.

A completely new Hunter irrigation system was installed as the old system was showing some serious age and the new depth of rootzone required our pipes to be set shallower than before. This included a completely new irrigation

layout that will enable us to water much more efficiently. The new system also includes some soil sensors that monitor moisture and temperature to help us know just how much water we need to be putting out. The new controller also has a web-based interface so that we can monitor the system even closer through the longer summer months when disease pressure and plant stress is high.

We also added a 10-inch "blowhole" between second base and the pitcher's mound that is attached to a variable frequency drive controlled fan near the visitors' dugout; this way we can let air flow under the tarp without risking the tarp's blowing off overnight. The lid on the blowhole is a trough containing rootzone sand and grass to ensure that there is no playability or safety concerns with having that sized pipe running to the infield.

ST: What role did [head groundskeeper] Trevor Vance and staff have in deciding specs of new field?

FOWLER: We chose to make this a design/build project for this reason. This enabled us to keep the decisions between our staff and the contractor, ensuring that it was exactly what we wanted.

With more than 30 years in the game, Trevor brought more than just experience; a few of his innovative ideas separated this project from a routine renovation. He had been talking about the "blow-hole" fan for years as a practical way to keep air moving under the tarp without having to place anything on the turf. And his adding an electrical outlet under the cleat cleaner on the mound for batting practice pitching machines was genius.

ST: Why were (type of grass, drainage, etc.) certain products chosen?

FOWLER: One of the most important, time-consuming parts of the projects was selecting a new rootzone sand. After eliminating the ability to reuse any of our old rootzone, we had to find the best option possible within a reasonable distance from the stadium. We did a lot of testing to find a uniformity coefficient we liked that was going to bridge with our pea gravel and also be somewhat similar to our sod farm's sand.

We chose a sod farm out of Colorado, Green Valley Turf, which grows Kentucky bluegrass on plastic. This decision was geared toward finding a not only a quality grass, but a quality sand. The importance of starting a grow-in without a sod layer has proven to be huge, and long term not having to work to only be able to eliminate some of that original sod layer is definitely going to pay off. We are continuing to use KY bluegrass because of our success with it; while we are in the transition zone and summers can be tough to manage disease, the newer cultivars are still performing extremely well.

ST: Who put in the new field? Why were they chosen?

FOWLER: We chose Bush Turf to complete this entire project. They have been doing all of our renovation work at the stadium for a while, and we truly believe they are the best. Since this was a design/build, we began working with Steve Bush and his staff right away on the possibilities with this project. They brought a lot to the table in designing our new grade with their new Tap Con robotic technology. We worked closely together on selecting our new rootzone materials as well; their experience with this from past projects made this difficult step much easier. Overall their staff is highly experienced with this the process of a major overhaul like this, and without having to subcontract anything out they can complete a project like this without any complications.

ST: What was the timeline of the project and did you had any trouble keeping to it?

FOWLER: Excavators rolled down the tunnel on October 2 and the last sod roll was laid along with a final warning track and infield grade was completed November 17. Bush Turf laid out this schedule before we started to move any material, stuck to that exact time line through the entire project and ended up wrapping things up a bit ahead of schedule. Weather was a huge key this, we had practically no setbacks or days that we couldn't work due to rain or any freezing. Some parts of the project we knew would take much longer than others, but the efficiency of the operation kept things rolling along as smooth and quickly as we could've asked for. */ST/*

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ANDREW MARKING

This month in “The SportsTurf Interview,” we meet Andrew Marking, head groundskeeper for the Quad Cities River Bandits, Davenport, IA, the Class A affiliate of the Houston Astros. A native of Floyds Knobs, IN, Andrew majored in Turf Science and Management at Purdue University and previously worked for Valhalla Golf Club, the Texas Rangers, the Louisville Bats, the Louisville City Football Club, and Purdue Sports Turf, as well as for the 2015 MLB All-Star game at Great American Ballpark in Cincinnati. Andrew won the 2017 STMA Stars and Stripes Mowing Contest, and was named the 2017 Iowa Sports Turf Manager of the Year. He is an Eagle Scout, a W.H. Daniels undergraduate scholarship recipient while at Purdue, and served last year on the STMA Student Challenge Committee.



Andrew Marking at work. Photo by Andy Abeyta, Quad City Times.

SportsTurf: How long have you been with Quad Cities?

MARKING: I am entering my third season with the River Bandits. I was offered the job the fall after completing my degree at Purdue and an internship with the Louisville Bats.

ST: What has been the biggest challenge so far?

MARKING: My biggest challenge so far as been growing the equipment fleet at the Bandits. Two seasons before I started the team purchased a John Deere Aero800. At the beginning of last season we purchased a John Deere ProGator and a skid loaded sprayer to go in the back of the ProGator. Before that all fungicide, fertilizer and insecticide applications were done with granular products. I am fortunate to have already gained great working relationships with manufacturers, vendors, and other professionals, which has enabled me to deliver a great-looking field on a realistic budget at the Single A level.

ST: What are your priorities for field maintenance as the 2018 season starts?

MARKING: My priority for the field as the season starts is to get the infield rolled and firmed up as soon as the snow and cold weather are gone. First game this year is March 21 with a local university, St. Ambrose, which is usually not too long after the snow melts.

I sloped the game mound and bullpens in the fall but I like to check on them after

the first couple of college games and right before the River Bandits show up so that everything is correct for their workouts and opening day. Along with all the clay work that will need to be done I will also be waking the turf up from winter dormancy with some early fertilizer applications. Last season I was not able to get the sprayer up and running until June, so I am very excited about being able to put out Ethephon plant

MY FIRST YEAR I WAS STRESSED OUT ABOUT EVERY LITTLE THING; BY YEAR TWO I WAS ABLE TO NOT STRESS OUT OVER THE LITTLE THINGS AS MUCH AND ENJOY MORE TIME OFF DURING THE SUMMER.



growth regulator to suppress the annual bluegrass seed heads and see how the field reacts. On top of the Ethephon application I will be putting out early summer patch applications to help minimize any disease pressure that might occur during the season.

During the fall we had the warning track graded by Bush Sports Turf; I am planning on installing permanent foul lines on our warning track to reduce the cost of spray paint and user error in painting the lines.

ST: What did you learn as a student at Purdue, either on or off the field, that has helped you be successful in your career to this point?

MARKING: At Purdue, I student-managed for the baseball team. I believed this has helped me out a lot regarding my communications with the coaching staff of teams throughout the season. I also gained valuable experience through Purdue Sports Turf; for 3 school years I was able to work part time on the grounds crew. I got the opportunity to work on six different playing surfaces ranging from a Kentucky bluegrass baseball field to an overseeded bermudagrass football field.

A lot of what I learned working there part time has helped me out while being in the Quad Cities. I gained plenty of experience painting at Ross-Ade Stadium for football games, which has transferred over to my painting logos behind home plate and a Midwest League Championship logo. Working on both sides of the fence for baseball helped me tremendously; I quickly learned that talking with the manager is an intricate part of being a head groundskeeper, not only the NCAA level but also in MiLB.

ST: What's the best advice you've ever received about doing your job?

MARKING: “Don’t sweat the small stuff.” I had heard it many times from two of my mentors in the sports turf industry but it always went right over my head. I thought

nothing of it. It wasn't until my first year as a head groundskeeper that I actually realized how much it means. My first year I was stressed out about every little thing; by year two I was able to not stress out over the little things as much and enjoy more time off during the summer.

ST: What advice would you offer turf students interning at the MiLB level?

MARKING: Ask plenty of questions; no question is a dumb question. Ask your boss to let you run as much equipment as you can. Getting experience on various types of equipment will help you in the future. I allow my intern to run almost every piece of equipment. Also, don't be shy; introduce yourself to other turf managers when they visit, getting to know them might just land you your next internship or job.

ST: How about advice for tuanners who hire interns; how can they make it a good experience for both sides?

MARKING: I interned for two seasons under Tom Nielsen at the Louisville Bats, and Tom has had many interns come through over his time at Louisville. One thing that I learned from him is that there is much more to the internship than baseball. Tom taught me to learn more about the interns' personal lives and their goals in life. Tom is very passionate about his career, family and those who have worked for him. I have tried to take just a little of what he has taught me to the Quad Cities to create good experiences for both the interns and myself.

It's important to find candidates who are passionate about learning. I have had two interns who were not turf students but both were very passionate about baseball and about learning the groundskeeping side of baseball. Both interns worked out great for me, which allowed me to teach and talk with them about turf and dirt. When I have an intern that is eager to learn, it makes it a great experience for both of us. Both interns have been able to



Marking won the 2017 STMA "Stars and Stripes" Mowing Pattern contest with his "Banks of the Mississippi River" field design at Modern Woodmen Park in the Quad Cities. Assistant groundskeeper Andrew Anderson helped craft the pattern. Photo by Rich Guill, Sean Flynn Photography.

teach me something about groundskeeping as well by asking the right questions and making me think things through and explain the process.

ST: How has being an STMA member impacted your career so far?

MARKING: Being an STMA member has allowed me to create a network of professionals all throughout the country. It has allowed me to exchange thoughts, ideas and advice to better my field, crew and myself, share what I am doing with my field as well as get ideas and see how other fields fair during all seasons. STMA has given me many lifelong friends all throughout the country. Being an STMA member not only allows me to network and share knowledge with other professionals, it also allows me to see emerging trends in the industry and how I can take advantage of those to keep Modern Woodmen Park looking great for the players, fans and the community to enjoy.

ST: What's your dream job?

MARKING: Going through college my dream job was always to make it to MLB. After MiLB and MLB internships and

working in the MiLB, I have decided that my dream job is working for a Triple-A organization in the Midwest. There is a lot of pressure that comes along with an MLB job. Whether it be major concerts, other events or the team playing on TV every night, the pressure accumulates on the shoulders of those groundskeepers. I believe that a lot of MLB groundskeepers are more of event managers than anything nowadays, whereas many MiLB groundskeepers don't have the overload of special events or the pressure day in day out that an MLB groundskeeper might have. I have seen first hand that a lot of stuff can go wrong at the MiLB level that would not be acceptable at the Major League level.

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

MARKING: Outside of work, I enjoy visiting wineries with my girlfriend, hanging with my roommate's dog, Chase, spending time with my family in southern Indiana, and watching Purdue sports. When my roommates and I have nights or weekends off, we spend a lot of time outside grilling, having bonfires and playing Frisbee golf. **/ST/**



INTESTINES OF THE EARTH: EARTHWORM MANAGEMENT UPDATE

// By BEN MCGRAW, PHD

It is difficult to tell whether Aristotle was speaking favorably of earthworms when he dubbed them “the intestines of the earth.” What we can be sure of is that he never managed fine turfgrass in the presence of heavy earthworm populations. In most crop systems, earthworms are considered beneficial organisms since they aerate the soil, bust thatch layers, decompose organic matter and eject nutrient-rich fecal matter (“casts”) to the surface when tunneling. However, the casts can be the bane of many turfgrass managers’ existence – they muddy the surface, damage mower reels and cause general thinning of the turf. Damage can be especially severe in

spring and fall in areas where turf is grown on native soils. Managing these invasive organisms is made difficult by the lack of control options and earthworms’ ability to quickly reproduce.

Unfortunately, there are no pesticides registered in the United States and Canada for controlling earthworms. Some turf managers seek to indirectly reduce castings when targeting other pests by selecting pesticides that negatively affect earthworms. The fungicide thiophanate-methyl (e.g., Cleary’s 3336) and the insecticide carbaryl (e.g., Sevin) are most commonly used in this manner.

Several studies have investigated the effects of cultural practices on reducing

castings in turfgrass settings. Generally, earthworms prefer moist, cool conditions, with near-neutral pH. Frequent sand topdressing, removing clippings and applying acidifying fertilizers have been investigated in several university studies. Sand topdressing has produced the most promising results of the three, although soil modification requires frequent or consistent applications and is cost prohibitive to many operations to perform on large areas.

Saponin-based fertilizers

Turfgrass managers have recently turned to using saponin-based fertilizers to culturally control earthworm



populations. Saponins are naturally occurring compounds found in a wide variety of plant species. Materials possessing saponins readily form a soapy foam when added to water and shaken. Applying saponin-based materials to soils after rain or irrigation expels earthworms from the soil, causing them to desiccate and die.

Using saponins to control earthworms is not a new idea, as it was once a popular means of suppressing casts on putting surfaces in the United Kingdom in the early 1900s. The proliferation of golf courses in the interior of the UK began with the expansion of the British railway system. Courses moved from traditional “links” land with sandy soils to areas with heavy soils or greater percentages of fines. These soils were dominated by earthworms, and managing them on greens was a challenge. An ingenious superintendent named Peter Lees was the first to concoct his own saponin product (ground mowrah meal) to control earthworms and apply it to his putting surfaces. Saponins replaced harsh mercury-based products and were regularly used for several decades.

Control with saponins fell out of favor, however, in the 1950s when many chemical pesticides became publicly available. Many of these pesticides, including DDT and chlordane, were broad-spectrum in activity, and it is reported that they provided earthworm suppression for several years! It was not until after these products were phased out that earthworm populations rebounded in many turfgrass sites and alternatives were sought.

The first modern saponin-fertilizer product (Early Bird by Ocean Organics) was developed in the mid-2000s. Early

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Bird, a by-product of tea manufacturing, has been shown to effectively expel earthworms from the soil and reduce castings over several weeks. Recently, another saponin-based fertilizer, RhizoAide (Grigg Brothers, owned by Brandt Consolidated) has come onto the market and is available for use in turf. Our laboratory has been assessing the efficacy of these products and attempting to find optimal field rates.

Our research

Earthworms are especially challenging to control due to their biology. They are hermaphrodites (possessing both male and female sexual organs), although they require a mate to produce eggs. Eggs are deposited in pearl-shaped capsules or “cocoon” throughout the year. This stage is relatively impervious to chemical or saponin control. Therefore, applying a short-residual product may kill only



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adults and juveniles but leaves a portion of the population unaffected.

We have observed how populations are able to rebound quickly even with effective products. In 2015, single applications of RhizoAide (4, 6 or 8 lbs./1,000 ft²) were compared to the granular formulation of Early Bird (6 lbs./1,000 ft²). All rates and products provided ~ 70% or higher control compared to the untreated checks 7 days after treatment (DAT). Two rates of RhizoAide provided 50% control of castings after 21 DAT, which suggests limited residual activity.

In spring 2016, we sought to determine if sequential applications of RhizoAide could provide more lasting suppression. RhizoAide (4 or 6 lbs./1,000 ft²) was applied monthly to plots on a golf course fairway in either 2 or 3 sequential applications. All treatments produced strong statistical differences by 28 DAT. Treatments

receiving 6 lbs./1,000 ft² reduced castings by 49% to 70% (average 61%), which was similar to Early Bird (60% reductions). After the second month, castings in the 6 + 6 lbs./1,000 ft² RhizoAide treatments had been further reduced (80%), although this was not significantly different from treatments receiving 6 + 4 lbs./1,000 ft². The single application of Early Bird at 0 DAT provided 80% cast reductions at 55 DAT.

Finally, by the end of the trial (90 DAT), three applications of RhizoAide at 6 lbs./1,000 ft² provided the greatest numerical reductions compared to the controls (90%). No differences were detected between the Early Bird treatment (84%) and RhizoAide applications. RhizoAide applications that received 6 lbs./1,000 ft² at the start of the trial had generally the highest numerical reductions (> 80% control).

Although more testing is needed, it appears that the first application's rate may be the most important in "culling" reproducing adults. It is possible that rates of subsequent applications may be reduced to clean up the newly formed adults that were not initially controlled when in the juvenile state or were present in cocoons at the time of first application.

Controlling earthworms, much like insects, requires a thorough understanding of their behavior and biology. We will continue to look for solutions for turfgrass managers. Currently, we are conducting trials to determine if late fall applications provide greater control of populations than with the traditional spring applications. *IST/*

Ben McGraw, PhD, is an associate professor of turfgrass entomology Penn State University, University Park, PA. Thanks to the Pennsylvania Turfgrass Council for allowing us to reprint this article.

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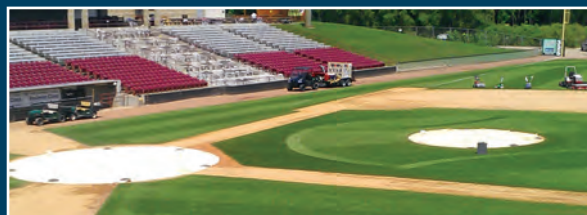
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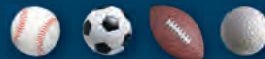


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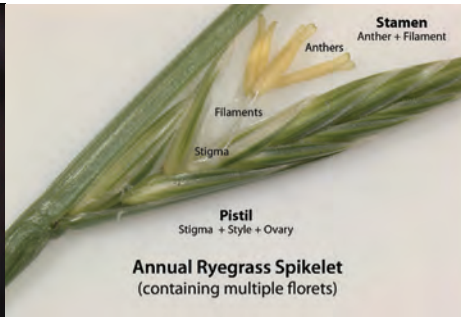
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The floral features of turfgrasses are shown here, along with a comparative photo showing the similarities to a more widely recognized plant flower. Photos by Casey Reynolds.

Buffalograss is dioecious: male and female flowers are found on separate plants.

TURFGRASSES — DIFFERENT AND SIMILAR

// By CASEY REYNOLDS, PHD

Ever wonder what makes turfgrasses so different from other plants we find in the landscape? Just as importantly, ever wonder what makes them so similar? The answers to these questions are rooted in the origin of turfgrasses and where they fit in the plant kingdom. Understanding the origin of turfgrasses, and their relationships to other plants, provide insight into the role that turfgrasses play in our lives and why few other plants can perform a similar function. This article probes into the origin of this beautiful, durable, and functional plant that is our shared passion.

There are more than 300,000 species of vascular plants that form the dominant vegetation covering the Earth's surface. Vascular plants are defined by the presence of photosynthetic pigments and vascular tissues that carry water, minerals, and photosynthetic by-products throughout the plant. Within this group, flowering plants, also known as angiosperms, are a diverse group of land plants that are classified into 416 families. Turfgrasses belong to the *Poaceae* family, which is the 5th largest family based on number of species and the third largest based on number of genera. They are placed here along with important cereal and grain crops such as wheat, oats, and corn as well as rice, sorghum, and sugar

cane. In fact, four of the five top food crops in the world are grasses: sugar cane, corn, wheat, and rice. Worldwide, grasses cover approximately 24% of the world's surface and account for nearly 50% of human's caloric intake.

RESEARCH ON THE ORIGIN OF WIDELY USED TURFGRASS SPECIES IS SHEDDING LIGHT ON THEIR TIME AND LOCATION OF DEVELOPMENT AND ADAPTATION.



While there are more than 12,000 species of grasses in the *Poaceae* family, approximately 25 of them are used as turfgrasses. The relationship of turfgrasses and other *Poaceae* members to all other flowering plants are designated by phylogenetics, the study of evolutionary history to determine relationships among organisms. A complete picture of the current phylogenetics of flowering plant systematics can be found at the following link [http://www2.biologie.fu-berlin.](http://www2.biologie.fu-berlin.de/sysbot/poster/poster1.pdf)

[de/sysbot/poster/poster1.pdf](http://www2.biologie.fu-berlin.de/sysbot/poster/poster1.pdf). In short, turfgrasses belong to the order Poales and are closely related to other well-known plants including sedges (*Cyperaceae* family), rushes (*Juncaceae* family), lilies and tulips (*Liliales* order), as well as irises and daffodils (*Asparagales* order).

While it is clear that botanically speaking, turfgrasses are just as much flowering plants as roses, tulips, daffodils, and many trees, they are often not thought of this way. However, they still possess all of the same reproductive features as other flowering plants including a pistil (stigma, style, ovary) and stamen (anther, filament). So why do so many people not think of them as flowering plants? First and foremost, turfgrasses do not produce showy, colorful flowers, which is what many people associate with the term flowers.

Reproductively speaking, they do not need these features to attract pollinators because they are self-pollinated. In grasses, these structures are compacted into miniature flowers called florets that are small and inconspicuous, so they often go unnoticed. These florets are arranged into larger structures called inflorescences, sometimes referred to as seedheads, and there is a wide range of diversity in inflorescences among grasses.



Inflorescence of the grain crop sorghum.



Inflorescence of the grain crop wheat.

Interestingly, one turfgrass species with another level of diversity is buffalograss. While all other turfgrass species have perfect flowers, meaning that male and female reproductive features are found in the same flower, buffalograss is dioecious meaning that male (staminate) and female (pistillate) flowers are found on separate plants.

While other landscape plants are selected specifically for the appearance and color of their flowers, turfgrass

inflorescences are routinely removed through mowing. Turfgrasses have evolved through grazing such that their meristem, or growing point, remains at the soil surface allowing its leaves to be grazed or clipped without killing it. This is unlike any other flowering plant found in landscapes and is one of the most unique features of turfgrasses. It allows them to persist under mowing and traffic while forming a uniform ground cover that is functionally important to

the success of many urban landscapes. Simply defined, turfgrasses are flowering plants capable of producing uniform perennial ground cover due to their unique growth habit and there are few, if any, other species of plants that can play a similar role.

Research on the origin of widely used turfgrass species is shedding light on their time and location of development and adaptation. The centers of origin of common turfgrass species vary and can

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be found all over the world. Many of the cool-season turfgrass species originated in Europe and Asia while warm-season grasses originated mostly in Africa, Asia, and North America. For many years, turfgrass breeders throughout the world have taken advantage of this diversity by identifying and selecting successful, naturally occurring phenotypes and bringing them to market. They have also identified naturally occurring interspecific crosses as well as created new grasses through modern plant breeding techniques. This is all in an effort to produce new turfgrasses that are better adapted to climate extremes, drought, traffic, pests, etc.

The many benefits of perennial turfgrasses in urban centers have been well-documented with regard to capturing rainfall, reducing storm flow, reducing erosion, protecting watersheds from soil and nutrient runoff, and filtering pollutants in urban runoff due to their fibrous root system, high organic matter content, and diverse populations of soil micro-organisms. They are also one of the most effective species of plants for remediating disturbed topsoil. Home and building construction practices often remove, destroy, or significantly impact the health of these systems and the high carbon sequestration rates and fibrous root systems of perennial grasses are one of the most effective ways of returning soil structure to a more natural state. In fact, the US Environmental Protection Agency along with many state agencies often list turfgrass sod in its recommendations for planting in areas that require topsoil remediation and/or erosion control.

Soil remediation is largely a result of carbon sequestration as plants capture atmospheric CO₂ and deposit it below ground in roots, stems, decomposing leaf tissues, etc. There are an estimated 40–50 million acres of urban grasslands in the US alone that can sequester the annual emissions of up to 3.9 million cars. Recent research indicates that turfgrasses managed in urban settings are a net carbon sink for atmospheric CO₂ even after accounting for maintenance emissions from mowing, fertilization, etc.



Inflorescence of the ornamental grass pampas grass.



Inflorescence of St. Augustine turfgrass.

They increase labile soil carbon, total soil carbon, and soil organic matter. Data also suggests that this carbon sink can last for up to 30 to 40 years after establishment, with approximately 563 million tons of carbon sequestered in the top 8 inches of soil over 30 years.

Another potential benefit of urban turfgrasses with regard to energy is their ability to mitigate urban heat islands, reduce energy costs, and reduce carbon emissions from power plants. Research on the effects of urban heat islands in 2014 indicates that 57 out of 60 cities measured have seen temperature increases since the 1940's. Plants, primarily trees and grasses, help mitigate this effect as a result of radiative shading and evapotranspiration. These cooling effects are not only capable of reducing temperatures in urban environments, but also significantly reducing energy use, cooling costs, and carbon emissions from power plants. On a national scale, mitigating urban heat islands could reduce energy cost by up to 20% and \$10B per year. Other research has measured reductions in power plant emissions resulting from



Casey Reynolds, PhD, executive director, Turfgrass Producers International

green spaces in Beijing, China and documented 60% reductions in net energy required for cooling, which equates to an annual reduction in CO₂ emissions of 243,000 tons.

The unique growth habit, flowering, and fibrous root system of perennial turfgrasses make them one of the most appropriate plants for use in urban landscapes, and few, if any, other plant species can provide comparable benefits or functions. However, their uniqueness also places them differently in the minds of citizens and policy makers who may not recognize the relationships that turfgrasses share with other plant species, nor their positive environmental impacts.

If we can get decision-makers to start seeing turfgrasses as flowering plants that are both similar to, and different from, other plants found in the landscape then they may have a better appreciation of what this functional, durable, and beautiful plant provides in our daily lives. **/ST/**

Casey Reynolds, PhD, is executive director of Turfgrass Producers International. Thanks to Casey and TPI for allowing us to reprint this article from the November/December 2017 issue of Turf News.



JOHN MASCARO'S PHOTO QUIZ

JOHN MASCARO IS PRESIDENT OF TURF-TEC INTERNATIONAL



ANSWERS FROM PAGE 17



The brown areas on this baseball infield were caused by a concession stand worker. Last July on this bluegrass infield in central Illinois, the sports turf manager aerified the infield with needle tines just before he had 3 days off and was planning on going out of town. This field is kept in pristine shape year round and over this same time period, the field was in the middle of the STMA Field of the Year application. The sports turf manager knew the weather was going to be tough while he was away, so he set up a complex irrigation program to carry the turf through the stress period. The concession stand guy is scared to death of irrigation and of accidentally watering out games. Since he knew the sports turf manager was going to be out of town, he shut off the irrigation system so nothing would happen. This picture was taken 5 days



later, as you can see, by shutting off the irrigation system, something did happen! Despite this setback, the sports turf manager was able to bring the field back up to its usual pristine standards and the field did go on to win a 2017 STMA Field of the Year Award.

Photo submitted by Andy Ommen, Head Groundskeeper at McLean County PONY Baseball in Bloomington, IL.

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



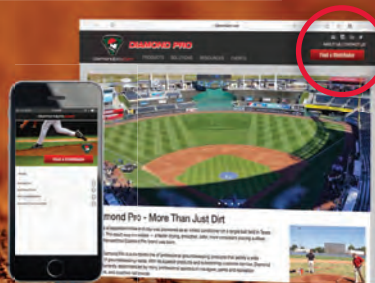
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► FIELD

PARKVIEW FIELD

FORT WAYNE TINCAPS

► LOCATION

Fort Wayne, IN

► **Category of Submission:** Professional Baseball
 ► **Sports Turf Manager:** Keith Winter
 ► **Title:** Head Groundskeeper
 ► **Education:** Bachelor of Arts/Master of Arts in Journalism/Sports Management
 ► **Experience:** While spending 25 years in the television industry and coaching three baseball-playing sons, I developed a passion for baseball groundskeeping, maintaining a 12-diamond softball complex as a side job from 1989-1997. In 2007, as my youngest son finished high school, I made a life-changing move into professional baseball, taking a position with the Great Lakes Loons as an assistant groundskeeper to help open their new state-of-the-art ballpark, Dow Diamond. After three seasons there, and being promoted to head groundskeeper in 2009, I moved on to the Fort Wayne TinCaps and Parkview Field for the 2010 season. Having just completed my eighth season with the TinCaps, I have become active in STMA as a multi-time presenter at the national conference, and also a frequent contributor as a writer and reference source in *SportsTurf* magazine. A thirst for constantly learning new and cutting edge sports turf-related information, plus 11 seasons in professional baseball, has helped to grow and expand my knowledge.

I am also fortunate to have access to great turf resources through a partnership with Advanced Turf Solutions (ATS), a green industry distributor offering fertilizers, chemicals, and accessories for the golf, lawn care, and athletic field markets. As one of the vice presidents and owners of the company, my brother, who also holds an agronomy degree, has been a partner in working on innovative fertility programs

- **Full-time staff:** Keith Winter, Head Groundskeeper; Ryan Lehrman, Assistant Groundskeeper; and Jake Sperry, Groundskeeping/Ballpark Operations Assistant
- Part-time staff: Ryan Masters (Taylor University) 2017 intern (April-September); game day seasonal staff: Josh Stork and Josh Baker
- **Original construction:** 2008
- **Turfgrass variety:** 100% Kentucky bluegrass from Graff's Turf Farm, Fort Morgan, CO; sod seed varieties are Bewitched, P-105, Prosperity, Moonlight
- **Overseed:** Lightly overseed player position wear areas in the fall using Graff's custom bluegrass blend (Bewitched, Ridgeline, Mallard, and Bandera Texas).
- **Rootzone:** 100% sand
- **Drainage:** Subdrainage system is 4-inch perforated tiles at the bottom of 10 inches of rootzone and 20 inches of coarse gravel,

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

running every 12-18 feet in the direction of home plate to center field. Tiles connect to an 18-inch field main collection line in the center of the outfield that runs to a 30-inch storm collector in the left field corner. This ties into the city's storm water pump system that was engineered and built during ballpark construction.

Why STMA should consider your field a winner?

The best fields at any level in any sport are the direct result of a long-term commitment to excellence by the sports turf manager and his staff, the administration allocating the dollars, and the overall excellence of the playing surface as critiqued by those who use it. In its 9 years of existence, Parkview Field has arguably been near the top of the very best fields in all of minor league baseball. This year, a player from another organization made it to the big leagues, and when he was asked in a pre-game interview what his favorite field was coming up the chain, he promptly said, "Parkview Field in Fort Wayne." Those kinds of comments prove that you are doing something right.

After winning six consecutive Midwest League Field of the Year awards (2010-2015), and three consecutive MiLB/STMA Class A Field of the Year honors (2013-2015), it has always been one of my goals to nominate our field for a STMA FOY award, because I feel this process is more subjective and less political in nature. This application takes a closer look at what a sports turf manager does to keep his field in pristine condition, and recognizes the work ethic and cost effectiveness of a comprehensive management program.

In my nine seasons at Parkview Field, I have turned over assistants (who move up the chain, two in the major leagues) and game day crew (who see that you need to be careful what you wish for) every year. But one thing remains constant no matter who is on the field, and that is we DO NOT cut corners. Each day, each week, each month, each season, we maintain a work ethic and pride in our field that, as one visiting manager touted, "Has to be seen to be believed."

Thanks to an innovative Plant Growth Regulator (PGR) program, year #2 of PGR use resulted in the thickest, healthiest stand of grass I have ever seen. Our density of plant and root mass reduced previous baseball cleat damage to a minimum. One fellow Midwest League head groundskeeper during an August visit stated, "Your bluegrass is thicker than bermuda!" That's the kind of "carpet" you're looking for in the 5-month long grind of minor league baseball, where early work often begins 5 hours before first pitch. We have had fans, coaches, and even players walk out to the field and ask, "Is that artificial or real grass?" If it's hard to tell with the naked eye, then I would say that's one of the best compliments a sports turf manager can receive.

SportsTurf: Please describe your most unusual background for a sports turf manager.

WINTER: After 25 years in the television industry with an undergraduate degree in journalism and a master's in sports administration, and having raised three baseball-playing sons, my coaching experiences led me to an increased interest in baseball field maintenance as my sons progressed from youth league to high





school. Additionally, as a “second job” throughout most of the 90’s, I helped maintain a 12-diamond softball complex in Columbus, OH so I had significant experience in field maintenance. As my youngest son was finishing high school, I began to explore opportunities in professional baseball as my passion had become taking care of a baseball field at the highest level. Through networking and numerous discussions with those in the industry, I ended up going to Midland, MI to help open Dow Diamond for the Great Lakes Loons as an assistant groundskeeper in 2007.

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

WINTER: Besides loving the sport of baseball, the more I observed and learned about field management, the more

I was fascinated with the process of preparing a field for a game. When going to major league games, I would go early to watch the grounds crew do their thing, and that, not the game itself, intrigued me. The sports turf side of the equation became more evident once I got into pro ball as a head groundskeeper. It took a lot of research and educating myself to learn the ins and outs of turf management. STMA conferences were a great resource and opportunity to pick up information. Additionally, my brother has an agronomy degree and is a vice president for a large green industry distributor in the Midwest. Our collaboration and the availability to tap into his knowledge and his company’s resources have been extremely beneficial.

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

WINTER: In professional baseball, the daily grind of providing an excellent field each and every game is challenging, especially considering weather factors we deal with in Indiana. Cool springs and hot summers are a reality, and we cannot control the weather. Also at the minor league, Class A level, there is early work that begins by 2:30 pm each game day. To combat that daily wear and tear before the 7:05 game, it takes planning and implementation of a strong turf and clay surface management program that can withstand the rigors of 70 minor league games, as well as high school doubleheaders, concerts, and other on-field events. You can't simply "fix it" after the damage occurs. I believe in having a strong enough field to fight the damage and wear year round.

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

WINTER: We are always looking to evolve and get better. I am constantly looking for ways to fight baseball wear areas (around mound/plate, player walk ups and position areas). I do not believe that constantly re-sodding is the answer, especially when I don't have access to financial resources or availability of large quantities of sod. I am looking seriously at incorporating some crumb rubber into those wear areas to fight crown damage and compaction, especially early in the season when soil temperatures keep our bluegrass from thriving. I am also investigating a new clay for our mound and plate areas.

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

WINTER: Number one is the individuals I have had the privilege to introduce and mentor into professional baseball groundskeeping. Watching them grow and mature as men, as well as sports turf managers, is a joy and blessing.

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

WINTER: Always be willing to learn, listen, and adapt.

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

WINTER: The educational opportunities and networking provided through STMA are very helpful "IF" you choose to use them. I set a goal to take one or two things away from each national conference, and over 10 years, it has made me a better sports turf manager.

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

WINTER: I am concerned about the influx of new, hardworking, educated sports turf managers. The colleges and universities with turf programs are graduating students, but it is hard to gauge if they will be willing to go to work for the money that is being offered in introductory positions. I especially see a turnover in professional baseball as the hours and pay are sending young field managers to other opportunities in the industry where they can make more money and spend less time.



ST: *How are using social media at work?*

WINTER: We have a Twitter account that we use periodically. Facebook has been helpful in finding out information about job applicants and colleagues. I leave most of the social media activity up to my two assistants (who are both under the age of 30).

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

WINTER: My wife, family, and my faith are my passions outside of baseball. We just celebrated our 36th wedding anniversary and are enjoying our "empty nest" years. All three of our sons have careers in sports-related professions, so we spend time watching their games when we can. With grandchild #1 due this spring (in Florida), that dynamic will likely change how we spend much of our free time. Working to grow and make disciples of Jesus Christ is our life-long ambition. /ST/



Fraze mowing Merlo Field at the University of Portland.

Richard Campey

STMA COMMERCIAL MEMBER SPOTLIGHT:

Richard Campey, Campey Imants

Editor's note: Another installment in our continuing series highlighting STMA commercial members. This month we hear from Richard Campey managing director of Campey Turf Care Systems and co-founder of the Campey Imants brand. One of the most successful UK exporters of sports turf machinery, Campey has taken a small machinery dealership and turned it into a global force, becoming Europe's largest independent grounds care machinery dealer, supplying equipment to countries in most parts of the world:

SportsTurf: Does Campey Turf Care manufacture Imants and Koro machines now or is the company the distributor for these brands? What other brands do you represent?

CAMPEY: Campey Turf Care Systems distributes the Imants and Koro brands of machines throughout our own dealer network. We cover the United Kingdom, Ireland, Europe, Middle East, Far East, South America and Africa from our head office in the UK (20 miles south of Manchester).

We founded a partnership in 2011 with Imants to assist in marketing and promoting the product line (Koro and Imants) for the USA and Canada until 2015, when Aqua Aid Inc. of Rocky Mount, NC was appointed as the importer.

Campey Turf Care is also the distributor for Dakota Turf Tenders, which we have been importing for the past 18 years. Other product lines include the Vredo overseeders, distributed throughout the UK and Ireland; the Raycam range of products, including Speedressers, UniRakes, Rubber Dragmats, etc., we design and have manufactured locally for us, and we sell them worldwide.

ST: What distributors do you employ in the USA?

CAMPEY: Aqua Aid Inc. of Rocky Mount, NC, headed by Sam Green COO and his team are our appointed distributor to set up a dealer network in

the USA and Canada, which they have and continue to do so.

ST: Fraze mowing is growing in popularity in USA; how was this maintenance practice developed in Europe? How did you convince the first customers to try it?

CAMPEY: In the later 1990's as professional football/soccer developed, the poor quality of the playing surfaces was highlighted as the games were televised. During and after a match huge foot wide divots were kicked out of the playing surface. This was because the playing surfaces were nearly 100% *poa annua*, shallow rooted and a "weed grass." During 1997/98 while I was in Holland, I had the pleasure of meeting Ko Rodenburg, the inventor of the Koro range of machines. Ko was in charge of sports pitches for the City of Rotterdam council that were maintained to a very high standard, using only six tractor drivers

and quality machinery. These playing surfaces were nearly *poa annua*-free.

Ko explained that because there was no machinery on the market that satisfied his requirements, he had developed a machine himself, and the first Koro FIELDTOPMAKER (FTM) was born. Ko had used the Koro for three seasons and *poa* had reduced by 90%. The first season the setting deep, 1–1½ inches to remove the *poa* seed bank, then in subsequent years setting light (¼–1/2). This technique has since become known as “frazze mowing.”

The word “frazze” has been spelt numerous ways over the years – fraize, fraise or fraze – but they all have the same meaning: to remove unwanted grass species with the FTM.

The very first UK demo of the FTM was carried out at a school nearby our offices. We invited UK contractors and football groundsmen, and within 5 minutes of seeing the machine working, two contractors ordered machines. Their enthusiasm really convinced me that it was a viable machine! Since then these same two contractors have gone on to purchase new FTM's over the years, and are running 10 FTM's machines each.

ST: Please explain how fraze mowing works, and the role of the Universe rotor?

CAMPEY: The FTM has been further developed by Imants in conjunction with ourselves, customers and end users who wanted to identify their problems on sports turf surfaces and discover a way to overcome them by mechanical means.

One of the problems encountered by turf managers who have plastic reinforced pitches, initially DESSO GrassMaster, was if they did not clean out the annual build-up of organic matter (thatch) the surface become unstable, the plastic reinforcement was buried and no equipment available at that time could deliver a solution.

We were aware of the problem 10 years ago and started experimenting and testing different rotors, culminating with today's patented Universe rotor.

In cool season turf, which is infested with *poa*, we can set the FIELDTOPMAKER with Universe rotor fitted, very precisely, thus ensuring that the teeth of the rotor can



The Universe rotor.

be set very precisely into the turf canopy so that they “grab out” the plant and remove into a trailer running alongside the FTM.

In warm season turf the Universe rotor can be set (in increments of 0.10 of 1mm depth) with precision to remove all the organic matter in one pass and leave stolens and rhizomes for quick recovery so the surface is soon back in full play.

This is how fraze mowing has been perfected.

ST: Is it a primarily or exclusively contracted service?

CAMPEY: The Koro FTM with Universe rotor is sold both to end users and contractors. End users prefer the two smaller models 1.2m and 1.6m (4' and 5' 6") while contractors purchase the 2m and 2.5m (6' 6" and 8' 4"). It really depends on whether the customer has the staff and tractors available as to whether to purchase or contract the service in. All I can say is that we see more and more end users purchasing the machine as they can see and reap the benefits of it.

ST: Have any changes been made to the fraze mowing process since it was introduced in the USA?

CAMPEY: Frazze mowing in the USA was first carried out with the “L” shaped blades. These did the job at the time, and still do; however we wanted to take

frazze mowing to the next level, hence the development of the Universe rotor and we are now hearing guys talk about “Universe fraze mowing.”

The Universe rotor has blades that are available in 10mm (3/8" for 100% removal), 5mm (5/16" for 50% removal) and 3mm (3/16" for 30% removal). We are now able to achieve a much cleaner hygienic surface, which results in a faster recovery time and a much-improved level playing surface without the need to re-sod.

ST: Any changes to the machinery?

CAMPEY: Over the years the Koro FTM has seen upgrades and been redesigned to the present new models launched this year at STMA and GIS; this is because the companies we distribute for are prepared to invest in research and development and manufacture innovative machinery. Today models of the FTM bear no resemblance to the original design and the quality of the job carried out is far superior to when we first started in 1999.

ST: Can you tell us about any new machines that you are developing now?

CAMPEY: All I can say is that you will see in the next few years some new ideas and techniques brought to market by Campey Turf Care, which hopefully will improve the quality and playability of natural grass surfaces, at the expense of plastic. /ST/



“THE PERFECT MOUND” WINS STMA INNOVATIVE AWARD

The Sports Turf Managers Association awarded its latest Innovative Award at the Conference in Fort Worth to The Perfect Mound. This prestigious award is given to one or more exhibitors whose innovation has made the sports turf manager more effective or the playing surface safer.

The Perfect Mound Adult Model is engineered to meet major league specifications. The portable pitcher’s mound is constructed of reinforced fiberglass that is engineered for unlimited play. The 18-foot adult portable pitching mound model is made up of six individual pieces that interlock to complete the entire mound. These individual pieces allow for the pitching mound to be portable and a baseball field can be transformed into any playing field desired, according to the company’s website.

The Perfect Mound youth model is engineered to meet all youth leagues, Pony League, middle and junior high school baseball mound specifications. The 10-foot youth mound model is made up of four individual pieces.

Inspiration

In 2006 a Frontier League team in Chillicothe, OH made the move from natural dirt and grass to artificial turf. When a 5,000-pound mound covered in turf was installed, Bill Lee noticed a need for a portable mound. The next field in the Frontier League to move to artificial turf was in Traverse City, MI; there the ownership installed a concrete mound that could never

be moved. Then, the Washington Wild Things followed suit installing an artificial turf playing surface and trying their luck with a dirt mound on a concrete plate that required a forklift to move. There was no solution for a top quality mound that could be removed to allow the field to become more multi-use.

After watching the different iterations of mounds throughout the league, “I started talking to several people and asking questions about mounds and I began drawing things in my head and thinking about how it would come together,” says Lee. “I would wake up at night thinking about how to solve this problem.”

When Richard Sauget’s Gateway Grizzlies decided to install artificial turf in 2011, Lee proposed his idea for his portable turf mound. “So we developed a prototype and tested it out at SIU-Edwardsville. We set it on their turf soccer field and let their pitchers and pitching coach throw off of it,” says Lee. When asked their thoughts, the pitchers at SIUE replied with, “It’s the most perfect mound I’ve ever throw off of,” and “This thing feels perfect.”

The term “perfect” kept coming up, including from the artificial turf companies and thus, The Perfect Mound was born.

The product has been adapted and changed many times along the way. Years of work went into finding the right artificial turf to use and how to cut it in. A lot of work also went into the design of the pieces so that they interlock and not move once on the field, but can still be lifted and taken apart easily for removal. The other thing we put a lot of research into was



L to R: owner Richard Sauget, Jr.; VP of sales Craig Dohm; account executive Katie Griffith; and owner Bill Lee. Not pictured, Richard Sauget Sr, owner.

how to keep it from being “bouncy” (which is a problem with other mounds on the market) yet remain lightweight enough to move, said Griffith.

In the beginning

The company was created by Bill Lee and Richard Sauget, Sr. Bill Lee is the only commissioner to ever lead the Frontier League. He took on the role in 1994, the League’s second year of operation. In

2017 the Frontier League celebrated its 25th anniversary, making it the longest independent baseball league currently in operation.

Lee graduated from Southern Illinois University-Edwardsville where he played baseball for the Cougars. After graduating with a degree in Mass Communications, Lee signed to play in the Atlanta Braves organization, and then the Independent Lone Star League. His first foray into field products was when he went to work for Diamond Dry, a corncob product that helps dry wet playing fields. Lee created the distributor network for the product.

Later Lee worked for the Birmingham Barons and then moved on to become general manager of the Chattanooga Lookouts, where he was named the Southern League’s Executive of the Year in 1989. Lee then jumped to hockey where he spent four years as VP of Sales and Marketing with the Seattle Thunderbirds amateur club. In February 1994 Lee took job of Frontier League Commissioner.

Sauget is managing partner of the Gateway Grizzlies in Sauget, IL and founder and president of East County Enterprises, a real estate management firm. Sauget graduated from the University of Notre Dame where he attended on a football scholarship and also played baseball. After graduation he signed as a catcher with the Atlanta Braves organization where he spent 6 years from A-AAA and had an appearance in the majors. He finished his career with the San Francisco Giants AAA team in 1973 before retiring.

While playing for the Braves, Sauget continued his education and wrote a thesis on the economic impact of the 1967 World Series on the city of St. Louis. While writing the thesis Sauget learned the magnitude of impact a baseball franchise can have on a community. This is when he became interested in owning his own team.

In January 2013 The Perfect Mound debuted at the American Baseball Coaches’ Association annual meeting. “We walked out of there with awards for ‘Most Innovative Product’ and ‘Best in Show’ that year!” says Lee.

The company is working on a softball prototype. *IST/*

Q&A WITH PETER FARNO, BAYER’S LAWN SEGMENT MANAGER

SportsTurf: *What are the challenges in marketing products in the sports turf market vs.. the golf market?*

Farno: Sports turf managers have a unique set of challenges in building successful agronomic programs. In spite of the best-laid management plans, damage inevitably occurs with rainy games, mid-season concerts, etc. That in mind, it’s critical that they choose products that won’t limit potential repair efforts. Other unique differences:

- Culture; players don’t see turf the same way a golfer does, so the sheer amount of stress put on a field can be brutal
- Frequency of damage from events; the average sports field hosts anything from practices to games to concerts to half-time performances



■ Quality expectations; though both golf course turf and sports field turf are focused on playability, what that means can vary greatly.

ST: *Are you introducing any new products for the turf market in 2018? If so, what?*

Farno: Although Bayer is not planning to introduce any new products to the turf market in 2018, sports turf managers will be gaining awareness of our most recent product launches: Indemnify nematocide and Exteris Stressgard fungicide, the newest products introduced to our turfgrass management portfolio.

ST: *What problems facing turf managers are you currently working on in R&D?*

Farno: Bayer continues to invest in the development of new solutions that address the evolving needs of turf managers. For example, recently, with the launch of Exteris Stressgard, we introduced an innovative formulation enhancement called Leaf-Cote Technology, which allows the fungicide to better adhere to the surface of the leaf, improving product retention and optimizing foliar disease control.



NEW INFIELD TOPDRESSING FROM SURFACE

Surface SlideMaster is a premier infield topdressing that plays a crucial role in improving sliding surfaces on skinned infields, and water management especially in dry conditions. Researched, developed and tested in the lab and on the field, SlideMaster meets the demands of today's groundskeepers and coaches, making maintenance easier for field managers. SlideMaster is durable, long lasting, and offers the cleanest, most uniform particle screening of any vitrified clay or shale product. The all-natural reddish color blends well with Turface Pro League Heritage Red and Pro League Champion Brown calcined clays, and will not stain uniforms. SlideMaster particles are designed to allow water to quickly penetrate into the infield skin for deeper saturation, and can be combined with Turface calcined clay for optimum moisture management at the surface and in an infield mix.

Surface, from Profile Products



EXMARK'S NEW LAZER Z DIESEL

Exmark has unveiled its 2018 Lazer Z Diesel commercial zero-turn riding mower. The all-new model introduces innovations including a

new 96-inch UltraCut Flex Wing cutting deck and state of the art Yanmar liquid-cooled diesel engines equipped with Exmark's patented RED Technology. Exmark engineers placed the engine and radiator lower in the Lazer Z Diesel chassis, lowering the machine's center of gravity for improved handling and increased stability. The design couples the engine directly to the transmission, completely eliminating drive belts for a more robust, efficient powertrain. With reduced service requirements and extended service intervals, the Lazer Z Diesel drive system delivers maximum uptime and a lower total cost of ownership compared to other machines. For applications requiring maximum power and torque combined with quiet operation, Exmark offers the 1.6-liter common-rail direct-injection power plant as an option on all three models.

Exmark

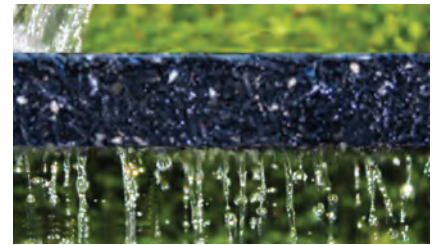


NEW SINGLE-CYLINDER GAS ENGINES FROM VANGUARD

Vanguard introduces the first in a complete line of all-new single-cylinder horizontal shaft commercial gasoline engines built from the ground up based on customer input. Vanguard developed the new engines around key areas of performance critical to improving overall productivity, including starting, maintenance intervals, service and support, and total cost of ownership. The new line will span from 5 to 13 gross horsepower to meet power requirements for a wide range of global commercial applications. The ground-up design process allowed Vanguard to comprehensively engineer all-new carburetion, ignition and combustion systems to promote reliable starting in any environment. To ensure four-season starting, the engine is designed to start at temperatures as low as -20 degrees F. To further improve

starting, all surfaces inside the carburetor that contact fuel feature a special corrosion and stale fuel resistant plating. The new line of engines also includes an advanced version of TransportGuard, Vanguard's exclusive single ignition and fuel shutoff designed to prevent oil dilution during transport.

Vanguard



HYDROBLOX DRAINAGE FOR TURF

Domos Water Technologies is a leader in providing solutions to controlling how and where water flows. HydroBlox, Inc. drainage solutions have proven to be a permanent and efficient drainage solution for all sports turf, field and permeable surfaces. HydroBlox, Inc. is a US manufacturer of drainage, stabilization, green infrastructure and filtration solutions that are proven to be technically superior to traditional systems. Made from 100% recycled thermoplastics, HydroBlox Inc. products are permanent solutions that do not clog, are easy to install and handle, require little to no maintenance are high strength and long lasting. Installation requires no aggregate or stone and minimal ground disturbance during install. Whether you are looking for a more efficient solution for drainage, water treatment, ground stabilization, retention/detention, or permeable paving, Domos Water Technologies - HydroBlox has a solution for you!

Domos Water Technologies

NEW SPORTS FENCING OPTION

SPECTO Sport Fencing Systems, by Grand Slam Safety, LLC, are a revolutionary approach to fencing for sports facilities and athletic fields. SPECTO fences significantly reduce the risk of player injury, as well as maximizing usable space and increasing field versatility. Whether you're looking for permanent or temporary sports fencing for indoor or outdoor play, Grand Slam Safety, LLC fences will enhance your facility, no matter the field or sport. Tired of your players



running into chain link fences and risking injury? SPECTO is the sport fencing option you've been looking for.

Grand Slam Safety, LLC



NEW MACHINE FROM AIR2G2

The Air2G2 324 is an easy to operate, self-propelled machine proudly made in the USA. The Air2G2 324 uses three probes to laterally inject pressurized air up to 12 inches beneath the surface of the soil to fracture the compacted layers that form as a result of foot traffic, mechanical traffic and nature's daily wear and tear. These laterally injected air blasts loosen up compacted soil immediately, but without any disruption to the surface of the turf or to the roots below. With frequent, regular use, performing Soil CPR creates surfaces that are healthy, firm and ready for play immediately after treatment. Air is everything to anything that lives, and for your soil, the Air2G2 324 is a breath of fresh air. C=Compaction Relief: Fractures hardpan layers without disruption to roots or playing surfaces; P=Porosity Increased: Lateral air injections increase pore space, promote faster drainage and root development; R=Respiration Enhanced: Forces oxygen in and pushes CO2 and other anaerobic gases out for root zone gas exchange.

Air2G2



MAR-CO INFIELD PRODUCTS

With more than 25 years of experience installing and renovating baseball fields across North America, Mar-Co is an industry leader. Whether you're building from scratch or renovating your existing field, Mar-Co has the expertise and services to give you the best play for the best price. Mar-Co leads the industry in three critical areas: product, market experience, and customer support. With Mar-Co, you get a high-quality, low-maintenance, consistent product that gives your field a professional look. From infield mixes and mound clays to conditioners tailored to optimize your existing field, we have the right product for every need. And Mar-Co customer support is unmatched in the industry. From the first site visit, soil analysis, and installation planning all the way to long-term maintenance, Mar-Co and its dealer partners are there for the long haul.

Mar-Co

KUBOTA'S NEW Z700-2 SERIES

Kubota's new Z700 Series is comprised of six models and is now available with a premium adjustable suspension seat with 3 inches of vertical travel and 6 inches of fore and aft travel. The Z700 Series is powered by Kawasaki's industry-proven FX engines and Kohler Command Pro engines engineered to ensure superior results. With dual Parker TorqPact HTG 14 transmissions, the Z700 Series puts exceptional torque and power on the ground where it is needed. Each model features a durable eight gauge steel 48-, 54- or 60-inch deck, six inches deep, allowing for outstanding stability and an efficient, high quality cut. The Z700



Series offers unmatched ergonomics with a wide operator station, a premium adjustable suspension seat for comfort and reduced fatigue during long jobs.

Kubota



DIGITAL UNDERGROUND CABLE LOCATOR

The Pro900 Digital Underground Cable Locator is a digital underground locator for maintenance contractors and personnel. Incorporating three different locating frequencies, the Pro900 tracks metallic cabling, including CATV, electrical, telephone, sprinkler, and lighting. The Pro900 transmits solid or intermittent tracking signal that is easy to follow. The digital signal reception allows for crystal clear and incredibly sensitive tone reception in most situations with either null or peak reception. The Pro900 incorporates a 50/60Hz passive locating mode, which identifies electrical sources (power cables) and tracks them without using a transmitter of any kind. Contractors can identify the path of 50/60 Hz underground cables without disconnecting them or connecting to them.

Armada Technologies



Q&A with DR. GRADY MILLER

Professor,
North Carolina
State University

Questions?

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

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



Taking it to the next level

Q: WHAT CAN I DO TO IMPROVE MY FIELD(S)?

A: During the year, I get asked this question frequently. About 6 weeks ago, I was visiting with a new coach at new private school while standing on the school's only field. It was being used for physical education classes and for soccer practice. Actually, maybe I should characterize the field better – it was a pasture, mown low. They were using a nearby city-maintained facility for their home games. It was their desire to improve the field so that they could actually use it for competition.

Of course I sometimes get an equally great opportunity to stand on great fields with very experienced sports turf managers and they sometimes ask the same question. I think one of great joys in my job is the opportunity to help people in their journey toward better playing surfaces regardless of where the journey begins. I wish all sports fields had some minimum level of condition all the time, but I have come to realize some situations just do not allow that to be the case.

Of course, “pro-level” fields have high expectations so that brings its own unique set of problems. Unfortunately it seems our high-end sports surfaces tend to cost a lot to keep them high-end; whereas, the low-end fields tend to stay low end because inputs are rarely ever increased, or at least they do not seem to match the level of use.

I have always said there are four major components that influence the quality of a field. At the center is good construction of the field. Afterwards, it is all about water management, maintenance, and controlled use. This column is going to concentrate on the maintenance aspect.

I will target my response toward minimum maintenance fields, but the concept can be applied to fields maintained at any level. At the most basic level most people recognize the need to mow turfgrass, but some turf managers could still improve their mower set-up and mowing practices. Sharp blades (rotary or reel) and properly set up deck or reels are paramount to a quality cut. Turfgrass should be mowed regularly based on growth rate and desired mowing height. The lower the cutting height, the more frequently it should be mowed. Bermudagrass fields will require more frequent mowing in the warmer months. Attention to this cultural practice is the first commitment that needs to be made toward achieving quality athletic fields.

After mowing, the next big impact item is often fertilization. Bermudagrass will respond to nitrogen fertilizer. In general, the higher the rate, the faster the recovery from damage. Well-fertilized grasses are darker

green and generally will have fewer weeds. With high-end field management all kinds of fertilizer products can be used in programs for peaking fields for events, recovery, color, etc. But on the low end, just getting regular applications of a fertilizer at decent rates can make a big difference in field quality. Increasing rates from 1 pound per 1,000 square feet to 2, or 2 to 3, etc., up to about 6 pounds of N per 1,000 square feet a year will bring improvements. Once you get up to the higher annual rates, application timing and product formulations can be adjusted to refine turfgrass performance.

To me the third big impact item is weed control. For most high-end facilities, weeds are not tolerated. Often in large stadiums weeds are not a significant issue a year or two after establishment because the stadium walls prevents weed-blown seeds being introduced and dedicated mowers are used so no weeds are brought in from outside fields. But I often see lower-input fields struggle with weeds if measures to prevent them are not taken. I always suggest fields be put on a preemergence herbicide program. It is normally much cheaper and easier to prevent weeds than to control them once they appear. For bermudagrass fields, the active ingredient oxidiazon is the product of choice although in some instances other products may be used effectively. There is a large arsenal of chemical control products; many are specific to particular weeds. Take the time to figure out the best weed control program for each of your fields. This can save you money and time, minimizing your inputs, and increase your field's uniformity.

The last significant maintenance practice to address is aerification. Poking holes with or without pulling cores is paramount to keeping a field from becoming overly hard and the turfgrass healthy. This practice also helps with water infiltration, fertilizer efficiency, and gas release. Turf manager almost can't aerify their fields too much. Aerification frequency is one of the biggest management differences I see between low-input and high-input fields. I recommend most field managers try to figure out a way to get their fields aerified more frequently than they are currently accomplishing.

So, how can you do better? For low-budget fields, target the practices that will have the greatest benefit for the dollars and time invested. I would start with the four I just mentioned. Increase your inputs to the level your budget will support. Then use your knowledge and experience to make timely decisions to maximize those inputs. Make decisions purposefully and your fields will get better and better. **/ST/**

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