

IN THIS ISSUE: Tribute to the late Bobby Campbell
THE OFFICIAL PUBLICATION OF THE **SPORTS TURF MANAGERS ASSOCIATION**

JANUARY 2018

SportsTurf

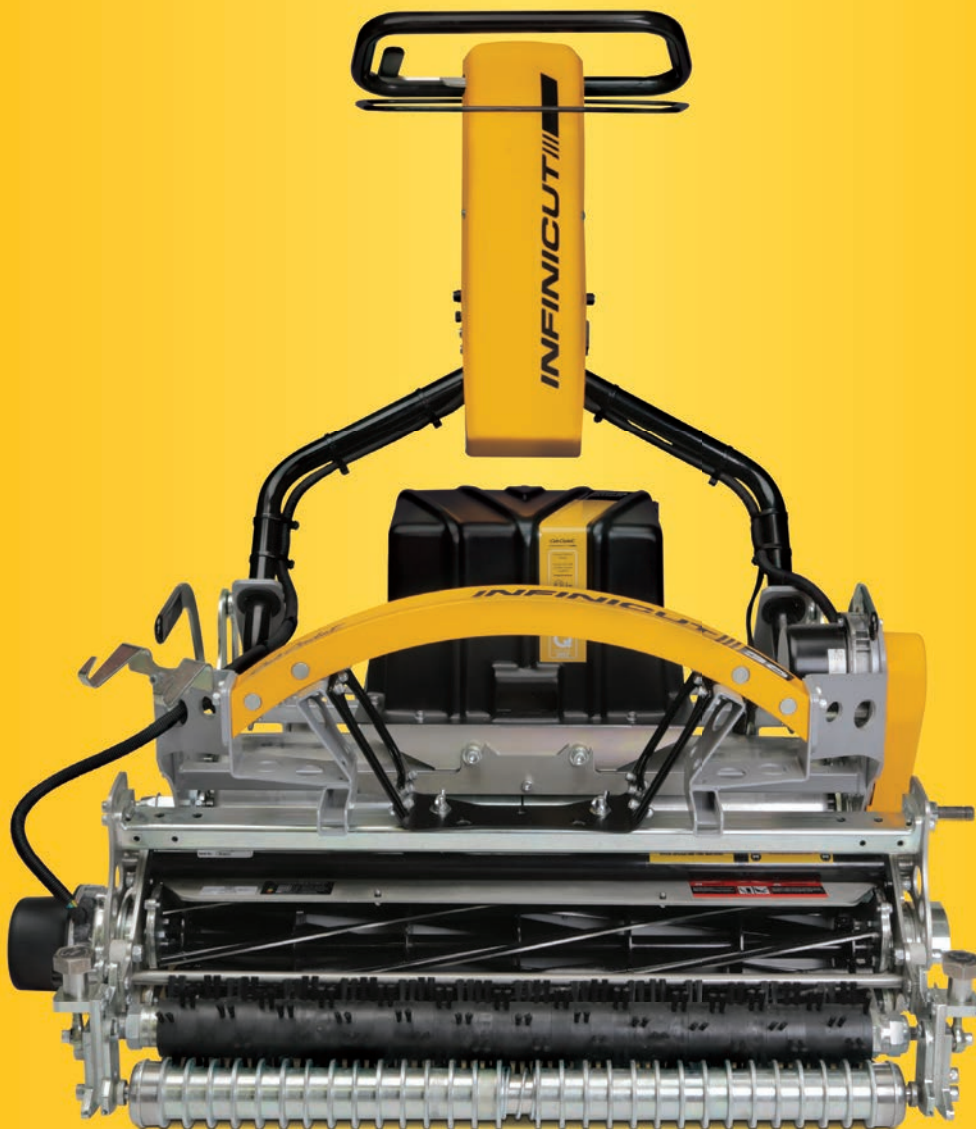
SPORTS FIELD AND FACILITIES MANAGEMENT / www.sportsturfonline.com

Teamwork wins FOY in Texas



ALSO INSIDE

- » How to start using drones
- » Leasing or financing equipment
- » Gray leaf spot on turfgrass



INFINICUT

THE PERFECT CUT. EVERY TIME.

Infinicut precision mowers are trusted by groundsman worldwide to maintain championship level conditions every day. Learn how clubs in the Premier League, Major League Baseball, tennis, and golf are all benefiting by visiting us in booth 137 at this year's STMA show.

SEE US IN BOOTH 137 AT THE STMA SHOW

 [@Infinicut](https://twitter.com/Infinicut) www.cubcadetturf.com

Cub Cadet®

HAS YOUR TURF GOT YOU SIDEWAYS?

VISIT US!

STMA
BOOTH
#523



For over 20 years, GreensGroomer has held the strong belief that synthetic turf safety, playability and aesthetics are a result of proper maintenance execution. All GreensGroomer products are designed with the turf professional in mind, and designed and built to last. Let GreensGroomer get you straightened out.

GreensGroomer®
WORLDWIDE

QUALITY. PERFORMANCE. SAFETY. 24/7/365

WWW.GREENSGROOMER.COM

MADE IN THE USA

The GreensGroomer, LitterKat and Magnet and Integrated Sports Turf Groomer. ©2017 GreensGroomer WorldWide, Inc. All rights reserved. Patents Pending

DEPARTMENTS

- 6 *From the Sidelines*
- 7 *STMA President's Message*
- 17 *John Mascaro's Photo Quiz*
- 54 *STMA in Action*
- 56 *Marketplace*
- 57 *STMA Chapter Contacts*
- 58 *Q&A*



FEATURES

BOBBY CAMPBELL TRIBUTE

- 14 *University of Tennessee and STMA legend Bobby Campbell will be missed*

ON THE FIELD

- 8 *Demonstrating different management options for a municipal sports complex*
- 18 *Developing a drone strategy for use in sports turf management*
- 32 *Gray leaf spot on turfgrass*

THE SPORTSTURF INTERVIEW

- 26 *Chad Price, CSFM, CFB*

OFF THE FIELD

- 36 *Should you lease or finance equipment? Here's what to consider*

WATER

- 42 *Can soil surfactants and PGRs reduce turfgrass water requirements?*

2016 STMA FIELD OF THE YEAR AWARD

- 46 *Professional Soccer: Moneygram Soccer Park Field 8 at FC Dallas, Dallas, TX*

TOOLS

- 50 *How do new turf industry products come to be? Part III*
- 52 *Commercial Member Spotlight: Doug Schattinger, Pioneer Athletics*

ON THE COVER

pg 46



2017 Professional Soccer STMA Field of the Year Award winners at work on the winning field: Benjamin Bauer on the paint machine; Troy Crawford with the tape measure and aerosol paint; and Jonathan Figueroa rolling up the string roller.

FOLLOW US ON



www.sportsturfonline.com

Don't let its good looks fool you!

365ssTM
ULTRA DURABLE KENTUCKY BLUEGRASS BLEND

**SEE US AT
BOOTH 805!**

365ssTM Kentucky Bluegrass Brand Is Tough As Nails!



365ssTM Kentucky bluegrass blend is the most durable sports turf product available. It's fast

germination, aggressive growth

and unrivaled wear tolerance make it an ideal choice for any sports field. It's exceptional turf quality, dark green color and fine leaf texture made it the *only* choice for the Rose Bowl. 365ssTM was developed for the rigors of sports turf use without sacrificing the high turf quality high-end facilities demand.

- ★ **Excellent Turf Quality**
- ★ **Very High Density**
- ★ **Extreme Wear Tolerance**
- ★ **Dark Green Color**
- ★ **Rapid Germination**
- ★ **Aggressive Recovery**
- ★ **Superior Sod Strength**

**ALL SEASON SPORTS TURF
USE FOR HIGH QUALITY INTERSEEDING**



365ss is a key component to the most advanced bermudagrass interseeding program ever developed. Its excellent turf quality and exceptional wear tolerance help it provide sports fields year-round playability while reducing overseeding costs.

MVS  **MOUNTAIN VIEW SEEDS**
www.mtviewseeds.com • 503-588-7333 • info@mtviewseeds.com

FROM THE SIDELINES

Welcome to Texas



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

WELCOME – that is if you're reading this while attending the STMA Conference and Exhibition in Fort Worth January 16-19. If the annual event isn't on your calendar this year please consider making plans to attend in January 2019 in Phoenix or 2020 in West Palm Beach, FL. There are some great regional shows but STMA national is unique in bringing together the sports turf industry's most relevant people from around the US and abroad.

Every year we publish articles based on presentations at the Conference, and often pursue articles based on good ideas that were pitched to the Kristen Althouse, Education Manager for STMA, and the Education Committee that didn't make the final roster. And then there's yours truly chasing some folks down at the conference sites, proffering a business card and asking if they might turn their presentations into articles. Still waiting to hear from that tornado guy at U of OK . . .

If you are in Fort Worth enjoy the sessions, trade show, the networking and nightlife in Texas.



Sundance Square Plaza, Fort Worth

A new calling

Deep sorrow clouded the sports turf industry late last year with the passing of Bobby Campbell, former STMA President and long-time University of Tennessee turf manager. When he served as President it was a 2-year term and Bob oversaw some big changes for the association. This long-time leader may best be admired for his generosity in sharing his ideas and experiences with anyone he met. Please see our tribute on page 14.

Driving Miss Claire

Note on teaching my daughter to drive: Now that my unspoken fears that she would veer off the road for no reason have subsided, I am enjoying the captive time with her as she prepares for the test to get her license. Kids grow up too fast people say; I remember hearing that many times while holding a baby and chasing a toddler and thinking "Yeah, right!" It's sad but true. What a pleasure to converse with her regularly!

An apology

For our December issue I showed poor judgment in publishing a book chapter excerpt, and worse editing skills. In doing so I unfairly connected my mistake to the STMA, for whom we publish this magazine. I apologize to the membership for not reflecting your organization's cultural values in our pages. **/ST/**

SportsTurf

// January 2018

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

The Official Publication Of
The Sports Turf Managers Association

SALES REPRESENTATIVES

Chris Pelikan

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

Peggy Tupper

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

Leslie Palmer

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

EDITORIAL

Group Publisher:

David Voll

Editorial Director:

Eric Schroder

Technical Editor:

Dr. Joey Young

Managing Art Director:

Dodi Vessels

Associate Art Director:

Phil Tippin

Production Manager:

Angela Scott

SUBSCRIPTION SERVICES

Phone: (847) 763-9565
Sportsturf@omeda.com

REPRINTS

Wright's Media
Wyndell Hamilton
epg@wrightsmedia.com
(218) 419-5725, ext. 152

DIRECT MAIL LIST SALES

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

EPG MEDIA &
SPECIALTY INFORMATION

Connectiv The Business Information
Association, a division of S&P

President: Tim Van Loo, CSFM

Immediate Past President:

Jeff Salmond, CSFM

President-Elect: Sarah Martin, CSFM

Secretary/Treasurer: Jody Gill, CSFM

Vice President Commercial:

Doug Schattinger

Professional Facilities:

Weston Appelfeller, CSFM

Academic: Beth Guertal, Ph.D.

Higher Education: Nick McKenna, CSFM

Parks & Recreation: Jimmy Simpson, CSFM

Schools K-12: Sun Roeslein, CSFM

Commercial: Boyd Montgomery, CSFM, CSE

Elected at-Large: Matt Anderson, CSFM

Appointed at-Large: Randy Price

Stma Office

805 New Hampshire, Suite E

Lawrence, KS 66044

Phone: 800-323-3875

Fax: 800-366-0391

Email: STMAinfo@STMA.org

www.STMA.org

STMA Editorial Committee

Chairman: Mark Frever, CSFM

Joe Churchill; John Clintsman; Jim Cornelius,

CSFM; Jeremy Driscoll; Chrissy McLairn;

Scott Stevens, CSFM; and Dr. Joey Young,

Technical Editor

Publisher's Notice: We Assume No Responsibility For The Validity Of Claims In Connection With Items Appearing In Sportsturf. Reader Service Numbers Are Given To Facilitate Further Inquiry. Mention Of A Commercial Product Does Not Imply Endorsement By Sportsturf Or EPG Media & Specialty Information, Or Preference Over Similar Products Not Mentioned.

Sportsturf (ISSN 1061-687X) (USPS 000-292)

(Reg. U.S. Pat. & T.M. Off.) is published monthly

by EPG Media & Specialty Information at 75 Pike

Street, Port Jervis, NY 12271. POSTMASTER:

Send address changes to Sportsturf, PO Box 2123,

Skokie, IL 60076-7823. For subscription information

and requests, call Subscription Services at (845)

856-2229. Subscription rates: 1 year, \$40 US &

Poss.; 2 years, \$65 US & Poss.; 1 year, \$65 Canada/

Foreign Surface, 1 year, \$130 Airmail. All

subscriptions are payable in advance in US funds.

Send payments to Sportsturf, PO Box 2123, Skokie,

IL 60076-7823. Phone: (847) 763-9565. Fax: (847)

763-9569. Single copies or back issues, \$8 each

US/Canada; \$12 Foreign. Periodicals postage paid

at Port Jervis, NY and additional mailing offices.

COPYRIGHT 2017, Sportsturf. Material may not be

reproduced or photocopied in any form without the

written permission of the publisher.

PRESIDENT'S MESSAGE

In conclusion



Tim Van Loo / CSFM / STMA President / vanlooti@iastate.edu / @cycloneturf

WINTER – AKA CONFERENCE SEASON. January is the month when STMA has its Conference and Exhibition, as does the turf industry in my home state of Iowa. For 2 weeks every January I get to spend time with peers, learn from experts, and go back to work ready for the next growing season to start. Conference season is something I look forward to each year. I always gain a few “nuggets” of information that I can take back and apply to make me better at my craft. I am excited to think about what “nuggets” I will learn this year.

Please allow me to say a few things about being your STMA president this past year. At our 2017 STMA Conference, I was humbled by the opportunity to serve as your president. I have never felt more unprepared than I did when Jeff Salmond handed over the reins. Please understand, I feel more unprepared and humbled as ever. I have had so much fun this year serving as your president the past 12 months. Thank you for allowing me the opportunity to serve. It has truly been a highlight in my life, and I have cherished the opportunity. I also want you to know that Sarah Martin, CSFM, is a great leader and will do a wonderful job leading the STMA in 2018.

I titled this message “In Conclusion” for two reasons. The first is because it’s my last President’s Message. The second is because I wanted to share a recent life lesson that I feel we could all benefit from. I just attended a surprise 40th birthday party for one of my closest friends, John. I was asked to say a few words to the attendees, as were a few of John’s other friends. I found out that my friend not only is always there for me, but he is the same for all of his friends. The reason I mention John is because I believe he is the type of friend that we should all be to our “friends.” John is always available, always honest, and always willing to give his opinion, even if it’s not what you want to hear. John is the friend that I can call when things aren’t going well or when I have something exciting to share. We laugh, we cry and we share life. I am a better man because I have John in my life. I hope that everyone has a friend like I have in John. I also hope that you approach all your relationships with the understanding that you can impact every person you know by simply putting their needs and wants before yours.

I hope to see many of you in Fort Worth, TX for the 2018 STMA Conference and Exhibition. Please know that I will not be STMA president for much longer, but I am and will always be, available for any STMA member who might possibly need anything. Headquarters is also always available for anything you may need. See you in Fort Worth! **/ST/**

@cycloneturf

Demonstrating different management options for a municipal sports complex

// By DR. DOUG SOLDAT, DR. PAUL KOCH, DR. CHRIS WILLIAMSON, KURT HOCKEMEYER & NICK BERO

Turfgrass management of public lands is a complex endeavor that involves balancing functional and aesthetic goals of the turf with community expectations, economics, environmental impact, and human health risk. Individuals and stakeholders often disagree on the functional and aesthetic goals and degree of acceptable impacts and risks. In addition, budgets often constrain the range of management options available to meet goals.

Recently, we had a unique opportunity to demonstrate some different options for turfgrass management in Stoughton, WI where a local sustainability group had been challenging the city to reduce pesticide use in parks. Interestingly, representatives of both the sustainability group and the City of Stoughton Parks Department reached out to Extension Specialists at the University of Wisconsin-Madison asking for information and help with the conflict. We felt that a multi-year demonstration of some different approaches to turfgrass management on one of the City's sports complexes might be a good way to facilitate some communication between the Parks Department and the sustainability group and hopefully identify some common ground.

It is important to understand this project was a demonstration, not a scientific study. A study would require replications and uniform field conditions including an even distribution of traffic, both of which were lacking in this demonstration. For example, Field 4 had only 8% weed cover immediately before study initiation, while Fields 2 and 3 were around 65% weeds (Table

Table 1. Initial soil properties of the four fields.

Field#	Soil pH	Soil Organic Matter	Phosphorus	Potassium	Initial Weed Cover
		%	ppm	ppm	%
FIELD 1	7.0	4.3	55	193	20
FIELD 2	6.7	3.6	41	171	68
FIELD 3	6.7	5.2	64	171	65
FIELD 4	6.4	4.3	35	127	8

1). In addition, Fields 1 and 2 were the only with lights, so they received more traffic than the other two. Because of the excellent condition and low traffic level of Field 4, we selected this as the control treatment where no fertilizers or pesticides would be used during the trial. We felt it would be important to demonstrate the impact of neglect, and starting with the best field seemed like a good way to make that point.

Fortunately, the fields had uniformly good soil conditions with pH in the ideal range (6.0 – 7.0), and within or just outside of optimal levels of plant available phosphorus (38-50 ppm) and potassium (121-160 ppm). The organic matter content averaged 4.4%, which is considered excellent.

Four application strategies

The four application strategies were randomly assigned to the four fields characterized above. Field 1 became the Organic Program, Field 2 became the City of Stoughton Program, Field 3 became the UW Integrated Turfgrass Management

Program, and Field 4 became the Mowing Only Program. Applications were scheduled to be consistent with the capabilities and budget of the City of Stoughton's budget for parks. On June 4, 2015, fertilizers and herbicides listed in Table 2 below were applied to Fields 1 and 2. University of Wisconsin staff made the applications to the Organic Program (Field 1), and WeedMan Lawn Care made the applications to Field 2. The City of Stoughton program was applied on June 29, 2015, by TruGreen. Unfortunately, a miscommunication resulted in TruGreen also applying herbicide and fertilizer to the Organic Program field on June 29. No applications to any fields were made in 2016. Applications to Fields 1 and 2 were made on May 16, 2017. The City of Stoughton program was applied on May 15 and October 9, 2017, by Insight FS. Application details are listed in Tables 2 and 3.

We conducted visual ratings of turfgrass quality and made weed assessments in spring, summer, and fall each season. Visual quality was recorded for each field where



Research Driven,
Proven Results™

INTRODUCING THE NEW FACE OF GRIGG™

Premier turf products, backed by
science and research

Since 1992, GRIGG has been committed to bringing new high quality, science-based nutrition products to the golf and sports market. GRIGG products are backed by university research and field testing, and customers are supported by seasoned GRIGG agronomists and turfgrass professionals. These are a few of the reasons GRIGG products are used and trusted by some of the most notable golf courses and sports stadiums in the world.

**Visit BRANDT at the
STMA show, Booth # 821**

For a GRIGG distributor
near you contact:
1 888 246 8873 or
www.grigg.co

GRIGG is part of
Brandt Consolidated, Inc.
www.brandt.co

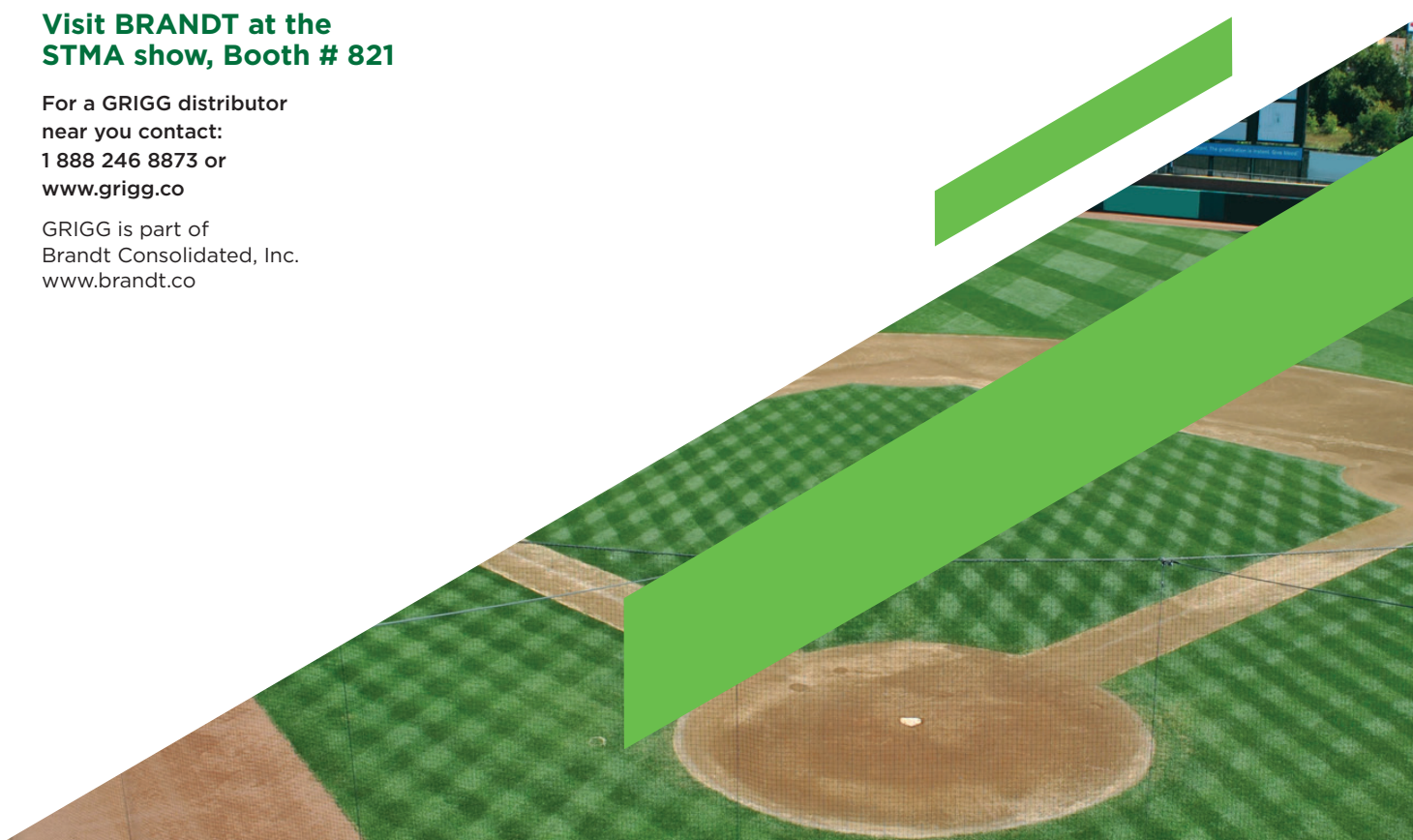


Table 2. Application Data for 2015.

Field#	Management Program	Fertilization	Herbicide
FIELD 1	Organic	Chick Magic Organic Fertilizer (5-3-0) 1.5 lbs N/1000 sq. ft. ▪ 40% soluble nitrogen ▪ 60% slow release nitrogen Liquid 17-0-5, and Granular 25-0-5* 1.5 lbs N/1000 sq. ft. ▪ 100% quick release nitrogen	TruePower 3*
FIELD 2	City of Stoughton	Liquid 17-0-5, and Granular 25-0-5 1.5 lbs N/1000 sq. ft. ▪ 100% quick release nitrogen	TruePower 3
FIELD 3	Integrated Turfgrass Management	Spread-It and Forget-It Fertilizer (35-0-10) 1.5 lbs N/1000 sq. ft. ▪ 20% soluble nitrogen ▪ 80% slow release nitrogen	Confront
FIELD 4	Mowing Only	None	None

* These applications were made by mistake and were not factored into the estimated cost of the application, but obviously influenced the agronomic outcomes.



An aerial view of the four fields at Racetrack Park.

that fertilization is a necessary step for maintaining acceptable quality.

Weed percentages were relatively low at all fields near the beginning of the study. A decline in weed population was observed in 2015 for all but the neglected field (a conventional herbicide was accidentally applied to the organic field in 2015). Weed populations rose in 2016, a season that saw no fertilizer or herbicide applications on any of the fields. In 2017, weed populations declined in the standard and UW Integrated fields, while rising sharply in the organic field. In July 2017, weed populations were <10% in the herbicide treated fields and 40-55% in the Organic and Mowing Only Programs.

In conclusion, we found that all three fields treated with fertilizer produced acceptable turfgrass quality for the majority of the study period. Weed populations were kept below 20% for the two treatments using herbicides. Weeds were highest in the mowing only program, followed by the organic management program, which saw substantial weed encroachment in 2017. This finding highlighted that weed encroachment cannot be managed by maintaining adequate fertility alone at this site.

Environmental hazard analysis

The Environmental Impact Quotient (EIQ) and Hazard Quotient are two formulas using toxicological data to provide quasi-quantitative estimates of the environmental

Table 3. Application Data for 2017.

Field#	Management Program	Fertilization	Herbicide
FIELD 1	Organic	Milorganite (5-2-0) 2.0 lbs N/1000 sq. ft. ▪ 15% soluble nitrogen ▪ 85% slow release nitrogen	None
FIELD 2	City of Stoughton	Granular (25-0-5) 2.0 lbs N/1000 sq. ft.* ▪ 66% soluble nitrogen ▪ 33% slow release nitrogen	Millennium Ultra 2 Dimension Ultra 40wp
FIELD 3	Integrated Turfgrass Management	Spread-It and Forget-It Fertilizer (35-0-10) 1.5 lbs N/1000 sq. ft. ▪ 20% soluble nitrogen ▪ 80% slow release nitrogen	Confront
FIELD 4	Mowing Only	None	None

* This application was split between two dates in 2017

1 represents completely dead or brown turf, 9 represents the highest possible turfgrass quality, and 6 represents minimally acceptable turfgrass quality. Weeds were evaluated at six randomly selected locations in each field and then averaged.

Agronomic responses

In general, the three fertilized treatments have maintained turfgrass quality around

the minimally acceptable level, sometimes rising above, other times dipping just below. However, the field that has been neglected (mowed only) slowly declined from a visual quality of 5 to 4 over the past three seasons. These results suggest that the three fertilization strategies are capable of producing approximately equal and acceptable turfgrass quality. The mowing only treatment has demonstrated



PLAYING THE FIELD

AIR2G2 SOIL CPR™ PREPS EVERBANK FIELD FOR THE JACKSONVILLE JAGUARS

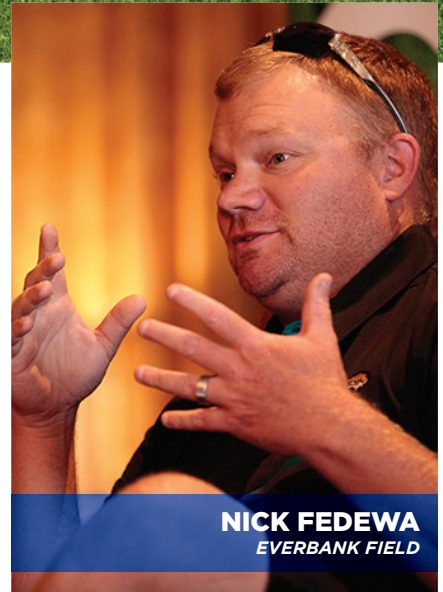
At EverBank Field, home of the Jacksonville Jaguars NFL team in Jacksonville, Florida, Nick Fedewa's main priority is player safety. As the Assistant Sports Field Manager for the past 15 years, Fedewa works to relieve compaction, improve drainage and combat excessive wear to create and maintain consistent playing surfaces on the stadium field and three practice fields using the Air2G2 Soil CPR machine.

"The main reason we use it is because we want safer fields," Fedewa said. "If you can get better drainage and less compaction, that's going to make your fields safer."

The Air2G2 is a machine that uses air injection technology to perform "Soil CPR" — a process that addresses **Compaction, Porosity, and Respiration** by fracturing hardpan layers to enable airflow and increase drainage. This is achieved with minimal surface disruption and all without leaving a mess of cores to clean up as is required after certain types of aerification.

EverBank Field is operated and maintained by SMG Jacksonville, an organization that manages entertainment venues throughout the city. The problem areas at EverBank tend to be near the entrances, down the edges of the field and sidelines, and out on the older practice fields, Fedewa said.

"Before the game starts and with all our entrances and all our equipment, the entrances tend to get hard and get compacted and we can run the Air2G2 out there very quickly and relieve the compaction and get back to where we need to be to comply with NFL standards," Fedewa said. "With the practice team field being more organic, they tend to not drain as well so we run the Air2G2 out there in between the fields where the water gathers and that helps aid in the draining of the practice fields and helps dry them out before practice, keeping the field safe."



NICK FEDEWA
EVERBANK FIELD

**"WE USE IT
BECAUSE WE
WANT SAFER
FIELDS. IF YOU
CAN GET BETTER
DRAINAGE AND
LESS COMPACTION,
THAT'S GOING TO
MAKE YOUR
FIELDS SAFER."**



136 Ellis Road North, Jacksonville, FL 32254
(904) 379-2243 | Air2G2.com



Table 4. The four management programs resulted in different pesticide impact scores.

Field#	Management Program	Environmental Impact Quotient (EIQ)	Hazard Quotient (HQ)
FIELD 1	Organic	0 (55)	0 (5794)
FIELD 2	City of Stoughton 2015 TruPower 3 2017 Millenium Ultra 2 2017 Dimension 2017 Millenium Ultra 2 Total	55 28 8 28 119	5794 2097 280 2097 10268
FIELD 3	Integrated Turfgrass Management 2015 Confront 2017 Confront Total	11 11 22	1344 1344 2688
FIELD 4	Mowing Only	0	0

* applied in 2015 only
** applied in 2017 only

and health impacts of applied pesticides. These indices don't provide a full risk assessment because they don't estimate potential exposure, but they can be useful in comparing the relative environmental and health risks of various turfgrass management programs.

Note that the risk of all products used in this study was deemed acceptable by the USEPA but a lower relative hazard may provide a way of differentiating among product choices. Just as a turfgrass manager may select a product because of low cost and high efficacy against weeds, these pesticide hazard models could also be factored in when making a product selection. In this case, the UW Integrated Turfgrass Management program picked an herbicide known to be effective, comparably priced with other effective products, but had one of the lowest impact quotients and had approximately 5x lower environmental hazard than the City's management program as determined by the two methods used.

Economic analysis

Economic analysis is difficult to conduct precisely because of fluctuating product pricing and, in the case of the City of Stoughton, the outside contractors that are hired to make the applications. For this study, we used a partial budget analysis approach where only the costs of the materials applied were considered. We did not factor in the cost of making the applications (which is substantial), under the assumption that the application costs would be constant. This assumption is compromised by the fact that the City of Stoughton Program made two applications in 2017, where all other applications were once per year. Another factor is that the large volume of the organic fertilizer required to reach the nitrogen target would likely substantially increase the application costs.

The costs per acre of the four strategies are reported in Table 5. The cost per acre was the highest for the Organic Program, as a result of the relatively high cost of the organic fertilizers used. The City's Program was less than half of the cost of the Organic Program, and used fertilizers with 100%

Continued on page 44

FieldSaver.® Save your field from rain and wear, and promote your brand with the Power of Branding®.

THE POWER OF BRANDING®

Infield Turf Protector

Full Infield Rain Tarp

Standard Spot Cover with Stakes

Roller Cover

LOWELL SPINNERS.COM

COVER SPORTS

Humphrys & CoverSports
Industrial and Athletic Fabric Products Since 1874

For price quotes, sizes, fabric specs and samples, visit
www.CoverSports.com
sales@coversports.com • 800-445-6680

We make and print covers for all athletic surfaces:
Windscreens, EnviroSafe Stadium Padding, Growth Covers

TEMPLINE™ PRO GRASS PAINT

A grass paint that works as hard as you do.

- ✓ Bright and durable
- ✓ Stays on the field and off uniforms
- ✓ Easy to prepare and apply
- ✓ Great quality at a competitive price
- ✓ Ecologically friendly


ecochemical
TEMPLINE™

(800)-677-7930

www.eco-templine.com

Last November Bobby Campbell, LCSFM, former Sports Turf Managers Association President and long-time University of Tennessee turf manager, died after fighting an illness; he was survived by his wife, Toni, a former UT math instructor, his son Peter, and daughter Tracy Pollock.

Here is an excerpt from a November 20 column written by Marvin West of KnoxvilleToday.com:

Bobby Campbell, Tennessee's guru of grass, has died.

The legendary groundskeeper of Shields-Watkins Field and other turf playing surfaces at the University of Tennessee finally lost a fierce fight with a long illness. He was 72.

"Bobby was a professional at what he did," said Phillip Fulmer, Hall of Fame football coach for UT (and current AD). "I loved the man. He took so much pride in being a part of the team."

Fulmer said he and Campbell often disagreed about the stadium field.

"We went nose to nose a lot of times about use of the field. I wanted the team to practice there and Bobby wanted to protect the grass and give it a chance to heal.

"He won a lot of those arguments because he was right," said Fulmer.

Kind words for a kind man

"HEEEY GRADY, it's Bob Campbell. I have a question for you." I have dozens of phone messages on my cell phone from Bob that start out that way.

I met Bob in 1995 at an SEC Sports Turf Managers meeting. It started a long friendship that I really cherished. The truth is that I probably asked Bob as many questions as he asked me. I learned a great deal about sports turf-specific management from Bob. It was a rare national STMA meeting that I did not look out in the audience and see Bob Campbell and AJ Powell sitting next to each other; I knew they were both going to give me a hard time about something I said during the talk during the questions period.

Bob always was trying to make his fields better; later he translated that into his lawns. As he once told me, "I guess you figured I would stop calling you with questions after I retired. You did not realize you adopted me for life." Sports turf or lawns, it was



The late Bobby Campbell, standing center in plaid shirt.

TENNESSEE ICON AND STMA LEADER BOBBY CAMPBELL PASSES

always great to visit with Bob. A great guy, a great friend. – Dr. Grady Miller

STMA has definitely lost one of its most passionate ambassadors. Bob hired me 13 years ago, and when I stepped into the role, I was amazed at the amount of work he did personally on association business. He continued to support the association and me in every way possible, and his passing leaves a huge hole." – Kim Heck, CEO, Sports Turf Managers Association

"I MET BOB CAMPBELL at my first STMA Conference years ago, in Colorado Springs. I didn't know a soul there, but Bob, AJ Powell and Bucky Trotter immediately pulled me over to their breakfast table and made me feel welcome and included in the group. From that moment on we

were friends, and I saw him collect many more friends along the way with the same inclusive method. He was an advocate for the sports turf profession, and certainly the STMA. He was a leader and president of the STMA during a critical time in which difficult decisions were made to advance the association. We as STMA members are now the beneficiaries of those trying times.

I was able to work for Bob at the University of Tennessee as a contractor and he certainly set the bar high for any task or project. He had no problem calling you out for anything less than best, and he kept looking for better ways to get the job done. He had a knack for building working relationships with coaches and administrators, and collaborated with a nationwide pool of educators, research scientists, industry leaders, and field



2 ARCH RIVALS.
3-2 OVERTIME WIN.
1 ATHLETIC DIRECTOR WITH A PLAN.

Teamwork wins. East Chapel Hill High School in North Carolina has one of the best Varsity Field Hockey Teams in the state. It's only fitting that these women compete at home in a stadium just as amazing. See how hard work, dedication and John Deere can offer a fine, sharp edge.

East Chapel Hill High School has a story. Visit us at booth #437 for all the dirt.

JohnDeere.com/Sportsturf

Trusted by the Best.



JOHN DEERE



managers to gain and share insight on a subject. I have heard many times from young groundskeepers how Bob gave his time and counsel to their cause, and was accessible to anyone.

After Bob retired from UT, he worked with us at Carolina Green for several years. He was able to help our customers and our employees with constructive encouragement and sound advice. I appreciated Bob's advice, even if sometimes I didn't want to hear it. He always called it the way he saw it, and always sided with the groundskeeper.

At Bob's funeral I heard several of his friends and family speak of his life, and the reoccurring theme was familiar with the Bob Campbell I knew. Whether it was in reference to golf games, tennis matches, repetitious coaches, or young grandsons, Bob was a competitor committed to making the best out of a situation, and making the best out of those around him. - *Chad Price, CSFM, CFB*

I KNEW BOBBY MORE as a STMA Board member than as a turf manager. I knew that he was great as a turf manager being that he was at the University of Tennessee and how great that field always looked and played. When I joined the Board Bob was on it, working his way to become President. Bob was always thoughtful of the decisions that the Board made in an effort to best represent the association professionally. He always reminded us that we needed to be champions of the association and help draw members and promote the industry. Many times Bob would have a camera at a Board meeting and randomly take pictures; I wonder where those are today?

He was most instrumental in helping lead the association to hiring our own CEO. I can remember walks with Bob and other members the mornings of Board meetings, sometimes talking about association items but mainly sharing life things. I always looked forward to those walks. I enjoyed all that I learned from him professionally and personally, mainly how to better represent the association as a sports turf manager. When I last talked with Bob, in early October, again the topic of professionalism was brought up; how could we champion the relationships with

athletes and sports turf managers to better raise awareness of the profession. Bob, you will be missed and thank you for all that you did to raise our profession and our association. Thank you, my friend, for everything. - *Abby McNeal, CSFM*

SIMPLY, BOBBY CAMPBELL was a very special person and friend. Bobby's family was always his first priority. We in the sports turf industry were blessed by his wife, Toni, son Pete and daughter Tracy's generosity in sharing Bobby with us. I could go on for days about what Bobby meant to me and to others in our profession and we will surely make time to do that when we convene in Ft. Worth in January. Bobby always looked forward to the STMA Annual Conference and in catching up with the many friends he had in all facets of the sports turf industry. His love and passion for our association and the friends he had in it was obvious to anyone that met Bob.

I knew Bob professionally as having the best looking and playing bermudagrass football field. As we became friends I soon realized his fields were seemingly flawless because Bobby, more than anyone I knew, had the ability to take complex issues, boil them down to a basic few core issues, then focus on a simple and systematic solution. Bobby could break complex problems down into manageable chunks better than anyone I've ever known.

As so many others rightfully do, I catch myself saying Bobby was "a great friend." Bobby was considered that same "great friend" to more people than maybe anyone else I know! He was such a superior listener, and what allowed him to be such a great listener was the fact he truly cared about you. When you had his attention he wasn't as interested in what was going on in your work life as he was in knowing what was going on in your life. He wanted to know what you were thinking about and where your head was. Bobby wanted to make sure you were doing well and if there was anything he could do to help. If there was anything he could do he did it! You took things to Bobby because you knew he would give his undivided attention and he'd hear and understand every word you said.

We were all so privileged to share a parallel orbit with Bobby Campbell. I'm

not the only one who'll be sharing that Bob Campbell positively impacted their life and made them a better person. He's one of those guys that when you were around him you knew in real time your life was being enriched. It felt so good to be in the company of Bobby Campbell. I'll miss feeling that emotion but I can reflect now and feel so blessed to have had him in my life. - *Mike Andresen, CSFM*

BOBBY CAMPBELL, it cannot be stated enough, was the definition of a fine gentlemen. He epitomized what each and every groundskeeper should strive to be: a dedicated professional, a kind human being, and a generally great person. In all the years in the sports turf industry, I can't think of one other individual whom I have a greater respect and admiration for than Bobby.

In my early career, I remember reading with great interest in the process he used to replace the field at Neyland Stadium when they converted back to grass in the mid-90's. As a young groundskeeper, I was amazed at the science and attention to detail that he took in making sure every aspect of that field installation came out as close to perfect as possible. I remember talking to him over the years at multiple STMA shows about a variety of subjects, but at least a few times, we discussed that very project, and I walked away from those conversations always a little bit smarter thanks to him. I guess you could say he left a lasting impression on me before I even really knew the man, as in 1994 when Neyland was resurfaced, I was still in college and I hadn't even met him yet!

Over the years, I got to know Bobby through STMA conferences, phone calls and occasional emails. I can tell you that, for a youngster starting out his career, there wasn't a better person to make your friend. After I wasn't a "youngster" anymore, he was still a great guy to have as a friend! And a friend he was. I am proud to say I knew the man, a man that touched so many people's lives in such a positive manner during his career. He was truly a giant in our industry; one that I know cannot be replaced.

I'll miss my friend. I'm sure we all will. Rest in peace, Bobby, and may God bless you. - *Mike Boekholder /STI*



JOHN MASCARO'S PHOTO QUIZ

JOHN MASCARO
IS PRESIDENT OF
TURF-TEC
INTERNATIONAL

////////

ANSWER
ON
PAGE 37

CAN YOU IDENTIFY THIS SPORTS TURF PROBLEM?

PROBLEM:

Off-colored lines on
soccer field

TURFGRASS AREA:

Municipal soccer
field

LOCATION:

Ridgeland,
Mississippi

GRASS VARIETY:

Mississippi Pride
bermudagrass



DIAMOND PRO®

PROFESSIONAL GROUNDSKEEPING PRODUCTS



**RED INFIELD
CONDITIONER**
BULK DELIVERY 10, 15
AND 24 TONS



**HOME PLATE /
MOUND CLAY**
50 LB. BAGS / 40
BAGS PER PALLET



AVAILABLE IN BULK NATIONWIDE

800.228.2987
diamondpro.com



stma 29th Conference & Exhibition
Jan. 16-19, 2018 Fort Worth, Texas

BOOTH #613

- DOUBLE PLAY
- RED INFIELD CONDITIONER
- GRAY INFIELD CONDITIONER
- PROFESSIONAL VITRIFIED INFIELD CONDITIONER
- CALCINED CLAY PROFESSIONAL
- CALCINED CLAY TOP DRESSING
- CALCINED CLAY DRYING AGENT
- ATHLETIC FIELD MARKING DUST
- GREEN DIVOT SAND
- INFIELD MIX
- WARNING TRACK MIX
- SAND & GRAVEL
- MOUND/HOME PLATE CLAY
- CLAY BRICKS
- PROFESSIONAL MOUND CLAY
- CLAY BRICKS



Developing a drone strategy for use in sports turf management

// By JODY GILL, CSFM

I remember my first airplane. It was a PT-19 with a Cox 049 gas engine tethered by a control cable. It required you to spin around in a circle while controlling it with the tether. It would fly for about 3 minutes, run out of fuel, and crash land but it was the greatest thing ever invented! I have always wondered if all that spinning around as a 10-year-old caused my attention-deficit disorder.

We've come a long way since those days. Modern drones practically fly

themselves with GPS guidance and accuracy. The most common use of drones is for simple aerial photography. Recently, they have become valuable agronomic and engineering tools to accomplish tasks including 2D mapping and 3D modeling, rooftop heat loss measurement with FLIR cameras, and monitoring crop and turf health using NDVI cameras. My drone program uses a DJI Phantom 4 (P4) equipped with a Parrot Sequoia NDVI multispectral sensor and a DJI Phantom 4 Professional (P4P) for

general aerial photography and Pix4D data collection.

I chose these units because they have outstanding obstacle avoidance sensors, high quality cameras, are relatively inexpensive, and easy to fly. The P4P has a 20 MP camera with a 1-inch sensor and a global shutter making it an outstanding tool for photography. The P4 has a slightly lower quality camera with a linear rolling shutter that is less-than-ideal for aerial photography while moving on a grid. However, it was the perfect flying platform for the NDVI

THE COMPLETE PACKAGE

THE HUNTER ST SYSTEM IS THE INDUSTRY'S BEST SOLUTION FOR SYNTHETIC TURF IRRIGATION



The STK-6V includes robust and reliable galvanized ductile iron components with heavy-duty grooved (Victaulic™ type) fittings for ease of installation and service.

THE STK-6V IS THE FIRST AND ONLY SELF-CONTAINED VAULT SYSTEM

for cleaning, cooling, flushing, and preparing synthetic sports fields for play. Hunter offers an ST solution for every customer need, from riser-mounted rotors, to pop-up in-turf vault systems, to quick coupler rotors, to point of connection and rotors for retractable reel systems. Hunter ST solutions provide total top servicing of all components, making maintenance simple while keeping the surface intact, playable, and safe.

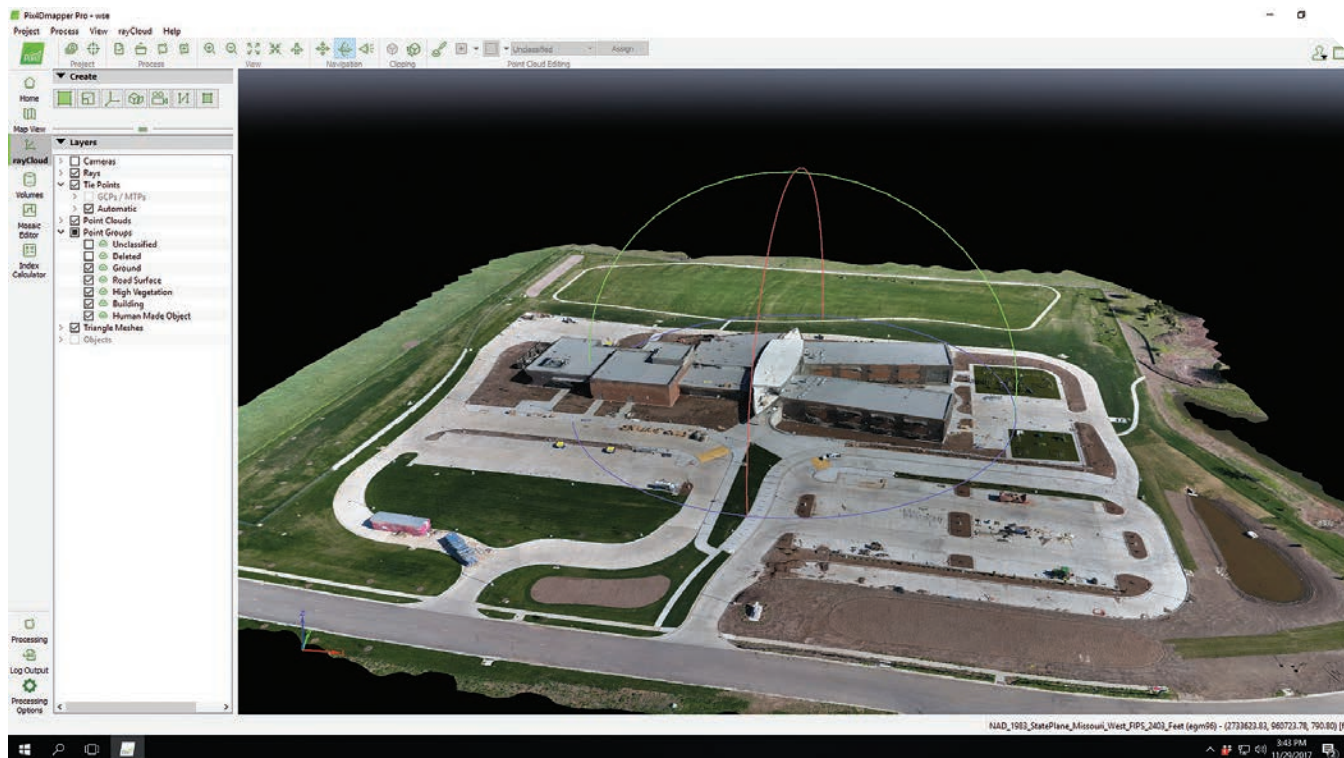


Everything is inside the vault: rotor, infill barrier cover, adjustable hanger bracket, three valves, manifold fittings, and stainless flexible inlet hose.

VISIT US AT STMA, BOOTH 713

RESIDENTIAL & COMMERCIAL IRRIGATION | *Built on Innovation®*
Learn more. Visit hunterindustries.com

Hunter®



Overlapped photos are processed by Pix4D software to generate millions of geo-referenced GPS points to create 3D point clouds.

camera over relatively small properties; when used for aerial mapping, these drones are simply flying a programmed grid above a property while taking hundreds of high resolution, geo-located photos with special cameras. The overlapped photos are then processed by Pix4D software to generate millions of geo-referenced GPS points to create 3D point clouds.

This data can then be used to perform volume calculations, create contour lines with elevations, create digital surface and terrain models, evaluate crop health and much more. This is just one of the ways we use drones to gather data for facilities and property management.

Selling it

So how can you sell this idea to your administration? As with any new idea, it is important to know your subject matter and show your dedication and passion for the idea. Whether you want to simply get aerial photos of your fields or measure heat loss through the roof of the gym, you must establish a need, determine costs, calculate the return

on the investment, and define how the drone will be used safely.

The need could be as simple as having the aerial perspective to better manage your fields, so let's start there. It is true that you can see much more from the air than you can from the ground. Football coaches and band directors always do a great job of convincing administration that they can be more effective if they can have a view of the practice or the game from a much higher elevation, such as having an aerial platform or a telescoping end zone camera. Sports turf managers are no different. Just having that aerial perspective of a large sports field can give you early indications of a developing problem such as excessive wear on a specific area.

The cost for a good quality drone ranges from \$1,500 for a quadcopter to \$20,000 for fixed wing aircraft. It is important to know how you want to use the drone before estimating purchase costs. For example, a large agricultural operation would likely need fixed wing aircraft for mapping since they are lighter, faster and have a much longer battery life

to be able to cover large tracts of land. A real estate firm photographing small properties would be better served with a smaller and cheaper quadcopter with a shorter battery life but allowing faster deployment and retrieval.

Importance of pilots

The most important part of a drone program is safety and pilot competence; yes, I said pilot. Although drones are very easy to fly with GPS assistance, the pilot must be prepared and skilled to be able to control the drone and bring it back if it flies away due to loss of control link or GPS signal. Whether you are flying a manned aircraft or controlling a drone from the ground, you are piloting an aircraft in an environment where many things can go wrong and result in a serious accident. If you are flying a 4-pound drone at 400 feet and it loses power, it will hit the ground in about 6 seconds at a speed of more than 100 mph with an impact force of about 1,500 foot pounds. If this happens, someone will likely be held accountable and liable for damage or injury.



TORO®

COMMITTED TO THE FIELD OF PLAY

Toro offers a complete line of professional products from control systems to sprinklers and in-field monitoring systems that work together to provide optimal appearance, playability, turf health and water use.



T7 SERIES ROTOR



TS170 LONG RADIUS ROTOR



TURF GUARD® SOIL MONITORING SYSTEM



Whether you are flying your personal drone or an employer-owned drone, you should have liability insurance coverage. The drone insurance market is changing daily. Generally, public entities will need to add a rider to their general liability policies, which can cost from several hundred to several thousand dollars per year. With proper pilot training, regular drone safety inspections and a solid flight safety program, the chances of a serious accident are slim. However, having appropriate and adequate liability insurance is a must.

Additionally, the Federal Aviation Administration (FAA) requires that commercial use drones weighing between .55 and 55 pounds are registered through a simple and inexpensive online process. There are severe civil and criminal penalties if you are caught flying an unregistered commercial drone. I am not trying to scare you away from drone operations but instead encouraging you to take safety, liability and regulations very seriously.

Another important factor is knowing where you can legally fly. Most large schools or parks will likely be within



Aerial views are invaluable to sports turf managers.

class B, C or D controlled airspace. The FAA provides a helpful and free app called B4UFLY. This app will use your

smartphone location to tell you whether or not it is safe and legal to fly. In order to fly within controlled airspace, you

TORO®**Count on it.****WHAT** *Reelmaster 3555-D/3575-D.***MATTERS** *Consistent, pro-quality game fields.***MOST** *Stunning backdrop for victorious coaches.***What Matters Most to You Matters Most to Us.**

Productive and efficient, the Reelmaster 3555-D and 3575-D are highly maneuverable 100 inch cutting width mowers packed into a simplified, compact and lightweight chassis. Toro's all-new EdgeSeries™ Reels give you the exacting aftercut appearance your facility craves. Get the performance and playability you expect from Toro.

Call 800-803-8676 or visit toro.com/RM3555

©2017 The Toro Company. All rights reserved.

must seek permission from the airspace authority. You must either obtain a certificate of authorization (COA) from the FAA or negotiate an agreement with your local airport authority and establish a letter of understanding. Obtaining a COA can be a difficult and lengthy process sometimes taking several months for a response but if you plan to fly in various locations across the country it is the best option. There are several FAA online publications that will provide details on how to submit an application for a COA. If you plan to fly within the same controlled airspace regularly, it may be easier to work directly with your airport authority and establish procedures for obtaining daily flight authorization.

There is much debate regarding the need for a part 107, remote pilot certificate. According to the FAA, if you are flying as a hobby or just for fun and you are not being paid or trading

YOU MUST EITHER OBTAIN A CERTIFICATE OF AUTHORIZATION (COA) FROM THE FAA OR NEGOTIATE AN AGREEMENT WITH YOUR LOCAL AIRPORT AUTHORITY AND ESTABLISH A LETTER OF UNDERSTANDING.

services in return for some version of drone service, certification is not required. If you are flying your personal drone in your backyard just for fun, there is no question this would be recreational flight. What about flying your personal drone at work, during regular working hours for the purpose of getting aerial photos that will make it easier for you

to show your crew a specific need on the property? This could easily be considered commercial flight since you're being paid to fly for the benefit of another entity.

What if the drone is employer-owned? How would this change the equation? For anyone who has an interest in flight, the certification is achievable. The part 107, remote pilot exam will test your knowledge of airport operations and communications, basic flight physics, understanding aeronautical charts, flight weather, emergency procedures, etc. There are a number of inexpensive apps available for Part 107 exam preparation if you prefer learning on your own. I used the \$30 FlightReady Academy app and felt well prepared to pass the challenging FAA exam. There are also multi-day training schools where you can learn to fly a variety of drones while preparing for the exam. Having the FAA certification will make it easier to get your drone program approved, obtain insurance

TEAM UP WITH



TURFCO.COM

Call to discuss the equipment you need to keep your fields in top playing shape.

800-679-8201

TURFCO MANUFACTURING, INC.
1655 101st Ave. NE
Minneapolis, MN 55449-4420
TOLL FREE 800-679-8201

OVERSEEDERS ➤

Go green with the **TriWave® Series** that delivers optimum seed-to-soil contact and maximum germination rates.



TOPDRESSERS ➤

WideSpin™ and **Mete-R-Matic®** spinner and drop-style models set the standards for productivity and ease of operation.



DEBRIS BLOWER ➤

The **NEW Torrent™ 2** takes debris cleanup to a whole new level with unprecedented power, precision and control.





FAA Certified UAS pilot, Caleb Clements, working on aerial shots of an elementary school while parking lots were empty.

and receive permission for flight within controlled airspace.

In October 2017, President Trump announced a new initiative to bring together Unmanned Aircraft System (UAS) pilots with state and local governments to work towards expanding UAS operations. The UAS Integration Pilot Program is intended to “shape a regulatory framework that balances the benefits of UAS technology while lessening the risks to public safety and security.” Drone technology will continue to impact agriculture and sports turf management in ways we can’t imagine yet. It is very important that we use this valuable tool carefully and responsibly to insure that it remains readily available for use in our industry. **/ST/**

Jody Gill, CSFM, Secretary/Treasurer of the Sports Turf Managers Association’s Board of Directors, is an FAA-certified UAS pilot and grounds coordinator for the Blue Valley School District, Overland Park, KS.

Hydraway is the industry’s

FASTEST
Drainage System

with a leading

70%
in-flow rate



“ Hydraway Drainage System is unparalleled in the drainage market.

With its 70% inflow rate, Mid-America Sports Construction recommends this product to any of our customers. Hydraway’s diversity allows for us to use it on synthetic turf and natural grass fields. For us, it’s a no-brainer to recommend and use Hydraway Drainage System. ”

Kirk Grego, Mid-America Sports Construction

Hydraway
Drainage Systems

800.223.7015
hydraway.net

The Ultimate Solution for Natural Grass Fields,
Synthetic Turf, & Golf Course Drainage

THE *SPORTSTURF* INTERVIEW: CHAD PRICE, CSFM, CFB

This month in “The *SportsTurf* Interview,” we meet agronomist Chad Price, CSFM, CFB, president of Carolina Green Corp., Indian Trail, NC. Chad has nearly 30 years in the sports turf construction industry and has been involved in the design and construction of more than 400 fields at the professional, semi-pro, university, municipal, private and public school levels. Chad is a former board member of the STMA. Chad holds a BS in Agronomy from Virginia Tech and is a Certified Sports Field Manager (CSFM), a Certified Field Builder (CFB), and a NC Certified Turfgrass Professional.

SportsTurf: What different segments of the sports turf industry are you involved in? What does a regular working week look like, if such a thing even exists?

PRICE: Carolina Green basically has three divisions: field construction, field maintenance, and sod production, and we have managers and superintendents that run these divisions and get the work done. Most of our work is collegiate and professional, but we also work with high schools and recreation league clients. In sod production, we have sand base sod, native soil sod, and GameOnGrass, an engineered rootzone sod grown on plastic. The majority of our sod production goes to athletic field uses.

My job varies weekly, but for the most part involves meeting with clients, working with our design and estimating people to price the work, and helping schedule the crews and equipment. I typically travel several days a week, and spend a good bit of “free time” at the sod farm.

ST: What field projects are you working on currently?

PRICE: Fall brings a lot of GameOnGrass field replacements for the NFL and college clients. We are at the Ravens, Redskins, and sending sod to the Eagles and Chiefs during this time. We have done a lot of drainage work and field renovations this year. We are currently working at the Pirates spring training facility, James Madison University softball, Salem Red Sox, University of North Carolina soccer, and University of Virginia baseball to name a few. Larger projects last summer included UVA football stadium field, UNC’s Kenan Stadium, University of Tennessee football practice, East Tennessee State football stadium and Texas A&M soccer.

ST: What kinds of cutting-edge technologies do you currently employ?

PRICE: GameOnGrass is probably the most unique new technology we employ. It is a smaller part of our total business, but occurs at high profile places. It has been almost 10 years in the making, and complements our construction and sod production services. GameOnGrass is a sand base bermuda sod grown on plastic, designed to drain vertically and provide stability for play immediately after install. It requires intense supervision and management at the farm, but there is really



Chad Price, CSFM, CFB

nothing else that we grow that can provide the immediate play capability. It has found uses in small areas like soccer goals, baseball wear spots, lacrosse creases, wedding reception areas, and TV commercials. It is also used to lie over synthetic turf in some international professional soccer games, as well as in-season “gut” and full-field replacement at football fields.

One special case use of GameOnGrass occurred this fall at UNC football, where the stadium field served as both practice and game field for the entire season. UNC is undergoing a total rebuild of most of their game and practice fields, and the construction plan called for going a year without football practice fields. UNC Athletics initially thought synthetic turf for a season was the best option, but after looking at GameOnGrass, they realized not only would it be less costly, but also keep to the coaches and trainers preference to remain natural grass. The key was our ability to flip the field overnight. We produced seven fields of GameOnGrass for their season, one field for each home game if necessary in a worse case scenario. The GameOnGrass performed very well and UNC only had to replace about one third of that amount over the season, resulting in additional and significant cost savings to the program.

The continued advancement in sod removal and install equipment, like the GKB Combinator and SideKick pusher, has increased efficiency in doing field replacements. We can now basically replace a field in a 12 to 24-hour window.



Your preparation. Their participation. ENHANCE BOTH.

Apply XCU® slow-release fertilizer to better manage turf appearance and playability. This dual-coated enhanced efficiency fertilizer delivers turf response for up to 10 weeks per application. And with the highest nitrogen content and lowest sulfur content of any polymer-coated sulfur-coated urea, you can control costs by using less to treat more area. Insert XCU® fertilizer into your nutritional lineup and feel confident your turf is ready for play when teams take the field.

Consult with your distributor for more applied advantages, or visit KochTurf.com/XCU.

XCU® and the XCU logo are trademarks of Koch Agronomic Services, LLC. Koch and the Koch logo are trademarks of Koch Industries, Inc. © 2018 Koch Agronomic Services, LLC.


XCU®

Slow-Release Fertilizer

And of course, automated laser controlled equipment continues to be the most important component of building a job. All grading and drainage work centers around laser-controlled equipment.

ST: How did you get your start in this business?

PRICE: Way back in the '80's, when I graduated from Virginia Tech, I thought I would continue working on the family farm, or possibly take a job with an ag chem company, but the farm industry was having difficulties at the time. With the help of my Dad and my uncle, I started a chemical lawn care business, and that evolved into sports field applications, and in 1992 I shifted totally to sports field construction. It was not necessarily a planned path on my part, but clearly divine guidance and lots of support from my family has brought me to this point. My wife, Kerry, is an accountant who worked as an auditor at Deloitte, and later as CFO of Crowder Construction in Charlotte. In 1999, she left the corporate world to become my boss, and that took Carolina Green to another level. My brother, Rodd Price, and his wife, Rita, were instrumental in getting the sod farm established. Our sod operations are key to our responsiveness to our clients' needs. Guess I ended up farming in the end, just on someone else's dirt.

ST: What piece of advice do you wish someone had given you when you were starting out?

PRICE: Take some business/accounting classes, either online or at a community college, whatever you can manage. Or, do like I did, marry an accountant. Looking back, I feel I was strong in agronomics, equipment operation, and the physical part of the job, but lost with payroll taxes and a balance sheet. We all have different skill sets, so surround yourself with good people that complement your shortcomings. And do the right thing, even when it is painful, because it always benefits in the end.

ST: What are the most important changes you've seen in sports turf management since you started in the industry?

PRICE: When I started it was not really an industry, but more of a subset of golf and grounds management. There were not very many "sports field contractors," and really very few standards for sports field construction. We evolved along with field designers and material and equipment suppliers to where we are today, to a recognizable, specific industry. Certification programs, specifically STMA's CSFM and the American Sports Builders Association's Certified Field Builder, have elevated our professional status, and slowly we see increasing compensation for sports field managers (SFM's). We have more women in the industry, some amazing female groundskeepers, industry suppliers, and educators, and we need more.

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

PRICE: I think "success" would have to be defined as love for the job and pride in your work more so than financial compensation. Pay and operating budgets for most SFMs is still lower than what I believe is warranted, although there is definitely an upward trend. This industry requires most SFMs to start at the bottom and put in lots of sweat equity to get to a decent wage. I personally do not have a problem with that, and think most jobs are the same, but it is hard to lure good new talent when starting pay pales in comparison to tech or industry jobs.

Once you achieve a level of success as an SFM, you then often hit the glass ceiling where its either stay put, or put on a tie and move on to administration. On the flip side, where else can you get to work outside on fields, be that close to the game, and drive a tractor? I think Marc Anthony said, "Do what you love, and you'll never work a day in your life."

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

PRICE: I have benefitted immensely from STMA. I cannot overstate that point. I came to my first conference looking for people who built and maintained fields, and I not only found that, but also found lifelong friends and resources and counsel. I have had the opportunity to serve on the STMA and SAFE Boards, and committees, but the gain has been all mine. The CSFM program has helped me professionally and financially.

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

PRICE: I have been accused of fishing and bird hunting on occasion, but that is mostly rumor. I am blessed to get to play in our church praise band and lead a high school Sunday school class. We spend lots of time in the bleachers at wrestling, football, and volleyball. Getting to work with my family is also a blessing, most of the time. **/ST/**

Innovative turf care machinery

Trusted by leading sports turf managers around the world

See us and Aqua Aid at STMA 2018



KORO® TopDrain



Vredo Seeder



Raycam UniRake



KORO® FTM®



Campey imants

Perfecting Play™

AQUA·AID

Distributed throughout North America by Aqua.Aid www.campeyimants.com or email info@campeyimants.com



Your Home Field Advantage

WINNING THE GAME, FROM THE GROUND UP

PRO LEAGUE® INFELD CONDITIONERS



For players to perform their best, your field has to be at its best. Choose *Turface® Pro League Infield® Conditioners* to craft the safe, high-performance surfaces that make premier play possible. With our game-changing products and vivid, custom-engineered colors, you can bring big-league style to your diamond and make your field stand out.

**The #1 Conditioner
for Safe & Playable Fields**

Visit us at **Booth #629**
and learn about the newest
products in our line!

turface.com



Follow us
on Facebook
[Facebook.com/Turface](https://www.facebook.com/Turface)

**Visit Us
@ Booth
517**

Chisholm High School, Enid, OK - 2016 District Champions Football Class 2A on Riviera Field



**Is your turf tough
enough for a
championship team?**



For unmatched wear tolerance and recovery speed from sports related damage... **Nothing Beats Riviera**

Riviera has topped the NTEP over-all rankings again, for commercially available seeded bermudagrass.

Many top sports turf managers today agree that extremely fast grow-in, quick recovery from heavy use, early green up, cold tolerance and superior quality, make Riviera their first choice, year after year.

JOHNSTON
- Seed Co -

The Cold-Tolerant Bermudagrass Experts

800-375-4613
www.johnstonseed.com

Gray leaf spot on turfgrass

// By JIM KERNS, PHD

Gray leaf spot (GLS) is caused by the fungus *Magnaporthe oryzae* and is a destructive disease of St. Augustinegrass, perennial ryegrass, kikuyugrass, and tall fescue. The disease was problematic in the late 1990s and early 2000s, especially in the northern transition zone and Mid-Atlantic US. The disease seems to be increasing in incidence in recent years, especially on newly planted tall fescue and perennial ryegrass swards. Research demonstrated that seedlings are most susceptible to gray leaf spot 4 to 5 weeks after emergence, thus the disease has been a challenge for those that overseed with perennial ryegrass or in tall fescue sod production.

The disease is most severe when temperatures are between 82 and 90 degrees F, so the disease could potentially develop in any area of the US if conditions are conducive. Typically, gray leaf spot is prevalent south of Interstate 80 (Figure 1). Conditions favoring disease development are warm, humid weather. Specifically only 9 hours of continual leaf wetness when air temperatures are between 82 and 90 degrees. When temperatures are lower (68 to 75 F) 21 to 36 hours of leaf wetness is required for infection. Basically fungal infection is strictly tied to humidity especially in the eastern US. For example, in North Carolina the disease is first observed in July on tall fescue and the disease may continue even into October if conditions remain favorable for infection. Gray leaf spot subsides after a heavy frost.

Symptoms on warm-season hosts such as St. Augustinegrass and kikuyugrass initially develop as small brown spots on leaves and stems. The spots can enlarge rapidly into round or oblong spots and lesions (Figure 2). Spots can extend across the entire leaf and leaves with numerous spots often die. The spots are tan to gray and have a purple or brown margin. As the disease progresses, stand symptoms appear as a general thinning or scorched similar to drought stress.

In perennial ryegrass and tall fescue, symptoms initially appear as small water-soaked spots that quickly turn necrotic. The spots



Figure 2. Plant symptoms of gray leaf spot on St. Augustinegrass. Note the grayish interior surrounded by a purple to brown border.

vary in color, size and shape, but are regularly gray to light brown in the center of the spot surrounded by a purple to dark brown border (Figure 3, p. 35). The spots are often oblong in shape and old spots may have a yellow halo. As the disease progresses, entire leaves are blighted and may have a fish hook appearance. Stand symptoms typically develop as small patches and may resemble dollar spot or Pythium blight (Figure 4). Mycelium will not be present with gray leaf spot during dew formation in the morning. The small patches can rapidly expand under favorable conditions and can be confused with brown patch. Under intense disease pressure, large swards of turf maybe killed leaving behind resistant plants or weeds. Gray leaf spot stand symptoms in perennial ryegrass and tall fescue may also mimic heat or drought stress. Gray leaf spot is difficult to diagnose in the field. If GLS is suspected consider submitting a sample to a diagnostic lab for confirmation.

How to manage

Gray leaf spot can be managed using a number of factors. Many perennial ryegrass varieties have some resistance to gray leaf spot. Consult the National Turfgrass Evaluation Program website



Figure 1. Interstate 80 generally can be used to delineate where gray leaf spot is most severe; typically GLS develops south of I-80.



Figure 4. Typically stand symptoms of gray leaf spot in tall fescue. Notice how it resembles heat or drought stress and there is not a distinct patch or spot.



Give yourself an advantage— learn from a leader.

Earn your Penn State Turfgrass degree or certificate—100% online.

Request a brochure: worldcampus.psu.edu/stma



PennState
World Campus

U.Ed.OUT 18-WC-0914/ajw/smb

(<http://www.ntep.org/>) or with your local turfgrass extension specialist to determine what variety might be best suited to your environment. Minimizing leaf wetness is another critical management strategy for gray leaf spot. Relative humidity and leaf wetness are necessary for infection; therefore irrigating during the morning is paramount for disease management. Mowing to remove excess leaf tissue can limit the spread of the disease as will clipping collection. Fertilization should be maintained to promote vigorous growth. The gray leaf spot fungus produces a lot of spores and a healthy, growing plant is the best way to combat this disease.

Fungicides are also effective and in many cases necessary to fend off gray leaf spot. The QoIs (Heritage, Insignia, Compass and Disarm) are effective when the fungal population has not

developed resistance. Sadly, most populations have already developed resistance to this class of chemistry rendering them ineffective. Other effective products include thiophanate-methyl,

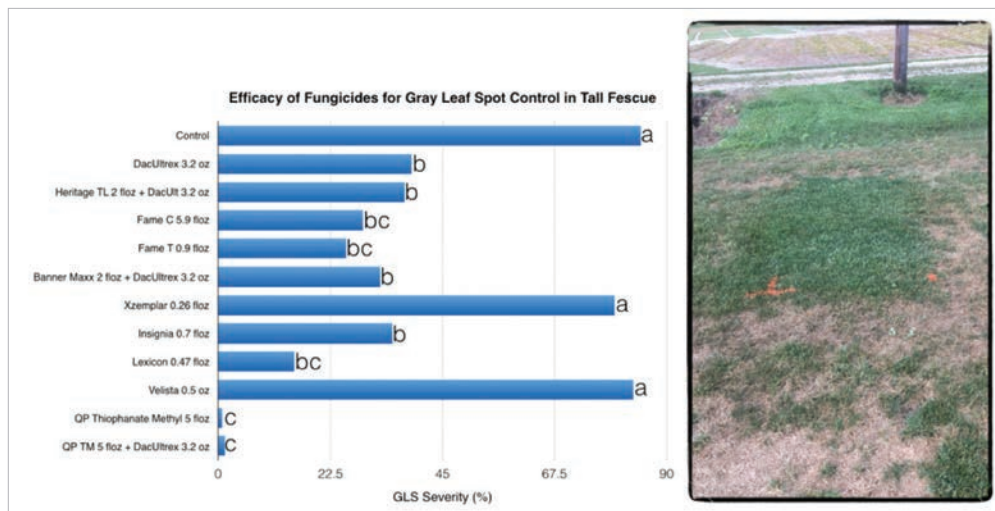


Figure 5. Efficacy of fungicides for gray leaf spot control, trial was conducted in Rolesville, NC on tall fescue. Bars represent mean GLS severity and bars with the same letter are not significantly different. The photo shows the efficacy of thiophanate methyl in these field plots.

STMA SOURCEBOOK

**Reaching the industry
professionals you want to reach!**

The OFFICIAL online directory: STMA Sourcebook is an online directory of manufacturers and distributors of equipment and supplies used by professional sports turf maintenance professionals, irrigation contractors, sports turf managers, professional grounds managers, custom chemical applicators, and other green industry professionals.

ARE YOU LISTED?

Go to STMASourcebook.com, search for your company, review, update and own your listing.
Not there? You should be! Get yourself signed up today.



2014 www.TurfFiles.ncsu.edu

Figure 3. Classic plant symptoms of gray leaf spot on tall fescue. Note the gray interior surrounded by the dark brown border. A chlorotic halo is present around the edges of the spot.

chlorothalonil and combination products such as Headway, Concert, Lexicon and Armada.

In a recent trial conducted in NC, we demonstrated that thiophanate-methyl successfully controlled gray leaf spot under intense disease pressure. Unfortunately in our trial, the QoIs failed to control GLS and some of the other products (Figure 5) struggled to suppress GLS. Given the propensity for resistance with this fungus, a rotation of products is warranted. It is also important to note that chlorothalonil cannot be used in residential lawns. In tall fescue, brown patch is still the major limiting factor therefore applications of QoIs are needed to suppress it. As temperatures increase and relative humidity increases, mixing thiophanate methyl in with brown patch applications may be necessary to limit GLS development. In severe cases of the disease applications every 7 to 14 days maybe necessary and fungicide rotations are critical when fungicides are applied at this frequency. **/ST/**

Jim Kerns, PhD, is Associate Professor and Extension Specialist, Department of Entomology and Plant Pathology, North Carolina State University.

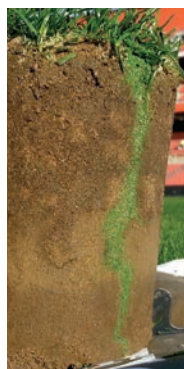
NOTHING ELSE LIKE DRYJECT

Aerate & Amend in One Pass

Aerate for Compaction Relief
Amend Soil for Lasting Effects



SIMPLY AMAZING!



Used by top university and NFL sports turf managers for grass fields, now you can afford the best for your fields too! Compaction relief, improved drainage, healthier turf, plus happier athletes and parents.

Call your authorized DryJect Service Center today for a free demonstration.

The DryJect Effect

See the green colored sand? Compaction is shattered, soil amended in the blink of an eye.



DryJect.com 800-270-8873

Should you lease or finance equipment? Here's what to consider

// By PAUL DANIELSON

Balancing your equipment needs with a tight budget can be a challenge, and sometimes it means making tough decisions. Should you buy or lease new equipment – or continue to operate your current equipment? With each option, there are trade-offs.

Making do with your current equipment eliminates the cost of new equipment, but you still have the potential for higher maintenance expenses and more downtime. On the other hand, buying new equipment gives you the benefit of operating efficient and reliable machines, but it ties up cash

you may need for other purposes. If new equipment is what you need, financing may be a good solution to bridge the gap.

Getting started

Before you make any decisions, it's important to start with a well-thought-out acquisition plan. Weigh your current stock of assets against your needs, then determine if you have the capital budget and cash available to cover those needs. If not, financing can help you get the equipment you need now to do the work you need to do, even if you



Paul Danielson, The Toro Company

lack the budget to purchase it outright or have better places to invest your cash. In some instances, it may be possible for you to generate significant savings immediately by upgrading to new, more efficient equipment that saves labor and other resources.

Financing can work to your advantage in other ways too. For instance, you may be able to consolidate multiple units into a larger purchase that could potentially

PERSPECTIVE FROM A FINANCING REP

Tim Borger is a municipal lease representative for TCF Equipment Finance, a division of TCF National Bank, Sugar Land, TX. Here he answers our questions:

How do I determine if financing or leasing equipment is a viable option for my facility?

Having been involved in municipal financing for over 30 years, I always ask, "What is the biggest issue facing your municipality?" By far, the answer I hear the most is "money," or lack thereof. There are more needs for municipal entities than there is money available. It would only make sense to spread the cost of your equipment needs over a period of years to fit more product into your budget.

Are cash payments upfront usually required?

The short answer is no. Lease/purchase financing is normally 100% of the cost. Obviously, there are exceptions to that rule. Sometimes a project may include a large percentage of soft cost, such as, labor and licensing. A financial institution may want to limit their exposure on such items and ask the client to cover a portion of those costs.

However, the general rule is financing the total cost.

What should I look for to compare financing/leasing options from different companies?

The first question you need to ask yourself is "What am I trying to accomplish?" Are you looking for the longest term to make your payments lower, are you trying to spend the lease amount on interest dollars; do you want to delay your first payment into the next fiscal year? Know what you are trying to do before contacting a financial institution, then, when you speak with them, see if they can offer you the solution you need. Also, tell them what you are trying to accomplish. This is what a finance person does and they may have a better solution for you that accomplish the same issues you are trying to solve.

Also, and this is one of my pet peeves, do not judge the best deal by who offers you the lowest interest rate. Numbers can be "massaged" to look like it accomplishes something it doesn't. A company may offer the lowest interest rate, but it isn't the best deal. You must look at the total overall cost of a transaction. Are there outside fees that are calculated in the interest rate? These are often



Tim Borger, TCF Equipment Finance

called "ancillary fees" by the finance company. They can be financed, but they don't have to be calculated in the interest rate.

Do these programs change how warranties work?

No, not at all. The finance company is simply paying the invoice on the buyer's behalf. The warranty is between the vendor and the buyer. The agreement between the buyer and the finance company has no effect on the vendor other than who cuts the check.



JOHN MASCARO'S PHOTO QUIZ

JOHN MASCARO
IS PRESIDENT OF
TURF-TEC
INTERNATIONAL

////////

ANSWERS
FROM
PAGE 17

////////

These off-colored lines on this soccer field might look like football yardage lines; however they are actually areas where the bermudagrass is slightly drought stressed. This municipal soccer field's sports turf manager installed drainage lines about 7 years ago for better field playability. They installed 12 4-inch perforated lateral drainage lines into the native clay fields and covered them with pea gravel and sand. Late in the fall, the assistant superintendent cuts back on irrigation so the turfgrass roots will go deeper before winter comes. When he does this, the turfgrass over the drainage lines becomes visually apparent because it dries out a little quicker than the surrounding turfgrass areas that are in native soil. In addition to this drying technique, the sports turf manager also uses additional potash



over the course of the year and does not apply growth regulators about a month before the first frost to encourage more upright growth. Despite being in central Mississippi, the results of these combined techniques are fields that he does not have to oversee because they stay green most of the winter, despite winter play.

Photo submitted by Claude Tharp, assistant superintendent at Ridgeland Recreation & Parks in Ridgeland, MS.

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

WORLD CLASS READY TO USE PAINT TOTES



GO GREEN SAVE SPACE ELIMINATE WASTE

- 275 GALLON CAPACITY
- AVAILABLE IN ALL COLORS FOR
- QUICK & EASY SET UP
- NATURAL AND ARTIFICIAL FIELDS
- SPEEDY PAINT AGITATION
- CUSTOMIZABLE FOR YOUR TEAM

**WORLD
CLASS**
athleticsurfaces

worldclasspaints.com
1-800-748-9649

We make the games look better.

DEEP TINE AERATORS

Two models - 54" & 70"

Patented Spring Loaded Tine Alignment
Perfect Holes - Perfect Pattern
Front & Rear Rollers Follow Undulations

Patented-US 8,479,836B2

MADE IN THE USA
WITH PRIDE



334.488.3939
sales@turfprideusa.com
www.turfprideusa.com

Tested for Toughness In the NFL



Ideal for Football,
Soccer, Baseball,
Softball and
Athletic Fields
of All Stripes

TIFSPORT
CERTIFIED BERMUDAGRASS
www.tifsport.com

OFF THE FIELD

qualify for “volume incentives” from the manufacturer. You could also bundle the equipment, installation costs and services into a single payment that meets your budget. Plus, financing expands your purchasing power, allowing you to maximize the dollars you have available on a predictable schedule.

If you are a tax-supported agency, you may have to consider the process and requirements you will need to follow to finance equipment purchases. Is financing required to be competitively bid and/or bid separately from the equipment procurement? Toro has several national cooperative contracts available that not only allow you to purchase equipment on a pre-competed contract but also include provisions that may allow you to lease the product by leveraging these contracts.

Finance option 1: leasing

If you decide to finance all or some of your equipment acquisition, leasing is an option. A lease is similar to a long-term rental. You acquire a piece of equipment and use it for the term of the lease. When the time is up, you typically have the option to renew the lease (month-to-month or for a fixed term), purchase the machine at fair market value, or return it.

Leasing is an operating expense, but the payment is usually tax deductible for tax-paying enterprises. And currently, leased items are not included on your balance sheet so mid-term upgrades may be less onerous. However, this is changing to a “Right of Usage” model within the next 2 years, so it would be wise to consult with your finance department or tax preparer to see if the changes would impact you significantly.

In a nutshell, leasing gives you the most equipment per dollar of payment, or the most “bang for your buck.” You don’t pay for the entire machine; only the portion that you use. You also get the flexibility to renew or purchase it later. Just be sure to read all the contract provisions and know the requirements of the lease for equipment care and maintenance, turn-in condition, hours of use, etc.

Leasing is usually best for higher-usage items you plan to cycle through more quickly, for example, when you want to have the latest technology or avoid the higher maintenance portion of the equipment life cycle. In the tax-supported space, it may work particularly well for “enterprise” functions that generate user fees and income.

Finance Option 2: conditional sale contract

A Conditional Sale Contract (CSC), also called a Buck Out Lease, is an agreement where the buyer takes possession of the item and pays in installments, usually over a term of months or years. With a CSC, you own the machine, subject to a security interest by the finance company. It’s listed as an asset and liability on your balance sheet, so the depreciation and interest expenses may be deductible for tax-paying enterprises.

A CSC is often subject to more volatility based on the CapEx dollars you have available to acquire or upgrade your property and equipment. It’s best for long-life assets you plan to keep for an extended period of time. Examples include aerators or tractors – things you may not use every day but are still mission-critical for certain tasks.

Within the CSC category, there is also a municipal financing option with some tax-created nuances that can result in savings for tax-supported municipalities and “Special Districts.” The end result is the

EQUIPMENT LEASING

Advantages

- No upfront cost
- Payment not due until installation complete
- Spread the cost over a period of years
- Level payments make for easier bookkeeping
- Tax-exempt rates
- A hurdle over budget constraints

Disadvantages

- Documentation to read and complete
- Legal may be needed to review documents
- Possibly will cost more than paying cash



"Aerating in tight landscaped areas is effortless with the reverse feature, plus excellent hole spacing while operating at high speed in forward & reverse wastes no time getting the job done. The One & Done aerator is a solid hit with our grounds crew!"

—Evan Fowler; Grounds Keeping Manager
Kansas City Royals

Award Winning AE1300H Hydro-Drive, Hydro-Tine Aerator

- 30" wide aerating productivity and up to 4.3 mph
- Aerate wet or dry, saving time and maximizing productivity
- Variable Aeration Density (VAD™) offers 8 to 48 holes per square ft. in one pass
- In-ground turning for unmatched maneuverability
- Reverse aeration adds even more productivity
- FLEXTech™ arms drive plug depths up to 2x that of drums
- Self-propelled variable speed hydro-drive takes the chore out of the chore
- 8 tines and 4 bolts offer fast and simple tine service
- Standard sulky for wider area applications

*Contact your local dealer store for details. Subject to credit approval.



The ultimate in outdoor cleanup and return on investment!

www.billygoat.com



ROTADAIROS



COMBINATOR



TRENCHIT TCT TRENCHER



STEC

/EQUIPMENT

THE ONLY 'FRAISE' YOU NEED TO KNOW

(888)-325-2532

WWW.STECEQUIPMENT.COM

OFF THE FIELD

same: you own the equipment. This option is very structured and imposes more rules to comply with. In addition, an "Opinion of Counsel" letter is typically required from the customer to assure legality and compliance with all related requirements.

More things to know

Whether you choose a lease or CSC, the upfront investment is usually minimal. The first payment is often all that is required in advance. You can even include installation costs, sales tax and other installation expenses in the financed amount to further reduce your upfront cash outlay.

You can also rest assured that manufacturers' warranties are unchanged, whether you buy a piece of equipment outright, lease it or put it on a CSC. Additionally, if you

choose to buy an extended warranty plan or service/maintenance contract, it can be included as part of your monthly payment.

When it comes to choosing between finance companies, the important things to look at vary between a CSC and a lease. If it's a CSC, compare the interest rates to the length of term offered. Are the fees reasonable? If it's a fair market value lease, compare the payments, turn-in requirements and added fees.

For any enterprise, the key always comes down to cash flow. If you want to buy equipment and choose a CSC, you might opt for a longer term to keep the payments lower. If you have the resources and well-qualified technicians to keep older machines running, you may opt to do that as well. And if you have a facility where users expect the most pristine and safe conditions, you may choose

PERSPECTIVE FROM A TURF MANAGER

Dean Whitehead is director of grounds, Christopher Newport University, Newport News, VA:

I have been fortunate enough over my 17-year career to work at three different places: a semi-private golf resort, a private college, and most recently, a public university. So I have seen and participated in three different types of equipment acquisitions.

I will focus on my current position at Christopher Newport University (CNU), a public university of 5,000 undergraduate students in Virginia. When I arrived at CNU in 2008, it didn't take me long to realize that we had equipment issues. I determined this by asking myself these questions:

- Do we have the right type of equipment?
- Do we have enough equipment for current maintenance standards?
- Do we have enough equipment for future development and maintenance standards?

The answer to all of these questions was "no" and most of my equipment needs were for transportation, snow removal, and turf maintenance. So, I compiled a list of immediate and future needs, prioritizing them knowing I would have to make decisions based on funding allocations.

Next, I examined my budget and realized that we historically were allocated an average of

\$25K per year for equipment purchases. Some of my needs could be fulfilled with that amount each year, but some could not. In the past, the university also had extra funds that had to be used prior to the end of the fiscal year, but I knew I could not count on that funding. I quickly began to explore my options, which led to a conversation with the university's budget director. It was there I first learned about the State of Virginia's Master Equipment Lease Program. This lease program has been publicly solicited and awarded so the terms and conditions are already set. I knew the university used this program for other equipment acquisitions so I just had to convince my manager and budget director to reallocate my department funds.

This program is very different than most lease programs. We do not have a buyout at the end nor do we have to provide any upfront funds unless we want to. We basically finance the piece of equipment for less than its life expectancy.

Using this leasing program was an easy decision and great option for me. This option allowed me to immediately obtain the equipment needed and, from July 2012 through February 2013, I was able to lease approximately \$151,000 worth of equipment, all on payment terms of 7 years (all equipment has a life span of at least 8 years). In descending order from most to least expensive: Toro Multi-Pro 5800 sprayer; Toro 3505 rotary mower; Ford F350 truck; four HPX John Deere Gators with snow blades; and one JD XUV 550 4-passenger utility vehicle. I have

to lease equipment so that you can roll out new models at regular intervals and take advantage of having the latest technology, less downtime and a reduction in repair and maintenance expenses. No one solution works for everyone; it's a matter of balancing needs with desires and available resources.

Regardless of the financing method, it's also important to have a champion or advocate on your staff to guide financing decisions and approvals through bureaucratic hurdles. This can help you stick to your plan and acquire equipment in a timely manner when it's needed. Let's face it; everyone is busy and a quick "no" may eliminate some work, but an advocate needs to enlist some thought and consideration on what is really in the long-term best interests of your enterprise.

The main takeaway here is that financing is just another tool to help you execute your business plan more effectively. Even the most thorough budget plans can change due to sudden unforeseen circumstances. That's when financing can help you continue with your strategy without being constrained by the limitations of the immediate resources at hand.

Your local distributor sales professional is an excellent resource to learn more about your financing options and find answers to your questions. Your distributor can also connect you with the manufacturer's finance partners if you need more technical details. **/ST/**

Paul Danielson is Senior Manager, Financial Marketing, for The Toro Company.



Dean Whitehead, Christopher Newport University

already been approved to lease a Kubota 6060 tractor beginning in 2018 on a 5-year term. The budget director requested a 5-year term so the obligation was shorter in case we ever had a financial crisis, and it also allows me more flexibility in replacing equipment. I am excited for 2018 because I get to start thinking about the 2019 replacements.

I did not get concerned about the warranty period vs. the lease period; however I did purchase an extended warranty on the sprayer. My extended warranty purchase was not because of the lease period, but after conversations with my salesman, I learned certain items would be expensive to repair on it. I place a lot of value in the relationship with my salesman for the regional distributorship. He and they have always supported us well during or outside of the warranty period so to

me that is worth more than any warranty on paper. I also have a great mechanic that has 30 years of experience who can spot a problem developing and repair it quickly.

I have already mentioned the flexibility in purchasing a lot of equipment over a period of time. But there are also a few hidden benefits. By making the right "pitch" to the administration and gaining their approval, they have made commitment to you and your department. They have committed those funds to your department's success for a least the duration of the lease. Unless the circumstances are extremely bleak, those payments will be made and you will be able to keep the equipment. So with their commitment you have to make good on your promises and put the equipment to good use.

I believe that once you get an amount committed for leasing, it eventually becomes a natural part of your budget. My original equipment account for purchases was \$25K and that was moved to fund the equipment leases in 2012, which left me with nothing for small equipment replacements. So in 2013 we shifted \$5K into that account for small equipment purchases. That account has now grown back to \$25K and that is where I will pull some funding to lease the Kubota tractor.

At the end of the day, leasing as well as any purchase, requires commitment and trust between our managers and us so that we are successful in providing the best playing surface for our athletes.



**facebook.com/
SportsTurf**




SportsTurf magazine
www.sportsturfonline.com
 PRINT | ONLINE | DIGITAL | SOCIAL

CAN SOIL SURFACTANTS AND PLANT GROWTH REGULATORS REDUCE TURFGRASS WATER REQUIREMENTS?

// By MATTEO SERENA, PHD & BERND LEINAUER, PHD

Soil surfactants, also called wetting agents, are materials that decrease interfacial tension between hydrophobic and hydrophilic surfaces of soil particles. In turfgrass, soil surfactants are commonly used to prevent and treat localized dry spots (LDS) and areas of water repellency in the soil. These products are either injected into the irrigation water or sprayed on the soil surface. A report by Throssell (2009) stated that an average of 92% of the golf course facilities in the US use wetting agents as part of their spray plan, while 34% inject soil surfactants through their irrigation systems.

Currently, there are more 120 different brand name products sold as a soil surfactants or wetting agents and most of these products share similar characteristics. These products can be separated into different classes depending on how they affect soil moisture. For example, products categorized as “penetrants” can increase movement and percolation, “water holders” or “retainers” improve retention; both groups may help distribute water more evenly throughout the soil profile. Applications of these products may help in implementing water conservation strategies.

In addition to wetting agents, products categorized as plant growth regulators (PGR) may have also the ability to reduce water use. Plant growth regulators are chemical substances that restrict essential plant growth by inhibiting either cell division (Type I) or gibberellic acid synthesis (Type II). They act like an herbicide in that they enter and move through the plant and interfere with specific enzymes inside the plant cells, which can slow or interrupt a specific metabolic process. The use of PGRs has developed into a standard management practice in the turf industry in order to maintain high quality turfgrass with improved playability.



Aerial view of research area at the beginning of stress period. May 2017.



Close up of research area during the drought stress: darker and healthier plots are treated with surfactants and PGR.

The primary reason these substances are used is to decrease mowing frequency and prevent scalping at times during which turfgrass growth quickly (i.e. rain, warm temperatures, fertilization). In the past, greenhouse research trials have demonstrated that PGR-treated plants

displayed reduced evapotranspiration (ET) compared to untreated plants due to a reduction in the surface area of the leaves and overall plant size.

The turfgrass research group at New Mexico State University has been investigating the use of soil surfactants in



Surfactant plus PGR in the center, noticeably better than non-treated control (bottom right) and other treatments.

turfgrass for more than a decade. More recently, our efforts have also focused on how these products can be implemented for water conservation strategies in an arid and semi-arid environment. Research trials initially focused on the applications of soil surfactants to treat and prevent LDS on greens. Later, the research began to focus more on how surfactants applied to golf course fairways affect the overall quality under reduced irrigation. We focused on fairway turf because it is the largest playing surface on a golf course with the greatest impact for conserving water. Additionally, we compared applications of PGRs in conjunction with wetting agents to evaluate a potential synergistic potential. During a 3-year study on warm season turfgrasses, both bermudagrass and seashore paspalum were irrigated at 50% of replacement ET and were treated with one of two soil surfactants and one PGR and compared against a non-treated control.

In general, the turfgrasses that were treated with a PGR had higher overall turfgrass quality when compared to the wetting agent and to the non-treated control. Moreover, the turfgrass plots treated with a soil surfactant had higher turfgrass quality than the non-treated control. During the study, we also found that wetting agents resulted in higher volumetric soil water content along with better moisture uniformity. Also, the PGR increased chlorophyll content in the plant, which produced a greener canopy and resulted in longer color retention during fall

months, by having a healthier plant during the fall months.

After examining the results of the first research project, we decided to investigate the effects of combining (tank-mixing) both the wetting agents and PGR

treatments in a second 3-year study. This study was conducted only on Princess 77 bermudagrass but we included three drought levels as treatments. We observed that the combination of a PGR with a soil surfactant resulted in higher turfgrass quality at 50% of ET compared to the non-treated areas.

Now, over the next 3 years, we will test multiple surfactants and PGRs to find out if there is a difference between some of the products on the market and with the intent to further improve overall turfgrass quality under limiting water supply. At this point, based on the results of our previous research, soil surfactants combined with a PGR offer a strategy to conserve irrigation water while at the same time improve turfgrass quality on limited inputs. **/ST/**

Matteo Serena, PhD, is a Research Assistant Professor in Turfgrass Science at New Mexico State University; Bernd Leinauer, PhD, is a Professor and Extension Turfgrass Specialist at New Mexico State.

STMA Booth 237

g2 turftools®

Come see why the *turfplaner*® is different at the STMA Show!
Or check it out at www.g2turftools.com.





Research Scientist Nick Bero evaluates weed cover using the grid method.

Continued from page 12

quick release nitrogen in 2015 and 66% quick release nitrogen in 2017. The UW's Integrated Turf Program used fewer pesticides than the City's Program, a higher percentage of slow release nitrogen, but the products cost approximately 50% more than what the City Program used. The UW Program was \$60 per acre cheaper than the Organic Program.

This demonstration tracked the agronomic, environmental, and economic performance of four turfgrass management

programs at Racetrack Park over a 3-year period. While this was far from a scientific study, the three programs that received inputs of fertilizer were able to maintain acceptable turfgrass quality over the study period. The Organic Program (which mistakenly received an extra fertilizer and herbicide treatment at the initiation of the study) was above reasonable threshold levels for weeds by the middle of 2017. The Organic Program had the greatest cost per acre, followed by the UW Integrated Turfgrass Management

Program. The City Program was the lowest cost program of the three with fertilizer inputs, and was less than half of the cost of the Organic Program system. For the two programs where weed control products were used, the UW Integrated Turfgrass Management Program had a 3-5x lower environmental hazard score compared to the City's Program.

Overall, this demonstration was useful for highlighting that maintaining functional turfgrass can be achieved in different ways. The Organic Program was able to maintain acceptable quality for 3 years, given an initially weed free starting point. After 3 years, weeds are above or approaching most reasonable thresholds. The City of Stoughton Program met turfgrass quality goals and minimized costs; however this program had the highest pesticide hazard scores. The UW Integrated Program used a combination of lower toxicity herbicides and a fertilizer with a high percentage of slow release nitrogen. This system had an intermediate cost relative to the Organic and City programs. We hope that this demonstration will be useful for future conversations about turfgrass management in Stoughton, WI and elsewhere.

Collaborators/supporters

WeedMan donated their equipment and labor to make the fertilizer and herbicide applications to field 2 in 2015; Chick Magic donated the fertilizer used on field 1 in 2015; Dow AgroSciences donated the Confront herbicide for field 2 in 2015 and 2017; Bruce Company donated their equipment and labor to make the fertilizer and herbicide applications to field 2 in 2017; and Milorganite donated the fertilizer used on field 1 in 2017. **/ST/**

Doug Soldat is Professor/UW-Extension Specialist, Dept. of Soil Science, UW-Madison; Paul Koch is Assistant Professor/UW-Extension Specialist, Dept. of Plant Pathology, UW-Madison; Chris Williamson is Professor/UW-Extension Specialist, Dept. of Entomology, UW-Madison; Kurt Hockemeyer is Turfgrass Diagnostic Lab Manager, Dept. of Plant Pathology, UW-Madison; and Nick Bero is Research Specialist, Dept. of Soil Science, UW-Madison.

Table 5. Estimated costs of the products used in each of the four programs. These costs were estimated from discussions with local turfgrass suppliers and applicators.

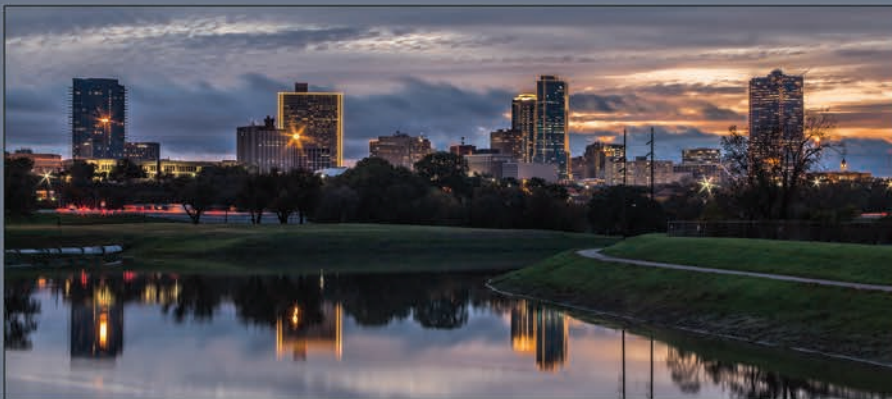
Field#	Management Program	Approx. Fertilization Cost per acre, per year	Approx. Herbicide Cost per acre, per year	Total Cost per acre, per year
FIELD 1	Organic	\$250	\$0	\$250
FIELD 2	City of Stoughton	\$70	\$46	\$116
FIELD 3	Integrated Turfgrass Management	\$170	\$22	\$192
FIELD 4	Mowing Only	\$0	\$0	\$0

29th Annual

SportsTurf

MANAGERS ASSOCIATION

Conference & Exhibition



Credit: Joseph Haubert



Omni Fort Worth Hotel
Fort Worth Convention Center



Credit: Fort Worth Convention Center



Credit: AT & T Stadium



Credit: Texas Rangers



Credit: Omni Fort Worth Hotel

January 16-19, 2018 ★ Fort Worth, TX



► FIELD

MONEYGRAM SOCCER PARK/ FC DALLAS, FIELD #8

► LOCATION

Dallas, TX

► **Category of Submission:** Professional Soccer
 ► **Sports Turf Manager:** Troy Crawford, Director of Grounds
 ► **Experience:** I started my career working for the Texas Rangers Baseball Club, helping to build the Ball Park in Arlington's field. I served in different capacities on the crew and worked my way into the assistant's position. I worked for 6 years for the Texas Rangers until I accepted the assistant position with the Houston Astros. From there I moved on to Tangle Ridge Golf Course in Grand Prairie. After 4 years I accepted the Sports Turf Technician position with the City of Colleyville. I spent 7 years taking care of their athletic fields and in 2007 was fortunate enough to win the National Soccer Field of the Year. I was then approached by a former co-worker about heading up this partnership between FC Dallas and the City of Dallas, MoneyGram Soccer Park. I have had the privilege of working for FC Dallas for the last 5 years. Throughout my career I have picked up different skill sets

to help me in each of my endeavors. While working in MLB I learned a lot about how to maintain the skinned area as well as the mound and home plate. At Tangle Ridge I learned a tremendous amount about soils and plant nutrition. While there I also learned how to think more out of the box and be creative in providing positive enhancements to the course. While working for the City of Colleyville I was able to develop my leadership and supervisory skills, such as learning the importance of documenting items pertaining to personnel and mentoring employees. I have tried to take all the positive items from each of my stops and incorporate them into MoneyGram Soccer Park's DNA, helping to create a fun and harmonious work environment.

► **Full-time staff:** Benjamin Bauer, Complex Field Supervisor, & Jonathan Figueroa, Groundskeeper
 ► **Part-time staff:** Pablo Calzada & Ruben Cruz
 ► **Original construction:** 2014

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

► **Recent renovations:** MoneyGram Soccer Park was the culmination of the vision that the City of Dallas had for the 120-acre site that was formally a landfill. FC Dallas and the City of Dallas entered into a management agreement for MoneyGram Soccer Park. Under the agreement, FC Dallas will manage, operate and maintain the facility on behalf of the City of Dallas to host local, regional and international tournaments, league play, clinics and various sporting activities. There are several challenges to overcome when dealing with fields built on a landfill. The number one challenge is that the ground is constantly moving, which is not ideal for any irrigation system or trying to maintain a level playing surface. These challenges are addressed daily. The second major challenge was the construction of the fields. The full size fields were built with a 6 inch sand cap, however this was then nullified when 1-inch thick clay sod was laid on top of the sand.

The clay was so dense that the first ISTRC test produced an infiltration rate of 0! After 3 years of dealing with the heavy clay we decided to remove the original sod all the way down to the sand. Field 8 was chosen because it had the worst grade, least amount of grass and the worst drainage. Tri-Tex Grass was brought in to harvest the original sod and haul it off. The original 6 inch sand cap only covered a 70 yard by 100-yard pitch. However our length needed to be increased to 120 yards to meet our club requirements. MGSP staff harvested the grass off of the end of the field and had to excavate the 20 yard by 70-yard section down 6 inches. Staff used the 18-inch Ryan sod cutter, set at a 2 inch depth to harvest the grass, then cut the clay two more times at a 2 inch depth to reach the 6-inch depth. Staff also filled the area back in with 150 tons of sand. At this point Extream Sports Fields was brought in to laser grade the field to a 1.2% grade. Once the field was graded Tri-Tex was brought back in to sprig the field with TifTuf bermudagrass. After a 90-day grow in the field was ready for the fall soccer season.

The original field called for a 6-inch sand cap, which was nullified when the 1 inch thick, heavy clay sod was laid on top of it. The heavy clay on the original sod was not permeable so water had a difficult time penetrating the soil and getting to the roots. Often times the grass would go dormant, thinking it was in a drought even though it was being watered on a daily basis. Staff was aerifying with a slicer, weekly, in order to get the water to penetrate past the clay. Roots on the grass had a difficult time growing down into the sand cap. The field was renovated to help with plant health, drainage, and increased play. The time differential between harvesting of the sod and sprigging was about 3 weeks. During this time zero grass regeneration from the original Celebration rhizomes was observed. The field was only recovering from the stolons not the rhizomes cutting its ability to regenerate in half. With the amount of play that Field 8 received it was continually losing the battle to maintain complete grass coverage over the entire playing surface. In order to increase Field 8's recuperative abilities the clay layer needed to be removed. As Field 8 matured we slowly increased play, peaking at 200 hours of play in May, June, July and August. July alone had 64 hours of use between games and training nearly doubling the average of our other fields and still showed little signs of wear. This ability to increase the field's usage hours will result in an increase in revenue for the facility.



TURFIX®
SYNTHETIC SPORTS FIELD SPECIALISTS

Maintenance Matters



A Clean Field-Looks Better, plays better, lasts longer

TurfFix repairs, restores, and revitalizes
all brands, fibers, infills, and ages.

In warranty or out.



888-495-3194 | www.turfFix.com



I was able to keep the cost of the renovation low by calling in a few favors and doing some work in house by staff. Staff did all the change out from Hunter I25 to I40 opposing nozzle irrigation heads. Staff feathered all of the grade work along the edges in. The field was sprigged by Tri-Tex using a SprigMaster II machine that takes big roll sod and shreds it into sprigs. The machine's disks press the sprigs into the ground. We used 24 rolls of sod, imbedding the sprigs in one direction.

► **What was the soil composition of the field before renovation?:** Clay sod, 6" sand cap What was the soil composition of the field after renovation? Just 6" sand cap

► **Turfgrass variety:** TifTuf bermudagrass

► **Overseed:** Each year the field is overseeded. With the field being so young I applied the overseed at a low rate of 6 lbs. per 1000. We used Vista Pro Tournament perennial ryegrass blend that consisted of Palmer III, Line Drive II and Metolius ryegrass. After Dallas Cup, (middle to late April) the field was sprayed with Sapphire at 24 oz. per acre to chemically transition back to the TifTuf. The Sapphire slowly killed off ryegrass allowing the TifTuf to fill in and create a beautiful and smooth transition.

► **Drainage:** No drainage system

Why STMA should consider your field a winner?

I believe that STMA should award MGSP Field 8 the National Soccer Field of the Year because our story represents a small team that was able to recognize a major problem, set a course of action to solve the challenge, and participate in the solution process. The solution process wasn't easy because we don't have the specific equipment for renovations as we primarily focus on field maintenance. However with perseverance, team work and some help from a couple of contractors we were able to produce a magnificent field that has drawn rave reviews from not only academy players but teams such as the Houston Dynamo, Manchester United, Real Salt Lake, Tigres, Red Bull Brazil and Toronto FC. Over the last 16 months Field 8 has demonstrated the ability to handle twice as much rain and recuperates two times as fast as any other MGSP field. Thus far we have pushed the usage level to 64 hours in July and the field showed little signs

of wear. There are no egos here, great ideas emanate from staff members each and every day. These ideas and actions help to create a harmonious work environment that runs smoothly and efficiently. Not many professional fields can say they boast usage levels over 400 hours a year and still have the ability to host top-level teams from over 30 countries. Field 8 has one season in the spring and one in the fall, but even in the "offseason" our field is almost in constant use from training and tournaments. The ability to achieve a field of this quality with a budget that equates to about 10%-20% of most professional fields is a feat of its own. Add in our small staff that is split between 19 other fields, field 8 is a remarkable accomplishment that we take pride in every day. The major reward is seeing the huge smiles on the kids and adults who get to play on a surface that would rival any MLS stadium.

SportsTurf: What are your main responsibilities? And what does a regular working week entail, if a "regular week" even exists?

CRAWFORD: My main responsibilities revolve around making sure MoneyGram Soccer Park has a working staff that is actively maintaining the facility for the multitude of events that occur throughout the year. My number one responsibility is making sure that all of our fields are safe for play. A typical week would start out by marking sprinkler heads Monday morning and slicing all 34 acres of athletic fields. Tuesday the entire facility is mowed and paint is mixed and made ready for Wednesday morning. Wednesday is our paint day. Most weeks we have 18-20 fields to get painted for seasonal play or tournaments. Thursday we would mow again and work on irrigation or fertilize the fields. Friday we would mow once more and set up goals and corner flags for weekend play.

ST: How do you keep up-to-date re emerging technologies, best practices, etc?

CRAWFORD: I think one of the best ways to keep up with new technologies and best practices is through social media, primarily Twitter and Facebook. With several publications being on Twitter there are always new and intriguing articles to read and videos to watch. Attending our local field days put on by our Texas

chapter of STMA and state conferences affords individuals the opportunity to speak one on one with other professionals and hear about their challenges and how they were able to overcome them. We must always keep looking to the future and trying to invent newer and more efficient methods.

ST: *What advice would you give to someone looking to start his or her journey or what piece of advice do you wish someone had given you when you were starting out?*

CRAWFORD: The two pieces of advice I would give to someone who is beginning their journey in our industry would be first, check your ego at the door. Good ideas can come from anyone, crew members, vendors, other professionals, so you must be open to other ideas to help increase your chances of success. The second piece of advice would be to not become complacent. There are always cultural practices that can be done to help improve your fields.

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

CRAWFORD: I believe that our challenge is the same as it has always been, trying to make the safest most aesthetically pleasing field while maximizing play and revenue. With the newer bermudagrass varieties and technology I believe that our natural grass fields can handle the increasing demands for play.

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

CRAWFORD: By being an STMA member I am stating to people in the industry that I am a professional and I want to learn from other professionals. The sharing of information is facilitated by STMA in their local field days as well as national conferences. The connections and friendships that you develop will benefit you and help you throughout your career!

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

CRAWFORD: I truly believe that the new bermudagrass varieties can handle as much play as synthetic fields. The vigor with which these new bermudagrass varieties grow and recover, coupled with grow light technology, and grow blankets, allows natural grass to handle just as much play as synthetic fields.

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

CRAWFORD: Social media is a great way of promoting your successes as well as challenges that you and your team experience. I have watched many different videos on Twitter that have inspired some problem solving ideas. I also love to read all kinds of different articles that pertain to our industry.

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

CRAWFORD: My passion is soccer and spending time with my family. Most of my free time is spent taking my daughter to different soccer events or watching soccer games on TV. If I am lucky occasionally I might be able to sneak in a fishing or hunting trip. **/ST/**



How do new turf industry products come to be? Part III

// By NOAH WAHL

Editor's note: This is the final part of a three-part series in which we examined the process of how a product goes from an idea to finished product. In this article, Noah Wahl, global product marketing manager at Toro, provides insight on how the new Toro Outcross 9060 emerged into a new category of equipment for turf professionals as a result of this process.

Development of the Toro Outcross 9060 began almost 2 years ago, and has resulted in a unique machine that we believe will revolutionize turf maintenance practices. This machine is packed with innovation, is easy to use and brings a new level a versatility that allows turf managers to do more with less labor, less time, fewer resources and less stress.

To hear our own Rex Bergsten, chief development engineer on the project, tell it, we are in the final stages of testing and manufacturing preparations for the Outcross. The idea of this phase is to work out any bugs before the full release of the product, which, Bergsten says, is scheduled for the summer of 2018.

Tweak, test, repeat

Having developed and launched dedicated turf maintenance equipment for more than a century, this isn't Toro's first rodeo. The formula for success is simple: tweak, test, repeat. Apart from the tests we can perform on the machines themselves in our own labs and test fields, the company's research



and development teams rely heavily on candid feedback from beta testers who have pushed the equipment to its limits out in the field.

According to one participant at the Toro Sports Fields & Grounds Forum last summer, Dean Turnbull, regional operations manager at Montgomery County (MD) Parks, Toro has made a name for itself listening to feedback from customers to ultimately provide an outstanding piece of equipment. "The Outcross has been created by a company that listens to its operators, seeks constructive feedback on equipment needs, and then puts innovation into realization."

Our product engineering teams believe we have struck the perfect balance between utility and turf-friendliness in the

Outcross. The new machine can potentially consolidate the functionality of multiple pieces of equipment into a single machine. With simple change-out of attachments, whether three-point, drawbar or loader, one Outcross can perform literally hundreds of turf maintenance tasks – like mowing, bulk material loading & handling, aerating and towing – ultimately creating a positive impact to the bottom line of a sports field operation. In fact, doing more with less has been a common thread all the way through the product development process for the Outcross 9060. By combining the best parts of a number of different machines and its ability to run existing attachments the Outcross is positioned as a significant cost saver in terms of capital equipment investment.



With a product so simple that a novice operator can use it, the Outcross has addressed many end users' concerns regarding ease of use. For example, the Outcross features parameters that can be configured by the manager so operators of all skill levels are able to complete complex tasks with ease. Turf managers can set and save the parameters of each attachment the way they like it and never have to worry about it again. Multiple modes of operation are available to give flexibility depending on the attachment. Meanwhile, the hydrostatic drive system's automatic shifting keeps the learning curve low. The new machine even offers remote control functionality allowing the operator to dismount and use the remote to position the machine and adjust the three-point hitch to connect with different implements and attachments from an ideal vantage point. According to Turnbull, "the simple controls of the Outcross mean less time training and more time doing." This translates to increased productivity when it really matters.

Turf friendly

One of the most important features of the Outcross for our professional customers was

that it needed to be gentle on turf. Tractors have historically been very unforgiving on turfgrass, potentially negating all the TLC that grounds managers put into their fields daily. Toro's answer is a balanced chassis with four-wheel steering functionality in conjunction with four-wheel drive. All four wheels turn and spin individually at a rate determined by the machine's ground speed and angle of turn. This helps reduce the over or under-spinning and scuffing that can occur with traditional machines. The Outcross is compatible with third-party attachments as well as most Toro proprietary attachments.

Other key specifications of the Outcross include an optional cargo bed with capacity in excess of two tons and the capacity to lift a fully loaded pallet of fertilizer with the loader. Additionally, the second seat means that transporting work crew, tools and material can happen efficiently in one trip, with one machine. In terms of power, the Outcross is driven by a 60-hp Yanmar Tier 4 Final diesel engine and can reach transport speeds over 20 mph on- and off-road.

Another participant at the SF&G Forum in Bloomington, Scott Stevens, CEFP, CSFM, MBA, sports turf manager at Elon University in North Carolina noted

the real value for his operation would be the versatility of the Outcross. "When we first saw 'Project Delta' a lot of members in my group were questioning what it was: a compact tractor? A utility vehicle? This new revolutionary machine, the Outcross as it has now come to be known, combines both compact tractor and utility vehicle. Sports turf complexes no longer need to purchase both different types of equipment with this do-it-all machine. You can attach all sorts of implements that you would normally need to use with a tractor, yet still use this like a utility vehicle with cargo bed and dual seats. The Outcross is truly quite versatile."

Maximum versatility and year-round functionality was important to Toro from the early stages of product development. According to Bergsten, the current iteration of the Outcross has stayed true to the initial vision of the machine. "Since the beginning, we've wanted to create a machine that brings a new level of ease, versatility, and efficiency to turf maintenance operations, and we believe we've done that with the Outcross," he said. "When you boil it all down, turf managers everywhere are being asked to do more with less and this is the tool to help them do that." **/ST/**

STMA COMMERCIAL MEMBER SPOTLIGHT:

Doug Schattinger, Pioneer Athletics

Editor's note: Another installment in our continuing series highlighting STMA commercial members. This month we hear from Doug Schattinger, President, Pioneer Athletics, Cleveland, OH:

SportsTurf: How do you develop relationships with turf managers?

Schattinger: The best way to develop a relationship is to sit down with someone and listen. It's important to ask questions and learn about what is important.

You need to work hard to prove that turf managers can rely on you to provide what they need and when they need it. Admit when you don't know something and try to help them get the right answer for their needs.

ST: Do you have any recommendations for customers on how to get the most out of their supplier relationships?

Schattinger: Most of the companies in our industry are great at what they do. Many are small with limited resources. But, we can often be very flexible in ways that really help out our partners. Please be open with us. Share as much information as possible. Then, hold us accountable for the commitments we make.

ST: How do you test your paint products?

Schattinger: We have a very intensive process for testing our paints. First, we conduct a series of lab tests to make sure the product does what we need it to do. How does the product perform right after we blend it? How much does it change after 3 months in the oven or 6 months on the shelf? We test for brightness, hiding, grind, pH, durability, and changes due to ultra-violet exposure, among other things.

Once the product passes all of the lab tests, we conduct a series of tests on our



Turf test plots at Pioneer Athletics' headquarters

natural grass test fields or our synthetic test area. In Cleveland, we have five natural grass plots totaling 30,000 square feet where we can test our products on Kentucky bluegrass, bermuda, rye and tall fescue. These plots are built to simulate everything from the highest-level professional sports field to a high school practice field. Additionally, we have 18 different types of synthetic turf installed on a single field. We apply our paints repeatedly to each type of turf to make sure the coating sprays well, looks great and has doesn't harm the grass or synthetic surface. We conduct these tests on new products as well as existing products to make sure that they provide high quality, consistent performance.

After our internal tests are done, we work with sports turf leaders, both practitioners and academics, who can conduct further tests in different climates and with differing challenges. Our partners give us critical feedback as to whether the product is ready for the market or needs further revisions.

ST: Pioneer is involved in many high-profile events; are there regular determining factors that require you to be there, or is it game by game, depending on circumstances?

Schattinger: With the high quality and professionalism of sports turf managers, we rarely are required to be on site during high profile events. The facilities that host these events have professional crews that routinely accomplish miracles. However, there are some events where the windows are so tight or the conditions so unusual that the sports turf manager wants everyone on site. In these cases, our goal is to help the sports turf manager build a great plan with lots of contingencies and provide whatever help and resources we are able.

ST: Pioneer is a big supporter of STMA; what are the biggest benefits to being a commercial member?

Schattinger: There are multiple benefits to being involved with the STMA. On a strictly business perspective, we are able to reach thousands of educated sports turf

managers who all have the potential to be our customers. Exhibiting at the annual Conference is a great way to have meaningful interaction with many of these people. More importantly to me, we are able to build relationships with leading experts and key opinion leaders that will help direct our investments in research and product development. Our super environmentally friendly product line resulted from a challenge issued by Dr. White during an STMA Conference.

The relationships that we are able to build at Conference benefit us throughout the year. The STMA has been key to our efforts to grow new sales, develop new markets and expand our footprint throughout the US. However, the biggest benefit we receive from being actively involved with the STMA is the opportunity to learn. The STMA, both at the national and local chapter levels, provide excellent opportunities to learn about the overall sports turf management industry as well as our unique segments.

Highly qualified, expert turf manager practitioners from every level of sport actively collaborate with us to try to make the entire industry better. This would never happen without active involvement in the STMA.

ST: Where is the industry regarding removable paint products for synthetic fields?

Schattinger: The market for removable paints for synthetic fields is moving in multiple directions. First, new technologies are providing opportunities for paints that are more durable, easier to remove and exhibit really great early water resistance to eliminate re-wetting. Our research is also providing new remover solutions that are more effective and more environmentally friendly. New removable aerosol paints are brighter, better looking, can be applied in the cold or before a storm and removed completely. High-end removal equipment has improved over the past few years, which allow facilities to change fields more quickly and cost effectively.

More companies are offering paints and remover solutions specific to synthetic fields. It's important that sports turf managers exercise caution and thoroughly test any



Doug Schattinger

synthetic turf paints before they commit to fully lining a field or painting logos.

ST: What new technologies are currently are in R&D process? Anything you can share about them?

Schattinger: Our core goals are to provide products that are high performance, easy to use, environmentally friendly and provide a great value. We always have a pipeline of technologies that we are working to incorporate to achieve these goals. Since James Hlavaty, CSFM, has become our Natural Turf Product Line Manager, he has focused our efforts on providing real world solutions to real world problems without compromising on any of these goals. We expect to introduce a series of new products and significant product improvements over the next 18 months for both natural turf and synthetic fields.

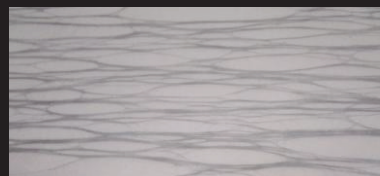
ST: Are there any new markets that you are entering?

Schattinger: As far as our product line, we continue to focus on coatings and stripers for natural grass and synthetic turf. We continue to expand our sales force so that we can provide better support throughout the United States.

Prior to last year, we have never had employees in California. Now, we are thrilled to have four people from San Francisco to San Diego who can visit with our customers and provide a much better support structure. **/ST/**

INTRODUCING **SOL-Aer®** **Winter Turf Blanket**

Unique non-woven fabric made of bi-component fibers combining a polypropylene core sheathed in polyethylene for ultra durability.



- Proven SILVER Lace Coating
- Fusion welded seams
- Can be moved and walked on without damaging blanket.
- Can be cut with zero fraying.
- Tighter-than-woven fabric lets sunlight, water, & air through but keeps insects out.
- Fabric is great insulator.
- Available with or without edging AND with or without Silver Lace Coating.

PRO-Tector™ **Full Infield Cover**

- Pull handles on corners and every 10' all around
- Handles sewn onto 24 mil high tensile transfer strip
- Transfer strip is fusion welded to polyethylene body fabric.
- Result: Handles are sewn onto two layers of cover fabric.
- Edges reinforced w 2" seatbelt webbing (6,000 lb strength)
- Strongest cover in industry.



AERFLO.COM 800-823-7356
SOLD BY BEST SPORTS DEALERS

UNVEILING THE NEW STMA.ORG

STMA's website, STMA.org, is officially debuting its new website to the membership after nine months in development. The unveiling will take place during the STMA Annual Conference, January 16-19 in Fort Worth.

The website has been completely re-engineered for a more fluid and relevant user experience. The design has been updated for a more visual, contemporary look and feel. There are five content categories: About STMA, Knowledge Center, Job Board, News, and Programs.

Members can easily sign on and seamlessly move between members only and the public side. There will not be any difference between the sites; visually they are identical, unlike the previous website.

The Job Board is a brand-new feature hosted on the public side for optimal viewing. It allows for easy posting of a job opening through a submission form. There is no charge to members to post a position; however, non-members will be charged \$60, and automatically provided an affiliate membership. The job board is searchable by position type, location and experience level. Those who wish to apply, click on a button, *Apply for the Job*, and they are directed how to do so for each position that interests them.

Another feature is an interactive map of STMA's chapter network. Hover over a

state and the chapters in that state pop up, then, click on the chapter you want. Chapter administrators will find the quick access links helpful to streamline the annual paperwork required to be an affiliated chapter.

The new site also has a Search feature that encompasses the entire site! Are you seeking technical information on mole crickets? Just type that in the search bar and any resource that has information about mole crickets will appear, from educational resources to conference presentations to webinars. Or, if you are seeking non-technical information, the same process applies. If you need a list of STMA Committees, just type Committees in the search bar, and you'll find that list, plus articles that detail STMA's committee process.

STMA's social media platforms are accessible from every page by clicking on the representative icon.

The Technology Team, which is made up of STMA volunteers, provided oversight on this redesign. Members of that team include Chairman Matt Anderson, CSFM, Chris Bell, Jason Craft, CSFM, Grant Davisson, Ben Polimer, Jeff Salmond, CSFM, and Edgar Vallejo. Internally the project was led by Sales and Marketing Manager Kenzie Jay, and supported by all staff. The company that redesigned STMA.org is fusionSpan, Rockville, MD.



Kelly Rensel wins STMA Mowing Patterns Contest

The STMA named Kelly Rensel, Head Groundskeeper at the Great Lakes Loons (Midland, MI), its fifth annual "Mowing Patterns Contest" winner. Rensel was selected via a Facebook voting contest for his intricate design at Dow Diamond, home to the Great Lakes Loons. "Kelly continues to elevate awareness of the sports turf industry through his impeccable field art," says Kim Heck, CAE, CEO of STMA. "Finding the perfect balance of safety and visual appeal can be challenging,

yet he has managed to accomplish this impressive feat." Rensel's design will have a custom poster featured at the 2018 STMA Conference & Exhibition in Fort Worth, TX.



STMA CONFERENCE PREVIEW

Schedule at a Glance

Mon., Jan. 15

6:30 - 9 pm Registration Open

Tues., Jan. 16

6:30 - 8 am Continental Breakfast
6:30 am - 5 pm Registration Open
7 am - 4:15 pm Seminar on Wheels Tours
12 - 3 pm SAFE Topgolf Event
2:30 - 5 pm Academy Education
3 - 7 pm STMA Certification Exam
6 - 9 pm SAFE Night of Bowling

Wed., Jan. 17

6:30 - 8 am Continental Breakfast
7 am - 5 pm Registration Open
8 - 9:30 am General Session
9:45 am - 12 pm Conference Education
12:15 - 1:15 pm Fun Run/Walk
12 - 2 pm Break
12 - 2 pm Women's Forum and Lunch
2 - 5 pm Conference Education
5:15 - 6:15 pm Networking Sessions
6 - 7 pm Chapter Board Members
Networking and Reception
6 - 7 pm ... First-timers and International Attendees Reception
7:30 - 10 pm Welcome Reception

Thurs., Jan. 18

6:45 - 7:45 am Certification Breakfast
7 - 8 am Continental Breakfast
7 am - 5 pm Registration Open
8 - 10:45 am Conference Education
11 am - 1:15 pm ... Keynote Address/Annual Meeting/Lunch
1:30 - 6 pm SAFE Silent Auction
1:30 - 6:30 pm Exhibit Hall Open/Receptions
2 - 4:30 pm Student Challenge

Fri., Jan. 19

7 - 8 am Continental Breakfast
7 - 9 am Past Presidents' Breakfast
7 - 11 am Registration Open
8 - 10 am Conference Education
10 am - 12:30 pm SAFE Silent Auction
10 am - 1 pm Exhibit Hall Open/Lunch
12:45 - 5 pm Seminar on Wheels
1:30 - 2:30 pm Fun Run/Walk
1:30 - 3 pm Conference Education
6:30 - 10 pm ... SAFE Live Auction/STMA Awards Reception
and Banquet

Sat., Jan. 20

8 am - 12 pm STMA Certification Exam
8 am - 1 pm ASBA Certification Exam

Thank you to our sponsors!

SAFE and STMA appreciate the support and commitment of our Conference sponsors.
Please take a moment in the Exhibition Hall to thank these companies.



**Turf & Soil
Diagnostics**
formerly Turf Diagnostics & Design and Hummel Labs

accredited laboratory
and on-site testing

VISIT US AT STMA
BOOTH #420



Natural &
Synthetic
Turf

Sand-based and Native Soil Fields



Baseball / Softball Skin Areas

To contact our lab network for
testing or more information
phone: 855-769-4231
email: lab@turfdiag.com
web: www.turfdiag.com



ECOLAWN APPLICATOR

Turf Pros' #1 Top Dresser

Since 1994



**TOP DRESSERS
STARTING AT
2984\$**




ECO50
Compost
Spreader



Grow your business not your crew!




1-866-ECO-LAWN (326-5296)
www.ecolawnapplicator.com











Turf-Tec International



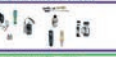


TOOLS FOR MEASURING PLAYABILITY AND SAFETY









SOIL ANALYSIS PRODUCTS - 2018

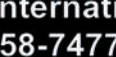















MANAGEMENT PRODUCTS - 2018








Made in USA



Turf-Tec International
1875 Cooper Creek Rd., Suite # 12
Tallahassee, FL 32301 USA
Phone: (904) 258-7477 Fax: (904) 258-4227
Telex Order: (904) 258-7477 or www.turf-tec.com



Turf-Tec International

800-258-7477

www.turf-tec.com



TURFTIME

EQUIPMENT

Great **Turf** in less **Time**
with the right **Equipment**



ADVANTAGE

Topdressers



HEAVY DUTY

DUMP TRAILERS



THATCH MASTER


*The classic
Dethatcher/
verticutter*

www.TurfTimeEq.com


800-201-1031

Visit us at **STMA Booth #316**


THE EASIEST WAY TO BUILD



PRECAST CONCRETE BUILDINGS



VERSATILE • DURABLE • SECURE



Concessions • Dugouts • Press Boxes • Restrooms
 Locker Rooms • Ticket Booths • Security Shacks
 Electrical-Mechanical • Pump Houses • HazMat
 Workshops • Offices • Shelters • Storage & more!


EASI-SET®

BUILDINGS

ONLINE QUOTE FORM
EasiSetBuildings.com
866.252.8210

BEAM CLAY®

THE STANDARD OF EXCELLENCE:
Everything you need to maintain and improve your infields is supplied by BEAM CLAY®, makers of infield mixes, mound & batter's box clays, and red warning tracks for every state and climate from regional plants nationwide. BEAM CLAY® also supplies hundreds of ballfield products "from bases to windscreen" and has supplied every MLB team, most minor league and college teams, and thousands of towns and schools from all 50 states and worldwide!



BEAM CLAY® RED INFIELD MIXES
*Available Nationwide from the:
Northeast, Midwest, South & West*

Partac Peat Corporation
One Kelsey Park | Great Meadows, NJ 07838
800-247-BEAM (2326)
sales@beamclay.com | www.BeamClay.com

STMA Affiliated Chapters Contact Information

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

Colorado Sports Turf Managers Association: www.cstma.org

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

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

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

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

Georgia Sports Turf Managers Association: www.gstma.org

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

Illinois Chapter STMA: www.ILSTMA.org

Intermountain Chapter of the Sports Turf Managers Association:
<http://jmstma.blogspot.com>

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

Iowa Sports Turf Managers Association:
www.iowaturfgrass.org

Kentucky Sports Turf Managers Association: www.kystma.org

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

Mid-Atlantic STMA: www.mastma.org

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

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

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

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

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

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

North Carolina Chapter of STMA:
www.ncsportsturf.org

Northern California STMA:
www.norcalstma.org

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

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

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

Ozarks STMA: www.ozarksstma.org

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

Southern California Chapter:
www.socalstma.com

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

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

Texas Sports Turf Managers Association:
www.txstma.org

Virginia Sports Turf Managers Association:
www.vstma.org

Wisconsin Sports Turf Managers Association: www.wstma.org

Chapter Sponsors

Hunter®
The Irrigation Innovators



Pioneer
ATHLETICS

TURFACE
ATHLETICS



JOHN DEERE



Go to SportsTurfonline.com/subscribe

Online ■ Print ■ Mobile ■ E-newsletter ■ Facebook ■ Twitter



Q&A with DR. GRADY MILLER

**Professor,
North Carolina
State University**

Questions?

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

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



Ryegrass slip and slide

Q: I NOTICED FOOTBALL PLAYERS SLIPPING ON OUR RYEGRASS FIELDS (OVERSEEDED BERMUDAGRASS) THIS FALL. IS THERE ANYTHING WE COULD HAVE DONE DIFFERENTLY WITH THE RYEGRASS TO REDUCE THE SLIPPING?

A: This is a great question and a great time of the year to talk about this subject. Also, I feel like I am honoring my good friend, the late Bob Campbell, when I get a chance to talk about slick ryegrass. We lost an icon in our industry in November 2017. He was a tireless spokesperson for STMA and sports turf managers across the country in addition to being a good friend to many of us in this industry. Bobby provided a number of questions for this column over the past 16 years and was a great resource for me as I formulated some of my answers. Overseeding bermudagrass with ryegrass was always one of his favorite talking points.

I do not think there is any need to argue that damp ryegrass is “slicker” than bermudagrass. It has a very glossy, glabrous leaf surface. The shiny leaves are largely due to a waxy leaf cuticle. In everyday life, waxes have been used as lubricants, polishes, and for waterproofing. It can provide similar traits to the plant by increasing slickness of the leaves and keep more moisture on the leaf surface for the greater slipperiness when there is moisture. But the trait is not all bad. In addition to agronomic benefits to the plant, the trait provides at least one great sports turf benefit: the glossy leaf surface reflects light in a dramatic way, allowing the distinct striping patterns that have become so popular in our industry.

In contrast bermudagrass leaves tend to be dull, so the grass does not stripe well. While bermudagrass leaves are prone to have dew formation, the lack of a waxy layer on the leaf surfaces means it does not have the same level of slipperiness compared to ryegrass. The strong lateral growth habit of bermudagrass also helps with traction issues since it is more prone to holding a football cleat than the more upright growing ryegrass.

The ryegrass leaf morphology may be only part of the problem. Bob used to say the bigger cause of the slipperiness was the “snot layer” that would form at the soil surface from decaying plant tissue. The wet, slimy layer from the partially green and partially decayed leaves and stems looks like slimy, greenish-black thatch. He felt that cleats would slide over and in that slimy layer, never really digging into the underlying soil.

So, the question becomes how much does this all matter? While ryegrass is slicker, it seems to me

coaches have probably overemphasized this point. I know early in my university career we had a “head ball coach” that hated ryegrass and whenever the team played poorly, it was sometimes thrown in as a contributing factor. I sometimes wondered what the coach would have said if a reporter reminded him that both teams were playing on the same field. That would have probably resulted in a few notable quotes. I should add that I do not think a field is unsafe just because it has a ryegrass surface!

There is still the question of what can be done to reduce the slickness. After Bob discovered this slick layer on the surface, he started trying a few ideas to minimize the problem. He found the best two ways to minimize the impact of this slick layer was to catch his clippings (trying to prevent it from getting started) and to lightly topdress before games. Bob’s topdressing approach was to put down just enough sand to provide some grit for the cleats when they came in contact with this slick layer. He was convinced it helped. I do not know if anyone ever tested that in-season practice, but studies have shown that summer topdressing of fields with permanent ryegrass or permanent bermudagrass has improved shoot density and shear strength come fall.

The other factor to consider is moisture. As mentioned before, leaf wetness will usually increase the slickness. So, games played after a recent rain or irrigation or during periods of heavy dew are prone to be slicker than those played on a dry field. Of course playing times cannot always be selected or rainfall be prevented. If an option, players may want to experiment with different cleat designs when playing on damp fields.

Of course sliding on fields is not all bad. A slide tackle is often used by defensive players in soccer to take the ball away from an opponent and baseball outfielders often use slides in catching balls that are nearly out of reach. In those cases, a cleat that slides may reduce the potential for injury. Football receivers and running backs still do not like much slippage when they plant a foot and change direction. Regardless of the sport, it will largely be up to the athlete to develop their balance considering the field conditions encountered. As Bob once told me, “I do not think the good (football) players slip – at least not as much.” **/ST/**

OUR STARTING LINE-UP



Game fields or practice fields.
Natural grass or synthetic turf.
Our extensive line of bulk & aerosol
field marking paints feature an option
for everyone's unique needs.
Let us help you find the right paint.

pioneerathletics.com/st18
800-877-1500

**Paint designed
for every surface
and every situation.**

Pioneer
ATHLETICS

ingredients matter.



GAME DAMAGE? WE HAVE A GRASS FOR THAT.

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



PLANT A LEGACY
barusa.com