

SportsField

MANAGEMENT Formerly SportsTurf magazine

February 2020

Vol. 36 No. 2

The Official Publication of the Sports Turf Managers Association

College and University Sporting Grounds Field of the Year **12**
Growing Bermudagrass in the North **30** | Does Your Field Pass The Test? **36**

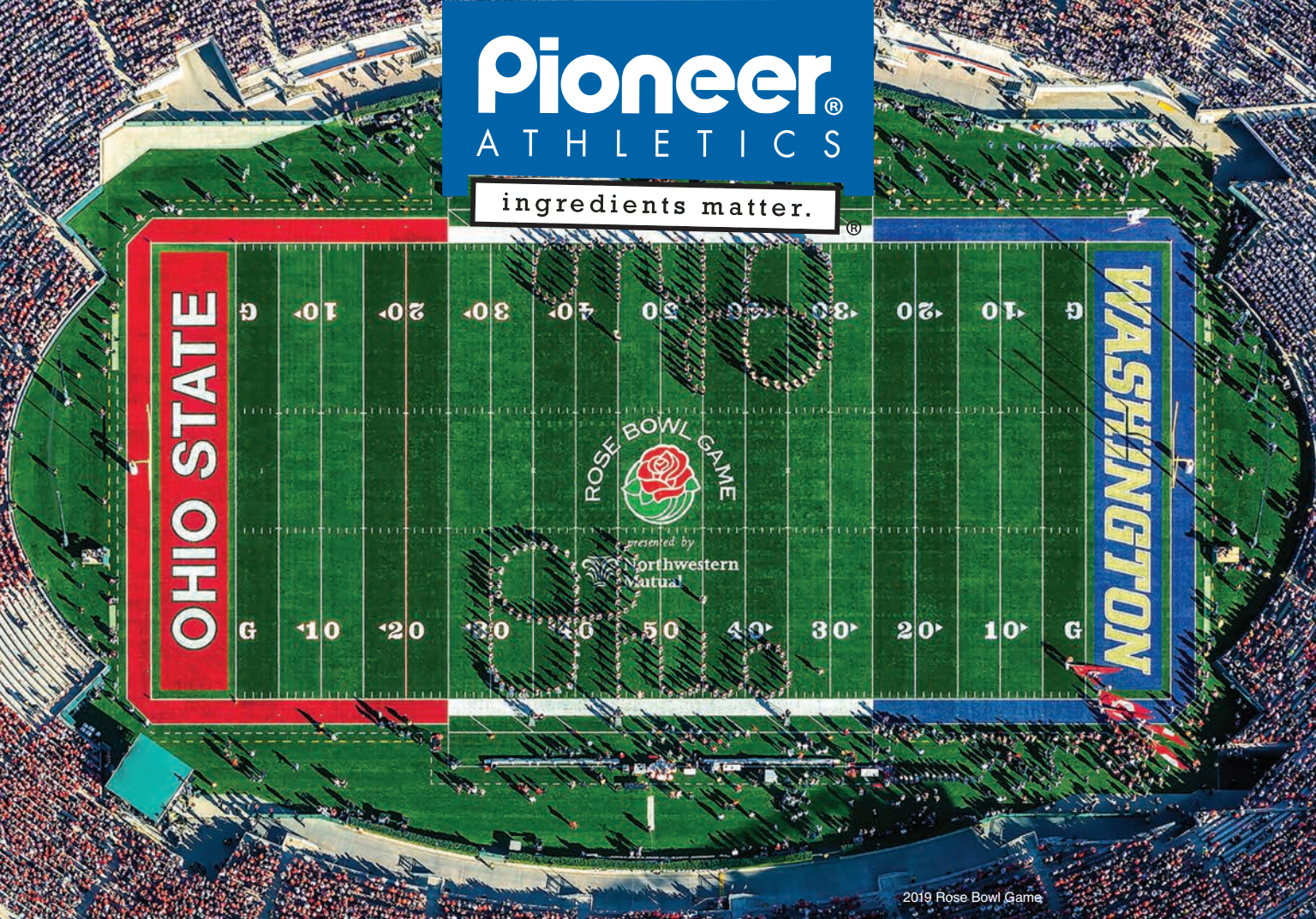


A Different Perspective

Introducing new STMA President Jimmy Simpson, CSFM

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A Different Perspective

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On the cover: New STMA President Jimmy Simpson and the Town of Cary team at the USA Baseball National Training Complex, Cary, N.C. Photo by Chuck Ruffin Photography, Anthony Campbell, FAA Certified Drone Pilot.



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Editor's Note



John Kmitta

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If you are confused by the publication you currently hold in your hands, I can assure you that you do not need to visit the optometrist. Everything you see here is part of a strategic plan. This issue marks the beginning of a new era.

After three-and-a-half decades as *SportsTurf* magazine, we present to you the newly rebranded and redesigned *SportsField Management*.

The official unveiling of the new branding was made at the 2020 STMA Conference & Exhibition, January 15, in West Palm Beach, Fla.

As the official publication of STMA, the change to the new *SportsField Management* name is a calculated move to better align with STMA's emphasis on the sports field manager, as well as STMA's other initiatives such as The Institute of SportsField Management.

The Institute of SportsField Management is STMA's industry hub promoting field safety and the sports field profession at large.

The transition to the new *SportsField Management* brand, and redesigned look of the magazine, began long before I took over the lead editorial duties on this publication, but I am lucky enough to help see the changes to fruition.

My compliments go out to Art Director Phil Tippin for taking the concept for the redesign and creating the cohesive vision that we have here.

According to Phil, "The layout and font choices were developed to provide a more contemporary presentation overall with a focus on academic, scientific and business content that is delivered in an approachable way."

And although the new name and new look are unveiled here, this is by no means the finish line. It will be up to me and our entire team to continue to push the envelope to bring you the best editorial content and photography possible, and to present those articles and images in a way that best serves you, the reader, as well as STMA and the industry as a whole. **SFM**

SportsField MANAGEMENT

Formerly *SportsTurf* magazine

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President's Message

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CSFM; and Steve Ware

First and foremost, I would like to thank each member of this association for your dedication to our profession and to the STMA. Our members are what makes the STMA special, and I am honored to serve as your president this year. I truly believe in the merits of the STMA and that this association, which was formed with great foresight more than 30 years ago, is on the precipice of a major growth curve generated by the positive energy that our members bring to work every day.

The past year was once again full of challenges (or they can also be called "opportunities"), successes and some failures. But the wonderful thing about failure is that it offers us the chance to learn and grow. This year also saw our industry continue to evolve and change. Gone are the days of maintaining a field or facility that serve a single purpose. Numerous professionals in the sports field industry now have holiday displays, ice rinks, motocross courses, concerts, county fairs, extraordinary amounts of play, and many other things occurring on their surfaces daily. A sports field is no longer just a sports field. Our industry is in a state of flux, and if we are afraid to change with it, we will become obsolete.

As the industry continues to shift, it is incumbent upon each of us to share the positive story of what our teams do and the valuable impact we have on society as a whole. We must then get involved and advocate for



Jimmy Simpson, CSFM

STMA President

Jimmy.Simpson@townofcary.org

our profession at the office, in our local chapters, and with the STMA in order to ensure the changes have a net positive effect on our industry and members.

Many years ago, I had the fortune to play a round of golf with Jeff Fowler where I belabored my perspective of the issues that I saw with the STMA. While standing on the first tee box, Jeff simply said "Jimmy, stop complaining and get involved." I have since used that advice in more ways than I can count with the STMA, at work and at home. We all have great ideas. But any idea that is never shared, no matter how good, is just a dream that doesn't have the opportunity to come true.

My challenge to our industry this year is to take the advice that Jeff shared with me and get involved... don't just stay on the sidelines and let change pass you by. The STMA and our local chapters need you, your ideas and your dreams to fuel the positive evolution of our association and the sports field profession that are necessary for us to stay relevant far into the future. **SFM**

Collaborating in change together,
Jimmy Simpson, CSFM

On-field Artistry

Mowing Patterns Contest winner discusses the winning design



Prince William County School system with a focus on preparing young high school students for a career in all aspects of the turfgrass management industry. We have more than 200 students who participate in classes such as turfgrass, horticulture and landscape management.

Our program was created to not only prepare, but also inspire the youth to gain a passion for this amazing industry. The program helps connect those students who are unaware of the turfgrass industry to what could be a career for them. It is important that we are preparing these kids to be self-efficient when they are leaving our classroom into a workplace not only in sports field management, but golf course maintenance and landscape management. We do our best to create a workplace environment in our classroom to show the students safety protocol, proper workplace ethics, and so much more. Our students have gained a passion for this amazing industry. As of right now, we have seven



STMA recently named Andrew “Drew” Miller, program advisor for the Brentsville High School (Nokesville, Va.) turfgrass management program, its seventh annual Mowing Patterns Contest winner. Miller was selected via a Facebook voting contest for his intricate design at Donald Lambert Field, home to the Brentsville High School Tigers. *SportsField Management* recently asked Miller about the winning design:

SFM: Please tell us a little about the turf management program at Brentsville.

Miller: The Brentsville Turfgrass Management program is a career and technical education program in the

students who have been accepted to turfgrass management programs throughout the country. With what we do in our classroom, we are able to provide them with the narrative for what the future may hold with a career in turfgrass management. We are continuing to better our students through our turf community here in Virginia. With huge aspirations, we hope to expand our program to new lengths, including golf greens, as well as creating the first turfgrass research center in a high school in the country. Our students would be exposed to the academia sector of our industry by helping schools such as Virginia Tech run trials in our unique location in the transition zone. We are looking

to create a world-class turfgrass science program that will help grow our industry with young individuals who have the skills that are lacking from the current labor force.

SFM: What does winning the STMA Mowing Patterns Contest mean to you and your program?

Miller: Winning the STMA Mowing Patterns Contest means the world to our students, as it was a creation that they contributed to and worked hard on. These students work hard on their craft to not only improve themselves, but to show that they are able to put out a professional product that now has been nationally recognized. This part of the class is what really excites the students. We allow the students to be creative on the design pattern and collaboratively work with peers before executing the design with sound mowing skills that do not impact the field in a negative manner to impede ball roll or footing. It means the world to me to see

the excitement in my students' eyes when they saw that we had won, because I can see that we are making a positive impact in their lives.

SFM: What was your inspiration for the winning design?

Miller: With any design, our students have an in-class discussion and collaborate with different ideas for that given game. This design was special because it was for the girl's lacrosse regional title game. In this design, I talked about a design that a former coworker, Billy Ellinger, did on Heinz field when Real Madrid played in the U.S. friendly match. I just remember how amazing the design turned out. The portion of the design of the split penalty boxes and the cross hatches in the circle mimicked his design. Students then decided that they wanted to make a cross shape separating the field into four different quadrants, which led to even more discussions on what should be in those areas. Some students





wanted to do diamonds; but, in the end, we all concluded that it would be busy, and that the diagonals opposite each other would make a great look. It made a beautiful, safe, natural grass playing surface. It is always awesome to put the drone up in the air and see the faces of our kids light up to see their final product. The true inspiration of the winning pattern was the continued teamwork of our students and pushing their abilities as turfgrass managers.

SFM: You have won awards in the past, especially for your artistry on the field. There is obviously a lot of foresight, planning, dedication and hard work in what you do. What would you say about the importance of artistry in the sports field management industry, and what is your advice to other sports field managers?

Miller: When it comes to artistry, I believe that it has become a big part of what we do as turfgrass managers. It is appealing to the untrained

eye, and can bring a better outlook to our industry and more awareness to how much groundkeepers do for community fields all the way to professional sporting venues. There are a lot of people out there who see a problem with these aesthetics as not culturally sound; but, as my former boss, Chris Ecton, said, “If your field can not handle a mower or cart driving over it, how can you expect it to withstand the players who play on it?” The reason that the aesthetics are so important to me and my program is that this is a major way that I get students excited about turfgrass management. I can use these different artistic aspects of sports field management to empower my students to make the big decisions that the head groundskeepers usually make, which sparks the passion in these young individuals that we need in our industry.

The best advice that I can give a sports field manager is that the more opportunities you give your workers, the better they will get and the more

you will get out of them. Aesthetics might be a great avenue of opportunity for these individuals to shine. The more that they contribute, the more they want to be a part of the process and the harder they work. Does this mean that there is a chance that something may go wrong? Yes, but that is how you learn — from your mistakes. Those young individuals are the future of our industry, and the more you do for them now, the better our industry gets at making our world better than it is now. We must be patient and show that, as leaders, we care more about the people who work for us than the grass we care for. **SFM**

About the Mowing Patterns Contest: Only STMA members could enter the contest, and only patterns made using mowing equipment exclusively were eligible. Members uploaded their most creative mowing pattern to the Facebook contest link between October 24 and November 16, 2019, and the entrant receiving the most votes won the contest.



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keeps birds out of water

"We purchased a three pack of dogs a year ago and are very happy with them. They certainly kept the geese off the field last Spring, Fall and this Spring. We always had lots of goose poop to cleanup every spring.

We had several people who were very skeptical that the dogs really worked. Convincing was easy...just hang around and watch. A group of geese would fly over in low formation, bend their necks down to look at the dogs, perhaps take another pass or two repeating the inspection for danger, and then fly off. Seemed like there was always a group flying over to give a demonstration.

The volunteers who had to rake and shovel goose poop are very happy. We'd easily fill a 32 gallon garbage can or two. Thanks again for a wonderful time saving product!"

- **Paul Heit**
*Maintenance/Concessions, Appleton Legion Baseball
Greenville, WI*

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KOSKINEN STADIUM, DUKE UNIVERSITY, DURHAM, N.C.

Koskinen Stadium is the home of Duke University's men's and women's soccer and lacrosse programs. It has been upwards of 20 years since this field has seen any major changes. We had hopes of doing a significant renovation this season but inadequate resources told us we needed to get creative to come up with solutions to our problems. The field had become a hazard, and we ran the risk of losing games due to rain and poor field

conditions. We had to move several contests to our synthetic intramural field so as not to lose the event completely. We were getting little to no water movement through the profile. The sod work that we did through the lacrosse season never took hold and, at times, began to float due to saturated conditions. We knew going through the lacrosse season that some actions were going to need to be taken, but, at that time, we didn't know to what extent.

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

The sports field management industry encompasses an amazing group of individuals. We have worked closely with many different programs throughout the years, but never to this degree. We often work very closely with our friends at UNC, but never to the scope we did this year. Based on our proximity and close working relationship, we often share resources with the Tar Heels. We understood that they were getting ready to go through a major renovation at their football stadium, and with that came an excess of materials that were going to be discarded. I contacted their sports turf manager and started to devise a plan about recycling their rootzone material for our purposes. We ended up moving approximately 1,200 tons of 90/10 rootzone material from Chapel Hill to Durham. This is a huge story not only about environmental stewardship but also speaks volumes to the industry as a whole. We worked together

with a great group of sports field managers to resurrect a failing facility. We were able to save the material from finding its way to a landfill, and also save tremendous amounts of money for our athletic department. Our team determined the course of action, and swiftly



dealt with the concerns from our athletic programs. Our staff spent numerous hours exposing every lateral drain, inspecting each one to make sure we had free-flowing water, and connecting every one of those lines to the mainline. We determined what the grade should be based on the site conditions.

We were limited with what we could do based on the surroundings of the field itself. Since this wasn't a complete renovation, we had to get creative with our grades. Our team replaced every irrigation head and valve box to make sure we had a fresh start. We like to be innovative by trying new techniques and technologies. This time it came in the form of trying a new variety of bermudagrass in Tahoma 31. Once the field was sprigged in early June, we knew the push was on for us to be ready eight weeks later for our first match. Our team worked hard through the summer, verticutting, fertilizing, aerating and top dressing the pitch to be ready for the season. The biggest reason this field has been successful this year has everything to do with the quick thinking and dedication that was presented by our staff. They worked countless hours to be able to make sure our soccer programs had a superior field in the fall.

— Scott Thompson, CSFM

Category of Submission: College and University Sporting Grounds

Grounds Superintendent: Scott Thompson, CSFM

Education: Bachelor of Science, NC State

Experience: I have worked at Duke University for the last 12 seasons. The first six seasons my primary role was as sports turf manager. The past six seasons I have been the grounds superintendent, encompassing athletic fields and university grounds.

Sports Field Manager: Ian Christie, CSFM

Original construction: 1985

Turfgrass: Tahoma 31 Bermudagrass

Rootzone: 90 percent sand / 10 percent organic matter-compost

Overseed: We overseed with perennial ryegrass twice in the fall: Once in late September at a rate of 10 lbs./M, and again after the soccer season prior to covering for the winter with an additional 5 to 10 lbs./M, depending on wear.

Drainage: Modified Cambridge



SportsField Management:

Congratulations on the winning field. What are you most proud of with this win, and/or what do you think stands out most about the winning field?

Ian Christie, CSFM:

We are most proud of the progress and advancements the field has made despite its old age. We have been very aggressive in our maintenance practices, as well as renovations not only to save money but also to accomplish excellent conditions for our student athletes. Despite being 18 years old, we have been able to create a smoother surface that drains far better than a field of that age. Even though its age says it should be getting worse, we



One week post sprigging.

have accepted the challenge, and have succeeded in making it better year after year.

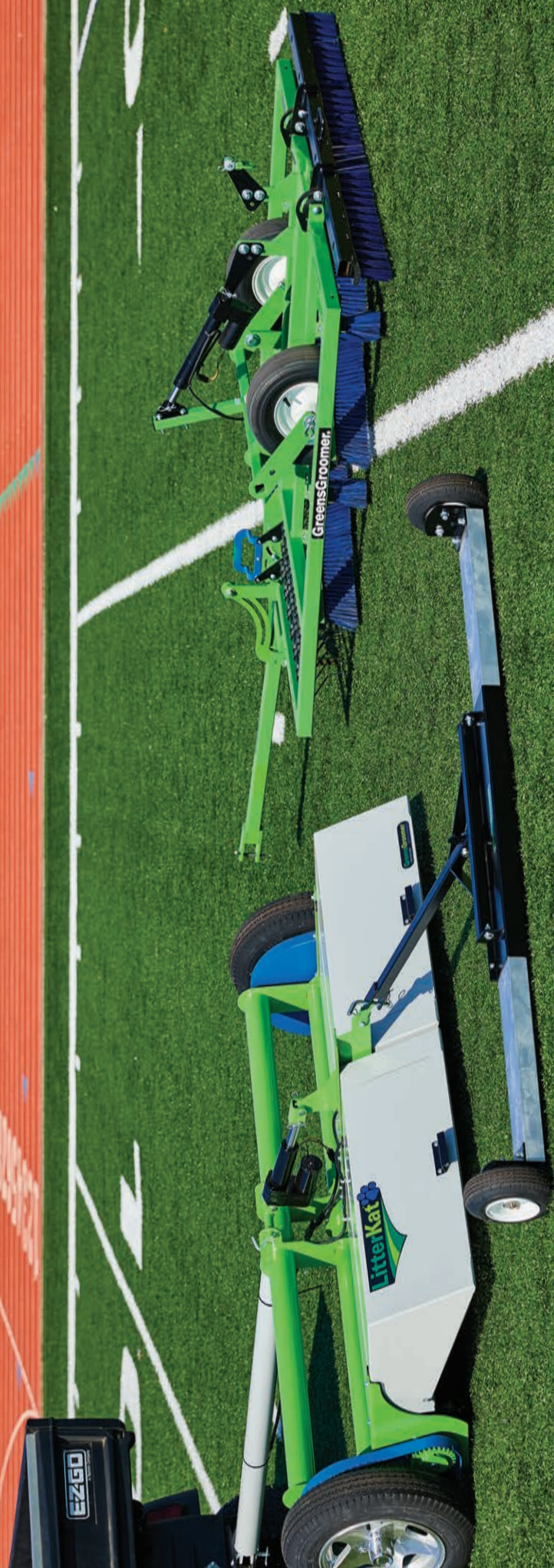
SFM: What attracted you to a career in sports field management?

Christie: The most attractive thing to our industry is the perfect balance between art and creativity with science and engineering principles. It's fun to learn the science behind what we do, to truly understand what's going on. However, after that piece of the puzzle, the art and creativity can shine and really show amazing things. Just when you think it can't be done, it can and will.

SFM: Who would say are your mentors in the industry, and/or what is the best piece of advice you have received?

Christie: My first mentor would be Matt Parrott. He was the first person

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I worked for. He helped me get my foot in the door in the industry and really helped me develop. The state of North Carolina is also a hotbed of professionals who share ideas and encourage each other. This area is awesome for growth and cutting-edge stuff in our field. I have been given two thoughts: “Don’t pet your

work,” and “Stick to the priorities before auxiliary items.”

SFM: What are the biggest challenges you face in providing excellent playing surfaces, and how do you approach those challenges?

Christie: The biggest challenge

would be the continued rise of expectations coupled with tighter constraints, whether field usage, budgets or work windows. I think expectations should always increase, if not from outside your organization from within. I think the challenge of adjusting how we do things to fit within given constraints makes us better



Pre-construction, drainage failure was on full display during the spring lacrosse season.

JOHN MASCARO'S PHOTO QUIZ

CAN YOU IDENTIFY THIS TURFGRASS PROBLEM?

PROBLEM:

Dark-green and light-green areas

TURFGRASS AREA:

Home lawn

LOCATION:

Virginia

GRASS VARIETY:

Poa annua / bluegrass mix

Answer on page 33

John Mascaro is president of Turf-Tec International



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KOSKINEN STADIUM MAINTENANCE AND FERTILITY PROGRAMS

JANUARY

No Applications

Field covered with Evergreen covers

FEBRUARY

Mowed once a week at a height of 0.625"

Painting weekly depending on schedule

MARCH

Mowed twice per week at a height of 0.625"

Painting weekly depending on schedule

Foliar Application: Sprayed every 2 weeks starting March 4

- HydraSmart 0-0-29 - 3 oz/1,000 ft²
- HydraSmart 4-0-0 Calcium - 3 oz/1,000 ft²
- HydraSmart Micros - 3 oz/1,000 ft²
- HydraSmart Iron/Mn - 3 oz/1,000 ft²
- HydraSmart Nitrate N - 3 oz/1,000 ft²
- AgraRouse - 4 oz/1,000 ft²

Soil Application: Sprayed every two weeks starting March 11

- Floratine Previde - 2 oz/1,000 ft²
- Earth Works Sea3 - 1.5 oz/1,000 ft²

APRIL

Mowed twice per week at a height of 0.625"

Painting weekly depending on schedule

Aerate with 3/4" hollow tines at 5" depth on 2"x2" spacing

Foliar Application: Sprayed every 2 weeks starting April 1

- HydraSmart 0-0-29 - 3 oz/1,000 ft²
- HydraSmart 4-0-0 Calcium - 3 oz/1,000 ft²
- HydraSmart Micros - 3 oz/1,000 ft²
- HydraSmart Iron/Mn - 3 oz/1,000 ft²
- HydraSmart Nitrate N - 3 oz/1,000 ft²
- AgraRouse - 4 oz/1,000 ft²

Soil Application: Sprayed every 2 weeks starting April 8

- Floratine Previde - 2 oz/1,000 ft²
- Earth Works Sea3 - 1.5 oz/1,000 ft²

Granular Application: April 15

- Harrell's 40-0-0 BCMU - 2Lbs. N/1,000 ft²

MAY

Mowed twice per week at a height of 0.500"

Painting weekly depending on schedule

Aerate with 3/4" hollow tines at 5" depth on 2"x2" spacing

Foliar Application: Sprayed every 2 weeks starting May

- HydraSmart 0-0-29 - 3 oz/1,000 ft²
- HydraSmart 30-0-0 Urea Triazone - 2 oz/1,000 ft²
- HydraSmart Micros - 3 oz/1,000 ft²
- HydraSmart Iron/Mn - 3 oz/1,000 ft²
- HydraSmart Nitrate N - 2 oz/1,000 ft²
- AgraRouse - 4 oz/1,000 ft²

Soil Application: Sprayed every 2 weeks starting May

- Floratine Previde - 2 oz/1,000 ft²
- Earth Works Sea3 - 1.5 oz/1,000 ft²

JUNE

Earthworks 1-4-1 Mn Phos - 10Lbs./1,000 ft²

Gypsum - 5Lbs./1,000 ft²

JULY

Mowed as needed at a height of 0.500"

Aerate with 3/4" hollow tines at 5" depth on 2"x2" spacing

Topdress - 50 Tons of USGA sand

Foliar Application: Sprayed every 2 weeks starting July

- HydraSmart 0-0-29 - 2 oz/1,000 ft²
- HydraSmart 30-0-0 Urea Triazone - 2 oz/1,000 ft²
- HydraSmart Micros - 2 oz/1,000 ft²
- HydraSmart Iron/Mn - 2 oz/1,000 ft²

Granular Application:

- Simplot Nitrex - 0.5Lbs. N/1,000 ft² - Weekly
- Harrell's 22-0-23 Polygon - 2Lbs. N/1,000 ft²
- Earth Works K-Mag - 2Lbs./1,000 ft²
- Floratine High 5 - 2 oz/1,000 ft²

AUGUST

Mowed 4 times per week at a height of 0.500"

Topdress - 15 Tons of USGA sand

Weekly Painting weekly depending on schedule

Foliar Application: Sprayed every 2 weeks starting August 12

- HydraSmart 0-0-29 - 3 oz/1,000 ft²
- HydraSmart 30-0-0 Urea Triazone - 2 oz/1,000 ft²
- HydraSmart Nitrate N - 3 oz/1,000 ft²
- HydraSmart Micros - 3 oz/1,000 ft²
- HydraSmart Iron/Mn - 3 oz/1,000 ft²
- AgraRouse - 4 oz/1,000 ft²

Soil Application: Sprayed every 2 weeks starting August 5

- Earth Works Sea3 - 1.5 oz/1,000 ft²
- Vivax - 2.5 oz/1,000 ft²

Granular Application:

- Harrell's 40-0-0 BCMU - 2Lbs. N/1,000 ft²

SEPTEMBER

Mowed 4 times per week at a height of 0.500"

Painting weekly depending on schedule

Foliar Application: Sprayed every 2 weeks starting September 9

- HydraSmart 0-0-29 - 3 oz/1,000 ft²
- HydraSmart 30-0-0 Urea Triazone - 2 oz/1,000 ft²
- HydraSmart Nitrate N - 3 oz/1,000 ft²
- HydraSmart Micros - 3 oz/1,000 ft²
- HydraSmart Iron/Mn - 3 oz/1,000 ft²
- AgraRouse - 4 oz/1,000 ft²

Soil Application: Sprayed every 2 weeks starting September 3

- Earth Works Sea3 - 1.5 oz/1,000 ft²
- Vivax - 2.5 oz/1,000 ft²

OCTOBER

Mowed 3 times per week at a height of 0.500"

Painting weekly depending on schedule

Foliar Application: Sprayed every 2 weeks starting October

- HydraSmart 0-0-29 - 3 oz/1,000 ft²
- HydraSmart 30-0-0 Urea Triazone - 2 oz/1,000 ft²
- HydraSmart Nitrate N - 2 oz/1,000 ft²
- HydraSmart Micros - 3 oz/1,000 ft²
- HydraSmart Iron/Mn - 3 oz/1,000 ft²
- AgraRouse - 4 oz/1,000 ft²

Soil Application: Sprayed every 2 weeks starting October 14

- Earth Works Sea3 - 1.5 oz/1,000 ft²
- Vivax - 2.5 oz/1,000 ft²

NOVEMBER

Mowed 3 times per week at a height of 0.625"

Topdress - 15 Tons of USGA sand - Weekly

Painting weekly depending on schedule

Foliar Application: Sprayed every 2 weeks starting November

- HydraSmart 0-0-29 - 3 oz/1,000 ft²
- HydraSmart 30-0-0 Urea Triazone - 2 oz/1,000 ft²
- HydraSmart Nitrate N - 2 oz/1,000 ft²
- HydraSmart Micros - 3 oz/1,000 ft²
- HydraSmart Iron/Mn - 3 oz/1,000 ft²
- AgraRouse - 4 oz/1,000 ft²

Soil Application: Sprayed every 2 weeks starting November 11

- Earth Works Sea3 - 1.5 oz/1,000 ft²
- Floratine Previde - 2 oz/1,000 ft²

DECEMBER

No Applications

Field covered with Evergreen covers

as sports field managers. I think there is always a way, and it is part of the journey to find the way. Our industry is great, because there might be someone who has similar circumstances who is willing to share information.

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

Christie: I love the enjoyment people get as a result of what we accomplish with our fields. Whether it's an athlete, fan, journalist or administrator, we can impact them. You never know the backstories or things that are going on with people in their lives. I love when they visit and enjoy a facility — it can bring so much joy and excitement to someone.

SFM: How has your career benefited from being a member of STMA?

Christie: The STMA has created a



One month post sprigging.

network of peers that enhance professional growth and development. What separates our industry from others is that the organization works for advancement for all, and most people love to share thoughts and ideas. We have a luxury with what the STMA encourages.

SFM: What advice do you have for

other sports field managers?

Christie: Be passionate and enjoy what you do. If you enjoy what you do, you will never work a day in your life. When you carry that passion, nothing will stand in your way, and you will continue to learn and do what it takes to reach excellence. **SFM**

Judge's Comments

Congratulations on receiving the Field of the Year for the College and University Sporting Grounds category. The field appears to be in excellent condition, and is very pleasing from the perspective of a fan in the stadium. I was very impressed with how you renovated the field with such limited resources. More impressive is how you were able to reach out to other sports field managers and find unique ways of implementing a course of action that would meet the needs of a dual-sport field and satisfy the budget at the same time. It just shows what a great community we have among sports field managers. Again, congratulations on your FOY win and much luck to you and the Blue Devils in the future.

— Carter Metclaf, The Kinkaid School, Houston, Texas

Editor's Note: A panel of 11 judges independently scored Field of the Year entries based on playability, appearance of surfaces, utilization of innovative solutions, effective use of budget and implementation of a comprehensive agronomic program. We have asked the judging panel to provide insight into why each winning field was selected, and we will share those comments with the corresponding field profiles.



TOWN OF CARY

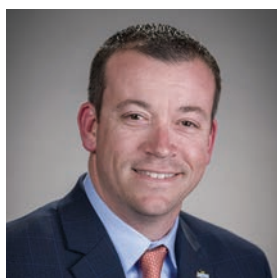
usabaseball.com

*New STMA President Jimmy Simpson and the Town of Cary team at the USA Baseball National Training Complex, Cary, N.C.
Photo by Chuck Ruffin Photography, Anthony Campbell, FAA Certified Drone Pilot.*

A Different Perspective

For STMA President Jimmy Simpson, CSFM, facilities coordinator, Town of Cary, N.C., being a sports field manager is about making an impact – an impact on sports fans; an impact on the athletes who take to the field; an impact on crew members, staff, colleagues, and fellow sports field managers; and an impact on the entire sports field management industry.

“Our industry is about making memories for people,” said Simpson. “If it is the person who walks into a stadium for the first time, and they smell that fresh-cut grass and they look at that field, you, as a sports field manager, have an impact on that person for the



rest of their lives. You are making a memory that lasts with them forever. If they are playing baseball for the first time, the sports field manager who is there plays a role in their life. The

work that our members do each and every day is making a memory somewhere for someone. I would like us to start looking at things from that perspective. We are memory makers as much as we are sports field managers.”

Simpson has been making memories, and making an impact on the sports field management industry, for quite some time now, and brings his own memories, experience and insight to the role as STMA President.

**INTRODUCING NEW STMA PRESIDENT
JIMMY SIMPSON, CSFM,
FACILITIES COORDINATOR,
TOWN OF CARY, N.C.**

BY JOHN KMITTA

All photos provided by Jimmy Simpson and the Town of Cary, N.C.

A FOUNDATION FOR SUCCESS

A native of North Carolina, Simpson always loved the game of baseball.

“But being 5’8” on a good day, my baseball career ended after high school,” said Simpson.

Still, he always found ways to be around the game. Simpson’s stepfather,

His first job, with the City of Burlington, N.C., as a 15-year-old, was to pick up trash in the parks. The following year, he joined the City of Burlington grounds crew driving a truck and trailer to 15 different fields in town.

“I prepped infields all summer long and loved it,” said Simpson. “I was playing Legion baseball in high school, and it gave me the opportunity to work the hours I could work and leave when I got everything done and go play baseball.”

When the time came for college, Simpson attended NC State on a veterans’ scholarship (his father served two tours in Vietnam).

“NC State had an agriculture extension agent in Alamance County named Rett Davis, and he was close with my stepdad,” said Simpson. “He turned me on to NC State, and it kind of came together. I tried out for the baseball team, and that didn’t work out, but it worked out really well for the turf school. It’s been a pleasure to come out of that institution, with the program that they have run and the professors that they have.”

Simpson worked for the City of Burlington during the summer following his freshman year. The following year, he received an opportunity to work with the Durham Bulls Triple-A baseball team in Durham, N.C.

“I worked in Durham that year, and enjoyed the time so much in baseball that I came back the following year. In the middle of the season, I had the opportunity to work with John Turnour, who is now with the Nationals.”

When their boss left for another job, Simpson and Turnour were offered the opportunity to finish out the season for the Bulls. At the end of the summer, Turnour moved on to the Baltimore Orioles, and the Durham Bulls offered Simpson the job.

“I still had three semesters left in school at NC State when they offered me the job,” said Simpson. “It was January of 2001, and I took that job in Triple-A baseball, and was as nervous as could be.”

Ron Davis, was a middle school baseball and basketball coach who took care of the fields at the middle school, and Simpson would help him with the work.

“It just really bonded me together with the love of baseball, the love of being outdoors, and doing the work – the instant gratification,” said Simpson.



2019 Men's NCAA College Cup championship match



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**— STMA CEO Kim Heck,
Certified Association Executive**



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Simpson said he learned a lot at Durham that gives him perspective today.

“I’m finally starting to get it, many years down the road, that it’s about the experience. It’s about everybody in the facility – not just the field and the game and the players. We are about whatever event is on our fields at the time, we do whatever we can to make it successful, and Durham was really a good basis for teaching me that.”

Following his time with the Bulls, Simpson worked at the University of South Carolina with Clark Cox, CSFM, who Simpson calls “one of the best grass growers I know.”

Approximately two years later, Simpson received the opportunity with the Town of Cary to work with USA Baseball and the WakeMed soccer park on high-level professional and high-level amateur baseball and soccer, and he will celebrate 14 years with the Town of Cary in April.

BUILDING A TEAM ATMOSPHERE

At the Town of Cary, as facilities coordinator, Simpson is a supervisor, but he doesn’t approach the job from that perspective.

“We try to all operate from the same level where everybody’s ideas carry the same weight,” he said. “We may not go with your idea today, but we might go with it tomorrow.”

There are 23 people in Simpson’s group. Together they manage all the athletic surfaces in town, plus the facilities for USA Baseball, WakeMed Soccer Park, Mills Park Middle School, and Middle Creek Community Park fields. The team’s responsibilities extend from the light towers to the bathrooms – everything in the facility, from top to bottom.



Vince Fiacco and Jimmy Simpson painting the USA Baseball logo

The team is broken down into three segments – the USA Baseball Complex, WakeMed Soccer Park, and

town athletic surfaces. The group’s facilities expeditor drives the direction of the team, but the team leader ultimately controls what goes on in those facilities. Simpson coordinates all the efforts, works on projects, and works hand-in-hand with the expeditor to make sure bills are paid, and budgets are met.

“Day to day, we like to allow our on-site teams with their team leader to determine their own direction,” said Simpson. “We have a few goals that are lofty that

we try to keep in the forefront of our work. We want our facilities to be the best in the country, and we want the

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PROFILE



Bond Park Field 5 finished product. Maintenance team designed and built (in house) a sand-based grass infield.

service we provide – whether it's to our citizens, the athletes on the field, or anyone who we may come in contact with – to be the best that we can possibly provide. We have a fantastic team that provides fantastic results."

Simpson added that everyone on the team has things that they are really good at, and tasks that they enjoy.

"If we can compartmentalize and work with everybody's strengths, and work to bring each other up, then our entire team gets better," he said. "We try to let everybody have their input into the way things go, and I think that has helped build a great team and a team atmosphere."

Simpson added that the team atmosphere is about a culture that is supportive of each other and everyone's ideas and efforts.

Said Simpson, "You always hear, 'If you do what you love, you'll never work a day in your life.' I love that statement, but I've also come to think, 'If you surround yourself with good people, you'll never work a day in your life, either.' It's really easy to come to work and be collaborative and share ideas."

Simpson said the thing he is most proud of professionally is the team that has been built at the Town of Cary.

"I could walk away tomorrow and nobody would know I was gone," he said. "And that's the thing I would be most proud of as a person: this team can carry on and have the same goals and objectives. They are amazing people that can do it no matter what."

BALANCING WORK AND LIFE

According to Simpson, building a team atmosphere and building trust are vital to success in this industry.

"We have to train people, and we have to trust people," he said. "We have to allow them to work. A lot of pressure goes away, and a lot more people want to work with you if you have an environment that is open and honest, you have good communication, create plans, and find it okay if people make mistakes."

Simpson added that trusting others and creating a quality work/life balance is extremely important to success – as is being active in the "life" part of the "work/life" equation.

"I have two boys who are very active, and a wonderful wife who puts up with all of it," he said. "I think our spouses in this industry are special people, because of what they put up with. Our event loads are outrageous, our hours worked are outrageous at times, and our spouses or significant others are special people. Mine is very special and she keeps us grounded."

Simpson's sons (Jack, age 10, and Drew, age 5) both play baseball and basketball, and Simpson spends time coaching both. The family enjoys traveling to Major League Baseball games and to the beach, being active outdoors, and spending time with family.

"We are fortunate that we live close to family – mine and hers – and family has always been big to me," he said. "My grandmother is still with us, and my wife's grandparents on one side are still with us. It is nice to have great-grandparents for our kids to grow up with. I was fortunate to have great-grandparents for a long time. The village truly raises the child. My wife, Natalie, keeps us all in check. If it weren't for her, we wouldn't know where to be, when to be, or how to be."

Simpson said that one piece of advice that drives him forward, both at home and at work, is "Get involved."

"If you are involved, at least you have a seat at the table," he said.

GETTING INVOLVED

Having a seat at the table is nothing new to Simpson. He is a past treasurer for the Turfgrass Council of North Carolina, past president of the North Carolina Chapter of the Sports Turf Managers Association, and has served STMA as director at-large, secretary treasurer, and president-elect prior to his new role as president. He has been a member of STMA since 2001, and was one of the first 100 people to earn the Certified Sports Field Manager (CSFM) designation, doing so at the age of 27.

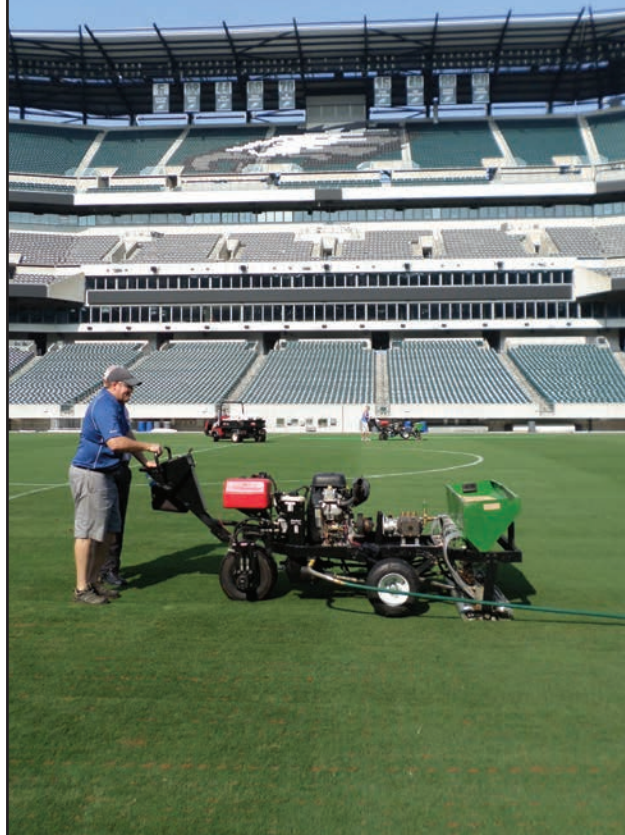


Andy King assess the water on the new sod at WakeMed Soccer Park

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“The reason I wanted to be more active in the association was because I knew that what was happening at the association level was directly affecting the work that we do,” he said. “The Turfgrass Council of North Carolina had a huge advocacy piece, and that is what drove me to work with them. The advocacy they were doing at the state legislation level impacted my daily life.”

Simpson added that the reason he got involved with the North Carolina STMA is that chapters are the lifeblood of the national association. Chapters take the message of what the national association is trying to do, and they localize that message.

“My goal is to get more people involved in chapters, more people involved in the national STMA,” he said. “I’m a huge proponent of collaboration and trying to get people to speak up. One hundred percent of the ideas you never share never get implemented, and that is tough because everybody has great ideas.”

He admitted that it is hard for people to put themselves and their ideas out there for everyone to scrutinize, but added that he hopes more people get involved, share ideas and contribute to the success of the chapters and the national association.

“The best thing for me from STMA has been the ability to collaborate with the many different people who are associated in STMA,” he said. “STMA has provided a great basis of knowledge through the Conference, through the web apps, through all the benefits of membership. But the number-one benefit for me is that I could go through the member directory right now, pick a person at random, make a phone call,



The construction process to build the sand-based infield on Bond Park field 5.



Andy Thompson, Joe Morgan, and Brian Stallings paint the 2019 Men's College Cup at WakeMed Soccer Park in Cary, N.C.

and likely get a call back from that person – if I don’t talk to them directly – within 24 hours. And they will spend their time with me, not because of who I am or who they are, but because we are allied in our quest for safety for athletes, and for providing the best surfaces possible for people to play on. And it’s really a great feeling that you can pick up the phone and call 2,700 of your closest friends, and get some help. Because if there is something I’m dealing with, there is most likely a chance that they have dealt with it or know someone who has dealt with it. That tree is what makes this association special to me.”

In his new role as STMA President, Simpson said he is most looking forward to coming back to the board for another year, continuing to work with the fantastic people on the board, and working with the board on strategic initiatives.

As with his work for the Town of Cary, working as a team and sharing ideas is vitally important to the STMA Board of Directors and to the future of the industry.

The cover photo for this issue shows the Town of Cary team, because Simpson wanted to emphasize the importance of the team over any one individual. The reason the photo was taken from a drone is that Simpson was also looking for a different angle, which is important to him in both his everyday job and in his approach for STMA.

“As we move forward, we need to look at things from a different angle... a different perspective,” Simpson said of his overarching goal for STMA. “The history of our association is amazing. It’s a rock-solid foundation. But if we don’t evolve, we are never going to be relevant in that race, and grow as an association. We are still young when you talk about associations, but we’ve been at the same membership threshold for a long time, we have done a lot of stuff the same way for a long time. I think there is time to make some changes.”

Simpson’s hope for the next year is to create that strategic vision.

“If we can get more involvement from the 2,700 members we have – sharing ideas to move the association forward in the next five, 10, 15, 20 years – that’s really what I hope to see.” **SFM**

Growing Bermudagrass in the North

By Kevin Mercer, CSFM, CGM, LICM



Tilling in soil amendments and punching holes for the sprigs to root faster. Photos provided by Kevin Mercer, CSFM, CGM, LICM

A nationally ranked liberal arts college, Denison University is located in the village of Granville, in the center of Ohio. Nestled in a picturesque corner of campus is the Barclay-Thomsen Field, a stadium-style complex with seating for 1,000 spectators, and lights for nighttime competitions. Named for legendary Denison Coach and Athletic Director Ted Barclay, and former Men's Lacrosse Coach and Professor Tommy Thomsen, Barclay-Thomsen Field is the home of Denison's football program, as well as its men's and women's soccer programs. The field is 120x80 yards and is a natural grass surface. It sees a lot of hard play.

SOIL EVALUATION OF BARCLAY-THOMSEN FIELD

We performed a nutrient and a mechanical soil test first to understand what types of soils we were working with. The test came back high in calcium and magnesium and low on sulfur, which results in a high pH around 8.2. The silt was 60 percent, the sand 20 percent, the clay was 10 percent and the organic matter was around 10

percent. We installed an engineered drainage system with sand base goals.

WHY BERMUDA?

Further analysis of the field yielded several insights. The field had a poor rooting structure. It was covered with more than 75 percent poa annua, and it was not properly "crowned" to enhance surface water runoff. After much research, we decided that bermudagrass would give superior playing ability and function for the soccer field, taking into account budget and staff.

Fortunately, I have experience growing bermudagrass in the transition zone, and one of the most important things I learned was to allow for adequate timing for the grow-in period. The other is that when it comes to seeding or planting bermuda sprigs, the hotter the better.

After carefully researching local weather patterns, I discovered that average temperatures are between 80 and 90 degrees from the first week of June

to the first week of July, before they slip back down in the mid 80s on average for the rest of the summer. Once we knew the weather pattern, I planned each three segments of the plant life growing cycle: infant stage, adolescence stage and mature stage.

RISK AND REWARD

We looked at the weather patterns in June, July and August, and found there were 25 days of lost sunshine from either cloudy- or rainy-day events in mid-Ohio. We needed at least six weeks for a grow-in to sprig the field. We did the math, and had a close window with only 2.5 weeks of contingency. We decided we had to have the sprigs in the ground on June 1, 2017.

GROW-IN PLAN

We prepped the field and laser leveled it during the drainage system installation. We changed out all the irrigation I-40 heads to distribute water evenly and uniformly without any mechanical issues once the grow-

in started. We tested and ran the systems through five cycles to ensure there were no stuck heads, solenoid issues, etc. Once the irrigation testing was complete, we waited for the field to dry and added a starter fertilizer and 3-3-3 mycorrhizae fungi to promote growth of the stolons and rhizomes. It normally takes a year to establish healthy rhizomes underneath the soil, so this was like giving it a jump-start. We also applied some sulfur to adjust the pH, and added calcium to aid in unlocking the micronutrients.

Week one: 3-3-3. Myco-Replenish, SOLU-CAL and 11-52-0 starter fertilizer.

Week two: 46-0-0

Week three: Replenish; Apply 8-2-2 and rotary mow 1.25"

Week four: Apply Revolver herbicide with liquid fertilizer 12-0-0 12 percent N, 6 percent Fe and 2 percent Mn

Week five: Apply: 46-0-0 to fill in the dead spots from broadleaf and grassy weeds and start reel mowing three times a week.

Week six: Start reel mowing three times a week.



Carolina Green sprigging the field.



Applying 46-0-0.



Close up of the sprigs.



Cutting the field with a rotary mower during the third week at 1.25".



Applying another application of 46-0-0 after we treated the field for broadleaf and grassy weeds and cut it at .75" with a reel mower.

Low	0-2	Verticut and over seed field with perennial ryegrass
Moderate	3-5	Mow, fertilize, aerate, top dress
High	6-7	Mow, syringe lightly, spoon feed liquid fertilizer and apply Revolver herbicide
Very High	8-10	Syringe lightly and mow frequently. Apply turf screen and spoon feed liquid fertilizer
Extreme	11+	Syringe lightly and mow frequently. Apply turf screen and spoon feed liquid fertilizer

MAINTENANCE PLANS

Growing bermudagrass in the Midwest is lot different than growing bermuda in Maryland's transition zone — the transition zone is far more forgiving. We have started to notice during the past few years that in the month of August the field was looking superb compared to the previous months of May, June, and July. We were finding the ultraviolet B (UVB) and ultraviolet A (UVA) were slowing down the recovery of the bermuda in the months of June and July, but in August the grass responded great. We changed our maintenance program base to align with the UV index. We use the UV Index Now app. This app is nothing more than a program that lets you know when to apply sunscreen to protect your skin from the harmful UV rays, but when the index is high — around 8 to 10 — it can also cause physical damage to leaf surfaces that inhibit the photosynthesis and transpiration processes. We had a lot of success using the plan shown above.

UV INDEX MAINTENANCE PLAN

This UV plan has worked well for us during the past few years. Just remember to account for cloudy days, and do not forget to apply approximately three to five pounds of potassium (K) in the growing months before the cold sets in. This will give your field a sufficient amount of carbohydrate reserved for the spring when you take off your winter blanket. **SFM**

Kevin Mercer, CSFM, CGM, LICM, is grounds and landscape manager at Denison University, Granville, Ohio.

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So, What's the Deal with Calcium?

By Nick Christians, Ph.D., and Adam Thoms, Ph.D.

At Iowa State University, we get several contacts each week seeking information on all areas of turfgrass management. We often see patterns in these requests that tell us a lot about what the members of our industry are thinking. One of these patterns in recent years has centered on the use of calcium in sports field and golf course management. The conversation generally begins with, "Someone wants to sell me a calcium supplement for my turf, do I need it?" This question does not have an easy answer. It is one of those things that has so many variables surrounding it that more information is needed — followed by a detailed discussion. So, what is the deal with calcium?

Calcium is an element, one of the basic building blocks of living systems. It is one of only 17 elements that are deemed to be essential for all plants (see Table 1 on page 34). While nitrogen (N), phosphorus (P) and potassium (K) generally are the elements that get the most attention, calcium (Ca) plays a number of important roles in a sound turfgrass field management program. You are probably familiar with the terms macronutrient and micronutrient. Most people are surprised to find that Ca is a macronutrient according to the strict definitions of plant physiology. A macronutrient is found in the plant in quantities of 1,000 parts per million (ppm) or more, and a micronutrient is found in quantities of 100 ppm or less. By this definition, Ca is a macronutrient.

Calcium plays a number of very important roles in the plant. It is involved in cell wall formation, which

can be related to wear tolerance, an important consideration for both sports and golf turfgrass management. It is involved in cell division, membrane stability, osmotic balance and several other important functions related to growth and stress tolerance. While the deficiency symptoms observed on the plant for many of the other elements, like N and iron (Fe), is a yellowing of the plant, termed chlorosis, this is not the case for plants lacking enough Ca. True, visible deficiency symptoms of Ca on grasses are rare; but when it happens, it appears as a reddish discoloration of the younger leaves. For reasons that will be discussed, this generally appears in soils with low cation exchange capacity (CEC) and low pH.

While these can occur in turfgrass areas, it is much more common to have neutral to higher pH values in most turfgrass areas, and true Ca deficiency on turfgrass is rare.

Calcium is a cation. It has two positive charges and is often written as Ca^{++} . The positive charges of the Ca and similar cations are attracted to the negative charges on soil particles and, in a similar fashion to unlike poles of magnets, are held in place for exchange with the root system (Figure 1). Rootzones vary in CEC and soils, like sands, with low CEC may not be capable of holding enough Ca for plant growth.

The pH is another very important variable in the soil that can provide useful information in determining the need for Ca. The pH is a measurement of hydrogen, H^+ , another cation found in the soil. The lower the pH, the more hydrogen is found on the CEC sites. By default, if there is a H^+ on the CEC sites, there cannot be a Ca^{++} .

Therefore, a low-pH soil may have a deficiency of Ca and other positively charged elements, and a

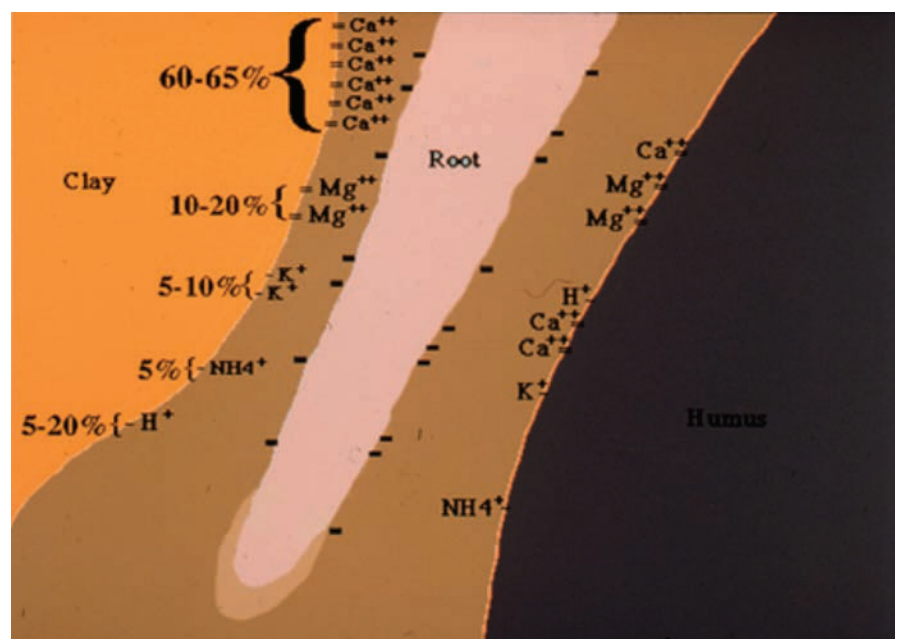


Figure 1. Cations are held on cation exchange sites of the soil.

JOHN MASCARO'S PHOTO QUIZ

ANSWER

From page 17

I was jogging through this neighborhood in Virginia, while traveling, for some early morning exercise when I passed this lawn. I immediately recognized the cause of the dark-green and light-green areas on this lawn as being improper fertilization with a drop spreader. I turned around and went back to my hotel to retrieve my phone; I had to have this photo! I walked back to the house just to take this photo because I felt it was just too good to pass up. The photo shows what happens when trying to stretch a couple of bags of fertilizer over a home lawn when the area is larger area than what the materials label recommends for application — it produces these types of results. The photo is also a great example of too much, too little and the correct amount of fertilizer. The pale-green areas did not receive any fertilizer, the medium-green areas received the proper amount of fertilizer and the dark-green areas received too much fertilizer. This also shows that if you apply the fertilizer in one direction, there can be errors, like missed areas. If fertilizer is applied in several different directions, it will avoid situations like the one in this photo.

Photo from John Mascaro's collection.

John Mascaro is president of Turf-Tec International



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 SportsField Management and the Sports Turf Managers Association.

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high-pH soil generally has an abundance of these elements (Figure 2). The pH of the soil is a very important factor in determining the availability of the essential elements (Figure 3). In Figure 3, the wider the line for each element, the more readily available it is to the plant; the narrower the line, the less is available. Notice the narrowing of the line for Ca in the low (below 7) pH range. There are also good soil test procedures that can measure the amount of available Ca in the soil and can be very useful in determining the need for more Ca in the fertilization program. It is generally low-pH soils, with low CEC, that are the most likely to have plants that show a Ca deficiency.

When soil test levels for pH are very low, we have a solution. That is to “lime” the soil. Lime is calcium carbonate, CaCO₃. It is readily available in most parts of the county, and is generally inexpensive. Over time, lime added to a low-pH soil will result in Ca displacing the H on the cation exchange sites, and the pH will rise. Lime is usually the best solution to a low-Ca problem, and we generally lime to bring the pH up long before Ca deficiency symptoms appear on the grass.

When someone calls with a question on Ca, the first things we want to know are the CEC and pH of the soil and the amount of available Ca in the soil. This requires a soil test. We will also ask for information on the texture of the soil — is it a sand or a clay loam?

Another important piece of the puzzle is the parent material from which the soil is formed. If it is a silica-based sand, there may well be a Ca deficiency, and supplemental applications of Ca may be required. If the parent material is CaCO₃ (lime), as is often the case on Midwestern and western soils in the United States, the need for more Ca is unlikely.

Because of the interest in Ca nutrition, we conducted a num-

Carbon (C)	Sulfur (S)	Zinc (Zn)
Hydrogen (H)	Calcium (Ca)	Boron (B)
Oxygen (O)	Magnesium (Mg)	Chlorine (Cl)
Nitrogen (N)	Iron (Fe)	Copper (Cu)
Phosphorus (P)	Manganese (Mn)	Nickel (Ni)
Potassium (K)	Molybdenum (Mo)	

Table 1. The 17 essential nutrient elements required for the growth of plants

ber of studies on exactly when Ca is needed and when it is not. A graduate student, Rodney “Rod” St. John, conducted this work. Rod completed his master’s degree and his Ph.D. on this subject. Dr. St. John now works for Ryan Lawn and Turf in Kansas City. His work was extensive, took place over a five-year period, and we will not be able to go into all of here. Fortunately, it has been published in several papers, and we would direct you there for more information (St. John et al. 2001, 2005, 2006, 2010, 2013a, 2013b).

The basic question behind the work centered on the need for calcium supplements. There were people selling Ca supplements that were telling customers that even though their root systems were growing in a soil that was high in calcium carbonate (calcareous), this calcium was not available to plants, and more was needed.

To test this, Rod grew grass on both silica-sand-based media and calcareous-sand media. Grouped within these sand types, he applied a number of calcium sources to test if they improved the turf or if they were not needed. He found that grass grown in a calcareous media did not benefit from additional Ca. The plant was getting all of the Ca it needed from the calcium carbonate in the parent material, and more did not help. Grass grown on the silica-sand did benefit from additional Ca. He also

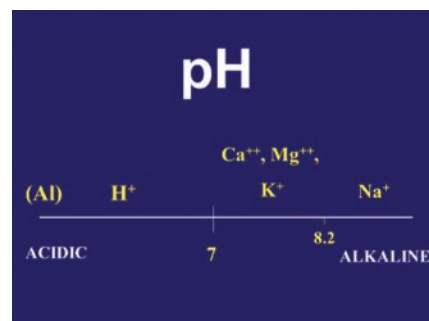


Figure 2. The soil pH and the availability of cations to the plant.

observed that the less expensive Ca sources were just as effective as the more expensive Ca supplement materials that were being marketed to the industry. In other words, if you have a Ca deficiency, good-old lime is just as effective as a very expensive Ca supplement.

Another way to look at the question of the need for Ca is to consider a curve of diminishing returns (Figure 4). The curve of diminishing returns simply states that where a deficiency exists, the first increments of the deficient element will produce a considerable response, whereas each additional increment produces a diminishing response until you reach the sufficient level of that material and no further response can be expected. In the field of agronomics, these curves are also known as “yield curves,” and studies are constantly underway with a variety of crops and soil types to determine

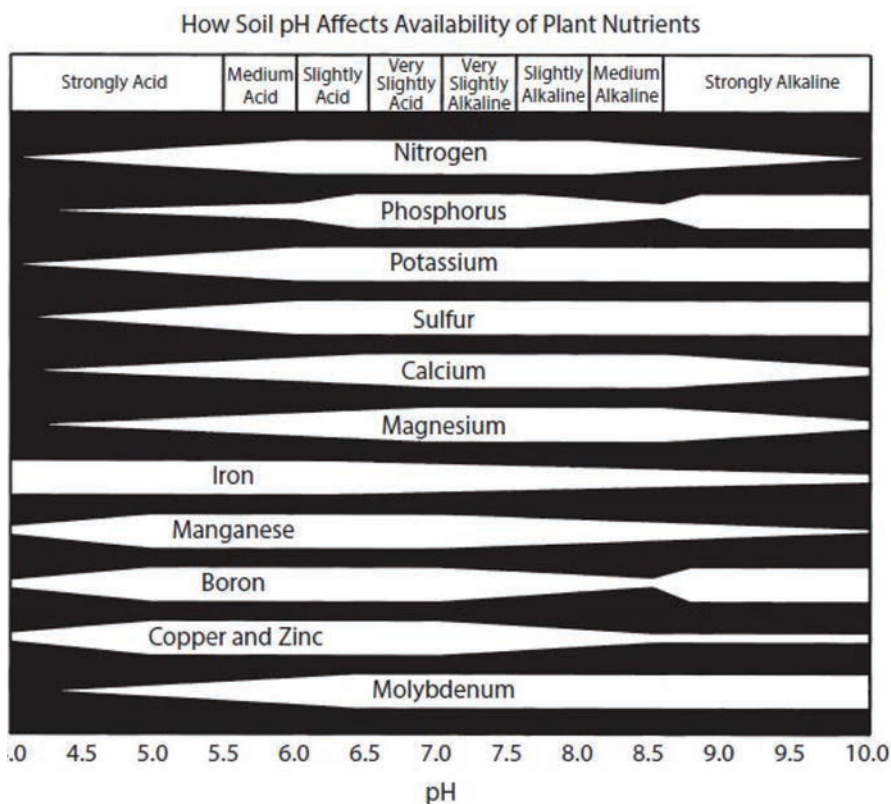


Figure 3. The effect of soil pH on nutrient availability. The wider the line, the greater the availability. (Christians et al, 2016). Picture is based on Troug, 1946.

where the leveling-off point occurs. It makes no sense economically to apply more than is needed for maximum yield. In turfgrass management, our goal is usually not yield of tissue, but aesthetics (how the area looks), but the concept still holds true. If you have enough of a particular element, such as Ca, more is not going to help. If the grass is growing on a media that is very low in Ca, such as a silica-based sand, the grass will likely show a deficiency of Ca. The application of an ounce or two of Ca/1,000 ft² would likely elicit a measureable response on the plant. An additional ounce would provide some response, but not as great as the first application. As more and more is added, a point is quickly reached at the top of the curve where no additional response will occur. In the calcareous media,

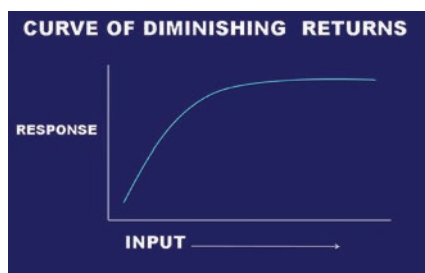


Figure 4.

where you already have enough Ca, more will not show any improvement in the plant, and you are wasting your money. So, does Ca work? The answer is yes if you have the conditions in which Ca is truly deficient; but the answer is no if you already have enough Ca.

In addition to the papers mentioned above, see the latest edition of "Fundamentals of Turfgrass Management 5th ed." for more

information on Ca nutrition of turf (Christians et al., 2016). **SFM**

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SOURCES:

Christians, N.E., A. Patton, and Q. Law. 2016. Fundamentals of Turfgrass Management 5th ed.

St. John, R.A., N.E. Christians, H.G. Taber. 2001. Supplemental Calcium applications to turfgrass established on calcareous soils. Inter. Turfgrass Soc. Res. J. 9:437-441.

St. John, R.A. 2005. Cation Ratios and Soil Testing Methods for Sand-Based Golf Course Greens. Ph.D. Dissertation, Iowa State University.

St. John, R. and N.E. Christians. 2006. Soil testing methods for sand-based putting greens. USGA Turfgrass and Environmental Research Online. July 1.5(13): p. [1-5].

St. John, R.A and N.E. Christians. 2010. Special Approaches are needed when testing calcareous sands. Online. Applied Turfgrass Science doi:10.1094/ATS-2010-0831-01-RS.

St. John, R.A. and N.E. Christians. 2013a. Basic Cation Saturation Ratio Theory Applied to Sand Based Putting Greens. International Turfgrass Journal. 12:581-592.

St. John, R.A., N.E. Christians, H. Liu, and N.A. Menchyk. 2013b. Secondary nutrients and micronutrient fertilization. In: Stier, J.C., B.P. Horgan, S.A. Bonos, and G.K. Schmitt. eds. Turfgrass: Biology, Use, and Management. Madison, Wisconsin: American Society of Agronomy. p. 521-543.

Does Your Field Pass The Test?

The Basics of Field Testing

By Kyley Dickson, Ph.D., and John Sorochan, Ph.D.

Athletic fields require maintenance whether they are natural or synthetic. The challenging aspect for athletic fields is that they change as a season progresses. One of the best ways to reduce injuries and increase performance is to have a consistent playing surface that is within acceptable ranges for athlete safety. Without regular field testing, it is hard to determine variances in playing surface consistency as use/wear increases. Knowing how a field is changing throughout the year can help field managers make data-driven decisions to optimize the performance of the playing surface and, in turn, the safety of the surface for the athlete. Keeping records of different field properties throughout a season and years can help paint the picture for the field managers on what is also going on below the surface. Unfortunately, testing takes time and can be expensive, and these drawbacks can lead to many overlooking the need to test a field. However, testing is another important tool to have in the field manager's toolbox.

One of the main benefits of testing a field is it indicates consistency and characteristics of a field's impact on athletes. Tests that are conducted give clues to the health of a field and help identify maintenance practices that are needed. Although there are different testing criteria for natural and synthetic surfaces, there are shared tests beneficial for both. However, not all tests can be used on both



Figure 1.

types of fields. In determining what tests are needed for a surface, a few questions need to be answered:

- Is it natural or synthetic?
- What sport or sports are played on the field?
- What is the budget and time available for testing?

This information will help determine what tests would be the most beneficial information for a surface. To start, some basic tests need to be established for field managers as a base.

The University of Tennessee Center for Athletic Field Safety (UTC-AFS) has a suggested basic kit for natural and synthetic fields. A natural field basic test kit should include a

soil moisture probe, a side soil profiler, and a rotational traction testing device. The cost for the components to buy new will range from \$2,500 to \$5,000, depending on which products are selected. On a synthetic surface, the basic kit recommended is an infill depth gauge, surface temperature measuring device, and some type of rotational traction device. The cost for a synthetic turf test kit ranges from \$850 to \$1,000. (Note: All kit estimates are from price researching different suppliers' websites and totaling the cost. The purpose of this article is not to promote one specific brand of testing equipment, as there are a variety of products available.)

All testing done is a snapshot of that field at that particular time, the same test could be conducted the following week with different results being observed. That is why

taking multiple readings in a year will give a more detailed picture of what is happening. The other key to getting a good snapshot is testing for the variables that have the greatest impact. Published research has identified a few variables that have been found to influence many parts of the field (Baker, 1991; Dickson et al., 2018). For natural grass fields, the soil moisture content of the field has been found to impact surface hardness, traffic tolerance of grass, rotational traction/resistance, increase in soil bulk density when trafficked, head injury criterion, and translational traction (Baker and

Gibbs, 1989; Baker, 1991; Dickson et al., 2018a, Dickson et al., 2018b). Soil type of a field is important, because soil moisture content will have a greater influence on the playability of a soil that is higher in silt plus clay than a sand-based field (Dickson et al., 2018). Although there are a multitude of tests for additional field performance parameters, getting the soil moisture content right could improve safety, longevity and performance of a field, in addition to improving the overall quality of the grass. There are several different kinds of devices that measure soil moisture, and most of them can test fields relatively quickly.

Another tool for natural grass is a side soil profiler. This is a device that lets the user take a side cut out of the field to see what is really going on below the surface (Figure 1). This device can be used to determine root depth, layering issues, black layer and buried objects, just to name a few. Figure 2 shows a sand-based rootzone that has a pocket of clay preventing consistent grass growth. The grass above the clay was worse than the surrounding areas, and a soil profiler revealed the problem. After a soil profile is taken, it can be reinserted back into the area tested with minimal surface disruption.

Rotational traction is an additional tool that is very useful for both natural and synthetic surfaces. These testing devices give more of a performance and safety standpoint for the athletes on the field. Trying to keep a field consistent for rotational traction is helpful in providing consistent footing and potentially safer playing surfaces. Rotational traction has been associated with both lower extremity injuries and grass health (Orchard et al., 1999; Stier et al., 1999). The smaller portable devices are relatively easy

to use and quick. These devices will slightly disrupt the playing surface where tested, but is still considered minimal surface disruption.

For synthetic turf, infill depth can be just as important as soil moisture is for natural grass. The infill depth is something that is taken for granted



Figure 2.

on many synthetic fields. As seasons progress on synthetic turf, infill can be moved around and create spots on the field that are lower/higher than other areas. Variances in infill depth have been found to impact surface hardness, surface temperature and rotational traction (Center for Athletic Field Safety Reports). Infill depth is a very easy measurement, and can be done very quickly. This test lets the field manager know infill is needed because the levels are too low, or if the infill simply needs to be redistributed from areas that are too high to areas that are too low. The goal is keeping the infill depth as close to manufacturer's recommendation as possible.

Surface temperature is another important variable. Synthetic turfs have temperatures that can be much higher than natural grass fields during full-sun conditions (Lim and Walker, 2009; Thoms et al., 2016). As heat increases, it has a detrimental impact on athletes, decreasing performance and increasing the need for breaks and rehydration (Charalambous et al., 2016). Surface temperatures can be taken with a variety of tools, but the temperature gun used by most automotive repair shops is a fast and easy device to determine the surface temperature. While little can be done to reduce synthetic turf temperature after a system is installed, educating field stakeholders of potential heat concerns is one potential plan of action.

Difficulty comes in choosing what tests have time and the budget to be completed. The last thing a field manager needs is tests that take a long time to complete. Some of the tests do not need to be collected before every game — some could be done once a year. In addition, the cost of testing devices has a wide range from affordable to very expensive. Each additional test can increase the cost and time to complete, but provide greater detail about the field. There are companies that test both natural and synthetic athletic fields, and can provide a summary of their findings and recommendations for any actions needed. Although more information is always desired, selecting the most important tests can save time and money.

The tests described above are just the basics, and there are many more tests available if budget and time permit. Another consideration is what sport/sports are played on the field. In soccer, FIFA has requirements

about ball roll and ball rebound that take place on a field; while in football, knowing surface hardness and rotational traction are of greater importance than ball-to-surface interaction questions. One way to help determine which tests are important for a particular sport are generally listed by a professional sports governing body (i.e., the FIFA handbook). Currently, most field testing is only required at the professional level and some sports do not have sport-specific tests. However, there are universal tests such as surface hardness and rotational traction on most surfaces that can be completed.

Another key in field testing is being able to interpret the results in a meaningful way, and have a record of the testing. It is recommended to test the same 8 to 12 spots (example, Figure 3) on a field each time while testing additional areas that may be of concern. Testing the same spot will tell you how it is changing each time testing is completed. The more locations that can be tested on a field, the better. A representative sample of the field is desired for testing. Keeping data in a spreadsheet or some type of record-keeping system to go back and review is vital. If comparing multiple fields in a complex, the fields will have some variation from each other due to soil type, construction, grass, infill, etc. Focusing on the testing within each field shows variability that can be addressed to improve safety and performance.

The basic tests suggested can potentially increase the performance and eventual safety of an athletic field, and can be completed quickly with minimal expense. These quick data snapshots throughout a season would take less than an hour to complete per field, and would provide extremely useful information for the field manager. When you put the snapshots together for the entire year,

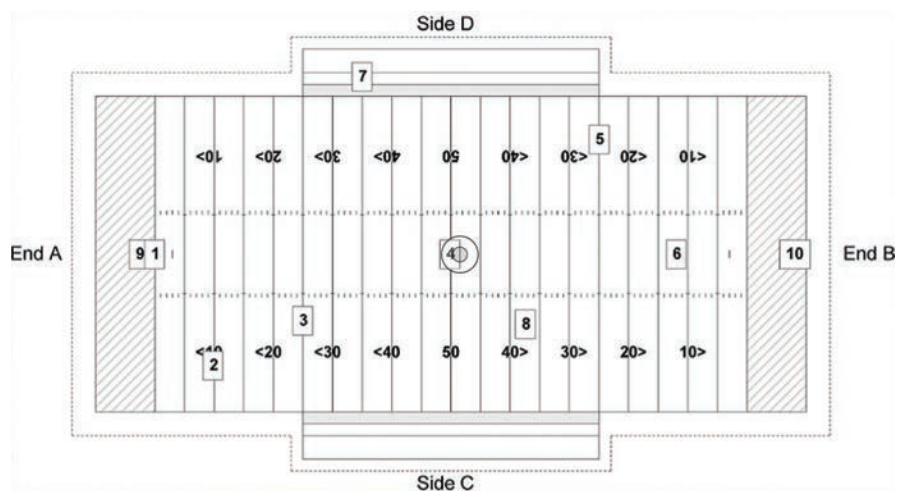


Figure 3.

you get a pretty clear picture of the changes that occur throughout the season. Ultimately, these data will also aid in maintenance decisions needed to provide a consistent playing surface. When it comes to field testing, start with the basics and work out from there. **SFM**

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WORK CITED:

Baker, S.W. 1991. Temporal variation of selected mechanical properties of natural turf football pitches. *J. Sports Turf Res. Inst.* 67:83-92.

Baker, S.W., and R.J. Gibbs. 1989. Making the most of natural turf pitches. Case studies: II. Playing quality. *Nat. Turf Pitches Prototypes Advis. Panel Rep. 4.* Sports Council, London.

Charalambous, L., und Wilkau, H.C.VL., Potthast, W. and Irwin, G., 2016. The effects of artificial surface temperature on mechanical properties and player kinematics during landing and acceleration. *Journal of sport and health science*, 5(3), pp.355-360.

Dickson, K.H., J.C. Sorochan, J.T. Brosnan, J.C. Stier, J. Lee, and W.D. Strunk. 2018a. Impact of soil water content on hybrid bermudagrass athletic fields. *Crop Sci.* 58:1416-1425.

Dickson, K.H., W. Strunk, and J. Sorochan. 2018b. Head impact criteria of natural grass athletic fields is affected by soil type and volumetric water content. *Proceedings 2:270.* doi:10.3390/proceedings2060270

Lim, L., and Walker, R., 2009. An assessment of chemical leaching, released to the air and temperature at crumb-rubber infilled synthetic turf fields. *New York State Dept. of Health.* pp. 1-140

Orchard, J., H. Seward, J. McGivern, and S. Hood. 1999. Rainfall evaporation and the risk of non-contact anterior cruciate ligament injury in the Australian Football League. *Med. J. Aust.* 170:304-306.

Stier, J. C., J. N. Rogers, J. R. Crum, and P. E. Rieke. 1999. Flurprimidol effects on Kentucky bluegrass under reduced irradiance. *Crop Sci.* 39:1423-1430.

Thoms, A.W.; Brosnan, J.T.; Zidek, J.M.; Sorochan, J.C. Models for Predicting Surface Temperatures on Synthetic Turf Playing Surfaces. *Procedia Eng.* 2014, 72, 895-900, doi:10.1016/j.proeng.2014.06.153.

John Deere 1200A field rake



The powerful 13.5-hp. John Deere 1200A field rake maximizes operator comfort and productivity. A 14-inch steering wheel provides easy and responsive steering, while an adjustable high-back seat with spring cushions reduces operator fatigue. Controls are easily accessible at the operator's right-hand side. The mechanical linkage design offers easy operation of both attachments, and an electrical lift system effortlessly lifts and lowers rear-mounted attachment. Easy-to-use foot controls allow for efficient operation. The mechanical transmission is equipped with a Kanzaki transaxle and a torque converter, resulting in excellent pulling and pushing power. The rear differential design allows for a tight 12-inch turning radius, making the 1200A extremely maneuverable and productive. Speeds are variable in forward and reverse from 0 to 12.6 mph, providing excellent raking quality at reduced ground speeds.

Toro Sand Pro 5040

With an 18-horsepower engine and hydraulic power steering, the Toro Sand Pro 5040 infield groomer offers the perfect combination of precision and power. The Quick Attach System (QAS) for front, mid and rear attachments allows for “under-a-minute” attachment changes. It can be outfitted with 20 productive attachments, including the Flex Blade, which raises and lowers hydraulically. Each attachment was specifically designed to take the operator influence out of the equation for high performance and a consistent surface finish.



Wiedenmann Terra Groom



The Terra Groom is a multi-functional groomer used best on athletic fields to brush in sand and any other top dressing materials to achieve even distribution of infill on surfaces without leaving lines and stripes. It can break down cores, disperse dew and reduce mower maintenance, while promoting healthy grass growth. When used on artificial turf, the Terra Groom raises the artificial turf fibers and levels the surface and/or the infill material. The Terra Groom consists of three rows of special groomers — two straight and one zigzag mounted — all three easily interchangeable. The working width is 74 inches, and is available with a 3-point-hitch mounting frame to attach it to a tractor (or any vehicle above 15 hp.). It can also be fitted with bogey wheels and an electric actuator to be attached to utility vehicles.

Taking a New Approach for a Sustainable Solution

The topic of infield skin selection and management has more than grasped my interest since I got into the game in 1994. Is it an art or a science? In the early '90s, during my time at Clemson, we studied soil science. We learned about the makeup and design of the USGA rootzone, which was engineered and introduced to the game of golf in the '60s. The USGA spec would go against the old push-up green that had been common practice since the game of golf began. Push-up greens were inconsistent throughout the country and around the world due to different local or native soils. The introduction of engineered soils to golf came with unequivocal benefits such as the ability to play in the rain, or immediately after, without adverse impacts to the putting surface; a more consistent putting surface in all weather conditions; higher tolerance to wear and tear; increased number of golf rounds; higher resistance to compaction; and the ability to duplicate that same putting surface/rootzone from holes 1 through 18 around the world. At the time, this was not hard to grasp. Cost per square foot may have initially played a factor in the decisions made to install a USGA green versus a push-up green, but it did not take long for the entire industry to make sense of the return on investment.

It wasn't until leaving Clemson in 1994 and working on my first couple

of ball fields that I started to wonder why the science of infield skins was not discussed in a single college class or described in a textbook that made sense like the USGA golf green. In the '90s, every ball field in the country was using a local or native infield material. At best, these mixes were dug out of the ground and run through some sort

of screen to remove the rocks. This meant that infields were different in all parts of the country. For example, infields in the Midwest have more silt than clay, and therefore are extremely dusty when dry and very sticky when wet; whereas materials in the south-east have very little silt with a high percentage of sand that suffer from extreme migration issues and very low moisture-holding capacity. Back then, I accepted that working with infield skins was more of an art than a science. Today, I realize that art translated into spending more time and aggravation to achieve acceptable playing conditions. For example, it involved



Comparison of engineered versus native/local mixes following a rain event.

Editor's Note: This material was provided by DuraEdge Products, Inc., and was written by Luke Yoder, senior VP of business development.

more time spent to achieve proper moisture; frequent rolling at a timely, and small, window of ideal moisture conditions; using more conditioner to get games in following rain; more tarping; and additional work to maintain position areas and edges. I was not the only sports field manager at the time who longed for some sort of standard for a soil specifically engineered for baseball/softball.

Fast forward to 2020, and we now have at our disposal engineered infield material with benefits similar to the USGA rootzone. First introduced to the sports field industry in 2004, this innovation started at the upper echelons of the game. However, although this technological change has been proven throughout the country at different levels, it is still not totally understood or accepted by the masses. What is an engineered infield material? It is designed based on science and raw data with the following aspects in mind: sand size and shape; percentages of sand/silt/clay; unique mineralogy of the clay; silt:clay ratio; breakdown of coarse versus fine silt; and can be duplicated indefinitely across the country. Some of the benefits of an engineered infield surface versus a local or native infield are increased resiliency; quicker resumption of play following rain; more consistent; reduced tarp pulls; reduced amount of conditioner required to get games in; adding value to your facility; selling more games; recruiting; a predictable maintenance program; and, most importantly, a safer playing surface.

Understanding these benefits is the first step to implementing a long-term solution for your facility. If you are not well versed on the pros and cons of native materials versus a legitimate engineered infield material, you could get laughed out of the room when upper management compares the cost per ton of each. This comparison is apples to oranges, and you need to be able to clearly explain the differences.

“One of the greatest evolutions in the game of baseball that doesn’t get talked about much is the playing surface. Amazing how far infields have come in a short period of time”

— Kevin Youkilis; former All-Star MLB player

A natural field costs \$5 to \$10 per square foot to build. An artificial surface costs \$10 to \$20 per square foot. Although these may seem like wide ranges, in most cases the end user will spend a fraction of that for a native infield surface. This number is typically only .70 cents to \$1.50 per square foot for a 4-inch profile. But cheap and good aren’t synonymous terms!

Similar to the USGA engineered rootzone, an engineered infield material cost more per ton to purchase than a local or native source. Of course, this is because of the process that takes place during production. The cost per square foot to purchase a legitimate engineered infield material is \$2.50 to \$4 per square foot for a 4-inch profile. These numbers are easy to legitimize, and well within acceptable range, when building a new field or executing a major renovation project.

Seventy percent or more of the game occurs on the skinned portions of a ball field. Although an infield surface only comprises 10 to 20 percent of the total surface, it is where most of the game is played, requires the majority of maintenance, most of the challenges and headaches are exposed, games are cancelled due to weather conditions, can dictate the outcome of a game due

to inconsistencies, and poses the greatest risk for injury. Why cut yourself short on the most important part of your field where the majority of the game is played?

If you have an existing infield with no plans in the near future to remove and replace, then consider the amendment approach. Sports field managers have long been amending their infields. This process has included, but not been limited to, tilling in sand, tilling in heavy clay, and tilling in calcined clay. This approach has not been based on science, but determined on touch and feel (art), vendor recommendation, or what was considered industry standard. My experience with this throughout the years has been that tilling in sand may have been done to get games in quicker after rain, tilling in clay may have been done to tighten up a loose or shifty mix, and tilling in calcined clay has been attempted to solve just about any problem. Today the amendment process is streamlined and proven based on science that is predictable, replicable and testable. The steps are really quite simple to comprehend: Test your existing material, analyze the data, determine where you should be, and then select the proper engineered amendment based on the results and who you are. Incorporating the proper amendment into your infield will leave you with a permanently modified infield profile that will provide higher performance moving forward, and will reduce maintenance.

There is no doubt that it takes time for a technological change to fall into place throughout an entire industry like the engineered USGA rootzone did for golf. Some in our industry have grasped this innovation, and are reaping the benefits of a higher-performing infield surface and seeing the return on investment. We are not far off from the majority of our industry grasping this concept and implementing these new best practices that are proven based on science and results in the field. **SFM**



Laying the Foundation for Excellence at “The Swamp”

“The Swamp.”

Just the name evokes a visceral reaction from every college football fan in the south. Florida Gators beam with pride at the mention of their legendary stadium. Other SEC teams’ fans may respond with less

Editor’s Note: This article was written by Julie Holt, content director of TheTurfZone.com, and was created in collaboration with The Turfgrass Group.

enthusiasm, but no one can question the fact that Steve Spurrier-Florida Field is an iconic place to play college football.

The statistics don’t lie – three national titles, eight conference titles, three Heisman trophies and many winning seasons attest to the Florida Gators’ dominant football program. And for every football team that plays on such a big stage, there’s always an unsung hero, a hero that endures the elements, is pushed to its limits, yet expected to perform week after week, year after year – the field.

Most fans never give it a second thought. Even players and coaches seldom notice this integral part of the game unless it isn’t performing. But turfgrass managers recognize the field as the very foundation of a top-tier NCAA football program. It is this recognition of the importance of playing surface that drives sports field managers across the country and beyond to seek the most functional and attractive turfgrass available for their sports fields.

A SURPRISING FIND

In November of 2018, when Jason Smith, director of sports turf at University of Florida, saw the events calendar for spring of 2019 at Ben Hill Griffin Stadium (a.k.a., “The Swamp”), he knew it was time to start planning a field renovation. To accommodate a concert and gradu-

ation, flooring would be covering the field for nearly a month beginning in April. With field renovation on such a large scale looming, he began his research.

After researching and narrowing the field to three varieties that might uphold the standard expected of a high-level SEC stadium, Smith made a visit to the university turfgrass program's research site. Dr. Jason Kruse, University of Florida assistant professor and turfgrass specialist, showed Smith research plots. Nematodes are a major challenge for turfgrass managers in Florida, so when Smith saw that TifTuf had such a low incidence of nematode growth, his interest was piqued.

"The one that really caught my eye was the nematode resistance plot that I saw. It looked like nematodes hadn't even touched it," said Smith. "It looked like a control plot. That's what really caught my attention."

Upon learning of other features of TifTuf – staying green later in the season than other bermudagrasses, excellent wear tolerance, increased drought tolerance – Smith was certain he'd found the right fit.

THE ROAD TO EXCELLENCE

It is easy to recognize what makes a turfgrass variety a great choice for certain uses, but we rarely get a peek into how that specific variety came to be. As new cultivars are introduced with increasing regularity, it is important to understand what goes into the making of that brand, especially when the stakes are this high.

Developed by the experts in Tifton, Georgia, TifTuf was 20-plus years in the making. "It's important that we studied this in Georgia, but we had bigger plans for TifTuf," said Dr. Brian Schwartz, associate professor at the University of Georgia and TifTuf breeder (alongside Dr. Wayne Hanna). "It's very important to do a lot of testing to make sure you don't release a product that gets out to the public and fails."

After a painstaking breeding and development process, it was clear that this turf would be a success if it was brought to market properly. Enter The Turfgrass Group, a licensing and marketing company made up of turf professionals. The team at The Turfgrass Group began implementing its strategy to ensure that this variety would provide the exceptional performance it had shown in trials.

For the high quality that is demanded at "The Swamp," it is essential that the variety chosen perform consistently and predictably under intensive management strategies. That's where single-sourcing and meticulous crop inspection come in.

With its initial release, all TifTuf plant material was sent directly from Georgia Foundation fields to licensed and certified sod farms, ensuring unprecedented consistency in sod production. A second source was later added in California, a first for any UGA variety. This source continues to follow the rigorous standard set in the eastern United States, while allowing wider-spread distribution in the western part of the country. Every one of the 60 U.S. sod farms and 42 Australian farms that produce TifTuf get it from one of those two sources, guaranteeing purity in more than 6,000 acres of TifTuf grown in the U.S., plus hundreds more in Australia.

Prior to planting, a state inspector sees every field and must approve it before TifTuf is planted. The history of the field is reviewed, and if it meets standards, approval to plant is granted. But this is just the beginning of the quality assurance process. Once planted and growing, every square foot is visually inspected by The Turfgrass Group three times per year.

"With our continuous inspection of TifTuf, we're ensuring genetic purity," said Bill Carraway, VP of sales and marketing at The Turfgrass Group. "We're going to spot anything that's not TifTuf, but our focus is on

off-type bermudagrasses. At times, it's like looking for a needle in a stack of needles."

TifTuf has been licensed to more farms in less time than any licensed proprietary cultivar in history, and in its first three years in the marketplace has earned recognition in two Field of the Year awards.

TECHNICAL EXPERTISE

Choosing the right turfgrass is only the first step of many in field renovation. After the sod was removed at "The Swamp," material had to be removed to correct the field profile and drainage and to create the best possible foundation for the Gators' new field. Smith hired Laser Turf to complete the field construction and worked with Pike Creek Turf Farm to get the sod.

The looming deadline for having a usable field was the annual youth football camp hosted at "The Swamp" in late July. Smith and the Laser Turf team worked quickly to ensure the field was bulldozed, leveled, and sodded in plenty of time for rooting to begin, and for the field to be ready for action ahead of the 2019 football schedule.

Smith has been quite pleased with the performance of the new field. After hosting four home games in five weeks, recovery was excellent, and Smith did not plan to rye overseed at the end of the season.

"After the game, repair is minimal compared to what we were doing," said Smith. "I wanted something that, when you got into the fourth quarter, it didn't even look like you'd played four quarters. I'm just super excited to have this much bermudagrass this late as a base going into the offseason. Where we're going to be at next season – I'm very excited."

While the collective efforts of more than 80,000 Gators fans may be called the 12th man on game day, a solid foundation of an exceptional playing surface may just be the ultimate champion. **SFM**

As mentioned in our January issue, STMA recently named innovations from Pioneer Athletics and FieldTurf as its Innovative Award winners. The Innovative Awards program recognizes STMA commercial company members who have developed a product, service, equipment or technology that substantially enhances the efficiency and effectiveness of the sports field manager and/or makes the playing surfaces safer and/or more playable for athletes.*

For this issue of *SportsField Management* we asked the winners about their innovation and what winning the award means to them.

PIONEER ATHLETICS GAME DAY QUICK CURE

<https://pioneerathletics.com/game-day-quick-cure>

As a manufacturer of athletic field coatings, Pioneer Athletics became aware of technical frustrations sports field managers experience. One such issue during times of the year when the weather is cool and damp, or in regions with high humidity, is re-wetting of bulk athletic field paint. This means that the paint never cures (even if it seems dry to the touch) due to moisture or cool air, resulting in lines and logos that are dull and less durable (stained team uniforms is a negative as well). In sports that require precision measurements, this can be detrimental to the outcome of the game. In the past, the only work-around was the use of aerosol paint. But, according to Pioneer Athletics, aerosol can be frustrating for large-scale paint jobs due to its limited hiding capabilities in comparison to bulk paint, as well as the extra time it takes a sports field manager to continually switch out cans. Through years of research and development, Pioneer Athletics created a bulk field marking paint that cures quickly in moist or cool conditions, will not re-wet, and does not adversely affect grass plant health. Sports field managers can now

Innovative Award Winners



successfully enjoy the benefits of bulk field marking paint in weather conditions that previously made the use of bulk paint unavailable.

Some key facts about Game Day Quick Cure include the following:

- Specially designed to cure faster and not re-wet.
- A great alternative for locations with regular high humidity or seasonal cool temps and moisture.
- The super-premium quality you expect from Pioneer's Game Day paint.
- 50/50 dilution (1 part water, 1 part paint) provides best results.
- Works best in fall, winter and spring sports seasons.
- Mixed with a high concentration of super premium pigment and optical brighteners.

- Adheres better to the tips of grass blades (better for grass health).
- Available in standard and custom Game Day colors.

Game Day Quick Cure has now been successfully utilized in numerous regions of the United States by sports field managers at varying levels of play, including NCAA Division 1 athletics and the National Football League. Some noted teams/sports field managers using Game Day Quick Cure include the Tampa Bay Buccaneers (Wayne Ward), the Cleveland Browns (Chris Powell) and University of Akron Soccer (Bobby Ohlson).

"We are honored to be recognized with the STMA Innovative Award for Game Day Quick Cure," said Doug Schattinger, president of

Pioneer Athletics. “Many people in our company made finding a solution to re-wetting field marking paint a priority. Through lengthy research, testing, and fine tuning, Game Day Quick Cure became what it is today. The recognition from STMA validates the long hours dedicated to developing this innovation. Most importantly, knowing that we have created a solution to a frustration many sports turf managers experience is the greatest reward.”

FIELDTURF GENIUS

<https://fieldturf.com/en/products/detail/genius/>

FieldTurf won for its FieldTurf Genius, which features technology that allows sports field managers to monitor the number of athletes on a playing surface and the hours of use. This data is used to deliver in-depth reports on executed maintenance and usage along with sending maintenance alerts when needed.

FieldTurf Genius boasts the following benefits:

Live Monitoring: FieldTurf Genius allows users to have eyes on the field at all times. Know when, where, how long and how many athletes are using the field.

Safety and performance: A properly maintained surface allows for more consistent planarity and proper infill levels, which can contribute to improved player safety and performance.

Increased revenue: The advanced reporting allows users to track usage, optimize field scheduling, increase the possibility of rentals and improve facility management.

Easy maintenance: The automated maintenance alerts and live dashboard eliminate forms and human input. The system does the



planning and enables users to track and monitor service, all from their desk.

Field longevity: An intelligently maintained surface can significantly contribute to extended product life.

Activity history; The in-depth usage and maintenance record history simplifies facility activity management and can aid justify and promote initial or future investment.

Some high-profile clients using FieldTurf Genius include the Tampa Bay Buccaneers (NFL), Mercedes Benz Stadium (Atlanta Falcons – NFL and Atlanta United FC – MLS), and Atlanta Public Schools.

“It’s an honor to receive the STMA Innovative award,” said Eric Dalieri, FieldTurf president. “It further validates our unwavering dedication to developing new and innovative solutions for facility owners. We’re excited to continue to help ‘Change The Game’ for athletes at every level.” **SFM**

** Chosen by STMA’s Innovative Awards Task Group, entries are evaluated on a wide range of qualities including whether or not they fill a need; are creative; save time and resources; are cutting-edge; make a task easier or more productive; improve quality; protect the environment and improve efficiency.*

FieldTurf Genius allows users to have eyes on the field at all times. Know when, where, how long and how many athletes are using the field.

SAFE Awards Two Research Grants

The SAFE Foundation, STMA's charity, has awarded two grants to conduct important research to help sports field managers.

Evaluating Turfgrass

Mowing Height and Lower Leg Forces will be conducted by Dr. Adam Thoms and Dr. Kyley Dickson. They received \$14,568 to conduct research that will investigate three heights of cut on Kentucky blue-

grass. The research will be performed throughout a growing season without traffic, as well as plots subjected to 10 simulated traffic events to determine the effect on lower extremities. While previ-

ous research has investigated the impact of mowing heights on rotational and linear traction, none has been conducted on the impact on the lower extremities of the different mowing heights. The objective of this study is to determine how athletes are impacted by different mowing heights and its impact on athletic field performance. This experiment will be conducted at Iowa State University and the Center for Athletic Field Safety at the University of Tennessee.

The second research project funded by SAFE will be performed at Penn State University by Ph.D. candidate Evan Mascitti under the guidance of Dr. Andrew McNitt. The study was awarded \$4,978 and will investigate *Novel Methods for Baseball Infield Soil Testing*.

Most of a baseball game is played on the infield skin and the field is unsafe when it is either too hard or too soft. If the skin is too dry it becomes hard and "chunky," leading to bad bounces and unsafe sliding conditions; if the skin is too wet, unstable footing requires postponement and associated revenue loss. A more quantitative approach is needed to choose the right infield mix for construction or renovation. To guarantee an infield mix will be safe, it is important to understand how it will perform as water content changes. This requires direct measurements of soil strength. Little research has addressed this topic. This project will develop lab methods to measure the "cleat-in, cleat-out" effect, as well as shear strength under wet playing conditions.

In 2018, SAFE funded a small field safety project at Texas Tech University, the University of Tennessee and Iowa State University. SAFE has set as a strategic goal to fund field safety research and plans to expand its research funding in the future.

SAFE's Board of Trustees include Chairman of the Board Chad Price, CSFM, CFB and members Mike Andresen, CSFM; James Bergdoll, CSFM; Scott Bills, CSFM; Marcus Dean, CSFM; Jeff Fowler; Nick McKenna, CSFM; Craig Potts, CSFM; John Sorochan, Ph.D.; Vickie Wallace; David Yakes; and Executive Director Kim Heck, CAE.

To donate to SAFE, visit SAFEFields.org.

SAFE

The Foundation for Safer Athletic Fields

A Year in Review with STMA's Institute

At the 2019 STMA Conference, the creation of a new educational center, The Institute of Sports Field Management, was unveiled on the association's website at *STMA.org*. In the past year, the Institute has been hugely expanded with content relevant to the profession and the sport field managers' needs. One area highlights hot topics in the industry. There was detailed information posted about:

- Pest Monitoring
- Tire Crumb Characterization of Synthetic Turf Field Recycled Tire Crumb Rubber Research
- Neonicotinoids
- Glyphosate News
- Recordkeeping Resources
- Legislation regarding synthetic surfaces

The topics are archived and available to be viewed.

Four in-depth bulletins were published at the Institute, and they are also archived for use:

- Irrigation and Water Conservation BMPs
- Injury Research Review
- 2 Comparisons between Synthetic Turf and Natural Grass Sports Fields
- Construction costs, maintenance costs, surface temperature, and field hardness

A separate webpage was also set up so members can get more context:

<https://www.stma.org/synthetic-turf-or-natural-grass-sports-fields/>

The Institute also saw the addition of nine webinars. The first is a three-part series by Dr. Travis Gannon on the topic of "Misconceptions, Understanding Fate, and Optimizing Pesticide Applications on Sports Fields."

Additional webinars include:

- "Growing Bermuda in the North," presented by Kevin Mercer, CSFM, CGM, LICM
- "So, What is the Deal with Calcium?" presented by Dr. Nick Christians
- "Carbon Fertilization: Snake Oil or the Next Big Thing?" presented by Dr. Bryan Hopkins
- "Chemical (Glyphosate, Fertilizer, etc.) Exposure: Health Concern?" presented by Dr. Bryan Hopkins

- "Overcoming Challenges in Your Career," presented by Abby McNeal, CSFM, CPRP
- "Revisit/Develop Your Elevator Speech," presented by John Fech

The webinars are recorded for viewing at any time.

STMA's Institute also has comprehensive information on:

- Athlete and Sports Field Safety
- Cultural Practices for Athletic Fields: Mowing, Irrigation/ Water Conservation, Fertility, Soil Cultivation & Topdressing, Seeding, Sprigging, Sodding; Organic & IPM Practices and Turfgrass Weeds
- Diseases and Insects
- Environmental Stewardship
- Filed Dimensions
- Professional Development
- Sports Field Rootzones
- And much more...

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Q&A WITH PAMELA SHERRATT

Q: How has Kentucky bluegrass changed over the years, and what factors still need addressing?

A: Kentucky bluegrass (*Poa pratensis*) is a perennial, cool-season, sod-forming grass native to Europe. It has good heat tolerance and moderate to good drought tolerance. However, it has limited tolerance for shade or saline conditions. Kentucky bluegrass has a fine texture, excellent mowing quality, and, most importantly, the ability to spread by underground stems known as rhizomes. The rhizomes help create a dense, vigorous turf that can withstand sports field traffic. Common Kentucky bluegrasses have an upright growth habit, with leaves ascending at a 45-degree angle, a coarse texture, and very thick, vigorous rhizomes. These grasses are best suited for lower-intensity management, with less fertility, less irrigation and higher mowing heights.

In 1947, the first cultivar of Kentucky bluegrass, 'Merion', was commercially released. Merion's leaf blades were more fine textured and grew at more of a prostrate or 90-degree angle. The importance of this is twofold: 1) The mowing height can be lowered without removing too much of the leaf blade, and 2) From eye level it gives the appearance of covering more of the turf surface (better density). The cultivar also had rhizomes that were less aggressive and fibrous. This gives the plant the ability to spread, but reduces the potential for accumulating excess thatch.

With the advent of breeding programs came the development of cultivated varieties or cultivars. Kentucky bluegrass is one species in which more cultivar development has occurred due to the fact that it is apomictic (a mother plant will produce seed resulting in plants exactly like the original plant). Beginning in the 1960s and 1970s, a method to take advantage of the apomixis of Kentucky bluegrass was developed at Rutgers University, and since then literally hundreds of Kentucky bluegrass cultivars have been developed. Based on growth and stress performance from field research trials, Kentucky bluegrass cultivars have been classified into three general types: 1) Elite, 2) BVMG, or 3) Common types. Within the elite category, the cultivars are further subdivided into approximately 10 different groups based on parentage and/or agronomic characteristics.

When selecting Kentucky bluegrass cultivars for an athletic field, a blend of elite types is generally considered the norm. The improved cultivars will outperform common varieties in shorter mowed and more intensively trafficked situations. However, in order to perform optimally, their cultural management requirements are significantly greater than the common varieties. An important consideration when choosing cultivars is that they are grouped based on agronomic characteristics, such as the compact types or the aggressive types. It can sometimes be a bad idea to mix cultivars from the different groups because the growth characteristics will be too different. The best-performing cultivars often vary by location, so extension literature should be consulted when making the selection.

The number-one challenge of growing Kentucky bluegrass on sports fields is that its germination and establishment rates can be very slow. Germination can take from 7-28 days. Even after germination, it can take 2-9 months or more for Kentucky bluegrass to produce an acceptable sports field surface from seed, depending on the level of management and the weather. The shorter establishment period is achieved by providing a strong fertilizer program, adequate irrigation, weed control and praying for sunny, warm days. Weed control is particularly tricky during May and June when crabgrass is growing rapidly and able to crowd out young bluegrass seedlings. Summer patch disease can also be a limiting factor.

In summary, Kentucky bluegrass is a gorgeous grass that produces a high-quality athletic surface. It would be used more prevalently — and as a monostand in many situations — if it weren't so slow to grow, particularly in the early spring and late fall. **SFM**



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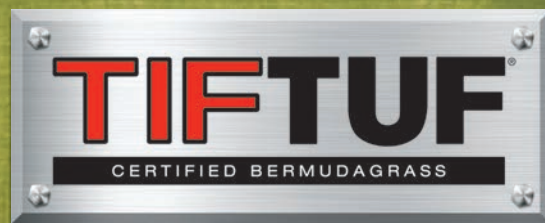
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