STMA FOUNDERS TOMA & ERICSON

www.sportsturfonline.com

May 2017

SportsTurf

SPORTS FIELD AND FACILITIES MANAGEMENT

green media

SportsTurf MANAGERS ASSOCIATION

Completing the job:

Noblesville High School WINS Field of the Year

ALSO INSIDE:

- Hybrid turf systems
- Using drones and sensors
- Environmental certification
- Consider sand slit drainage
- Playing Conditions Index

OFFICIAL PUBLICATION OF THE SPORTS TURF MANAGERS ASSOCIATION

Make your fields safer with a SMITHCO INFIELD GROOMER with center-mounted scarifier.

Providing safe playing surfaces has become a top priority of Grounds Managers, Coaches and Managers.

It's a top priority at Smithco, too. Our new Groomer helps make infields, base paths and warning tracks consistently smooth, level and attractive while providing the surface with enough give to help prevent injuries from falls, slides or even bad hops.

- 5 models in both 2- or 3-wheel drive, 16 or 18 hp gas engines.
- 18 hp diesel engine, hydraulic or mechanical steering.
- "Star Trak" drive system on 3-wheel drive models for improved traction and increased transport speed.
- Hydraulic control of implements with unmatched ground clearance.
- Widest range of implements for grooming, rolling, aeration, renovation, construction, debris and core removal, top-dressing and fertilizer applications and standing water management.

Center-mounted is important. It's where most of the machine's weight is available to help dig into hard surfaces.

We offer over 25 different implements for sports field care.

Front-mounted plow, 40" and 60" widths. Level your field and fill in low spots.

Flex action finisher with finish brush – Smoothes and levels infields whether wet or dry.

Spring Tine Scarifier chews into surfaces but skims over base spikes or pockets.

Smithco 50 YEARS 1967★2017

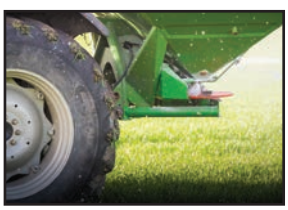
STARTING LINEUP

May 2017 | Volume 3 | Number 5

FEATURES

DEPARTMENTS

ON THE COVER: Josh Weigel had the innovative idea of using a turf groomer to dethatch his winning field, saving money with great results. Photo by Ricardo Seucharan of Skyview Aerial Imaging.



SAFE FIELDS FOR ALL

that's the root of our mission

7 MILLION

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

62% of injuries happen during practice

50% IN KIDS UNDER THE AGE OF 15

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

SO FAR, WE'VE GIVEN OVER

$225,000

in scholarships & travel reimbursement to 120+ students

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

TOGETHER, WE CAN DO SO MUCH MORE.

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

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

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

PLEASE DONATE TODAY

SAFE

The Foundation for Safer Athletic Fields for Everyone

Follow us on Twitter @SafeFields

WWW.SAFEFIELDS.ORG

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

Eric Schroder
Editorial Director
Eschroder@epgmediallc.com

SURVEY SAYS!

Earlier this year we conducted a reader survey; here are some of the most interesting results:

■ 35% had a job title of sports turf manager; the next highest percentage was 18 for school or park administrator

■ 78% of respondents were responsible for general grounds maintenance, while more than 60% managed personnel; 43% handle off-field stadium maintenance duties

■ 81% are interested in reading about turfgrass research; 79% about field maintenance; 71% about product information; lowest percentage, 27, cited workforce management

■ 78% have discussed an article or advertisement with a colleague

We also asked an open-ended question about how we can improve the overall reader experience. My favorites, good and not so good:

■ Very happy with the way it is now

■ Have more articles for younger/just starting out turf managers/assistants, on what steps to take to grow and become successful in this industry

■ You do a very good job. Thank you.

■ Fewer articles by vendors

■ Great magazine. It's been a tremendous resource for our department and myself. I'm firmly convinced the information I've learned helped me get my first job!

■ Think [you] go too heavy on the MLB and Division I STMs with crazy budgets

■ Stop putting non-peer-reviewed articles in the Field Science section

■ More sports turf manager leadership/ crew management articles

■ Keep publishing content that is relevant and stretching us into partner industries like facility operations management and administration

■ I think that there needs to be a wider range of writers and others instead of the same people being presented in the magazine

■ Trial and error for projects that have and have not worked

■ Please continue to publish more articles for the little guys. The staff I come in contact with have little or no budget and minimal staff and need creative ways to succeed.

■ Hands-on projects that show one how it is done

■ Articles on justifying budget increases, budget information from other turf managers so comparisons can be made, cost of what the field users are paying to use the fields we maintain, and information on dealing and communicating with users that can be difficult and reducing the wear they create

■ I've noticed an increase in the amount of articles on synthetic turf and I encourage more

■ Continue on the same course. It seems to be working

■ I do read all the research articles so I can apply some of information to my job

■ Include more turfgrass research

■ Sell more advertising then add more articles

■ Need more articles on high school fields

■ Keep doing what you're doing! It's working!

■ You seem to be geared to the administrator or person in charge rather than the turf guy. I know this is all about the advertising dollars but if there were any way to scale it back it would be of more benefit to the common turf guy

■ Make it essential to include the cost of projects undertaken in any article ST

SportsTurf
SPORTS FIELD AND FACILITIES MANAGEMENT

EPG Media & Specialty Information
10405 6th Ave. N., Ste 210
Plymouth, MN 55441

The Official Publication Of
The Sports Turf Managers Association

SALES REPRESENTATIVES
Chris Pelikan
Senior Account Manager - East
Phone: (763) 383-4408
cpelikan@epgmediallc.com

Peggy Tupper
Senior Account Manager - Midwest
Phone: (763) 383-4429
ptupper@epgmediallc.com

Leslie Palmer
Senior Account Manager - West
Phone: (763) 383-4460
lpalmer@epgmediallc.com

EDITORIAL
Group Publisher:
David Voll
Editorial Director:
Eric Schroder
Technical Editor:
Dr. Joey Young
Art Director:
Jean Blackmer
Production Manager:
Angela Scott

SUBSCRIPTION SERVICES
Phone: (847) 513-6025
Fax: (763) 383-4497
customerservice@epgmediallc.com

REPRINTS
Robin Cooper
rcooper@epgmediallc.com

GROUP PUBLISHER
David Voll
dvoll@epgmediallc.com

DIRECT MAIL LIST SALES
MeritDirect, Jim Scova
Phone: (914) 368-1012
jscova@MeritDirect.com

EPG MEDIA& SPECIALTY INFORMATION

Connectiv The Business Information Association, a division of SIIA

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

Tim Van Loo, CSFM
STMA President
vanlooti@iastate.edu

WHO ARE YOU WHEN NO ONE IS WATCHING?

The grass is out of winter dormancy for nearly all of us, and spring sports seasons are in full swing with summer programs beginning soon. For me, the summer is when I get to manage the fields and start to work toward peaking them for the fall. Do not get me wrong; I like games and the preparations for a game, but getting the fields to near perfection during the off-season is still my favorite. As you are setting out your plans for the season, do not forget to document your progress in preparations for "Field of the Year" applications. Make the decision now and look at the application. Make sure you document all the things that are necessary for the process. The process is not difficult and the benefits for winning are nearly impossible to capture.

> "Character is who you are when nobody else is watching."

I have a quote that is on nearly every mirror of my home. My beautiful bride put it there to remind our children and us of this very simple truth: "Character is who you are when nobody else is watching." This is a summary of a longer quote from legendary coach John Wooden. Earlier this year the press made a big deal of Dak Prescott of the Dallas Cowboys picking up a cup that he threw at a garbage can that did not make it into the trashcan. As a groundskeeper, I appreciate anyone who doesn't leave his or her trash, but seeing a professional athlete pick his up was impressive. He didn't know the cameras were on him; he simply did the right thing. Do you ever find yourself doing things simply because it is the "right thing" or are you one of those people that only do the "right thing" when people are watching? Your character is built on much more than doing the right thing when no one is watching, but I think it starts there.

The other part of character that I think defines someone is humility. In our profession, we are bound to mess up now and then. Admitting that mistake can be difficult, but also can be so incredibly helpful when trying to make the problem right. I believe that we live in an era when it is easy to blame everyone else for a mistake. I have found that it is far easier to own the mistake and start in the direction of making it right instead of wasting time blaming others. I would encourage each of you to look at yourself in the mirror and ask what kind person do you want to be: one who's the same when no one else is watching, or one who acts differently when you could possibly gain a benefit?

On behalf of the STMA I thank you for your support of this fantastic organization. I would also encourage you take advantage of the many programs we offer and have created for your benefit. Please let STMA staff or I know if you need anything; we are here to serve you.

@cycloneturf

GEORGE TOMA: A lifetime on the dirt

BY **STACIE ZINN ROBERTS**

For 76 of the 88 years George Toma has been alive, he's had infield dirt on his shoes. The son of a Pennsylvania coal miner who died when Toma was 10 years old, young George had to go to work to help support the family. To avoid following his father into a dark hole in the ground to dig out coal, he worked odd jobs and by age 12, found a job in sports turf maintenance. He's pushed a rake ever since.

A founding member of the STMA, Toma molded a career that includes every Super Bowl ever played, two Olympic Games and a World Cup. For the majority of his career, Toma served as the head groundskeeper for the Kansas City Chiefs and Royals. Although "officially" retired in 1999, Toma keeps working. Nearing his ninth decade on the planet, he continues to consult for NFL and MLB teams, (the list includes nearly all of them), most recently prepping the Minnesota Twins field for 2017 Spring Training in Florida.

When other men of his advanced age have slowed down or stopped altogether, Toma is a feisty force of nature. A frenetic whirlwind. An unyielding advocate for sports turf managers. And yes, a legend.

For all of the accolades, the Hall of Fame recognition, even the STMA's George Toma Golden Rake Award named in his honor, Toma remains the same hardscrabble kid who busted his knuckles at age 16 to get his first head groundskeeping job. He worked his way up through the ranks, and took the job in Kansas City, not because it was easy, but because it was hard. The field was known to be the worst in the league and he figured if he messed it up, there wasn't too much more damage he could have done to it anyway. "I was a sandlot groundskeeper," he says. "I'm a baseball slave and I love it."

The early part of his career offered non-existent budgets and few helping hands. Two assistants included a hobo and one other man whose pay included a place to sleep in the shop. Even as he approached those first Super Bowls, the challenges were great.

"In the early days, I'd have the grass seed, pre-germinate it, and have 10 to 12 days to have the field ready to play at the Super Bowl. We had 10 to 12 days to be ready for the Super Bowl and Bill Parcells says in a book that in some ways we had better playing fields then. We only had six men to prep a field and now we have 30."

> "We started the STMA so we could help people not only in the big leagues, but from pre-schools and high schools all the way the up to the Major League."

Yet it was the hard times, Toma says, that taught him to be resourceful, and to welcome help from wherever it appeared.

WHAT'S IN THE BAG?

You need to know.

Bags of blended fertilizer can contain up to 50% filler, which adds little to no nutritional value. By selecting a higher nutrient analysis, you can decrease the amount needed to cover the same ground compared to bags containing less.

You're probably thinking, *"Won't that cost more?"* You might be surprised.

Visit **KochTurf.com/InTheBag** to watch our "What's in the Bag?" video and see how you can actually save money by reducing filler and the number of bags you buy.

ENHANCED EFFICIENCY FERTILIZERS FOR SPORTS TURF

DURATION CR®
Controlled-release fertilizer
Up to 45-180 days

XCU®
Slow-release fertilizer
Up to 10 weeks

UFLEXX®
Stabilized Nitrogen
Up to 8 weeks

STMA FOUNDERS

Mentors emerged unasked, in the form of owners who appreciated his efforts, and seed and equipment sales reps who offered up supplies and equipment for free.

His career, he says, was formed by "so many thousands of people's fingerprints. There's no George Toma without the people I worked for, and the people who worked for me. They never worked for me, they worked with me."

That sense of collaboration, Toma says, was what was behind the formation of the STMA.

"The reason we did this was because, if you had a problem you'd go to some of the top groundskeepers and they'd blow you off. So, we started the STMA so we could help people not only in the big leagues, but from pre-schools and high schools all the way the up to the Major League. The idea was to help give them a better field, and make the groundskeeper money, and to help them be proud of their job. It's pride," Toma says.

Toma still believes in the profession that has brought him joy and a career worthy of a book. His biography, "Nitty Gritty Dirt Man" was published in 2004.

As for his title, although he agrees with and understands the need to promote the profession with a title such as "sports turf manager", for himself Toma prefers "groundskeeper… I'm old school," he says.

Within the profession, Toma believes in three key priorities: player safety, quality infield and cost effectiveness.

Safety. Above all else, maintaining a strong stand of healthy, consistent turfgrass to help ensure player safety is his top priority. "You have to give them a good playing field first. Good grass, beautiful grass, will help the players." A beautiful visual presentation for fans in the stadium and on television should always take a backseat to player safety.

Quality infield. Free of rocks and low on dust, an infield that's safe for the players that also doesn't hinder their play during the game is very important. "Good infield dirt, you have to have a good infield. I've been known for all my years as having the best infield in baseball."

Be cost effective. For many years, Toma had very little budget to work with which made him resourceful and creative. Even now, when budgets are no object, he remains cost conscious. "Give them the best playing field and save the owners a lot of money," he says. Toma's motto: "Do the job, and then some."

Even with age 90 looming, it's unlikely that Toma will slow down any time soon.

"I love what I do. I'm one that I can't sit down, I'm a nervous guy so, when I'm back home I do something, I grow tomatoes and give them to the neighbors. I used to cut eight neighbors' yards. They were elderly. They'd say, 'I should pay you' but I'd say 'No, that's my exercise.'"

Slowing down to George Toma means only mowing two yards instead of eight at age 88, along with consulting for numerous sports teams and working Spring Training for the Twins.

Even a goodbye from the man has a stamp of Toma all over it. He says, "May your good fortune be numerous as blades of grass, whether natural or artificial. Have a good day."

Indeed. ST

Stacie Zinn Roberts is a freelance writer; see www.whatsyouravocado.com.

Super Bowl 50 sod from West Coast Turf.

INFINICUT

THE PERFECT CUT. EVERY TIME.

The Infinicut line of precision mowers was designed to be user-adjustable to match the conditions of any given day. From the dynamic return floating head mechanism to the variable clip speed, height of cut adjustment, moveable bedknife, and swappable dual power source, the Infinicut provides more functionality than any other pitch mower. Combine that with today's highly technical approach to pitch construction and unpredictable microclimates, the Infinicut ensures a healthy turf while providing an unrivaled quality of cut.

www.cubcadetturf.com

@Infinicut

Cub Cadet

STMA FOUNDERS

DICK ERICSON, Minneapolis maestro


Staff Photo by Earl Seubert

The more things change . . .

The home of Minnesota baseball has changed dramatically since 1956, but Dick Ericson, superintendent for building and grounds at the Metrodome, appears to have weathered the transition nicely. He laid in home plate at the dome Wednesday (right) — 26 years after he had done the same as Metropolitan Stadium groundskeeper. Those who want to buy Twins tickets either must buy them through the mail or wait until Monday, when the Metrodome ticket office expects to begin over-the-counter sales. Ticket manager Dave Moore said he is waiting for the final shipment of tickets.

Staff Photo by Art Hager

Dick Ericson began his career as a teenager at Lexington Park, then the home of the American Association's St. Paul (MN) Saints. After serving in the Navy during the Korean War, Ericson returned to work at Nicollet Park in Minneapolis, home of the AAA Minneapolis Millers. As head groundskeeper, he moved with the team into brand-new Metropolitan Stadium in Bloomington. In 1961, he continued in his role at the Met as MLB brought the Minnesota Twins to the Twin Cities. From 1961 to 1981, he maintained the field for both the Twins and the Minnesota Vikings of the NFL. In 1982, Ericson moved with both teams to the Metrodome, where he served as superintendent until his retirement in 1995. In a career spanning six decades, Ericson helped host three World Series and two MLB All-Star Games, as well as countless other events at both multi-use facilities. He was also elected the first president of STMA in 1981.

SportsTurf: Why did you and the other founders of STMA decide it was time to organize a group for groundskeepers? Were there specific issues that "lit the fire"?
Ericson: A lot of the older groundskeepers wouldn't like to share any information. We decided it was best for all if we shared our skills with each other.

ST: Did you volunteer to be the first president of STMA or was there a vote? And what did you consider your most important tasks were as the first president?
Ericson: At one of the first meetings at Purdue University the main lecturer asked if anyone would like to be president. No one replied and after the meeting Bill Daniel told me I was picked.

ST: What specific things did you work on to increase the professionalism and public recognition of groundskeepers?
Ericson: A good-looking field was the best advertising and lots of people wanted to know how it was done. So we gladly shared information with them.

ST: At Metropolitan Stadium, how did you manage the transitions from baseball to football in August through October? Did you put sod down in the infield after the Twins' season was over?
Ericson: The first transition year I seeded the infield with ryegrass; the years after that we put in new sod.

ST: What were your relationships like with players and coaches over the years? Who were your favorites?
Ericson: My favorite players were Tony Oliva, Harmon Killebrew, Kirby Puckett, and Jim Perry. Killebrew was the nicest person you could meet, he would always have time for you. Tony O was the best hitter I saw and was unfortunately stymied by bad knees from getting hit by pitches. I was probably closest to Jim Perry.

ST: Would you have gone outside in Minnesota in January in shorts sleeves like Bud Grant did for the coin toss last year, when the temperature was sub-zero?
Ericson: No, I spent enough 14-hour days in bitter cold getting the field ready back in the day!

ST: Please share with us some of the things you did back in the day to give the home team an advantage. We've all heard about your turning on the air conditioning at times to give Twin fly balls a boost! Is that true? What about at Metropolitan Stadium?
Ericson: Yes, I did alter the air conditioning at the Metrodome although tests were done later that proved this had no effect on the baseball. At Metropolitan Stadium there were many things that we did to get home-field advantage, mainly cutting and watering the grass and dirt to a player's liking. ST

IN HONOR OF STMA FOUNDERS DICK ERICSON AND GEORGE TOMA

"We are grateful for your support and thank you for all you do."

BILLY GOAT

Pioneer ATHLETICS

"We are truly appreciative of George Toma and Dick Ericson for advancing the sports turf industry."

"Our thanks to George and Dick and the other pioneers who planted the seeds and helped to grow the STMA into the association it is today. All the best and thanks, guys, from COVERMASTER."

COVERMASTER®
NO ONE COVERS IT BETTER

GRIGG BROS.

"It is a privilege to be a business partner with the STMA and share the ideals of improving turf through the sharing of knowledge and exchange of ideas. Congratulations on such a fine professional organization from everyone at Grigg Brothers!"

HYBRID SYSTEMS: BASICS ON AN EVOLVING INDUSTRY

BY **MARY HELEN SPRECHER**

Maybe you've heard "the more things change, the more they stay the same." It definitely doesn't apply in this case. The sports surfacing industry is constantly evolving and changing to meet the needs of athletes, groundskeepers, facility owners and more.

One example of this is hybrid turf, which, as it sounds, is a field that is made through a combination of two systems: natural grass and synthetic turf. Although it's not exactly new on the market—it has been prevalent in Europe for several decades, where it finds heavy use as a soccer surface—it is gaining traction on this side of the pond and creating a demand for more information.

"There's no question; we're seeing an uptick in interest on hybrid turf systems," says Mark Heinlein of The Motz Group in Cincinnati, OH. "I think it's still much, much more common in Europe, but we're seeing a big demand. There has been a big increase in the inquiries in what it is and how much it costs."

Which, come to think of it, a lot of people don't quite understand. Heinlein provides a quick primer. Although the term, hybrid turf, is often used generally to describe any system that incorporates both synthetic and natural grass fibers, it also has come to mean something more specific in the marketplace. However in the interest of not causing too much confusion, we'll start with a breakdown of the various classifications of these systems, as found in products in the marketplace.

There are three main classifications of hybrid turf systems: Reinforced Turf, Stabilized Turf and Hybrid Turf. What follows is a quick review of each type of system and a few examples of some brand-name products. Those who are interested should contact the manufacturers and inquire about contractors in their area who can provide information on various systems and their potential for use in a given situation. *Note*: This is by no means a comprehensive list, and field owners are encouraged to research all available options.

Reinforced Turf

Heinlein defines these systems as those in which "synthetic fibers are mixed with the rootzone material (this is done either offsite or *in situ*). The fibers stabilize the soil and help secure the grass roots in the growing medium."

Some examples of branded systems include Fibresand and Loksand (products prevalent in the UK), StaLok (found in the U.S.) and Airfibr (a French product).

With both Fibresand and Loksand, explains Heinlein, fine synthetic fibers are pre-mixed with the rootzone sand and spread

1-1/2 inches deep. (On the sod farm, a thin sand layer may be spread below the imported rootzone to assist in harvesting of the material.) The finished product is produced from seed or washed sod. Airfibr, meanwhile, uses a medium that includes cork granules, synthetic microfibers and fine silica sand.

The cost of these systems can vary, says Heinlein. "It's really driven by a couple things. There's the cost of the product itself. Then there's the application of the product specifically, meaning how it is produced. If it is produced on the site, it's going to be less expensive than if it is grown on a farm and brought in and installed. Depending on where the sod farm is, you might be paying somewhere around $2 to $3 per foot, and probably in the $4 to $5 range if it's grown offsite."

Stabilized Turf

The second category, Stabilized Turf, is defined by Heinlein as "a synthetic mat, infilled with sand to the tops of the fibers. The root system of the grass entwines around the synthetic fibers and passes through the open backing. The fibers do not extend into the canopy, creating a 100% natural grass playing surface." The system offers a sod thickness that is consistent throughout, as well as immediate playability upon installation. It is also relatively easy to replace or rotate sections as needed, according to Heinlein.

One branded example of Stabilized turf is Eclipse.

Hybrid Turf

In this type of system, Heinlein notes, "upright synthetic fibers extend above the growing medium. The fibers reside within the grass canopy."

There are two categories of hybrid turf: permanent systems


TEMPLINE™
PRO GRASS PAINT
A grass paint that works as hard as you do.
☑ Bright and durable
☑ Stays on the field and off uniforms
☑ Easy to prepare and apply
☑ Great quality at a competitive price
☑ Ecologically friendly
ecochemical
TEMPLINE™
(800)-677-7930
www.eco-templine.com

and mat systems. They are defined as follows:

Permanent Systems are so named because once installed, "the surface cannot be rotated or replaced during the playing season," notes Heinlein. "They are created via injecting stabilizing fibers into the rootzone of a grass system. The stabilizing fibers do extend above the soil line."

Two branded examples of these systems are GrassMaster and SISGras.

Mat Systems are "similar to stabilized turf," according to Heinlein, but there are differences. The mats may be knitted, woven or tufted, and grass grows within this synthetic matrix, with the synthetic fibers extending into the grass canopy. Important to know: "The horizontal mat allows for removal and/or replacement as needed." The surface also has a strong, dense green appearance.

Some examples of mat systems are Hero Hybrid Turf, Xtragrass, XtremeGrass, Eclipse LP and Mixto.

Because there are multiple differences, some subtle and some large, between various surfaces, it is best to research products, as well as to ask questions in order to find the product that is best in any given situation.

Of course, the big question—and the one on all field owners' minds—is how durable these systems are, and how much maintenance they require to keep them in good shape.

There's no question that these fields have increased wearability over a plain grass field, so they are in demand among people who want that, but want to play on grass, rather than all synthetic," notes Heinlein. "And of course, anything that increases the usability or the quality of natural grass fields makes it that much more attractive. They compare to a synthetic turf surface in the installation cost because you take the basework out of it. Hybrid fields still are grass fields, though."

And that, he notes, means they're not indestructible.

"Sometimes, people are looking at these systems and we say, 'Well, how much do you want to do with it?' If they tell us they're going to use it about 30 hours a week for at least 40 weeks a year, we tell them, 'If you're going to give it that much use, you want a synthetic field because this is still grass.' It's not like you can put this in and it allows you to do everything a synthetic field does. It allows you to do more than a non-hybrid or standard grass field does, but it still needs a lot of the same things grass needs."

In terms of maintenance, hybrid systems are maintained in a manner similar to that of grass fields; most will require solid tine aeration, verticutting, dethatching, spring tine raking and more. In addition, field owners are cautioned to ask about how often they can topdress fields with sand, since it is essential to avoid burying the fibers. In mat systems, worn areas are easier to replace; permanent systems may require a thick-cut sod overlay.

Heinlein says that when the playing season comes to an end, "year-end renovation must take place, and may include anything from thinning of the grass canopy to complete surface removal using fraze mowing, a practice that is routine in Europe and often done using a Koro with the Universe Rotor."

Permanent systems can withstand heavier year-end maintenance techniques, since the fibers are driven into the rootzone and therefore are more resistant to being torn out. Mat systems can also be fully renovated but because they are shallower, different practices must be used. Field owners should discuss all options with a contractor and ascertain they are using the correct techniques for their field.

Which system is the best?

There's a trick question if there ever was one. After all, there is no "best system," only the system that is best in a given installation. Heinlein notes that the smartest thing an owner can do is ask questions. Whether investigating one type of system (such as hybrid turf) or trying to make a decision among grass, synthetic or hybrid, your field contractor's recommendations are only as good as his or her knowledge of your specific situation. Therefore, come to the table armed with the following facts:

- Which sports will be played on the field and how often? (Remember that different sports have different needs and desired playing characteristics in a surface).
- Will the field be used for practice as well as for games?
- Will it accommodate other activities such as marching bands, assemblies, graduations, etc.?
- How many months of the year will the field be in use?
- What is the weather like?
- What is your budget for construction?
- What is your budget for maintenance?
- How much of a crew do you have who can take care of your system (no matter what type you choose)?
- Is this a main field, your only field or one of several fields?
- Will it have downtime to recover from heavy use or is that out of the question?

In addition, be ready to discuss things like the reasons you are considering a specific system, or type of system.

Heinlein expects the industry to continue to evolve and change.

"In the last three to five years, we've seen a lot of focus on the redevelopment and reengineering of all those systems. We'll probably see a lot more of that as time goes on." ST

Mary Helen Sprecher is a freelance writer associated with the American Sports Builders Association, which sponsors meetings and publishes newsletters, books, and technical construction guidelines for athletic facilities. 866-501-2722 or www.sportsbuilders.org.

John Mascaro's Photo Quiz

Answers on page 37

John Mascaro is President of Turf-Tec International

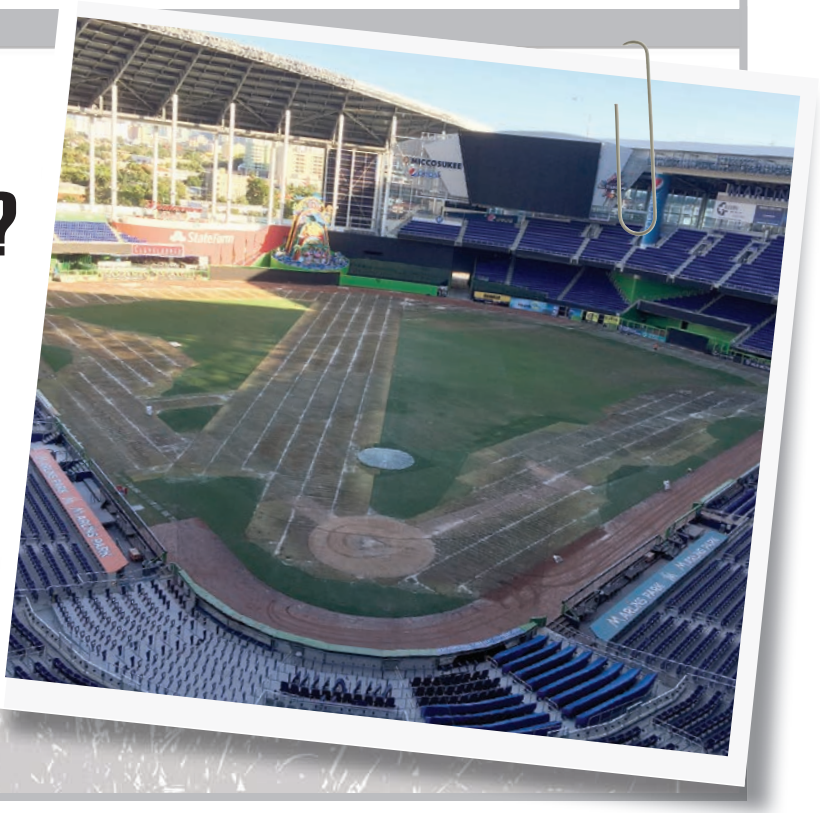
Can you Identify this sports turf problem?

Problem: Turf flattened and brown

Turfgrass area: Professional baseball stadium

Location: Miami, Florida

Grass variety: Seashore paspalum turf



BACKGROUND ILLUSTRATION COURTESY OF ISTOCKPHOTO.COM

PHOTO © ISTOCKPHOTO.COM/FOTOKOSTIC

RETROSPECTIVE ON FERTILIZER

BY **DAVE HEEGARD**

It was January of 1975 and the Minnesota Vikings were about to follow up their loss in Super Bowl VIII to the Miami Dolphins with a loss in Super Bowl IX to the Pittsburgh Steelers. And the turf world was about to learn of a new fertilizer, a high analysis "non-burning" fertilizer. Not possible thought many—high analysis fertilizers burn. The prevailing thought was, "I'm using something slow and safe and about 6% N; I'm not burning my grass."

My fertilizer career had just started, and I didn't think it was possible that the Vikings could lose back to back Super Bowls, but I was sure that a high analysis, non-burning fertilizer was possible. In fact, it was my product to sell. One hundred percent slow release, chemically, physically, homogeneous high-density fertilizer. No filler. No limestone. No carrier, just nutrients. We were using urea to formaldehyde mole ratios that produced ideal nitrogen release characteristics, not too slow, not too fast; we had a non-burning high analysis fertilizer.

Back in those days, we could even call it, safe.

Golf courses then had real fairways, 40 acres of fairway was average—not these 16-acre landing zones of today. At two bags per acre, 80 of them could treat a whole golf course. That was so much easier than the 400 bags needed previously. There was less shipping, less unloading, less storing, less spreading, less bag disposal. The high analysis, non-burning feature of fertilizer changed the game (no pun intended).

Soon, new technologies emerged, new reacted offerings, new coated offerings, sulfur-coated, polymer-coated, polymer-sulfur-coated … but high analysis and safe were always at centerpiece of the offering. Sales conversations focused around cost per acre, or cost per feeding day. These new high analysis fertilizers made the cost per bag irrelevant. How much did it cost me to feed my turf, was the relevant question.

For what seems like 35 years, "How much does it cost to feed my turf?" is pretty much where the conversations remained. To be sure there was vigorous debate about different nitrogen release characteristics necessitated by maintenance demands, labor costs, and budgets. Through it all however, the fertilizer analysis remained high, and an important consideration. Cost per bag was still irrelevant; it was about the cost to feed my turf.

CH-CH-CH CHANGES

It was all about to change. It was 2009 and the Steelers had just finished winning Super Bowl XLIII (some things don't change) and the price for urea, the main nitrogen component in most fertilizers, had gone sky high. Record, unimaginably high pricing worldwide. There was much speculation about why. Was it simply a farmer supply/demand issue fueled by the changing diets of the global population? Was it pricing manipulation by a few basic manufacturers? Was it a fuel cost-related production issue? Or was it just a legitimate shortage? Arguments and finger pointing ensued.

Regardless, the turf industry was an innocent by-stander in the fall out from this pricing anomaly. Turf fertilizer prices went through the roof, like nothing our industry had ever seen. Pricing

on bags of fertilizer got so high that the conversation did change. It was no longer about cost to feed my turf, it was about, "That bag of fertilizer is way too expensive!"

I was there, I saw it happen. So how do you lower the cost of a bag of fertilizer? Filler! You take a bag of 100% slow release, chemically, physically, homogeneous high-density fertilizer and add in limestone (or biosolids, or etc.). You take a bag of 30% N fertilizer, mix in a pile of limestone, and kick out two bags of a 15% N fertilizer. Good deal. "The price of that bag looks much better!"

Unfortunately, not much was accomplished. You now need to use twice as many bags. You need to ship twice as many bags. You need to store twice as many bags, you need to dispose of twice as many bags. We lowered the price per bag, but raised the cost to feed your turf.

CARL ELLER DAYS

We're back to where we started. Back to the days of Fran Tarkenton and Bud Grant. But we don't need to be. The price of urea came down years ago, but the price expectations of a bag of fertilizer did not. The demand for watered down, diluted, cheap fertilizer still exists. The problem is, watered down and diluted is accurate, but these fertilizers are not cheap, and cost more to use in every way. I can't help but think our industry has failed to keep pace.

It was 55 years between the Wright brothers' putting their plane in the air at Kitty Hawk, NC and the Boeing Company introducing the 707. What an advancement in technology! In 45 years we've "advanced" the fertilizer industry from 100% slow release, chemically, physically, homogeneous high-density fertilizer to the inefficient, diluted, watered down expensive offerings of today. We've gone backward at best.

As a salesman, it frustrates me. Perhaps we have failed to tell the story clearly enough and accurately enough. As for me, in the remaining years of my career I'm going to try and turn that around. No reason not to being using pure fertilizer. ST

Dave Heegard is vice president of professional sales & marketing for Lebanon Seaboard Corporation, Lebanon, PA

UNIQUE PERSPECTIVE DRONES OFFER IMPROVED SITE-SPECIFIC MANAGEMENT OF ATHLETIC FIELDS

BY **DAVID MCCALL, PHD**

Drone photo from Blue Valley Southwest High School

Sports turf managers often do a remarkable job of maintaining fields at high standards, often with budgets that do not align with expectations. Field managers are constantly tasked with doing more with less. In many instances, problems that arise in a localized area within a field result in widespread management decisions that impact a series of similar fields nearby. A recent example is the development of large patch on bermudagrass athletic fields in the Mid-Atlantic. Certain conditions contribute to this disease, such as poorly drained soils. However, many sports turf managers fire up their sprayers to apply a fungicide across affected and neighboring fields to prevent further spread. In reality, the affected areas were likely more susceptible to disease for a reason, but it is often difficult to tell that reason by routine scouting. A bird's eye view can reveal issues or clues that may otherwise be missed. This unique vantage point is the same reason that coordinators often call plays from high up in the press box during football games. The use of unmanned aerial vehicles, or drones, is not new in our society or even in turf management, but we are in the midst of rapid change in how these devices can be used to our benefit.

A primary focus of my program at Virginia Tech is to develop novel approaches for studying disease epidemics and environmental stresses using aerial imagery collected from drones. This approach allows turf managers to have a better understanding of underlying issues that may lead to more effective site-specific management, thereby reducing total inputs and reducing the bottom line in the budget. Below are brief project descriptions from two graduate students in my lab about how they are using drones to improve turf management. Jordan Booth, CGCS, uses drones to develop spring dead spot distribution maps. We are using these maps to make fungicide applications only where needed, and to gain a better understanding of the principle factors that drive disease development. Travis Roberson is developing unique methods to monitor for drought stress using both visible light and near-infrared light, starting with ground-based measurements and using aerial imagery to estimate across larger areas.

Mapping spring dead spot with drones

Precision agriculture (PA) is defined as the application of technologies and principles to manage spatial and temporal variability associated with all aspects of agricultural production to improve crop performance and environmental quality. PA uses information obtained from a variety of sources to implement site-specific management practices. One source of information used in PA is the use of small, unmanned aerial vehicles (UAVs) given their low costs of operation and great flexibility in mounting and operation of image acquisition equipment. UAVs can provide a rapid, high-resolution view of large acreage in a matter of minutes and offer a safe, affordable option when compared to piloted

aircraft. The information obtained by UAVs has led to informed decisions and reduced inputs generally associated with PA.

Primary turfgrass management practices are very similar to crop-based agriculture including irrigation, fertilizer application, and pest control. As in crop production, turfgrass managers are interested in ways to improve efficiency and plant health while managing a budget. Water management, pest control, and cultural practices need to be balanced to provide a safe, high quality turfgrass surface while minimizing expenses. Like all agriculture, PA must be adapted and tailored to turfgrass management. This new field of advanced management practices in turf is known as Precision Turfgrass Management. At Virginia Tech, we are researching how Precision Turfgrass Management and specifically the use of UAVs can benefit sports turf managers by reducing inputs and increasing efficiency associated with pest control.

Bermudagrass is the preferred choice for sports fields in the southern US as well as the transition zone. There are a variety of options of bermudagrass hybrids for use in sports turf, offering distinct advantages; hybrid bermudagrasses grow vigorously in nearly all types of soil, exhibit excellent tolerance to heat and drought, and produce a dense, uniform turf that is resistant to traffic and wear.

One of the most limiting factors of successful bermudagrass management in the US is the prevalence of the disease spring dead spot (SDS). SDS is the most destructive disease of bermudagrass in climates where bermudagrass enters winter dormancy. Outbreaks are most severe under high maintenance conditions. While symptoms, including circular patches of dead turf and slow turf recovery, occur in the spring of the year, the disease infects the turf in the late summer or early fall of the previous growing season. This makes the timing of fungicide applications difficult to predict because symptoms are not present during application.

Suppression of SDS with conventional chemical control has proven inconsistent. Like all pests, certain products have greater suppression efficacy than others. Unfortunately, the most effective fungicides are also the most expensive. In many instances, this makes the most effective chemical programs cost-prohibitive. Many turfgrass managers opt to make applications of less expensive, less effective fungicides or no preventative applications at all.

Research aims to study if the use of UAVs and precision turfgrass management could help with disease suppression. To design the study, the following questions were asked:

- Would UAVs be able to quickly and accurately generate disease incidence maps?
- Would it be possible to apply the most effective SDS fungicides precisely and accurately, based on disease incidence from the previous season?
- Would precision applications increase disease suppression while decreasing inputs and costs?

These questions are beginning to be answered. Partnering with the Unmanned Systems Lab in the Mechanical Engineering department at Virginia Tech, our team has utilized UAVs to create high-resolution disease incidence maps. In the Spring 2016, disease incidence maps were generated from five different bermudagrass golf course fairways infected with SDS. Aerial imagery was collected using an Iris+ (3D Robotics, Inc.) multirotor UAV, fitted with a HERO 3 (GoPro, Inc.) digital camera and PixHawk Mini mission planner. Aerial images were mosaicked using Agisoft PhotoScan 1.2.6 Professional. Spring dead spot ground-truth coordinates were obtained to geo-rectify the maps using the Raven Phoenix 300 w/ Omnistar HP correction

for sub-decimeter spatial resolution. The fairways were rated visually and using digital image analysis to determine accuracy and to quantify disease incidence.

In the fall of 2016, these disease incidence maps were used to make preventative fungicide applications to compare the efficacy of the fungicide Tebuconazole 3.4 F (tebuconazole, Quali-Pro) vs. the efficacy of Velista (penthiopyrad, Syngenta) vs. the site-specific application of Velista based on disease incidence. It is known that Velista is more expensive than Tebuconazole but has proven to be more effective in other SDS suppression trials. The applications will be rated in the Spring 2017 and compared to non-treated plots. This research aims to translate remotely sensed data gathered through UAV imaging into usable information for site-specific management of SDS on bermudagrass fairways. Additionally, exploration into the spatial distribution of SDS across fairways may enhance our understanding of the disease epidemiology by focusing on changes in microclimate and soil characteristics.

Predicting water deficiencies with drone sensors

Water usage receives much scrutiny in our industry because this limited resource drives global food and fiber production. Drought restrictions are first imposed to non-essential commodities, which includes recreational areas such as sports fields. This scrutiny has led sports turf managers to explore various methods to minimize their water usage, including the use of underground moisture sensors, installation of more sophisticated, site-specific irrigation designs and wetting agents. Handheld soil moisture meters are sometimes used in conjunction with hand watering to deliver irrigation only to areas in need. While this method is increasingly common in our industry, it is labor intensive and still possesses the human element of possibly missing an area that is drought stressed.

Measuring canopy light reflectance has shown potential for detection drought stress to turfgrass. The most commonly studied reflectance index on turfgrass status is the normalized difference vegetation index (NDVI). This index measures red and near infrared light reflectance from turf and has been related to turf quality, canopy structure, water needs, and nitrogen needs. While this index is important for turfgrass research, a primary limitation is not being able to distinguish declining vigor caused by water deficiencies from other stressors. An alternative index (WBI) utilizes water absorption characteristics within a stable region of near-infrared light and minimizes the influence from other stressors.

Previous research has shown that WBI is closely related to moisture stress in sandy, low-organic soil with creeping bentgrass. We are now investigating how the WBI may be used on bermudagrass to predict water deficiencies on various soil textures. To date, the relationship between WBI and moisture stress appears to be stable from bermudagrass grown across soil textures in greenhouse conditions. This research will continue at both the canopy level and with remotely sensed data collected using drones. In collaboration with the Unmanned Systems Lab at Virginia Tech, we are developing a drone equipped with customized sensors capable of measuring reflectance within the water absorption region. We were able to validate aerial detection of moisture stress using visible and near-infrared light with data collected on the ground at predetermined GPS coordinates. ST

David McCall, PhD, is an Assistant Professor of Turfgrass Pathology and Remote Sensing at Virginia Tech.

THE *SPORTSTURF* INTERVIEW: JODY GILL, CSFM, CPSI

This month in "The *SportsTurf* Interview," we meet Jody Gill, CSFM, CPSI*, the grounds coordinator for Blue Valley School District, Overland Park, KS, who this year was elected STMA Board Secretary/Treasurer. Jody has been building and maintaining sports fields for more than 30 years. He was a co-founder of the Mo-Kan Chapter of the Sports Turf Managers Association and has served in every executive cabinet position. He has served as a Board member for the Missouri Valley Turfgrass Association, Advisory Board Member for the Longview Community College Turf Management Program, numerous STMA committees and task forces, and SAFE Foundation Trustee.

**Certified Playground Safety Inspector*

SportsTurf: ***What are your responsibilities at the school district?***

Gill: My school district includes 22,000 students at 38 schools on 1,300 acres spread over 91 square miles, including 105 athletic fields on 200 acres. I am one of three Coordinators under the Director of Operations and Maintenance, which includes Custodial, Maintenance and Grounds. I am responsible for the lawns, landscapes, outdoor athletic facilities, playgrounds, roads, parking lots and a fleet of 150 vehicles, including 45 student transportation vans. I manage 15 full time and 12 seasonal staff. We do not have enough staff to be site-based; instead we are centralized so we operate much like a large lawn and landscape firm.

ST: ***What are your biggest challenges working for a school district? How are you meeting them?***

Gill: Quality expectations continue to increase while budgets remain the same or decrease in some cases. Meeting this challenge requires a very talented and creative staff. This results in less outsourcing, which, in our case, reduces costs and increases quality. For example, Grounds Supervisor John Peterman, CSFM, has designed and installed every BVSD irrigation system for the past 20 years, including our Maxicom Central System in addition to managing our sports turf program. Jim Wilson runs our extensive and complicated mowing program utilizing a significant number of seasonal staff. Staff Arborist and landscape designer Andy Gibbons works closely with administrators and PTAs to design, install and manage high quality landscapes at all of our buildings.

ST: ***How has social media impacted your work?***

Gill: Communication and sharing of information became so much easier with the advent of the internet and email.

I guess I'm old since I can remember that. Actually, I remember telephones connected by wires! Seriously though, social media has connected all of us in a way I never could have imagined. You can pick up your phone and ask 1,000 people the same question. Within seconds, you could have dozens of answers without making a single phone call.

ST: ***What are the most important changes you've seen in sports turf management since you have been an STMA member?***

Gill: Technology has had the greatest impact. For example, from blue top grading to offset stake grading to laser grading to GPS grading, technology has allowed to provide an even better sports surface. Specifically at the K-12 level, the trickle-down effect from the professional and college level has increased field quality expectations.

ST: ***Why did you want to serve on STMA Board?***

Gill: The primary reason is to give back as much as I can to an industry that has been very good to me. Previous Board service enhanced my personal and professional growth so I was happy to serve again.

Continued on page 47

SUSTAINABILITY IN SYNTHETIC TURF FIELDS

BY **MARK HEINLEIN, CFB**

Sustainability is a complex concept. Its tenets can be illustrated in the simple act of composting kitchen vegetable waste, through cradle-to-grave Life Cycle Impact Analyses and by wildly complicated statistical models comparing global human welfare to earth's bio-capacity.

Depending on the bend of the author, the definition of sustainability may give emphasis to business/economic, environmental, and/or social/humanitarian dimensions. The World Commission on Environment and Development defines sustainability as the path allowing humanity "to meet current environmental and human health, economic and societal needs without compromising the progress and success of future generations."

The American Institute of Chemical Engineers offers a similar definition, saying sustainability is "a path of continuous improvement, wherein the products and services required by society are delivered with progressively less negative impact upon the earth."

The US Environmental Protection Agency bases their definition of sustainability on a simple principle: "Everything we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains conditions under which humans and nature can exist in productive harmony, and permit fulfilling social, economic and other requirements of present and future generations."

All of these definitions strive to encompass the concept's scientific and social complexity. In practice, reaching the grand goals of any of the definitions above requires the combined efforts of individual citizens, small business, national and multinational corporations and countries, working alone and in cooperation.

Life Cycle Assessment

Life Cycle Assessment i(LCA) is a tool used to evaluate how an industry/business activity effects the environment. It is based on the assumption that all stages in a product's life cycle have an impact on the environment. These life cycle stages would include raw materials acquisition, manufacture, transportation, construction/installation, operation/maintenance, and finally waste management/disposal. LCA, often referred to as "cradle-to-grave" dissects all stages of a product's life, from "cradle" (raw material acquisition and manufacturing) to "grave" (waste management/disposal). The goal is to understand and quantify the cumulative environmental impact of a product's life cycle. Armed with a comprehensive understanding of a product's environmental impact, better decisions can be made when choosing between various products, processes or services.

This idea is especially germane to the LCA. In order to make informed, sound choices when comparing products, processes or services, a clear picture of all potential environmental trade-offs between them is critical. This includes an understanding of how narrowly focuses analyses can sometimes simply shift environmental problems from one phase to another, thereby yielding offsetting results. For example, alternative sustainable fuel sources for vehicle, such as biodiesel, electricity and hydrogen all attempt to reduce our dependency on petroleum and lower global warming emissions. But a recent study just concluded in its current form, a hydrogen vehicle actually emits more carbon over its lifecycle than a gas powered car. Another example from sustainable energy is solar panels. Photovoltaic cells capture sunlight to generate energy, using the sun as an infinitely renewable energy source. But toxic compounds and heavy metals are used to manufacture solar panels, which can put workers at risk and complicate the panel's disposal once it reaches the end of its useful life.

LCAs may also help to identify any "unintended consequences" of a presumably environmentally sound strategy. For example, the use of bio-derived ethanol as an additive for gasoline, which aims to reduce dependency on fossil fuels, has been implicated as a factor in reducing the supply and thereby driving up the price of corn as a food source (i.e., 2008 global food crisis). Biofuels have also been shown to have the potential to significantly impact nitrogen, carbon and water cycles by increasing the demand for water and fertilizers, increasing biomass waste (which increases methane gas production) and promoting destruction of natural habitats/forests for crop production.

The US EPA's National Risk Management Research Laboratory identifies the four key components of the LCA process as:

- Goal Definition and Scoping - Define and describe the product, process or activity.
- Establish the context in which the assessment is to be made and identify the boundaries and environmental effects to be reviewed for the assessment.
- Inventory Analysis - Identify and quantify energy, water and materials usage and environmental releases (e.g., air emissions, solid waste disposal, waste water discharges).
- Impact Assessment - Assess the potential human and ecological effects of energy, water, and material usage and the environmental releases identified in the inventory analysis.
- Interpretation - Evaluate the results of the inventory analysis and impact assessment to select the preferred product, process or service with a clear understanding of the uncertainty and the assumptions used to generate the results.

Businesses and industry are becoming more environmentally aware. They are finding environmental responsibility is not only moral but makes economic sense as well. Many companies have moved beyond simply complying with government regulation to taking a proactive, holistic approach to environmental management.

In his groundbreaking book, Business Lessons from a Radical Industrialist, Ray Anderson, chairman and founder of modular carpet tile giant Interface, Inc, argues industry is ruining the earth and only industry can prevent the destruction. He believes industry must accept the fact the earth cannot provide "endless resources, endless energy, and endless room to throw away all the stuff we make and waste" and the call to action is industry's to make. Industry and business, he contends, are the only ones who can prevent the destruction.

Anderson suggests any company wishing to strive for sustainability, and ultimately for a zero environmental footprint, should look first to their waste stream and identify and implement processes to eliminate waste. Interface defined waste very broadly, as any cost they incurred that did not deliver value to their customers – "from off-quality to a misdirected shipment." Waste is a bad debt unable to be collected. He reasons waste management is "low-hanging fruit" and eliminating waste can have an immediate and significant impact on a company's cost curve. Anderson estimates companywide, Interface has saved nearly half a billion dollars since initiating their waste elimination measures.

The waste hierarchy

Waste management is a cornerstone principle of sustainability. Nearly every school child is familiar with the "3 Rs," the consumer-oriented recycling campaign of "reduce, reuse, recycle" launched nearly 30 years ago. The Waste Hierarchy, or Waste Pyramid expands on this concept and provides a graphic depiction of waste management options in order of their environmental impact. As seen in this figure, the European waste hierarchy, the most effective strategies, prevention and minimization, are at the top of the pyramid because they result in the least amount of waste. Those below the minimization strategy assume waste is created and focus on management strategies after the waste is produced. These include reuse, recycling and waste-to-energy conversion. Disposal, at the base of the pyramid, is the least desirable strategy.

Source reduction is the most preferred step in the hierarchy because it includes strategies to eliminate or minimize the production or generation of waste in the first place. An everyday example of source reduction is elimination of yard waste disposal

through the use of a mulching lawn mowers or backyard compost piles. Other examples would be rechargeable batteries, reusable water bottles and making two-sided copies: all eliminate production and subsequent disposal of waste. The EPA also includes pollution prevention under this strategy, which refers to any practices which reduce the amount of hazardous substances, pollutants, or contaminants entering the waste stream or released into the environment, resulting in reduced hazards to public health and the environment.

Some of the primary ways source reduction is achieved is through equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control. All practices to increase efficiency in the use of raw materials, energy, water, or other resources, or protect earth's natural resources by conservation are considered as source reduction. Source reduction is a key concept in manufacturing.

Examples of source reduction from the synthetic turf industry:

- Replacing fuel oil burners with high efficiency natural gas models
- Improving carpet roll measuring technology to minimize cut-off waste at installation
- Extrusion and inventory control processes to minimize the amount of creel-out generated in yarn dye-lot production
- Substituting petroleum-based polymers with renewable, bio-derived polyols in urethane formulations for secondary coatings
- Polyethylene formulated from plant derived PHAs and PHBs, such as using PE derived from sugar cane for fiber manufacturing
- Recycled plastic bottles incorporated into the backing technology on certain products
- Synthetic turf requires significantly less water, pesticides and equipment/fuel for ongoing maintenance, compared to natural grass

Reuse means to use a product or material again for the same purpose in its original form or with little enhancement or change. Although in general terms reuse is considered a form of recycling, technically it is differentiated from recycling in that the materials are not converted or reprocessed before they are used again. A simple example would be refilling a PET water bottle from a tap (reuse), compared to disposing of the water bottle and having it ground and recompounded into polyester fiber (recycled). A PET bottle that is ground, recompounded and made back into a PET bottle would be considered "recycled" and not reused, because the new bottle results from the process described above.

Recycling

Recycling includes collection of used, reused or unused items that would otherwise be considered waste; sorting and processing the recyclable products into raw material; and manufacturing the recycled raw materials into new products. Composting organic materials is a form of recycling.

There is often differentiation made between post-industrial and post-consumer waste/ recycling. Post-industrial waste (sometimes referred to as "pre-consumer waste") is waste material generated in the manufacturing process. Post-consumer waste is generated by end-users of products, when those products are no longer useful as intended and are thereby ready to be discarded.

Recycling prevents the emission of many greenhouse gases and water pollutants, saves energy, supplies valuable raw materials to industry, creates jobs, stimulates the development of greener technologies, conserves resources for our children's future and reduces the need for new landfills and combustors.

Examples from the synthetic turf industry:

- Use of recycled PET for turf backing
- Waste from PE fiber extrusion reformulated into new PE
- Foams from the auto industry made into sports field shock pads
- Passenger car and truck tires made into sports field infill
- Recycled glass cullet made into beads for turf infill
- Reclaimed turf recompounded into mixed plastic polymers for use as an infill, flooring, field underlayment, plastic lumber, injection and compression molded parts

Energy recovery from waste is the conversion of waste materials into useable heat, electricity or fuel through a variety of processes, including incineration/combustion, gasification, pyrolization, anaerobic digestion and landfill gas recovery. The process is often referred to as waste-to-energy.

Treatment and disposal

Landfills are the most common form of waste disposal and are a critical component of an integrated waste management system. Landfills accepting solid waste are generally regulated by state and local authorities. All landfills must meet the standards established by the federal EPA, which include stringent design, operation and closure requirements.

Methane gas, a byproduct of decomposing waste, can be collected and used as fuel to generate electricity. After a landfill is capped, the land can be reclaimed for recreational use, including parks, golf courses and sledding/skiing slopes.

Note: This information and other material pertaining to ecological issues in synthetic turf can be found in *Sports Fields: A Construction & Maintenance Manual*, a publication of the American Sports Builders Association. Information on this publication is available from the website, www.sportsbuilders.org. ST

Mark Heinlein is a member of the Board of Directors of the American Sports Builders Association. He is a Certified Field Builder (CFB) and works with both Turf Reclamation Services and The Motz Group in Cincinnati, Ohio. He has also served as president of the Ohio Turfgrass Foundation.

ARE YOU USING STMA'S PLAYING CONDITIONS INDEX?

In 2006, the STMA Board of Directors approved the development of a tool to help members assess the playability of their fields. Today many members are using the Playing Conditions Index (PCI), including anyone entering the STMA's Field of the Year Awards program. The motivation behind its development was simply to gain more respect for your efforts in managing your fields. Sports turf professionals understand the complexities involved in conditioning sports fields for safety, playability, and fan enjoyment. It is through your efforts and use of the PCI that together we can continue to advance our industry.

SportsTurf MANAGERS ASSOCIATION

There are three primary reasons often cited for using the PCI:

- To go to administration with justification for additional resources
- To use as a tool for the media relations department
- To help communicate with all the constituent groups involved: parents, coaches, players, administrators, etc.

The PCI worksheet is segmented into four sections: Resources, Activities, Agronomic Performance of Turf, and Baseball/Softball Specific. Within each section, select your answer and place the corresponding number in the blank provided. In some instances, the number is a negative (-), so be sure to subtract that number when totaling your score. To assess a football, soccer, lacrosse, or rugby field, please fill out the Resources, Activities, and Agronomic Performance of Turf sections.

When you have completed the worksheet, add up the numbers and place the total in the box. Find the corresponding level in the chart. This is your field's Playing Conditions Index.

The PCI is to be completed for one field at a specific point in time. If you manage multiple fields, complete a worksheet for each field. The sports turf manager in charge of the field should complete each PCI; if there is not a designated sports turf manager, the person most familiar with the maintenance practices employed on the field should fill out the worksheet. STMA recommends that it be used at least four times over the course of a year and may be used weekly, or more frequently, if deemed necessary. Complete PCI as objectively as possible. Some questions have subjective elements that require an opinion based on your expertise, and you may wish to award a point value that is not listed. However, please adhere to the point system for each question when possible.

To download and print the STMA PCI in its usable format, please log on to www.stma.org.

STMA PCI©

Sports Turf Manager Name:

Date PCI Performed:

Facility Name:

Facility Location:

Facility Level (check one):

- ❑ Parks and Rec
- ❑ Schools K-12
- ❑ College/Univ
- ❑ Professional
- ❑ Other

Comments:

This worksheet is an opinion about the playing conditions of the field and is not to be used as an assessment or endorsement of a given field's safety. STMA does not assume any liability for actions or injuries resulting from play on a field rated with this worksheet.

To download and print the STMA PCI in its usable format, please log on to www.stma.org.

Resources

1. Head turf manager experience _____
   1 = 1-2 years
   2 = 3-4 years
   3 = 5-6 years
   4 = 7-8 years
   5 = 8+ years
2. Head turf manager experience at site _____
   1 = 1 year
   3 = 2 years
   5 = 3+ years
3. Total number of fields currently overseen _____
   1 = 16+ fields
   2 = 11-15 fields
   3 = 6-10 fields
   4 = 2-5 fields
   5 = 1 field
4. Head turf manager education (highest level completed) _____
   1 = High school
   2 = Attended some college
   3 = Non-turf related AA or BS
   4 = AA in turf management/agronomy
   5 = BS in turf management/agronomy or higher
5. CSFM designation from STMA _____
   0 = No
   1 = Yes
6. Weekly man hours dedicated to maintaining field _____
   1 = 0-24 hours
   2 = 25-49 hours
   3 = 50-74 hours
   4 = 75-99 hours
   5 = 100+ hours

Activities

7. Are multiple sports played on this field? _____
   0 = No
   -3 = Yes
8. Last activity type (see Table 1 at end of worksheet) _____
9. Time since last activity _____
   1 = less than 24 hours
   2 = 2-5 days
   3 = 6-9 days
   4 = 10-13 days
   5 = more than 2 weeks
10. Activity scheduled to occur (see Table 1 at end of worksheet) _____
11. Amount of rainfall on field in last 48 hours _____
    1 = more than 1.5 inches
    2 = 1.0-1.4 inches
    3 = .5-.9 inches
    4 = 0.2-.4 inches
    5 = 0.0-.1 inches

Agronomic Performance of Turf

12. Turfgrass variety suited to activity (consider activity and season)
    1 = Unmanageable _____
    3 = Manageable
    5 = Ideally suited
13. Add 3 points if you overseed (0 if you do not) _____
14. Root zone quality (consider depth and mass) _____
    1 = less than 1.0"
    2 = 1.0-2.0"
    3 = 2.1-4.0"
    4 = 4.1-6.0"
    5 = 6.1"+
15. Add 1 point if you conduct soil testing annually or more frequently (0 if you do not) _____
16. Add 1 point if you conduct nutrient analysis annually or more frequently (0 if you do not) _____
    Add 1 point if the results of your nutrient analysis were ideal (0 if no nutrient analysis or poor results) _____
17. % Turf worn/bare _____
    1 = More than 40% field is bare soil
    2 = 30 - 39%
    3 = 20 - 29%
    4 = 10 - 19%
    5 = 0 - 9%

18. Desirable turfgrass cover of field is currently _____
    1 = Dormant
    3 = Overseeded
    5 = Growing
19. % Diseased _____
    1 = More than 40% infected
    2 = 30 - 39%
    3 = 20 - 29%
    4 = 10 - 19%
    5 = 0 - 9%

Severity of disease *Answer only if awarded
    1 - 4 points on question 19* _____
    -1 = Moderate (red thread, dollar spot, etc.)
    -3 = Severe (pithium, gray leaf spot, etc.)

20. % Infested by insects _____
    1 = More than 40% infested
    2 = 30 - 39%
    3 = 20 - 29%
    4 = 10 - 19%
    5 = 0 - 9%

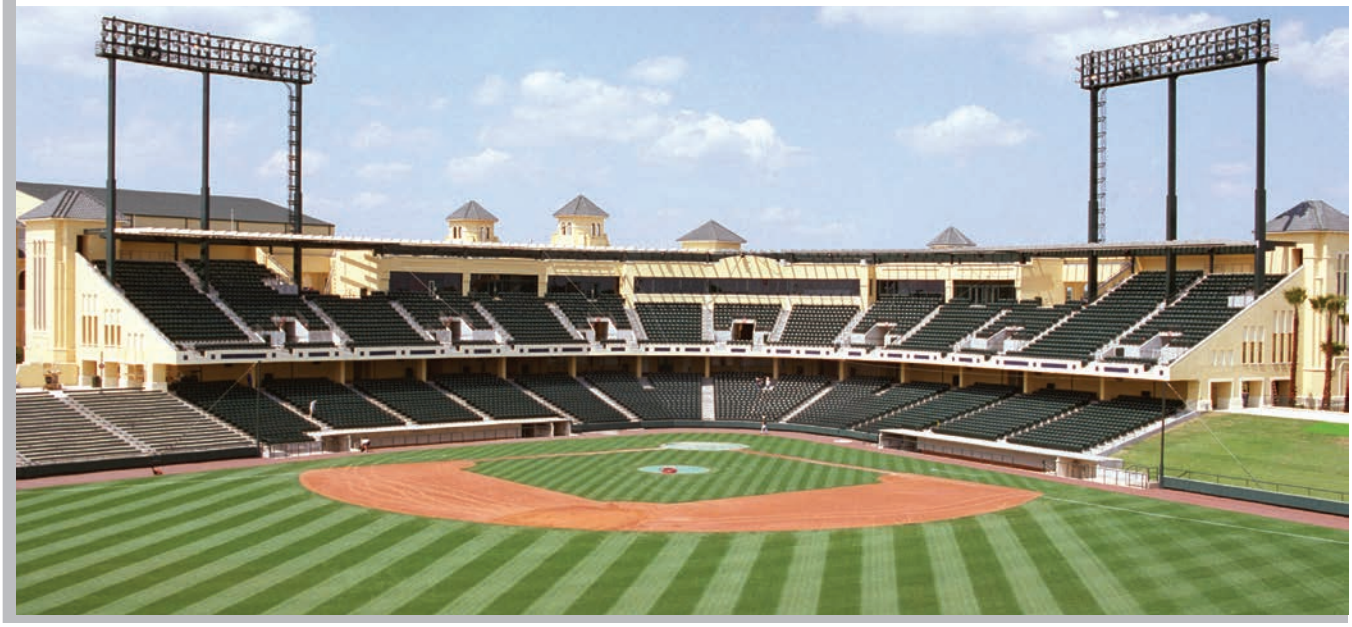
Type of infestation
Answer only if 1 - 4 points awarded on question 20 _____
    -1 = Moderate (cut worm, army worm, etc.)
    -3 = Severe (grubs, mole cricket, etc.)

21. % Infested with weeds _____
    1 = More than 40% infested
    2 = 30 - 39%
    3 = 20 - 29%
    4 = 10 - 19%
    5 = 0 - 9%

Type of infestation
Answer only if 1 - 4 points awarded on question 21 _____
    -1 = Moderate (dandelion, etc.)
    -3 = Severe (goose grass, crab grass, etc.)

22. Thatch/Tensile strength _____
    1 = Little or no thatch, weak tensile strength
    3 = Excessive thatch, adequate tensile strength
    5 = Ideal thatch, ideal tensile strength
23. Compaction (Account for aerification, moisture content, etc.) _____
    1 = Too little compaction
    3 = Too much compaction
    5 = Ideal compaction
24. Drainage issues in turfgrass areas _____
    1 = Devastating water retention, depressions, etc.
    3 = Inconsistent runoff, non-uniform grade, etc.
    5 = Excellent runoff, ideal grade, etc
25. Add 3 points if you have a sand-based field (0 if no) _____
26. Irrigation (award 0 points if no irrigation system present) _____
    1 = Quick coupler/hose only
    3 = Manual sprinkler system
    5 = Automated sprinkler system
27. Quality of irrigation system (if applicable) _____
    1 = Poor
    3 = Adequate
    5 = Optimal
28. Add 3 points if you conduct annual water audits (0 if no) _____
29. Mowing frequency _____
    1 = Less than weekly
    3 = One to two times per week
    5 = Three times per week or more
30. Award 2 points if mowing frequency is consistent throughout the year _____

TOTAL 1



BASEBALL/SOFTBALL SPECIFIC

31. Uniformity of playing surface _____

1 = Many large rocks (.5" or larger), other hazardous materials, weeds, etc.
2 = Many small rocks (.5" or smaller), other hazardous materials, weeds, etc.
3 = Few very small rocks, very few if any weeds
4 = No weeds, no rocks, but irregular or inconsistent materials
5 = Ideal uniformity of material

32. Add 3 points if soil conditioners are used regularly (0 if no) _____

33. Maintenance of mound and home plate areas _____

1 = Poor (Severe holes, filled/leveled with existing materials, moisture rarely applied, etc.)
3 = Adequate (Some holes, filled with fresh clay when possible, moisture applied when possible, etc.)
5 = Expert (Minor or no holes, filled daily with fresh **clay, regular moisture, etc.)**

34. Grass to skin transitions _____

1 = High lip, inhibits drainage, very irregular shape/edging, etc.
2 = Noticeable lip, very irregular shape/ edging, etc.
3 = Minor lip, somewhat irregular shape/ edging, etc.
4 = No lip, adequate shape/edging, etc.
5 = No lip, ideal shape, ideal edging, etc.

35. Infield grading of skinned areas _____

1 = Poor grade, devastating water retention, depressions, washout, etc.
3 = Inconsistent runoff, non-uniform grade, little or no standing water, etc.
5 = Excellent positive runoff, ideal grade, etc.

36. Frequency of moisture on skinned surfaces _____

1 = Never
3 = Sometimes/sporadically
5 = Daily/as needed

37. Add 3 points if field tarped during any rainfall within 24 hours of an event (0 if no) _____

TOTAL 2

TABLE 1 - Activity references©

5 = P.E. class
4.5 = Baseball/ softball
4 = Field hockey/ lacrosse
3.5 = Camps/ tournaments/ special event - moderate
3 = Soccer
2.5 = Camps/ tournament/ special event - intensive
2 = Football
1.5 = Concert/ festival/ band practice
1 = Activity during or after precipitation

Football/Soccer/Lacrosse Playing Conditions Index©

121 – 103 5 - Excellent
102 – 85 4 - Above average
84 – 67 3 - Average
66 – 49 2 - Below average
48 or below 1 – Unplayable

Baseball/Softball Playing Conditions Index©

149 – 127 5 - Excellent
126 – 104 4 - Above average
103 – 82 3 - Average
81 – 60 2 - Below average
59 or below 1 - Unplayable

TOTAL 1 _____

+ TOTAL 2 _____

= TOTAL _____

16 FACILITIES NOW CERTIFIED IN NEW STMA ENVIRONMENTAL PROGRAM

"The STMA Environmental Certification Program is a cornerstone program for our association because it delves deep in to the core of what we as sports turf managers represent. We share the ultimate responsibility to be great stewards of our environment, all the while producing safe athletic surfaces around the world. This Environmental Certification program provides a platform for sports turf managers and their respective facilities to be recognized for the great sustainably work that they do each and every day."—Jimmy Simpson, CSFM, Town of Cary, NC and STMA Board member

As of mid-April 16 facilities have achieved environmental facility certification. They are:

- Peter Ashe, CSFM, University of North Carolina Greensboro, NC
- Paul Burgess, CSFM, (2) Ciudad REAL Madrid and Santiago Bernabeu Stadium - REAL Madrid, Spain
- John Cogdill, Boulder Parks & Rec, CO
- Ken Edwards, CSFM/Keair Edwards, The Gulfport Sportsplex, MS
- Edward Hall, Allen Pond Park, MD
- Israel Hinojosa, Minute Maid Park, TX
- Zack Holm & Team, (2) Red Bull Arena and Red Bull Training Facility, NY
- Elliott Josephson, Prairie Ridge Sports Complex, IA
- Jason Koester, CGCS, Grinnell College Athletic Fields, IA
- Abby McNeal, CSFM, Ruby Hill Park, CO
- Travis Stephen, Longfellow Park, IL
- Scott Stevens, CSFM, Elon University, NC
- Bruce Suddeth, USC Upstate Soccer Complex, SC
- Brian Winka, CSFM, Chesterfield Valley Athletic Complex, MO

The benefits of becoming certified include:

- Validates your environmental stewardship efforts and creates awareness with your peers, employer, field users, fans and the community at large
- Establishes your facility as a leader in environmental stewardship
- Documents stewardship that can help your chapter counter proposed local environmental regulations
- Provides continuing education resources to sports field managers on environmental best management practices

We contacted some turf managers whose facilities recently earned certification. John Cogdill, Boulder Parks & Rec, CO; Abby McNeal, CSFM, Ruby Hill Park, CO; Bruce Suddeth, USC Upstate Soccer Complex, SC; and Scott Stevens, CSFM, Elon University, NC replied to a few questions about getting certified.

WHY DID YOU WANT TO BE PART OF THIS NEW PROGRAM?

Cogdill: The City of Boulder Parks and Recreation Department has always been committed to environmental safety and clean water initiatives. Many of our staff members are already CDOT certified in storm water prevention. Our customers and by that I mean the public, is our most important asset.

Anything that we can do to protect them from exposure to environmental hazards is something that we are always striving to accomplish.

McNeal: I wanted to apply for the Environmental Certification because of the history of the park/facility as well as to help highlight to changes that we have done to our shop space that were long overdue. Ruby Hill Park is built on an old landfill and has a known contaminated soils. We have a soils management plan that we have to adhere to which requires us to have notify the Department of Environmental Health as well as the state

of Colorado Health Department if we need to perform any soil disrupting activities just in one area of the park. If it is more the aerification or minor irrigation work we also need to arrange for an Asbestos contractor to be on site to monitor the area of disruption. The shop space also need a major cleaning of products that were no longer needed and should have been properly disposed of years ago.

Suddeth: When we knew the Environmental Certification criteria was going live our team was excited to be a part of it. USC Upstate has always took pride in doing the environmentally responsible approach to turf management. The University as a whole has been involved with several programs such as Audubon Society, Arbor Day Foundation, Tree Campus USA, and our own Watershed Ecology Center.

With those programs active within our organization we thought it would be challenging just to see where we stood by doing an audit and evaluation process with the Environmental Certification program. The sports turf team, the University and I are quite proud of the certification because it is a testament to how we operate.

Stevens: Getting your facility recognized is always a good thing, especially when the recognition comes from a well-respected national organization like STMA. Receiving an award specifically for the sports facilities adds a new layer of distinction to the environmental focus of the entire university. Unlike an individual award that shows a person's personal achievements, this award recognizes our entire sports turf department for all the work we are doing here at Elon University.

The award also reinforces that we are doing the right things to protect the environment during the course of our work. Without the infrastructure and support from university administration and the sound environmental practices of our crew, this certification would not have been possible. People at every level of the organization played a part. All aspects of the facility, not just the fields, are taken into account for the award. The ten areas that are assessed give a thorough evaluation of facilities and management practices. We chose to have the entire facility assessed for the certification versus just one field. When factoring in environmentally safety we treat all fields equally and are proud to be recognized for this achievement.

WHAT IF ANY CHANGES DID YOU MAKE TO MEET THE REQUIREMENTS?

McNeal: The main things that we did were to clean up the shop area of materials that were no longer needed. During our annual Hazards Materials Inventory activity (inventory all items within the building). This type of inventory was about 4 years past due, so we had lots of materials to work with DEH to properly dispose of the products. It all came together at the right time to clean things up at our shop and to apply for the Environmental Certification.

Suddeth: The most notable change to meet the requirements was the incorporation of new smart irrigation controllers on campus. These technologies have really changed the last couple years and we had begun incorporating those on main campus but have now done so with our athletic facility as part of the Environmental Certification. The water savings and conservation just made sense and it was an easy sell to our administrators.

Stevens: The biggest challenges for us to obtain the award were going through each of the ten categories and making sure that we were able to meet the requirements. As North Carolina State licensed pesticide applicators we are required to record all use of pesticides. We use this same mentality when it comes to fertilization, cultural, and seeding practices.

Virtually everything that is done to a field is recorded. This allows us to track our management practices with each field and build a documented history. Providing this information to our reviewer made the evaluation run more smoothly because he could easily see all the things that we are doing. Over the past decade Elon University has made a strategic initiative to be more sustainable and environmentally friendly. This allowed for new projects and staffing that helped us achieve certification.

Cogdill: We had most of the required BMP's already accounted for, the required checklist is very extensive and as such a helpful reminder. We are a public agency; we constantly strive to achieve a high level of environmental safety, particularly as it relates to our customers.

HAVE YOU PUBLICIZED BECOMING ENVIRONMENTALLY CERTIFIED?

Suddeth: The University has not publicized the certification other than to make an announcement through our University webpage. I do believe that when athletes, parents, and coaches visit the USC Upstate Soccer Complex they realize that the University is practicing environmentally sound management. We often get comments from those using the facility how well managed and orderly the facility is and that is all we want.

Stevens: We opted to get the plaque over the banner. The plaque for us is a professional and longer-term way to present the accomplishment. After we received the award we were recognized on our main university website. The student newspaper came and wrote an article about our achievement and the news was posted to our university's Physical Plant Facebook and Twitter pages. We have placed the plaque up on the wall in our shop, so anyone coming into our shop can see the accomplishment. The real value of the award is evident in our facilities, which are seen daily by users. The award itself serves as validation that we are doing the right things to protect the environment for this generation and future generations to come.

Cogdill: We are still working on this; our community is very aware of our commitment to the environment and has high expectations as it relates to all environmental concerns and issues.

McNeal: We have announced the certification internally. DEH has also sent out communication regarding the certification, most recently during an external Environmental audit that we went through. I am not sure at this time how it will be communicated to the public, etc. ST

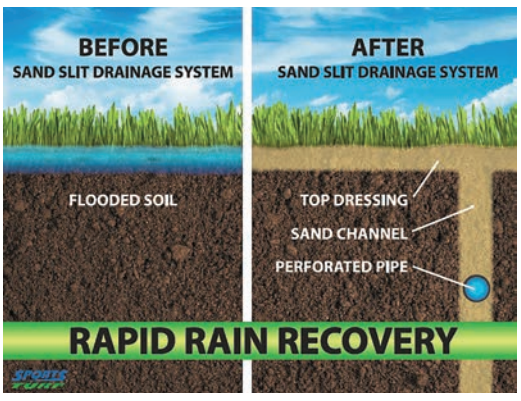
CONSIDER SAND SLIT DRAINAGE

Editor's note: This article was provided by Sports Turf Company, Inc., Whitesburg, GA.

Your options

The evacuation of excess moisture is paramount to the success of an athletic field. We know that a field with a small amount of organics or topsoil in general tends to be better at binding more nutrients in the rootzone. Beyond the ability to retain more nutrients, the presence of native soil in rootzones tends to improve the surface stability. The downside to a field with excess amounts of clay or organic material though is they get compacted easily, they have poor exchange of air and water, and they get water logged in times of excess moisture.

The premier athletic field uses a gravel blanket and an underdrain system to create a very high quality field. It is hard to beat the outstanding drainage and rootzone that these types of fields provide. The design of these fields provides a uniform medium to establish your field and they remove excess moisture very quickly. These types of fields have few down sides beyond the upfront cost to construct and an increase in the level of maintenance, which of course is a big hurdle to overcome for most facilities. A couple of points of focus are increases to irrigation and fertilization due to the sand rootzone. Typically, fertilizations have to be increased or the field will require "spoon feeding" due to the rootzone's inability to adequately bind the nutrients. It is important to consider the inputs, but this type of natural field is the highest performer in its class.



Another option to consider for your facility is a sand slit drain system. The sand slit drainage system does a good job of reducing intense maintenance

while still improving a field's drainage capability. It is a happy marriage of the two things because the system can both evacuate the excess moisture from an athletic field, but still use native soils that can be easier to maintain when it comes to a natural grass field. This system requires fewer inputs with respect to fertilization and daily irrigation.

The pros

Sand slit drainage is a functional and an economical way to improve an athletic field that has good planarity, a good variety of turf, and has a native soil rootzone without complete reclamation of the facility. The system is able to whisk away excess water without drying out the field. Cost-wise it is cheaper for the owner to maintain, requires less staff time, and is cheaper to install in the front end. In the end it is the most cost-effective system to move water effectively.

This system also cuts down on maintenance because it requires less fertilizer, less irrigation, and less direct maintenance because it doesn't need to be watered as much and you don't have to feed it with as much due to leaching through the rootzone. The long-term maintenance of the drainage is easily maintained by having it re-slit after 5-7 years of use. This improves the overall downtime for the facility.

The installation time is also significantly quicker since it does not involve total renovation of the existing facility. If this system is installed in May or June, by late July the field is recovered, healed and ready for use. It is about a 2-3 week process to install. The sand slitting process itself only takes a couple of days.

The real benefit to the system is you never have to move water more than 10 inches over the surface area to find pore spacing for it to be evacuated. It moves into the sand slits and from the sand slits into the lateral collector lines. The lateral collector lines then drop into a collector line that will either remove it from the field or into a site drain system.

By having this system, the field will be wet with significant rainfall, but not muddy because the excess water will be evacuated from the field. It will do a good job removing moisture in a way that keeps the field playable, even with a major rain event. In return you fields will be able to tolerate heavier wear.

In September of 2014, Sports Turf Company installed a sand slit drainage system in Bacon County (GA) High School's football, baseball and softball fields. The school system wanted athletic fields that drained efficiently, but were easily maintainable. The most economical way we saw to do this was through the installation of a sand slit drainage system.

Three years later the fields are still performing at an optimal level. Facilities and Maintenance Director of Bacon County Schools Scott Taylor, says, "The fields are great, drain well, and are easy to maintain." ST

EXPANDING YOUR WATER CONSERVATION STRATEGY

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

Water conservation is the new way of life for sports turf managers. The battle with drought in California over the past 6 years, as well as in other parts of the United States, has motivated government agencies to impose water regulations that transcend the current weather conditions, putting permanent limitations on water use to ensure practices become more sustainable. We can only expect this to increase in years to come.

Sports turf managers are challenged with maintaining adequate turf conditions at their facilities despite these regulations and continuously reducing budgets. At the same time, finding ways to reduce water inputs ensures a more sustainable practice that can also be a great source of savings, helping to protect their bottom line.

Sports turf managers are looking at inefficiencies in their irrigation systems, the turfgrass species they are growing and the different chemistries used to tackle drought and maintain their turf. This is why numerous turf managers are including CIVITAS TURF DEFENSE into their IPM programs as it can help to reduce inputs.

"CIVITAS TURF DEFENSE is more than just a green pigment," says Anne Beckingham, Athletic Field Supervisor, Vassar College. "I see this as a plant protection product. It helped me stretch my budget with savings of other fungicides."

The product works within the plant itself to enhance its stress tolerance threshold. What this means is when a sports field manager utilizes deficit irrigation practices, the symptoms of this stress are reduced, keeping the turf stronger and looking healthier.

Proven in research and on the field, CIVITAS TURF DEFENSE can reduce water inputs by up to 25 percent while maintaining acceptable turf quality. This means smart savings for sports turf managers.

By using this product, not only will sports field managers be able to conserve water while maintaining high-quality turf, they can also enhance the performance of certain tank mix partners, allowing them to maintain efficacy while decreasing to lowest label rates and/or extending spray intervals allowing them to help keep the turf ready for the big game.

NEW PRODUCTS

ULTRAMAX BLUE HOSE

Underhill's multi-purpose, heavy-duty UltraMax Blue hose offers an array of features that ensure reliable performance, including: 1200 PSI burst pressure strength; long-life TPE material construction; machined brass couplings; easy-to-grip smooth finish; flexible handling; and abrasion resistance. UltraMax Blue is the premium option in Underhill's UltraMax Hose Series of Blue, Red, Green and Clear hose products. It is 45 percent lighter than comparable commercial hoses and a practical solution for spot watering and general maintenance. All UltraMax Series hoses are available in 3/4'" and 1" widths, and 50', 75' and 100' lengths. Custom lengths can also be specified.

Underhill

PLOW FOR SKID STEERS

Fisher Engineering has introduced the new XRS plow, designed specifically for skid steers. The plow also features a brand-new oscillating plow mount, which is standard on the XRS and optional on the HD2 and HDX skid steer plows. When angling the plow right or left, the plow automatically retracts the inside wing when full angled and then returns to the scoop position once straight. This offers increased efficiency and operator comfort, especially in tough situations with heavy snow and large plowing areas. The new oscillating mount features six degrees of side-to-side oscillation, improving scraping and cutting-edge wear. It also helps the plow adapt to uneven ground, reducing damage to the terrain and the plow.

Fisher Engineering

NEW ACCESSORIES FOR OPTIMAX BLOWERS

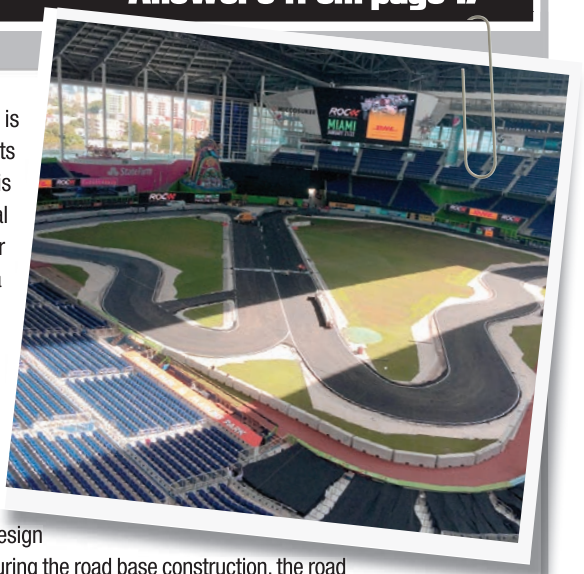
Little Wonder has introduced new accessories for its Optimax blowers. The tool holder, parking brake and solid front wheel add convenience and safety as well as increase durability on challenging terrain. The Optimax blower range, which includes eight self-propelled or push models, features an advanced impeller and aerodynamic design that results in 38 percent more air movement than competitive blowers. Air speeds range from 143 to 179 miles per hour. The Optimax blowers' advanced, all-steel impeller design and reverse-angled, seven- blade fan provide maximum airflow. Plus, the scrolled, aerodynamic air inlet maintains constant power and doesn't clog if leaves are drawn in.

Little Wonder

John Mascaro's Photo Quiz

Answers from page 17

John Mascaro is President of Turf-Tec International



This flattened and brown turf was caused by a road race. Even though this MLB stadium is a sand-based, natural grass field with seashore paspalum, it also is subject to many events including concerts, football bowl games, festivals, and a host of other events. However this event, called the "Race of Champions," was something I had never seen before. The annual Race of Champions is now in its 28th year and is held all over the world. It brings together some of the world's greatest drivers from motor sport's major disciplines including Formula One, NASCAR, IndyCar, Le Mans, Rally X and Touring Cars. It sets them free to battle head-to-head in identical machinery and as you can see, very close to the crowds. Before the event, the Director of Grounds removed and capped all the sprinkler heads. Next, steel-grated flooring is laid in the track configuration and 12+ inches of actual road base is trucked in, laid and then compacted with massive vibratory rollers. Next, hot blacktop asphalt is overlaid on the road base just like you would see out on the interstate with full-size dump trucks and steam rolled. The event was a huge success and afterwards, the entire track was removed. After the removal, the field had a total renovation planned to fix some irrigation design issues that these multiple events have brought to light. One other note of interest was that during the road base construction, the road crew had to stop work for a beer festival to take place on the field!

Photo submitted by Chad Mulholland, Director of Grounds at Marlins Park in Miami, FL.

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

BACKGROUND ILLUSTRATION COURTESY OF ISTOCKPHOTO.COM

NEW PRODUCTS

NEW MESOTRIONE PRODUCT FOR TURF

SipcamRotam has launched Lucto, a pre- and post- emergence herbicide with the active ingredient mesotrione, labeled by the EPA for use in commercial turfgrasses. Packaged in tip-and-pour one-quart containers, the product is designed to eliminate bentgrass in some cool season turf grasses as well as control weeds at time of new seeding or turf renovation. Lucto is absorbed by weeds during emergence or through treated foliage and is active against a wide spectrum of tough-to-control broadleaf weeds as well as some weeds resistant to glyphosate, ALS-inhibiting and triazine herbicides. For additional weed control, Lucto can be combined with SipcamRotam's Cavalcade prodiamine product.

SipcamRotam

BILLY GOAT ONE & DONE HYDRO AERATOR

When renovating turf in landscaped areas, the flexibility of the 30" One & Done Hydro Aerator offers less labor and unmatched maneuverability to complete the aeration task at hand. The unit creates 2 – 10x more holes than fixed drum models in a single pass, so patch repair and seedbed prep can be done in just one pass. Patent pending FLEXTECH arms with flexible reciprocating action drive plug depths up to 2x that of drum units, even in dry conditions. In-ground steering provides the ease of maneuverability in tight spots. There's no lifting to make turns – plus reverse aerating, both affording maximized productivity and minimized operator fatigue.

Billy Goat

EXMARK ADDS 60-INCH QUEST S-SERIES ZERO-TURN RIDER

With the introduction of a new 60-inch Quest S-Series model, Exmark has significantly raised the bar on the productivity potential of its most affordable zero-turn riding mower model. The 4-inch deep, full-floating Series 2 cutting deck features an easy to use foot operated single-point height adjustment system. Exmark's maintenance-free sealed bearing blade spindles are designed to deliver long life with zero maintenance. An innovative, high-strength steel unibody frame is at the foundation of every Quest model. The frame design places the operator and major components lower, with better mass centralization for better handling and increased stability.

Exmark

KIOTI MID-MOUNT MOWER FOR COMPACT TRACTORS

KIOTI Tractor introduces a new drive-over mower for compact tractors with the launch of the KIOTI KM2560 mid-mount mower. Compatible with the CK2510 and CK2510H of the brand's CK10 Series, the new mower attachment is KIOTI's first mid-mount mower option for the CK10 line. The suspended mower deck gives the operator 1.5-inch to 4.5-inch cutting control, for a clean cut every time, while eliminating hassles when moving from job to job or riding over curbs. Additionally, this innovative mid-mount mower can easily and quickly attach and detach thanks to its drive-over attachment deck. With a 60-inch cutting with and a spindle speed of 3,334 RPM, the mower's three-blade system sheers grass with a tip speed of 18,343 feet per minute.

KIOTI Tractor

BLUETOOTH PORTABLE GENERATOR

The Briggs & Stratton 8,000 Watt** Elite Series Portable Generator with StatStation Wireless Bluetooth makes it easy to monitor the generator from the convenience of any smart device. The Bluetooth provides visibility to: fuel gauge and run time left before needing to refuel; percent of available watts being consumed; maintenance reminders (spark plug, oil, air filter); total hours on generator (hour meter); and dealer locator.

Briggs & Stratton

BACKPACK BATTERY

Professionals get gas-powered performance from their STIHL battery products with the 36-volt, 1148 watt-hour AR 3000 backpack battery. Interchangeable with all handheld tools in the STIHL Battery Line, this battery has 25 percent more capacity than the STIHL AR 900, running for up to 13 hours and eliminating exhaust emissions and fuel costs. The AR 3000 comes equipped with numerous features including audible and visual recharge alerts, rain cover, sturdy housing and durable base plate. And its ergonomic design with comfortable shoulder straps, hip belt and chest strap distributes the weight evenly, reducing operator fatigue.

STIHL

NEW MATCHPOINT INSECTICIDE FOR ABW CONTROL

Dow AgroSciences introduces MatchPoint insecticide, the latest innovation in annual bluegrass weevil (ABW) larvae control. With the power of spinosad and a new lignin technology, MatchPoint gives golf course superintendents and sports turf managers powerful ABW control with convenient application flexibility. This advanced formulation enhances photostability, providing more consistent control. MatchPoint controls the 1st and 2nd instars in the plant, making it an ideal choice for the first application in any rotation program. When applied according to label directions, MatchPoint will control up to the 5th instar and will stop ABW feeding immediately. MatchPoint works through contact and ingestion and provides quick knockdown with good residual. In addition to ABW, MatchPoint controls armyworms, black turfgrass ataenius, cutworms, fleas and sod webworms.

Dow AgroSciences

NEW PRODUCTS

MUDGUARD SLIP-ON FILTER

MudGuard, a new slip-on filter for Gulp UltraMax Plus Pumps, is now available from Underhill Intl. MudGuard minimizes clogging and facilitates dirty water clean-outs from valve boxes, sprinkler leaks or other water-soaked areas on turf and landscape. MudGuard easily attaches to the Gulp UltraMax Plus and prevents the pump from burrowing into mud and debris. It is now standard on all Underhill 36" UltraMax Plus pumps (with 36" or 72" hoses) or it can be add onto existing pumps. UltraMax Plus is the first suction pump that completely disassembles for easy maintenance. The o-ring and wiper seal, head assembly and intake foot/filter are removable for maintenance and replacement parts are available.

Underhill

TORO INTRODUCES CUSTOMIZABLE ROPS EXTENSION KITS

Toro has introduced the Two-Post Roll-Over Protection System (ROPS) extension options on select Toro Groundsmaster and Reelmaster models. Designed with a focus on ergonomics, the innovative Two-Post ROPS extension kits allow for adding a number of accessories to deliver a high level of operator comfort in an economical package.

Featuring a number of ergonomic benefits to the end user, the system allows grounds and equipment managers the ability to select options that are right for their respective applications. This includes an interior adjustable-speed fan for increased ventilation, a sunshade that shelters the operator from the elements, and interior and exterior mirrors to increase overall visibility. Combined, these features help reduce operator fatigue and contribute to a highly productive operation.

In addition to providing enhanced comfort and custom solutions for customers with tight budgets, the Two-Post ROPS extension kits provide a number of other options. These include front and rear LED work lights, a rotating beacon with breakaway mounting, and a polycarbonate windscreen to protect the operator from dust and debris. The addition of a tempered safety glass windshield with optional electric wiper helps provide protection and visibility in poor weather conditions.

The Toro Company

ENP TO MARKET FOLIAR-PAK FERTILIZERS NATIONALLY

Beginning this summer, EnP will market its Foliar-Pak brand of fertilizers nationally and retire the EnP Turf brand. The Illinois-based company manufactures specialty fertilizers for the turf and ornamental market with a focus on providing economically and environmentally sustainable solutions. Traditionally, the Foliar-Pak brand has been sold in the Midwest and Long Island, New York, while the EnP Turf brand was sold everywhere else, but both contain some of the same formulations and the new amino acid and poly-amino acid technologies. EnP Turf customers will notice new packaging, new product names, and even some new products in the line.

EnP

QUICKCAT STAND-ON MOWER

BOB-CAT introduces the QuickCat 36-inch, stand-on mower with a 6-year, 2000-hour MOW WITH CONFIDENCE limited warranty. Features include: 7 mph mowing speed and 9 mph transport speed; low placement of the fuel tank for improved balance on uneven ground; compact size for maneuvering in tight spaces and loading on trailers; floating deck that improves cut quality and maintenance; extra ground clearance to safely move on and off curbs; DuraDeck mower deck, backed by a limited lifetime warranty; 5.1-gallon fuel tank for all-day mowing without refueling.

BOB-CAT

WHITE RIVER SOCCER COMPLEX,

Noblesville High School, Noblesville, Indiana

Category of Submission: Schools/Parks Soccer
Sports Turf Manager: Josh Weigel
Title: Head Groundskeeper
Education: Bachelor's degree in Turf Management
Experience: I graduated with a Bachelor's degree in Plant Sciences with a concentration in Turf Management from the University of Tennessee (2007). I interned with the Indianapolis Indians in 2006. After college, I took the Assistant Director of Grounds position at Wesleyan School in Norcross, GA. After a year and a half, I became the Director of Grounds (2009-2013). Currently, I am the Head Groundskeeper for Noblesville School district (1/2014-present).
Full-time staff: Rex Wallace, Levi Flook
Part-time: J&D Turf
Original construction: 2008
Rootzone: Native soil, sandy loam
Turfgrass variety: Turf Blu HGT Kentucky Bluegrass and Turf Star perennial ryegrass (Barbeta, Pinnacle II, Barlennium).
Overseed: We overseeded at the end of the season last year (Nov 2015) by pulling cores, sweeping them, topdressing and then seeding at a rate of 7lbs./1,000 sq. ft. (kbg) and dragging the seed and sand in. In April we solid tined, topdressed, and overseeded at a rate of 12 lbs./1,000 sq. ft. (rye) followed by the steel drag making sure to get good seed to soil contact.
Drainage: No system

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

Why STMA should consider your field a winner?

Noblesville Schools is a very large school district. We have 10 school buildings along with 21 athletic fields. As the Head Groundskeeper, I not only manage the 21 athletic fields, but I also oversee the buildings' grounds. With myself and two other full time employees, this becomes a lot of ground for us to maintain. Our expectation at each field is to look the best it can, no matter the season, as we never know when a potential future family will be stopping by. This is one of the reasons we have submitted for Field of the Year; here is the other:

As with any field that is built, it can have a great foundation and be built correctly, but the maintenance of the field is the important key to keeping it great. The field had been maintained somewhat ok but it needed to have some TLC and follow the cultural practices. The previous crew who took care of the field would keep the grass a little higher than normal and when they would mow, they were taking off quite a bit of blades and letting them sit on the field. This happened for multiple years until we started incorporating the reel mower and better cultural practices. My first season we had the field aerated but the cores were drug back in and not harvested. This did not help reduce the thatch layer as we were putting it right back into the soil.

I had always noticed our field getting white tips where the leaf tips looked shredded. I started blaming our rotary mowers for having dull blades and the operator mowing too fast. But it would still do it with our reel mower. I soon figured out that it

was the amount of thatch. Since we contract a lot of our services to J&D, we don't have a lot of equipment on hand and being a public school system, our budget is tight. Last fall, they came in and pulled cores, swept them up, but we needed more than that to thin this turf stand out. I wanted them to use a dethatcher but we couldn't fit this into our budget.

I decided to use a technique that I had tinkered with in the past. We have a synthetic football field where we use a GreensGroomer to groom the field. The groomer not only has brushes on it but also tines in the back. I lowered the tines so they were lower than the brush, and went two directions on our soccer field. I first went endline to endline, pulling up massive amounts of thatch. We then wind rowed the material and used our Gravely lawn sweeper to haul it off the field. We dumped the material outside the field, and scooped it up by hand into a truck. Once this was complete, we repeated the process but this time went sideline to sideline. The results a few days later were amazing. The coaches couldn't believe how fast the field played after the dethatching. Not only was the playability great but so was the color.

I think White River soccer field deserves Field of the Year because of the innovative idea of using the turf groomer to dethatch and the money we saved by not bringing someone in to complete the project. With the money saved and the results achieved, it was a win-win for everyone involved.

SportsTurf*: What attracted you to a career in sports turf management?*
Weigel: As a kid, I was always trying to find lawns to mow. I didn't realize that I could go to college and actually get a degree doing this. Growing up, I had a cousin as well as a family friend who were golf course superintendents, but I never really spent much time thinking about who took care of athletic fields. My passion is sports, so initially I started out in Sports Marketing/Management at Indiana University. I transferred to the University of Tennessee my sophomore year with the intent of staying on track with that major, but I met Dr. John Sorochan and the rest is history.

ST*: What are your biggest challenges in providing excellent playing surfaces? And how do you approach those challenges?*
Weigel: The biggest challenge without a doubt is the weather. Often we spend all day getting the fields ready (mowing, painting, edging, etc.) and a big storm will roll in right at game time. That either cancels the game and all the work you put in, or in the case of soccer, creates postgame problems that we have to deal with later. As we all know, if there is no lightning, soccer and football will play their games. Trying to bring a field back after a game played in the rain can be very time consuming and stressful. After doing this for a while now, I have learned to stay calm and be patient. If I let it get to me, my work starts to become affected along with my attitude. I've learned it is best to just roll with the punches, and it will all be fine at the end of the day.

ST*: What changes if any are you considering or implementing for the winning field in 2017?*
Weigel: We would like to fraze mow the field. J&D Turf has done this on a couple of our other fields and has had great success. On our soccer game field, fraze mowing would eliminate all the thatch that has built up over the years. Even though we used the tines on our synthetic brush, I am confident we didn't get all the thatch. By frazing the field, we will strip it clean. Other than that, we are keeping the same program, as we have had great success with it through the years.

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

Weigel: The greatest pleasure is seeing the student athletes' reactions and hearing them compliment the field. We always enjoy reading e-mails from visiting schools' coaches and fans, as well as reading comments about our fields on social media. The compliments aren't solely on the field's aesthetics, but also on how it played. This tells us that our hard work is appreciated. The biggest headache would again be the weather. There is nothing more frustrating than feeling that your whole day was wasted when a storm rolls in right at game time.

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

Weigel: You never know when someone visiting your facility will only be there that one time. You want to make a lasting impression on them so that whenever they hear your school's name in the future, they remember how great it looked and played. I try to live by this philosophy in all aspects of my life. No matter if it is a middle school game or a high school playoff game, I put my best effort into it. You cannot be successful in your job, if you don't have passion for it.

ANNUAL MAINT

JANUARY

Grass is dormant. We rebuilt the bearings on the rollers of the sidewinder. We had the reels grinded and bedknives replaced. We also organized the soccer storage room and painted the goals white.

FEBRUARY

Grass is still dormant. We didn't have hardly any snow cover. Things are slowly thawing out. We put new nets on the practice goals. We trimmed up the tree branches that lined our entrance to the field. We also took a soil test.

MARCH

We rented a double drum roller and rolled the field in two directions because of the unheaving from the frozen ground. We started mowing twice a week with our rotary XMARK mowers at 2.5" in two directions going diagonal. We do this because paint lines aren't on the field yet and I don't want a pattern burnt in once we have paint lines and they don't line up throwing the visual off. Mid-month our practice fields had 18-0-6 with .13 Dimension applied but it was not applied on this game field because we are seeding next month. We also turned our irrigation back on and went through the system checking for any leaks from the winter.

APRIL

We lowered our height to 2" so we could slowly make our way to game height. There is no need to go below 2" at this point as soccer is a fall sport in Indiana. We are still mowing twice a week with the diagonal pattern. We solid tined aerated and topdressed with one dump truck load (18 tons) of USGA rootzone sand. We followed that up with Barenbrug's Turf Star perennial rye mix at a rate of 12 lbs./1,000 sq. ft. Then we drug the sand and seed into the soil. This was followed with a starter fertilizer (16-28-12) at a rate of 4 bags/A.

MAY

We are still at 2" but now mowing three times a week. We are nearing the start of summer conditioning where the student athletes will be out. A PGR 113 app was applied at a rate of 26oz/A. At this high of a rate, it helps us maintain the height while managing the other 20 athletic fields. A week later 25-3-10 1% Fe, 88% XRt was applied at a rate of 6 bags/A. At the end of the month, Armortech CGC2L was applied at a rate of 32oz/A. This was our liquid app for crabgrass control. We didn't put a preemergent out since we overseeded in early April.

JUNE

The teams have started training. We located our four corner markers and laid string. We measured and marked out the field so it can be painted. Once the field is painted, we move out our portable goals. Communication is key with the coaches, I asked them to stay off the game field as much as possible and to utilize their two practice fields. We do not set up the game goals as they are not mobile and by not having them up, the teams aren't tempted to use them and they won't create extra wear in the goalmouths. We also have another PGR 113 app at 26oz./A. I start noticing the white tips on the grass and brought in the reel mower to see if that helps. I lower the height to 1 7/8. My goal is to have the field at 1 1⁄2 by the start of the season. The color of the turf due to all the thatch is very bothersome. We brought in the GreensGroomer and used the back tines to dethatch the field in two directions. We used our rotary mowers to wind row the thatch and hauled it off with our pull behind lawn sweeper. The amount of material we hauled off was amazing. We then rolled the field in two directions after it was dethatched. We also borrowed a zero turn mower with a bagger and sucked up all remaining thatch and clippings. At the end of the month we have our preventive insecticide application, Armortech IMD 75 at a rate of 4 packets/A.

ST: *How are using social media at work?*
Weigel: I seldom post on social media, but I follow a lot of people and extension agencies that are constantly posting. Reading about the types of field diseases people are experiencing, or seeing their tricks on how to perform certain practices can be very educational. The same is true when I read how they've successfully treated certain pests with specific products. I also enjoy just appreciating my colleagues' work at the end of the day.

ST: *How do you see the sports turf manager's job changing in the future?*
Weigel: New technology makes for constant change. For example, there is a new robot that paints athletic fields by using GPS. This could eliminate hours of lining fields, giving you time to work on other areas. It's crazy to see the amount of new equipment coming out every year, and I always enjoy going to the STMA trade show to see the innovative ideas. From a turf standpoint, I hope that with more and more education (students pursuing degrees in turf as well as educating administrators), corporations get away from installing synthetic fields and go back to good old natural grass. ST

TENANCE PLAN

JULY
We are painting once a week and mowing two to three times a week. Now that we have paint lines on the field, I change the pattern to endline-endline and sideline-sideline single passes. We do not apply anything to the field this month due to the heat. We moved the game goals onto the field and put up the nets. We had two irrigation heads that were not rotating so we replaced those. We also had a 1 1⁄4 line break so we had to dig that up and replace it. Luckily, it was out of play and we didn't have to disturb the playing field.

AUGUST
The color of the turf looks 100% better as well as the health. I am mowing three times a week at 1 3⁄4 and started putting in the pattern. We edged up the sidewalk entrance and put in a pattern on the common grass around the facility. We have also put in a border 6 yds. off the field that is 2 3⁄4 height of cut so you can see the difference from the game field and the non-playing surface. PGR 113 was applied again but this time at 20oz/A because of the heat and we also have more time to stay on top of the mowing. We throw in some Fe at 14oz/A to cover up any discoloration the PGR might have on the turf with the heat. We have had above average rainfall this month (2 1⁄2 inches). This means we haven't had to run our irrigation as much but we have had to paint Mondays and Thursdays. This also meant that we started the season off playing a lot of games in the rain. With six teams and two practice fields, keeping teams off the game field is tough. When all six are practicing, I try to have the coaches rotate goals using the sidelines instead of the endlines on the game field helping reduce the wear in the goal mouths. We purchased a stencil of our school's conference logo (HCC). We painted the 8x8 logo 15 feet off the sideline and midway between midfield and the endline. On the other half of the field we painted our 8x8 school logo (N). We did this on both sides of the field.

SEPTEMBER
We have dropped our height to 1 1⁄2. We are still mowing three times a week and painting once a week. We had another PGR 113 applied with Fe at a rate of 14oz/A. We decided to pregerminate some ryegrass and put it out in the goalmouths and at midfield. I asked the coaches to stay off of the field for practices so the seed could establish. The above average rainfall has kept up. This month we have seen almost 4 inches. Although rain is a lot better than irrigation, we have seen too much and the field has taken a beating. At the end of this month, we played our 48th game, so that more than 70 hours of traffic in 2 1⁄2 months.

OCTOBER
We are getting ready for our post-season tournament. We will host six games in 3 days. We went out with Promote (12oz/1k) and Carbosential Fe (14oz/A) to give the field its best possible color for the playoffs. In total, we played 55 games and had almost 80 hours of activity on the field. With all the rain and traffic, the field held up pretty well. We finished up the month with pulling cores and harvesting them. We went out with another load of USGA sand (18 ton) and 7lbs/1,000 of Barenbrug HGT Turf Blu.

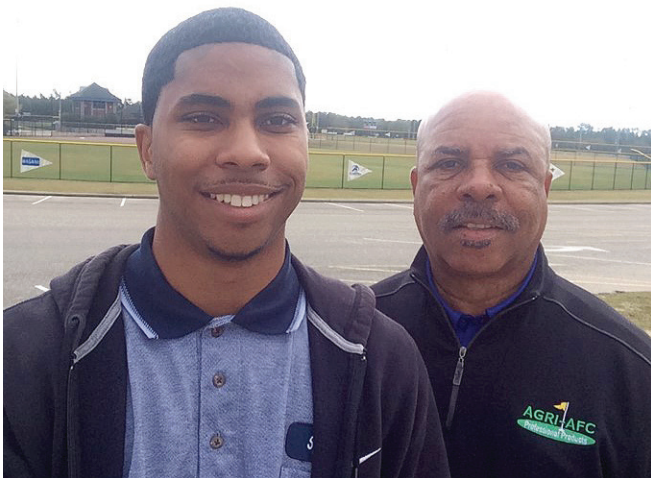
NOVEMBER
We took down the goals and put them in storage for the year. We pulled the reel mower off and started mowing with the rotary mowers. We are mowing once a week and working on leaf control. Toward the end of the month we go out with a 34-0-4 all mineral fertilizer at 9 bags/A. We follow that up with SpeedZone at a rate of 80oz./A. We blow the irrigation lines out so we don't freeze any lines.

DECEMBER
The field went dormant. We cleaned our equipment for the year and started getting it ready for the next year.

IS THERE A FIELD OF THE YEAR AWARD IN YOUR FUTURE?

There could be, but you can't win one if you do not submit!

2016 College Sporting Grounds Field of the Year winner on the campus of Kennesaw State University, Kennesaw, GA.



Ken Edwards, CSFM, right, and his son, Keair, earned a Field of the Year Award last year for their work at the Gulfport SportsPlex in Mississippi.

Now is the time to prepare your entry for the STMA Field of the Year Award program. Awards are presented in baseball, football, soccer, softball and sporting grounds (for non-traditional sports).

Each year a panel of judges independently scores applications on natural grass field maintenance practices, effective use of budget, quality of the field, and innovative solutions to playing surface problems. Fields that are submitted are judged by category, i.e., a schools or parks baseball field is judged with other fields in this category. Professional sports fields are judged alongside other professional fields in that sport.

Although the application is straightforward and easy to fill out electronically, there are two items that require attention now:

- Taking photos throughout all seasons of the year (maximum of 30 photos)
- Conducting the STMA Playing Conditions Index© four times: three must be conducted in-season of the individual field's primary sport and one must be conducted in the off-season of the individual field's primary sport

The application itself is 13 questions; some questions have multiple parts, such as your budget breakdown. That includes labor, materials and equipment maintenance.

Winners receive:

- A feature article in *SportsTurf* Magazine
- A plaque recognizing the field and the Sports Turf Manager
- Complimentary registration to the STMA Conference
- Three nights of lodging, excluding incidentals, at the STMA Conference
- Recognition in front of your peers at the STMA Annual Awards Banquet
- STMA signature apparel for you and your crew

Awards Chair John Watt, CSFM, encourages thorough preparation of the application. "Those who submit really need to think about *why* STMA should consider their field a winner," says Watt. "Keeping the answer to that question top-of-mind while filling out the entry form will help the applicant to communicate significant information to the judges." He also says, "It doesn't hurt to have the form proof read before it is submitted."

Since the beginning of the program in 1988, STMA has awarded Field of the Year to 82 baseball fields, 50 football fields, 57 soccer fields, 54 softball fields and seven sporting grounds (first award was given in 2009). Sponsors Ewing Irrigation and World Class Athletic Surfaces support the Field of the Year Awards program.

Join the ranks of the elite Field of the Year winners and submit your Field of the Year application this year. The deadline is October 16, 2017. Go to STMA.org, Professionalism Tab, Field of the Year, to find the electronic application.

RARELY CAPTURED TOGETHER ON FILM

Nice photo taken at the STMA Conference in January of attending past Presidents of the association, as well as Founder George Toma. The date listed next to the name is the first year served in office. Seated, L to R: Steve Wightman, 1985; Mike Schiller, CSFM, 1996; Toma; Founder Dick Ericson, 1981 (1st president of STMA). Standing, L to R: Troy Smith, CSFM, 2011; Rich Moffitt, 2000; Dave Pinsonneault, CSFM, CPRP, 2014; Dr. Gil Landry, 1992; Dr. Mike Goatley, 2012; Mike Andresen, CSFM, 2007; Abby McNeal, CSFM, 2009; Allen Johnson, CSFM, 2015; Steve Guise, 1998; current President Tim Van Loo, CSFM; and immediate past President Jeff Salmond, CSFM.

Nominate a peer for Founder Award

The prestigious STMA Founders Awards are open for nominations from the membership. Go to STMA.org, Professionalism tab, Founders Awards, to electronically nominate a peer who embodies the characteristics of one of our founders noted below.

Dick Ericson made significant contributions to STMA, including serving as its first President in 1981-1982. He has, and continues to have, an impact in raising the level of professionalism within the industry. This award is presented to someone who plans and executes the sports turf management of their facility, who effectively leads their team to accomplish their goals in field maintenance, and who positively impacts the sports turf industry.

George Toma continues to serve as a mentor for many in the industry. He emphasizes the importance of the entire crew in effective sports turf management and that if you love what you do and give it your all — "and then some" — you can achieve your goals. This award acknowledges the superior performance of a sports turf member in "on the job" activities and in community service.

Dr. William H. Daniel (deceased) set the pattern for educator/researcher involvement in STMA. This award recognizes an individual who has made significant contributions to the sports turf industry through his or her research, teaching or extension outreach.

Harry C. Gill (deceased) was STMA's second President and first recipient of this named award. His commitment to the sports turf profession and to STMA is legendary. This award honors an individual for their hard work in the sports turf industry and to acknowledge their dedication to STMA. ST

STMA Affiliated Chapters Contact Information

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

Colorado Sports Turf Managers Association: www.cstma.org

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

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

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

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

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

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

Illinois Chapter STMA: www.ILSTMA.org.

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

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

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

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

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

Mid-Atlantic STMA: www.mastma.org.

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

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

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

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

Sports Field Managers Association of New Jersey: www.sfmanj.org.

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

North Carolina Chapter of STMA: www.ncsportsturf.org.

Northern California STMA: www.norcalstma.org.

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

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

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

Ozarks STMA: www.ozarksstma.org.

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

Southern California Chapter: www.socalstma.com.

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

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

Texas Sports Turf Managers Association: www.txstma.org

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

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

Continued from page 23

ST: *What are your (or the Board's) priorities going to be in next 2 years?*
Gill: I can't speak for the Board, but personally, I hope to drive membership from the K-12 category, which I think has the greatest potential for growth. While serving through the ascension process and eventually becoming the first STMA President from the K-12 membership category, I hope to enhance our relationship with athletic administrators and physical plant managers at all levels but especially at the K-12 level. Due to reduced funding levels, the mantra in public entities has become "do more with less." As professional sports field managers, we must be willing to manage more than just athletic fields. By convincing administrators that a Certified Sports Field Manager can make their jobs easier in addition to improving their sports facilities, we can dramatically increase job opportunities for turf graduates.

> "As professional sports field managers, we must be willing to manage more than just athletic fields."

ST: *How do you think the profession and industry will most change in the next 10 years?*
Gill: Grounds and sports field managers are responsible for the care of huge tracts of real estate and can have tremendous positive and negative impacts on the environment. We will become leaders in environmental responsibility by demonstrating how we can continue to improve green space while having a positive impact on the environment.

ST: *What are your passions and interests outside of work?*
Gill: I love just being at home with my family! They tell me there is nothing I don't like doing. My wife, Tammy, shares my passion for the outdoors. We enjoy traveling, camping, biking, hiking and anything else we can do while enjoying nature. We live on a lake so I can jump on the boat, go across the lake and pickup my Dad for an early morning fishing trip. Actually, we could fish all day! My stepdaughter Caroline is my movie buddy. We usually stay up way too late on weekends so we can get in one more movie. My stepson Curtis is the athlete in the family so I have coached his basketball and baseball teams. My daughter Erin is a flight attendant who decided she would rather fly the planes so we are both working toward earning our private pilot licenses. I spend several weeks each year on the road painting race logos with my good friend Kenny to nurture my artistic side. ST

AD INDEX | MAY 2017

SportsTurf Magazine

Company	Page #	Website
Avant Tecno	19	www.avanttecno.com
Barenbrug USA	52	www.barusa.com
Beam Clay	48	www.beamclay.com
CoverSports USA	21	www.coversports.com
Diamond Pro	17	www.diamondpro.com
Eco Chemical	15	www.ecochemical.com
Ecolawn	48	www.ecolawnapplicator.com
First Products	31	www.1stproducts.com
Floratine	50	www.floratine.com
G2turftools	29	www.g2turftools.com
GreenJacket	37	www.greenjacket.com
Hydraway Drainage	25	www.hydraway.net/stma
Kifco	37	www.kifco.com
Koch Turf & Ornamental	9	www.kochturf.com
Midland-Smith Advertising	48	EasiSetBuildings.com
MTD Products	11	www.mtdproducts.com
SAFE Foundation	5	http://www.safefields.org
Seago	48	www.seagointernational.com
Smithco	2-3	www.smithco.com
STEC Equipment	27	www.stecequipment.com
STMA SourceBook	47	www.stmasourcebook.com
Turf & Soil Diagnostics	49	www.turfdiag.com
Turf-Tec	48	www.turf-tec.com
TurfTime Equipment	48	www.turftime.com
World Class Athletic Surfaces	39	www.worldclasspaints.com

MARKETPLACE

Please complete this form in its entirety to receive your subscription.

❑ **Yes, please start/continue my FREE subscription to *SportsTurf***

❑ **No, thank you.**

FOR FASTER SERVICE visit our website at www.sportsturfonline.com/subscribe

Which version would you like to receive? (choose one)

❑ **Print** ❑ **Print & Digital**

Mail to: EPG Media/Attn: Circulation
10405 6th Ave N., Suite 210, Minneapolis, MN 55441

Signature: (**required**) Date:

Name: (please print)

Title:

Company:

Address:

City: State: Zip:

Phone: Fax:

Email: (**required**)

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

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

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

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

3 Do you have the authority to buy, specify or recommend products and/or services for your business or organization?

Y ❑ Yes N ❑ No

4 Yearly operating expenditures (excluding salaries)

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

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

Name _____ Title_____
Name _____ Title_____

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

THE ROOT OF THE QUESTION

Q: *"Carolina Green! Who is your daddy?"*
Many, Louisiana

A: So before I tell the story associated with this question, let me first explain my philosophy with this column. I have always thought this Q&A page to be based on turfgrass agronomics. Regular readers know that has almost always been the approach taken by the column's authors. This month I am going to diverge from the normal and tell a more personal story.

It just so happened that the due date for this month's column came during a time when I was a long way from my desk in North Carolina. The question above, while it seems to have little to do with turfgrass, did provide me a platform to discuss a topic that is important to all of us — the people that positively impacted us in our career.

Now back to that question. It was asked to my back while I was standing in a take-out line at a small catfish restaurant in rural Louisiana near my hometown. I was wearing a t-shirt with the company "Carolina Green" printed across the back. It took me a few seconds to realize that the person sitting at a table behind me was talking to me. I turned around to the stranger and then he asked, "Is your daddy Billy Miller?" I answered yes.

In the conversation that followed, I found out that this person worked at a tractor dealership that my dad frequented. It seems proud parents like to tell stories about their kids (no matter their age). He invited me to his table while I waited for my order to be ready and we talked about turfgrass, tractors, and my dad. We talked about how he and other men of that generation (the Silent Generation) set high standards, worked tirelessly, and expected the same of those around them. There is no doubt that my work ethic is a direct result of working on the farm with my dad. It was also largely my dad that encouraged me to go to college and become a first-generation college graduate.

As an undergraduate more than 30 years ago at Louisiana Tech, agronomy professor Dr. Charles Winstead made a lasting impression on me. He was an old-school University faculty that had high expectations for everyone that took his classes. One never forgot to take their cap off in his classroom, apologize when late, or to add sir or ma'am at the end of yes or no. Several years later at Auburn I would spend a lot of time with his mentor, Dr. Coleman Ward. They had very similar personalities and standards. Learning from each of them made me feel like a third-generation agronomists.

It was also at Auburn that I experienced the personal interaction skills of Drs. Patricia Cobb and Ray Dickens. Turf managers used to say that if one looked up Southern Belle in the dictionary, they would see a picture of Dr. Cobb. Everybody loved Dr. Cobb. She was gracious in all interactions and generous with her time, a wonderful and classy lady.

Other than my father, Dr. Dickens probably served more as a mentor to me than any other person. He helped me develop my research, agronomic, and professional skills but more importantly, provided me great examples of how to interact with people regardless of the situation. He was generous with his time and knowledge. He was as welcoming in his home as he was in his office. I fondly remember sharing holiday meals with his family when I could not travel home to be with my own. I am forever indebted to the great wisdom gained from Dr. Dickens.

In more recent times, I have greatly benefited from a number of great colleagues. These people have shared ideas that have dramatically helped me in my career. It is always great to know you have friends that you can talk to about your career and projects without being judged. I have also benefited tremendously from many athletic field managers. I think back to those people I first worked with at Auburn, University of Florida, and later most all the SEC field managers. Many of them are still great friends even though some have retired or moved to other positions and I am no longer at a SEC school. Over the years I have worked with great people at Disney's Wild World of Sports, ACC managers, professional managers, high school field managers, parks & recreation field managers. So many people and so many great interactions come to mind.

I have been blessed with some great working relationships and many have led to great friendships. Unfortunately over my career I have lost some mentors and some good friends, including over the past few years, Dr. Coleman Ward, Dr. A.J. Powell, Darian Daily, and Leo Goertz. This visit home to be with my dad while he is recovering from a farm accident made me realize that I do not reflect often enough on the people that have influenced my career. I believe we all have a debt of gratitude to many people.

So this was not a column based on solving an agronomic problem, but a column encouraging you to thank those that inspired you in this career and those that helped you in the industry. Thanks for reading. ST

FLORATINE

Rooted in Science

FOCUS ON THE FIFTY

WHERE'S YOUR FIFTY?

In football, it really is the fifty-yard line, but sometimes the fifty is in front of a soccer goal. Sometimes it's in left field. The fifty is the area of your turf that gets the most traffic. And two treatments of Floratine Foliars™ on the fifty are more effective than one treatment over your whole playing surface. So wherever your fifty is, we'll help you defend it.

RECOVERY. DURABILITY. COLOR. PRESEASON CONDITIONING. WATER MOVEMENT. COMPACTION.

For a Floratine distributor near you, please call (901) 853-2898 or email kbookout@floratine.com.

NEW SOLUTIONS TO OLD CHALLENGES IN COLLABORATION WITH GROWING INNOVATIONS™

GAME DAMAGE?

WE HAVE A GRASS FOR THAT.

Barenbrug has a long and durable partnership with the sports turf industry. We've been a player for decades, experiencing what persistent use and play does to turf grass. In pursuit of ever tougher, traffic-resistant turf, Barenbrug develops and tests varieties for durability under foot and in world class competitive conditions. Barenbrug is the only seed company in the U.S. with a breeding program that selects and tests varieties for tolerance to heavy, sustained beating by traffic simulators. Aggressive establishment, traffic tolerant, strong recovery: **Barenbrug turf is built for play!**

RTF
Rhizomatous Tall Fescue

YELLOW JACKET®
ENHANCED SEED COATING

RPR®
REGENERATING
Perennial Ryegrass

HGT®
healthy grass
TECHNOLOGY

SOS®
Super Over Seeding

BARENBRUG®

PLANT A LEGACY
barusa.com