

IN THIS ISSUE: Efficient and economical mowing

THE OFFICIAL PUBLICATION OF THE **SPORTS TURF MANAGERS ASSOCIATION**

SEPTEMBER 2019

SportsTurf

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*Brentsville HS students
learn their way to FOY*



See
pg 42

ALSO INSIDE

- » Justify budget requests
- » Turfgrass seed update
- » Irrigation BMPs

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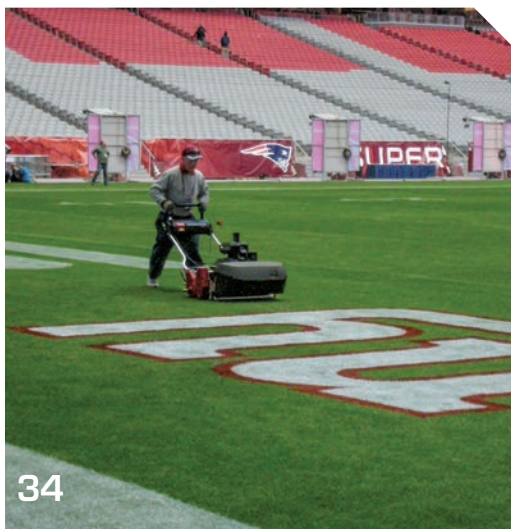


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On the cover: Field of the Year winner Andrew Miller on teaching: “The challenge in connecting with students today is finding common ground. Students often feel misunderstood and disconnected from the adults in their lives. I deal with this by getting to know them as individuals; I find that if you are honest and open it is much easier to connect with them. This creates an atmosphere of trust, which is important in any classroom, but even more so in this program because I need to trust 13-year-old students to operate machinery and in some cases heavy machinery such as a 5-gang reel mower. Our program was built on trust and mutual respect.”

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FROM THE SIDELINES

Good news from HS turf program



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

ANDREW MILLER is the turf program advisor for Brentsville District HS, Nokesville, VA, and led his students to winning a Field of the Year Award. The former NFL and MLB crewmember told us:

"It is only the second year of the program, but I have four students on the path to 4-year turf programs [after] community college. One is hoping to earn a doctorate in turfgrass management! I believe there are 15 students who will be applying to schools this year. And other students have joined the industry out of high school.

"I also have more than 20 students doing internships at local golf courses and a minor league ballpark. One of our successful alumni is a regional manager for Rupert Landscaping, and a Virginia Tech turf grad as well. The student [on the cover of this issue] is attending VT on scholarship to study agriculture."

Miller and the students also won this summer's STMA "Stars & Stripes" online contest (see p. 42-45). Miller says, "Each year the student officers of the Brentsville turf program are tasked with the project of coming up with the themes for the football season, e.g., an "orange out" or "Red, White, and Blue" themes for the fans to dress out to, and also to come up with a scheme for our football field logos and end zones. These students meet prior to the school year and budget what paint is used what week, which empowers them to make big decisions, as well as allow them to be creative with the design.

"In years past, the students came up with a design inspired by a logo seen at Virginia Tech with a waving flag, and that led to a full end zone letters with a waving flag. For the winning design, our president, Cole Couch, had been looking for a design that was different but simple. That is when he stumbled upon an old design done by Casey Carrick at University of North Carolina. The design looked different than the U.S. flag, but was still a festive way to express their pride in their country. It reminded me of the flags you see painted in the opening weekend logo in Major League Baseball parks across America.

"The council put the design up to a vote against another officer's design, and everyone decided the design that ended up winning the national competition.

"Implementation of this logo was not as difficult as other ones that we have done, but the students made the alterations to the design that they thought would enhance it. It really came down to making sure everything was measured out evenly and that the string lines they pulled made even levels for the red, white and blue. They also predetermined the location of the stars with a scale model of the end zone logo. By doing this, students were able to pull a string so all the stars aligned while offsetting each other from the top to bottom. This created a beautiful balance of the paint for our fans to enjoy a game with a patriotic theme.

"Now something amazing about the execution of this design was that all of the painting for the game was done the day of the game, because there had been three inches of rain from Tuesday through Thursday. Our classes did a phenomenal job under pressure, and provided not only an incredible playing surface, but also some incredible field art. What amazes me is that these designs are not only completed by 14 to 17 year olds, but designed, budgeted and executed by such young individuals. We have a great group of students creating something special here in Nokesville." */ST/*

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

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SALES REPRESENTATIVES

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:

Adam Thoms, PhD

Managing Art Director:

Dodi Vessels

Associate Art Director:

Phil Tippin

Sr. Project Manager:

Angela Scott

Media Coordinator

Christiam Martinez

SUBSCRIPTION SERVICES

Phone: (847) 513-6025
Sportsturf@omeda.com

REPRINTS

Brett Petillo
Wright's Media
bpetillo@wrightsmedia.com
(281) 419-5725, ext. 118

DIRECT MAIL LIST SALES

Kris Grauer
NPS Media Group
kgrauer@npsmediagroup.com
(203) 822-7933

EPG MEDIA &
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Association, a Division of SIA

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Immediate Past President:
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Commercial: Jeremy Bohonko
At-Large Elected: Clark Cox, CSFM
At-Large Appointed: Sun Roeslein, CSFM

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: Jeremy Driscoll
Group Leader: Clark Cox, CSFM
TJ Brewer; Joe Churchill; Jim Cornelius,
CSFM; Kiley Dickson, PhD; Cliff Driver;
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PRESIDENT'S MESSAGE



Helping chapters help you

Jody Gill / CSFM / jgill@bluevalleyk12.org / @JodyGillTurf

I RECENTLY HAD THE PRIVILEGE of attending two chapter's events: the Vendor Education and Field Day at Northwestern University, hosted by the Illinois STMA; and the Intermountain STMA Field Day at Brigham Young University in Provo, UT. Both events were well organized and attended. The climatic regions are very different, but I was reminded how similar the value that these chapter events are providing to their memberships. Having served in many roles with my local MO-KAN chapter, I understand the important function that local education and networking plays in the sports field manager's career success and job satisfaction.

At national, we believe that chapters are essential to a strong profession. I was able to share STMA's goals and vision with each chapter, and through the many conversations I had with these chapter members, I know that their aspirations align with ours: having a strong network of professionals who are recognized and respected for their role in providing safe fields.

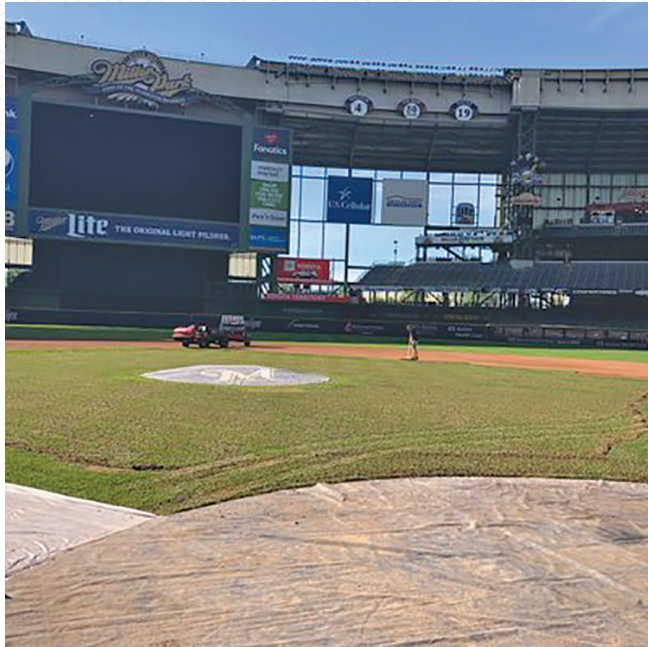
I am grateful that our early members created local chapters. The chapter network allows STMA to have a pulse on what is going on locally and helps us to create appropriate resources and educational programs.

Just as we have seen changes in our profession, STMA's chapter network is changing. For some, in order to remain vibrant and relevant, they are co-locating with other green industry associations. Some are joining forces with local parks and recreation departments or their state turfgrass foundations. What does remain a constant is the willingness to share practices to help others in the profession improve. STMA is committed to helping our chapters succeed no matter how they are organized.

Each year at the Conference we offer a Chapter Officers' Training session for all chapter leadership. Our Chapter Relations Committee is still formulating the session for the 2020 conference in West Palm Beach, but the training will include the vital opportunity for chapter leaders to share ideas and hear from others. The Committee has also developed a webinar on Membership Management and Communication tools that can be viewed by anyone. It is located on the chapter page of STMA.org.

STMA provides chapters with a \$500 reimbursement to help defray the costs of providing education or other chapter services to its members. Another benefit is liability insurance for local chapter events, as requested, and the use of one of STMA's chapter booths and materials. The staff at headquarters is available to assist your chapter – answering questions, providing advice and resources – to help make your chapter successful. And, members of the STMA Board are available to attend chapter events, when invited, and learn from you so that together we can build a strong network of field management professionals. **IST/**

Jody Gill



@ZAKPETERSON9

Milwaukee, WI July 1

First time coring this field in 2 years #breathe



@CDOMBKOWSKIBRM

West Lafayette, IN July 9

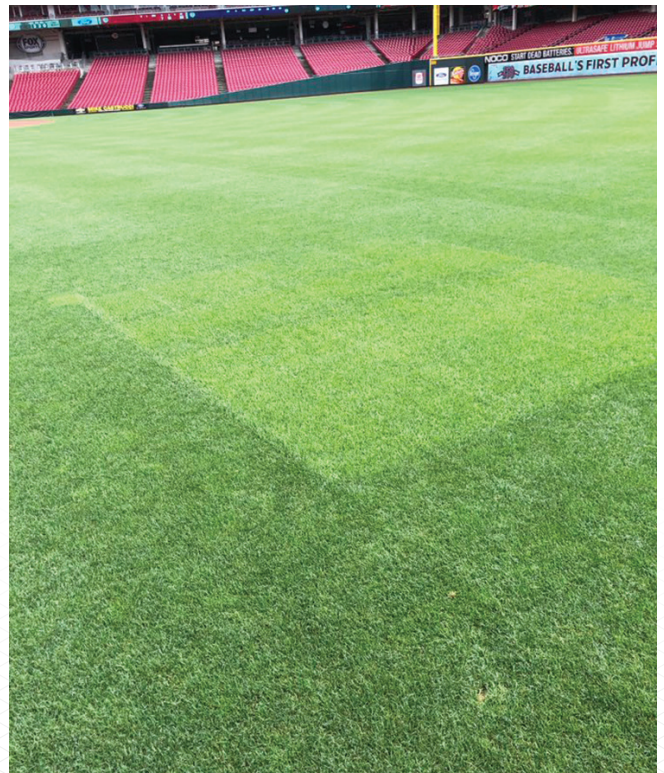
@PUSportsTurf's Brian Bornino with some great advice on painting sports turf. Pretty cool to see how the logos you see on game day are made! @MarkSullivanBRM @McGiveronBRM #BRM #PurdueAg



@MSTURFGRASS

Starkville, MS July 8

I made my annual pilgrimage to @Lowes and Dktibbeha Co. Co-Op this weekend to figure out what I was up against in the pesticide aisle. I take photos so that I can help clients who call asking what homeowner products to buy. This is just a sampling...



@TURFSPARTANLORD

Cincinnati, OH July 17

When your KBG test spots in the outfield continue to impress amidst perennial ryegrass that is at best hanging on. #Bluegrass #NewField #Soon



@GROUNDMAIDEN

Loughborough, UK August 3

This is Viola who lives in my lawn. I love her and mow carefully around her



@TYLERM047

Blacksburg, VA July 30

A few more drags, and English Field at @Atlantic_Union Bank Park will be ready for @HokiesBaseball 2020 season. Changing it up for this season! #itsalwaysbaseballseason



@CREEDY95

Denver, CO July 31

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@COACHHUFF

Tuscaloosa, AL July 31

Some say the calm before the storm...we consider these guys a part of our storm! Shout out to the best grounds crew in America! We appreciate all they do to make @AlabamaFTBL better each day! #RTR

Budget is not a 4-letter word

Budget. A six-letter word that has the stigma of a four-letter word. It leaves a bad taste in your mouth and probably gives you a migraine, especially in the current fiscal meltdown many are experiencing. Being able to handle the fiscal responsibilities of your position is of utmost importance, and is interwoven into each job priority you oversee. While you might not love budgeting, and it might even be a bit intimidating, it is a necessary part of your job.

Most of us would readily admit that the reason we embraced this profession is not because of our love of budgets. However, budgeting has become the hinge in which you hinder or foster professionalism. Outlined in this article are three overarching tools or principles you can use to make budgeting easier and less of a headache: rationalize, resources and relationships.

Rationalization is a key component in staying afloat when the waters are rising. Simply put, it's giving a reason to validate any potential purchase. It might sound inane, but it can be the difference between obtaining what you have determined best, and something else.

I was given the opportunity to work as a Project Manager on the build-out of the second community park for our city. This community park will be 85 acres, and at build out we are estimating that the park will consume about 260 acres of reclaimed water or 84,700,000 gallons. The park I currently supervise requires about 125 acres of Salt River Project (SRP) water, or 40,800,000 gallons, which is relatively inexpensive, at about \$2,000 per year. The next community park is situated within eyeshot of the city's newly constructed Water Treatment Facility, so using any other water source would be taking steps backward. Yet, the cost of using reclaimed water is substantially higher. After doing



some preliminary projections we are looking in the ballpark of about \$150,000 to \$170,000 per year. This cost is the very rationalization needed to upgrade the park irrigation system, thus allowing us to be green, and at the same time emphasize the “hot” button that is on everyone's mind, the budget.

How could this example save money? Let us say that an irrigation contractor comes in and recommends sprinkler A. However, through speaking with some industry professionals and doing some trials, it is concluded that sprinkler B has better distribution uniformity and thus requires less water to get the same result. Estimates show that the efficiency from Sprinkler B will save 5% a year in water use.

Unfortunately, sprinkler A costs \$25 less, which appears to leave sprinkler B only a small fighting chance. Using rationalization, we can justify our decision by underscoring the facts: there are 50

heads a field over four fields, for a total of 200 sprinkler heads. The cost for sprinkler B (200 heads x \$25) will cost the project an additional \$5,000. Sprinkler A might have an initial lower cost, but would in truth cost the operating budget 5% more each year to achieve the same results. With the anticipated cost of water at \$150,000, sprinkler A would cost an extra \$7,500 a year to operate ($\$150,000 \times 5\%$), a financial “gift” that would never stop giving.

Rationalization landed a deafening blow to the cheaper sprinkler head and upgraded the irrigation system that allows for lowering operating costs and puts environmental stewardship at an all-new high. This philosophy applies not only to new construction, but to any area where you may be justifying the purchase of a new piece of equipment, desiring to add additional labor, and/or requesting to use outside contracts to complete projects. In any situation the more history of reasoning and justification you have, the

EDITOR'S NOTE: Todd Wuellner was Sports Complex Supervisor, Rio Vista Community Park, Peoria, AZ when he wrote this for the magazine a few years ago. It still resonates today.



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greater plausibility you have of acquiring what you requested.

Resources. How is it that a department can have a \$1,000,000 budget, and yet have no money to spend, when someone else with a \$500,000 budget seems to have purchasing freedom? This is where the rubber hits the road.

Where I work we have three different categories of accounts: Personnel, Contractual and Commodities. Personnel are obviously staffing requirements that include part-time and full-time employees, and all the benefits associated with those positions. Contractual are those expenses for contracts/outside services or charges from other city departments for services rendered (i.e. IT, Facilities and Fleet maintenance), and Commodities are for the purchase of operational supplies.

The goal of budgeting is to make sure that the bulk of available money is not wrapped up in Personnel and Contractual line items, but to ensure sure that the line items you actually control are adequate to give you the purchasing power to maintain the assets under your supervision. If 95% of the budget is tied up in Personnel and Contractual, then you have not been a good manager of the finances. Of the hypothetical \$1,000,000 budget, only \$50,000 is left for Commodities or actual spending dollars for the facility. When budget cutbacks do occur, these account lines end up being cut, and thus the spending ice-cube is melted down even further.

You may be asking, "What do you mean by 'actual' line items that you control?" When I was first brought on as a supervisor of a community park I soon realized that the electrical account was escalating. I had two choices. Sit back and say, "Boy, that electrical is getting higher every year and I guess I need to justify the raising cost," or "Boy, that electrical is getting higher and I need to find out why. What can I do to stabilize that account or even reduce it?" Either you are a victim, or someone who initiates a resolution to the fiscal quandary. Which are you?

Once I started researching the electrical account it became clear that our facility was on the wrong type of metering account. It was a usage account

that gave us cheaper electricity with the more kilowatts we used. The funny thing is we never used enough to get into the "cheaper" electricity. I immediately changed the plan to a bank-type electrical, where we are charged more or less for the time of day we use the power. With a combination of this and turning off some unnecessary lighting around the facility, we saved about \$20,000 in the first year of starting the program.

It is important to look at all areas of your budget. When I first started working for the city I had no idea what IT charges were, how they were assessed or exactly what equipment made up the charges. I took the initiative and began asking questions. Just a word of caution, please tread graciously. There are some people who don't like their "system" questioned and your initiative can be taken as interrogation. After researching the IT system it became clear that the community park was paying for a printer and a computer that were being used by other areas in our department. We made the change and were able to use those savings in other line items where I was given more spending freedom.

Relationships. An often overlooked aspect, but of vital importance to budgeting, is developing relationships. The older I get the more humbled I am in realizing that I can't do it alone. I am only as good as the people I surround myself with. I love where I work because of the relationships that are dedicated to the facilities that we maintain. I trust my boss, and am confident that he has my back. When he has to go forward to his boss to rationalize my expenses or justify my resources, I know he has my best interest in mind. Someone who communicates a lone ranger mentality, which may be appealing in an effort to take credit for "your" work, can instead create a recipe for failure.

The art of budgeting isn't an activity that many of us enjoy developing, but it is a skill that is worth the effort. Don't let the word "budget" leave a sour taste in your mouth, but instead check your resources, rationalize your decisions, and invest in your relationships. You'll become a part of the solution instead of a liability that cannot be afforded. **/ST/**

JUSTIFYING BUDGET REQUESTS

"I find sometimes even for us it is hard to get enough labor to do the work and labor is the highest part of the cost of your budget. Owners can have a hard time with this but you need to have people to operate the equipment and do the tasks needed for the job. I always tell people, 'you can get fired now for wanting things to do your job, or wait and get fired when things are not done to the [boss's] liking, it is your choice'."
- Joel White, turf manager for Toyota Park, Bridgeview, IL

"We justify our budget requests on a number of factors, including historical data. We track varying assets based on life cycle and overall use (popularity of the function, or sport), unique aspects, and/or "one of a kind" characteristic of our facilities. User requests and petition to the agency typically factor in to where limited dollars are spent as well."
- John Cogdill, Park Turf & Irrigation Manager, Boulder (CO) Parks

"Regardless if it's a capital or operating request, self-implemented due diligence is the key along with providing the necessary information and documentation to back it up. We researched autonomous paint robots for over 3 years. During that time we saw numerous in the field, real life demonstrations. We made sure we saw the unit on our fields and our staff had the opportunity to see it and ask questions. We brought in IT staff, mechanics, management, and anyone else that might have input. We did demonstrations of all other competing manufacturers; we wanted to see everything that was available before making our decision. To justify to our Board we showed videos to give a visual and compiled a detailed cost saving analysis using current methods vs. potential new methods. We also contacted other agencies that owned the machine to get their unfiltered opinions. Ultimately if the budget request is needed then you have to believe it yourself and do the homework to back it up."
- Noel T. Brusius, CSFM, SportsPark & Athletic Field Maintenance Supervisor, Waukegan (IL) Park District

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Turfgrass seed company update

We asked some seed companies to report on the latest trends in the sports grass market, crop predictions, and recent company news. Specifically we also asked: Any significant sales trends over the past 2 years specific to sports grass? Has the continued severe weather affected availability of any popular grasses? Should buyers expect stable prices, or higher/lower depending on variety?



Micah Gould, Product Manager,
Professional Divisions

Barenbrug USA

THE GREATEST TREND we've been observing in the sports turf world has been the commitment to improved genetics

by field managers. Specifically within Kentucky bluegrass products like HGT and Turf Blue Pro, we are seeing more and more customers invest in their seed. These products not only make the life of a field manager easier, but they're seeing actual return on investment through saving on other management practice costs.

What really is amazing to me isn't the fact that this is occurring in the sports turf world, but it's happening across all budget types. I've visited grounds where the budgets hit each end of the spectrum, but the satisfaction and eagerness to continue with our featured brands remains constant.

Overall, markets should be stable with regards to supply and price for perennial ryegrass and tall fescue. It is appearing that Kentucky bluegrasses may be in short supply. Slight price increases might be seen for bluegrasses. As always, we're seeing high demand in many popular products. With such high demand it doesn't hurt to check in with your distributor well before expected shipment and usage. On our side of the operation, seed purchased by an end user is planned and accounted for 3 or more years prior.

We are proud to announce a new program: Green Earth. We love this earth and want to ensure that future generations are able to enjoy the outdoors as we have. As part of our commitment to sustainability,

we breed and develop new varieties that are rigorously tested to the strictest standards. All of these standards are centered on this mission: to not only refine varieties that make this world beautiful but to craft them to be good for our planet. Keep an eye out for our Green Earth seal as it emphasizes products specially designed to maximize performance in categories such as reduced water, low mowing, salt tolerance, and low inputs.



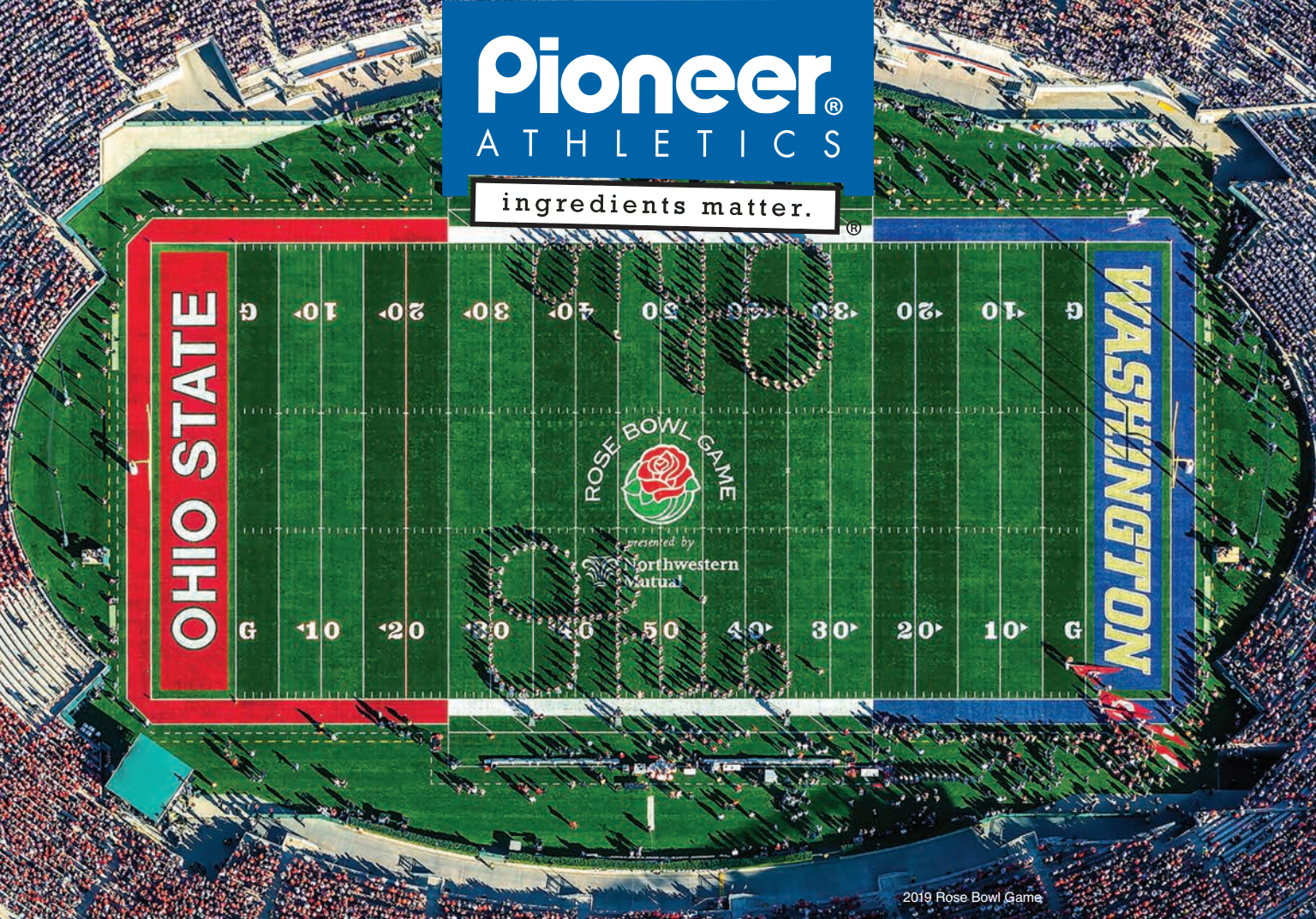
Austin Lanzarone, Brand Manager

DLF Pickseed

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last two years. The concept of growing the two species together to give an aesthetically pleasing and safe playing surface for all types of facilities has been a successful practice for most sports field managers in the transition zone.

Recent weather patterns are continuing to have a tremendous impact on crop yields in the Willamette Valley. A few years ago Mother Nature gifted the Pacific Northwest with severe drought for a large majority of production areas; this drought bled into the next growing season with significant yield losses across all non-irrigated species. These yield decreases generated extremely tight inventories and created market pricing uncertainties on a global scale. As moisture returned to the Willamette Valley, crop (currently being harvested) assessments looked solid, until a few widespread rare and untimely rain/wind events came thru delaying the crop and potentially decreasing yields up to 30% in some areas on annual ryegrass and tall fescue. As we continue through harvest this season we will gain more market insight and knowledge on how yields will unfold, however we remain cautiously optimistic that we will still see relatively strong yields.

Genetic quality of a variety should always be top priority for a sports turf manager as they are the building blocks of a sustainable and successful program. Highly rated varieties tested thru NTEP (National Turfgrass Evaluation Program) and other programs that showcase varieties tested under extreme pressures and conditions like A-LIST (Alliance for Low Input Sustainable Turf) should be the first choice.

Aaron Kuenzi, Executive VP/Division Manager Mountain View Seeds

WHY DO WE SEE higher and more stable seed prices? There are several micro factors but in general, there are a few macro factors that are influencing our seed industry. In my opinion, these macro-influencers are legislative changes, Oregon Grass Seed Bargaining Association (OGSBA), and higher valued alternative crops.

In 2011, the Oregon government passed what we call the "slow pay, no pay" law. This requires that seed companies pay for their contracted seed by May of the following year unless an alternative can be mutually worked out between the company and the

**"THE SPORTS FIELD
MARKET IS EXCITING RIGHT
NOW. THERE SEEMS TO
BE A REVIVAL IN NATURAL
GRASS SURFACES AND
WILINESS TO TRY
NEW THINGS."**

– Aaron Kuenzi

seed grower. Before this law took effect, seed companies could overproduce their annual needs, as there was not a lot of financial liability. The seed grower was forced to carry the inventory, so it did not affect the seed companies' balance sheet. Today seed companies are more financially responsible for their production and inventory. We probably all know the struggle between accountants and salespeople when it comes to inventory. I believe this is one reason our industry has less inventory and at times can run out of seed.

The OGSBA is made up of Oregon seed growers and negotiates prices paid to seed growers by seed companies. There are many opinions regarding this process, but I believe it has helped bring stability to the seed prices and some transparency around inventory levels.

Lastly, the Pacific Northwest continues to see an increase in higher value and more profitable alternative crops being produced in the region. As an example, according to the Oregon Blueberry Commission in 2018, there were 14,500 acres of blueberry production compared to 6,100 acres in 2018. Hemp and hazelnut acres have also exploded in recent years; an estimated 7,800 acres of hemp in 2018 to more than 46,000 acres in 2019. Today there are more than 70,000 acres of hazelnuts in Oregon with roughly 8,000 new acres being planted every year. These acres may not seem significant until we consider there are only an estimated 342,000 acres of grass seed production in Oregon. As

these alternative crop acres grow, they will continue to displace grass seed acres.

These factors combined with a below-average crop in 2018 followed by good demand have left the industry with low seed inventory levels of most cool-season turfgrasses. Thankfully as a farmer's owned co-op (Pratum Co-operative, near Salem) we have great relationships with our farmer-owners that allows us better access to seed production acres.

The mild winter in Oregon did create more opportunity for our winter weeds to flourish so we believe our seed quality will be more challenged this year than in the past. Our mild winter followed by a dry spring resulted in just an average seed harvest for 2019.

Our production acres remain relatively low for tall fescue, bluegrass and fine fescues going into the 2019 harvest season. As inventories remain tight, and production acres are limited, we expect market prices to remain relatively firm.

At MVS we strive to consistently deliver a high-quality seed product. This means looking at new production regions around the globe, working with our breeding company and leading universities to develop the best new varieties. Varieties that don't only perform the best on your sports fields but also produce the most seed in our growers' fields.

The sports field market is exciting right now. There seems to be a revival in natural grass surfaces and wiliness to try new things. This combination makes for new trends and trendsetters in our industry. Trends we see are the increased use of Kentucky bluegrass and a desire to be more sustainable.

Through our genetic breeding and development programs, we have been able to improve the performance of Kentucky bluegrass. MVS has specifically focused on establishment, disease and wear tolerance to allow us to take bluegrasses into more regions and applications. A great example is our 365ss brand of bluegrass. One of the applications that it was designed for and is generating a lot of "buzz" is the Bluemuda concept, used at places like the Rose Bowl, where traditionally they used bermuda and perennial ryegrass. This concept is where turf managers interseed Kentucky bluegrass into an established bermuda turf. These two

Continued on page 18



JOHN MASCARO'S PHOTO QUIZ

JOHN MASCARO IS PRESIDENT OF TURF-TEC INTERNATIONAL

////////

ANSWER ON PAGE 33

CAN YOU IDENTIFY THIS SPORTS TURF PROBLEM?

PROBLEM:

Irregular brown areas and green squares

TURFGRASS AREA:

Recreation League softball field

LOCATION:

Greer, South Carolina

GRASS VARIETY:

419 Bermudagrass



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Continued from page 16

species have been found to work very well together in a large part of the transition zone. Brian Winka of Advanced Turf Solutions and Dr. Gregg Munshaw from the University of Kentucky have pioneered this concept in the USA and continue to do a lot of research around it. The general benefit of Bluemuda is more year-round playability. As natural grass competes with artificial, we are looking for ways to have 365 days of playability.

As our seed genetics continue to get better, the market continues to demand more, which I view as a great thing for seed companies, especially those with breeding and development new varieties of grass seed.

To address the rapidly growing demand for more sustainable varieties (varieties that use less water and inputs), Mountain View Seeds joined the Alliance for Low Input Sustainable Turf (A-LIST) as a founding member. The A-LIST is a non-profit industry initiative that works to identify, through independent university trials, varieties that maintain their turf-quality under reduced irrigation, fertility and chemical use. Additionally, the A-LIST promotes the use of sustainable varieties across the country and works to influence turf breeding to focus on these traits as much as color and seed yield. Through their efforts, the A-LIST has promoted these varieties to municipalities and transportation departments around the country. These entities realize that through better variety selection not only can they realize better environmental benefits through reduced irrigation, fertilizer and chemical use, but those same benefits also result in cost reductions. While these industry segments were often the dumping ground of VNS and off-quality seed lots, they now demand high-quality varieties that although they cost a few cents higher offer significant cost savings long term. The work of the A-LIST has garnered attention from industry associations including the TPI, GCSAA and the STMA; so much so that a presentation on sustainable varieties and the economic importance of smart variety selection will be presented by Dr. Cale Bigelow of Purdue and Dr. Gregg Munshaw of University of Kentucky at this year's STMA Conference and Exposition in West Palm Beach, Florida.



Dan Foor, Chief Executive Officer
La Crosse Seed

THE USE OF MODERN, high tillering and rhizomatous tall fescue cultivars is expanding in select sports turf markets. Superior drought and high wear tolerance, along with improved cultivars, allows turf-type tall fescue to be used on many fields with limited resources. Many mixes in La Crosse Seed's Earth Carpet platform contain varieties with early expression of strong, aggressively spreading rhizomes and rapid tillering, and are specifically formulated for sports turf applications.

Tetraploid turf-type perennial ryegrass like those in the DLF (La Crosse Seed's parent company) 4Turf program, with lower set crowns, provide excellent wear tolerance in sports fields. These seeds germinate at lower soil temperatures and shorter day lengths, giving field managers greater flexibility in planting times.

Reduced acres in the Willamette valley of Oregon and a spring drought in the seed production areas of Canada will affect the seed supply of turf-type perennial ryegrass, a popular grass for winter overseeding of bermudagrass. The industry continues to be challenged to produce and process very high quality seed lots of Kentucky bluegrass as well. Pressures on chemical tools and labor are limiting the ability to remove contaminants in seed production fields, which further impacts supply.

Pricing in general will see some increases in the 2019-2020 selling cycles. Perennial ryegrass seeds of high quality will be limited. The higher performing Kentucky bluegrass cultivars are in short supply as well. There will

be supply of lower-end Kentucky bluegrass cultivars, but sports turf managers should take extra care to evaluate seed quality.

From a DLF perspective, the breeding group continues to improve upon the popular 4Turf® cultivars for sports fields. These grasses will be used for construction and repair of sports fields in the permanent sports turf field market. Having seed on most fields for the last two World Cups, DLF has significant experience with these grasses.

From a La Crosse Seed perspective, the company is currently celebrating its 100-year anniversary as a national supplier of turf seed and other products.



Chad Adcock, VP of Business Development
Sod Production Services

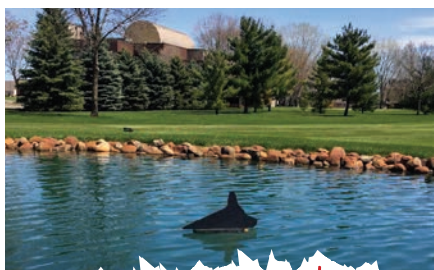
SALES OF TAHOMA are outstanding. We need significantly more inventory than we currently have especially in the Midwest. Farms struggled to expand much given the horribly wet and flood conditions experienced this year. In the East we've sold out completely on some farms and are about to be selling 8-week-old grow back material. Several NFL stadiums throughout the Midwest and East are experimenting and liking the results thus far. Duke and Indiana University have installed Tahoma on soccer fields; James Madison and Maryland-Baltimore County have installed it as well on soccer and baseball fields respectively. The new MLS team in Austin, TX is interested for their new 2021 stadium. Also significant interest has been expressed from football clubs in California. This is only the tip of the iceberg as we are about to blow the lid off of Australia and Japan in 2020. **IST/**



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KEEP THEM OFF YOUR TURF WITH A **DOG DECOY**

Moves in the Wind



*New! Water Watch Dog
keeps birds out of water*

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

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

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

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

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SubAir systems get technology upgrade

As the NFL teams reported to training camp last month, Hard Rock Stadium – home field to the Miami Dolphins and University of Miami Hurricanes, as well as host of Super Bowl LIV – also was getting “in shape” for the upcoming season. With the field renovation work underway, a SubAir Sport System was being installed and was operating in early August.

Drainage pipes, water separator, pumps will connect with the system and TurfWatch controls to create and monitor the best growing environment when new turf was placed in August. This system will have SubAir’s latest technologies available, including wireless in-ground sensors relaying subsoil conditions through a secure dedicated communications network. Viewing field conditions and operating the system’s equipment is accessible to Tom Wilson, Head Groundskeeper, for the Miami Dolphins and Hard Rock Stadium, anytime and anywhere via smartphone or computer. Additionally, field data and equipment operations history are now relayed to cloud storage, and SubAir’s agronomists and equipment specialists can also remotely access the system to support operations.

The multi-event schedule at Hard Rock Stadium, from the Roll-Ing Stones to Super Bowl LIV, make SubAir Sport aeration a valuable part of the turf management practices needed to meet the busy schedule. The semi-tropical weather in South Florida will also be moderated with exceptional moisture removal (60 minutes of natural gravity = 3 minutes running SubAir Sport).

Improvements in design, technology and turf management using SubAir’s aeration and moisture control include new draining piping layouts to maximize airflow and heat delivery, in-ground sensors that constantly relay sub-soil conditions and engage the systems to respond to adverse changes in temperature, oxygen, or moisture levels. Improved motors and equipment adjust air delivery to changing field conditions and field age and a dedicated communications interface securely connects the turf superintendent to field conditions, equipment status and operations.

Also, there is a furnace included in the SubAir Sport System models. Heated air is moved through the drainage system and forced up into the soil heating the entire soil profile (not required for Hard Rock Stadium!).

Citi Field

Citi Field in New York, home of the New York Mets, upgraded their SubAir Sport System in 2018. The upgrades included new TurfWatch technology and stainless-steel pipes designed specifically to stand up to salt water intrusion into the soil from nearby Flushing Bay.



A SubAir Sport system being installed in Japan.



Melting snow on Citi Field in Flushing, NY.

Bill Deacon is Senior Director of Field Operations and Landscaping for Citi Field. He says that the system is run nearly every day. “We are either removing water or pushing air into the root system.” Deacon says the new additions allow him to better monitor field moisture conditions and more efficiently maintain the best surface possible.

“We obviously use our system with the rain,” Deacon said, “and it works great with the (infield) covered with the tarp. In 20 or 30 minutes it will pull the moisture from the root system and we’re ready to play ball. We even use it while it’s raining. The tarp keeps the water off the turf and the system keeps the oxygen moving underneath. That makes a big difference.” **/ST/**

EDITOR’S NOTE: Thanks to SubAir Systems for sharing their latest technology with us.



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Depression

The son of one of my regular golf partners ended his own life a few years ago. He had a good job, was surrounded by a loving family and friends, and was in fine shape physically. After the tragedy my friend got involved with a support group for “suicide survivors” and learned that many in that group had no idea their loved ones were seriously depressed.

Do any of the following descriptions fit you or someone close to you? Little energy for hobbies or activities you love; feeling helpless and hard on yourself; sadness that doesn't go away; low appetite and weight loss (or overeating and weight gain); restlessness or feeling irritable; fatigue and decreased energy; insomnia, especially early-morning waking; excessive sleep; persistent aches or pains, headaches, cramps, or digestive problems that do not ease even with treatment.

It's natural to feel down sometimes, but if that low mood lingers day after day, it could signal depression. Major depression is an episode of sadness or apathy along with other symptoms that lasts at least 2 consecutive weeks and is severe enough to interrupt daily activities. Depression is not a sign of weakness or a negative personality. It is a major public health problem and a treatable medical condition.

Depression is an extremely complex disease. No one knows exactly what causes it, but it can occur for a variety of reasons. Some people experience depression during a serious medical illness. Others may have depression with life changes such as a move or the death of a loved one. Still others have a family history of depression. Those who do may experience depression and feel overwhelmed with sadness and loneliness for no known reason.

While doctors aren't sure what causes depression, but a prominent theory is altered brain structure and chemical function. Drugs that treat depression

**DEPRESSION IS AN EXTREMELY
COMPLEX DISEASE. NO ONE
KNOWS EXACTLY WHAT CAUSES IT,
BUT IT CAN OCCUR FOR A VARIETY
OF REASONS.**



are believed to improve communication between nerve cells, making them run more normally. Experts also think that while stress can trigger depression, one must first be biologically prone to develop the disorder. Other triggers could include certain medications, alcohol or substance abuse, hormonal changes, or even the season.

Researchers have noted differences in the brains of people who have a clinical depression as compared to those who do not. For instance, the hippocampus, a small part of the brain that is vital to the storage of memories, appears to be smaller in some people with a history of depression than in those who've never been depressed. A smaller hippocampus has fewer serotonin receptors. Serotonin is one of many brain chemicals known as neurotransmitters that allow communication across circuits that connect different brain regions involved in processing emotions.

Scientists do not know why the hippocampus may be smaller in some people with depression. Some researchers have found that the stress hormone cortisol is produced in excess in depressed people. These investigators believe that cortisol has a toxic or “shrinking” effect on the development of hippocampus. Some experts theorize that depressed people are simply born with a smaller hippocampus and are therefore inclined to suffer from

depression. There are many other brain regions, and pathways between specific regions, thought to be involved with depression, and likely, no single brain structure or pathway fully accounts for clinical depression.

Depression is very treatable

In the midst of major depression, you may feel hopeless and helpless. But the fact is, this condition is highly treatable. More than 80% of people get better with medication, talk therapy, or a combination of the two. Even when these therapies fail to help, there are cutting-edge treatments that pick up the slack.

As of yet, there is no lab test for depression. To make an accurate diagnosis, doctors rely on a patient's description of the symptoms. Discussing moods, behaviors, and daily activities can help reveal the severity and type of depression. This is a critical step in determining the most effective treatment.

Genetics, drugs, grief

We know that depression can sometimes run in families. This suggests that there's at least a partial genetic link to depression. Children, siblings, and parents of people with severe depression are somewhat more likely to suffer from depression than are members of the general population. Multiple genes interacting with one another in special ways probably contributes to the various types of depression that run in families. Yet despite the evidence of a family link to depression, it is unlikely that there is a single “depression” gene, but rather, many genes that each contributes small effects toward depression when they interact with the environment.

In certain people, drugs may lead to depression. For example, medications such as barbiturates, benzodiazepines,

EDITOR'S NOTE: This is another installment in our “Personal Rootzone” series to call attention to personal health issues. In April we covered skin cancer, in May ticks, and heat stress in July. Much of this information is from WebMD.

**If You Purchased Liquid Aluminum Sulfate
From January 1, 1997 Through February 28, 2011,
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Please read this entire Notice carefully. Settlements of the lawsuit may affect your rights.

and the acne drug isotretinoin (formerly sold as Accutane, now Absorica, Amnesteem, Claravis, Myorisan, Zenatane) have sometimes been associated with depression, especially in older people. Likewise, medications such as corticosteroids, opioids (codeine, morphine), and anticholinergics taken to relieve stomach cramping can sometimes cause changes and fluctuations in mood. Even blood pressure medications called beta-blockers have been linked to depression.

Grief is a common, normal response to loss. Losses that may lead to grief include the death or separation of a loved one, loss of a job, death or loss of a beloved pet, or any number of other changes in life, such as divorce, becoming an "empty nester," or retirement.

Anyone can experience grief and loss, but not everyone will experience clinical depression, which differs from grief in that depression involves a range of other symptoms such as feelings of low self-worth, negative thoughts about the future, and suicide, whereas grief involves feelings of emptiness, loss and longing for a loved one, with an intact capacity to feel pleasure. Each person is unique in how he or she copes with these feelings.

Controlling depression

If these symptoms sound familiar, please get help. Talk to a counselor or therapist, or your doctor, if you have sadness that won't leave, restlessness, irritability or a lack of energy. Some people also find relief from their depression with counseling, exercise, and for some people, taking antidepressants.

Because loneliness goes hand-in-hand with depression, developing a social support network can be an important part of treatment. This may include joining a support group, finding an online support community, or making a genuine effort to see friends and family more often.

People who are depressed are more likely to attempt suicide. Warning signs include talking about death or suicide, threatening to hurt people, or engaging in aggressive or risky behavior. Do not hesitate to call one of the suicide hotlines: 800-SUICIDE or 800-273-TALK. **/ST/**

Settlements have been reached in a lawsuit pending in the United States District Court for the District of New Jersey (the "Court") against the following Defendants: General Chemical Corporation, General Chemical Performance Products, LLC, General Chemical LLC, GenTek Inc., Chemtrade Logistics Income Fund, Chemtrade Logistics Inc., Chemtrade Chemicals Corporation, Chemtrade Chemicals US, LLC, Chemtrade Solutions, LLC, C&S Chemicals, Inc., USALCO, LLC, Kemira Chemicals, Inc., Southern Ionics Incorporated, GEO Specialty Chemicals, Inc., Frank A. Reichl, Vincent J. Opalewski, Alexis Palvlos Avraamides, Amita Gupta, Milton Sundbeck, Kenneth A. Ghazey, Brian C. Steppig, American Securities LLC, Matthew Lebaron, and Scott Wolff. Plaintiffs in the lawsuit claim that Defendants hurt competition and violated state antitrust, consumer protection, and other laws by allocating customers and markets and fixing the price of Liquid Aluminum Sulfate ("Alum"), thereby causing indirect purchasers to pay too much for Alum. Defendants deny any wrongdoing.

Settlements have been reached with Defendant Kemira Chemicals Inc. and its current and former, direct and indirect parents, subsidiaries, affiliates, insurers, directors, officers, shareholders, and employees (collectively, the "Kemira Settling Defendants"), with Defendants General Chemical Corporation, General Chemical Performance Products, LLC, General Chemical LLC, GenTek Inc., Chemtrade Logistics Income Fund, Chemtrade Logistics Inc., Chemtrade Chemicals Corporation, Chemtrade Chemicals US, LLC, Chemtrade Solutions, LLC, and their current and former, direct and indirect parents, subsidiaries, affiliates, insurers, directors, officers, shareholders, and employees, including Frank A. Reichl, Vincent J. Opalewski, Alexis Palvlos Avraamides, Amita Gupta, Matthew Lebaron, and Scott Wolff (collectively, the "Chemtrade Settling Defendants"), with Defendants Southern Ionics Incorporated and its current and former, direct and indirect parents, subsidiaries, affiliates, insurers, directors, officers, shareholders, and employees, and Milton Sundbeck (the "Southern Settling Defendants"), with USALCO LLC, and its current and former, direct and indirect parents, subsidiaries, affiliates, insurers, directors, officers, shareholders, and employees (the "USALCO Settling Defendants"), with American Securities LLC, and its current and former, direct and indirect parents, subsidiaries, affiliates, insurers, directors, officers, shareholders, and employees (the "American Securities Settling Defendants"), and with C&S Chemicals, Inc. and its current and former, direct and indirect parents, subsidiaries, affiliates, insurers, directors, officers, shareholders, and employees ("C&S Chemical Settling Defendants") (collectively, the "Settling Defendants").

WHO IS INCLUDED IN THE CLASS? The Indirect Purchaser Settlement Classes consist of all persons or entities in AL, AR, AZ, CA, CO, DC, FL, HI, IL, IA, KS, ME, MA, MI, MN, MS, NE, NV, NH, NM, NY, NC, ND, OR, PR, RI, SC, SD, TN, UT, VT, WV, and WI that purchased Alum, not for resale, which was manufactured, produced, or supplied by Defendants or their unnamed co-conspirators from January 1, 1997, through February 28, 2011. Excluded from the Class are Defendants, co-conspirators, and their respective parents, subsidiaries, and affiliates.

WHAT DO THE SETTLEMENTS PROVIDE? The Kemira Settling Defendants agreed to pay into an Escrow Account the sum of \$2,350,000, the Chemtrade Settling Defendants agreed to pay the sum of \$14,000,000, the Southern Settling Defendants agreed to pay the sum of \$5,000,000, the American Securities Settling Defendants agreed to pay the sum of \$2,200,000, the USALCO Settling Defendants agreed to pay the sum of \$5,000,000, and the C&S Chemicals Settling Defendants agreed to pay the principal amount of \$700,000 plus interest (collectively, the "Settlement Funds"). In addition, the Kemira Settling Defendants, the Chemtrade Settling Defendants, and the Southern Settling Defendants each agreed to provide certain nonmonetary assistance to Indirect Purchaser Plaintiffs.

At this time, Interim IPP Lead Counsel will seek an award of attorneys' fees in the amount of 33 1/3% of the Settlement Funds, plus reimbursement of certain of their out-of-pocket expenses incurred so far in this litigation and not already reimbursed, including expert witness expenses incurred to date, as well as service awards for the class representatives of up to \$25,000 each from the Settlement Funds in recognition of their efforts to date on behalf of the Classes.

HOW DO I RECEIVE A PAYMENT FROM THE SETTLEMENTS? You must submit a Claim Form **postmarked no later than February 15, 2020**. The Claim Form and instructions on how to submit it are available at www.LiquidAluminumSulfate.com or by calling 1-866-217-4455.

WHAT ARE YOUR OPTIONS? If you wish to remain an Indirect Purchaser Settlement Class Member, you need not take any action at this time. You will give up your right to sue the Settling Defendants for the claims that the Settlements with them will resolve. If you want to keep the right to sue or continue to sue some or all of the Settling Defendants about the legal issues in this case, then you must exclude yourself from some or all of the Indirect Purchaser Settlement Classes. **If you exclude yourself from any of the Indirect Purchaser Settlement Classes, you will not get any payment from the Settlements for such classes.** To exclude yourself from some or all of the Settlements, you must send a letter to the Settlement Administrator, **postmarked no later than October 7, 2019**. You may also comment on or object to some or all of the proposed Settlements. Your objections must be **filed no later than October 7, 2019**. Details on how to request exclusion, to comment, or to object to some or all of the Settlements are available on the Settlements' website, www.LiquidAluminumSulfate.com.

WHO REPRESENTS ME? The Court appointed Jay B. Shapiro of Stearns Weaver Miller Weissler Alhadeff & Sitterson, P.A. and Marvin A. Miller of Miller Law LLC as Interim IPP Lead Counsel to represent the Indirect Purchaser Settlement Classes on an interim basis and for purposes of the Settlements. If you want to be represented by your own lawyer, you may hire one at your own expense.

The Court will hold a final fairness hearing to decide whether to approve the terms of the Settlements at **2:00 p.m. on November 7, 2019**, at the Martin Luther King, Jr. Building & U.S. Courthouse, 50 Walnut Street, Room MLK 4A, Newark, New Jersey 07101. If there are objections, the Court will consider them but may still approve the Settlements. You may appear at the hearing, but you are not required to do so. The hearing may be rescheduled without notice to the Class, so if you plan to attend, please periodically check the Settlements' website for any updates.

This Notice is only a summary. For more information and updates on the status of the lawsuit, please visit www.LiquidAluminumSulfate.com or call 1-866-217-4455.

How's the new baseball surface doing in Phoenix?

Since Opening Day at Chase Field this season, the Arizona Diamondbacks have played on their new surface, specifically designed for baseball. The "Batting a Thousand" (B1K) turf is a dual fiber system comprised of Shaw Sports Turf Strenex XD slit film and Shaw's Bolt monofilament, which is designed to prevent infill "splash out." The Geofill infill is made from natural materials, says Shaw.

The Diamondbacks expected reduced energy costs by keeping the roof closed during daytime as well as saving money from using less water on the field.

We asked Arizona Diamondbacks President & CEO Derrick Hall some questions about how the new surface is performing.

SportsTurf: *Has the new surface met your expectations so far this season?*

Hall: Our new synthetic grass has far exceeded our expectations. The feedback we continue to receive is that the surface has only improved with more and more usage and the initial feedback was extremely positive. In addition to the high performing playing surface, we've seen an enormous improvement in the comfort of Chase Field. Our fan experience is very important to us and now with our ability to keep the roof closed during road trips and extended breaks, it has kept the ballpark cleaner and much more comfortable for fans. We played games with our roof open through June this season, where we used to only get through May due to extreme heat permeating off the concrete and our previous inability to close the roof in a timely manner. Our environmental impact is also very important to us and with the addition of synthetic grass, we are able to not only conserve our cooling energy but are expected to save nearly 2 million gallons (a 90% savings) in water consumption each season.



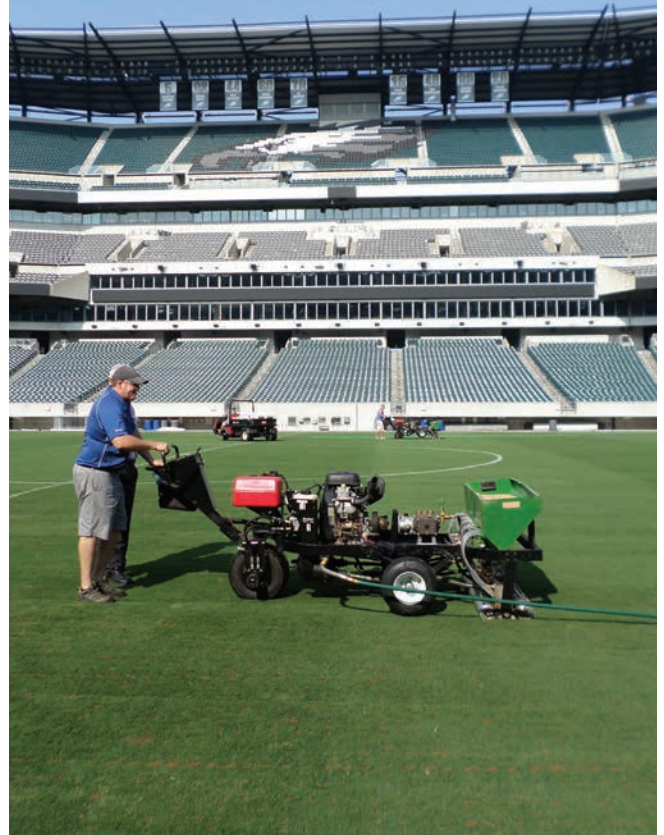
SportsTurf: *What have the players and coaches said about the new surface?*

Hall: The feedback from players and coaches from both the D-backs and visiting teams has been tremendous. We played the Red Sox to open the season and since they play at least 18 games

a year on other synthetic fields, they came in with a pretty good perspective on synthetic fields. The feedback we received from their coaching staff and several position players was that our new field was an excellent field, not because it was natural or synthetic, simply that it played true and consistently throughout

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the series. We've also received feedback from teams within our division that their mid-season trips to Chase Field are much more enjoyable because of the consistency of our surface. They would complain that our natural field was almost like playing in two different ballparks (when comparing the conditions in April vs. July). Our team, the reigning Wilson Defensive Team of the Year, has been very happy with the new surface.

SportsTurf: *What is the general maintenance routine, e.g., how often do you groom it, how are you keeping infill level, etc.?*

Hall: Our grounds crew keeps quite busy ensuring the field is the best possible playing surface. During the home stand, they mat drag pretty much every other day. After the home stand they run a UV light cart over the field three times and groom. They are constantly hand picking/sweeping/vacuuming/washing/utilizing a spring tine rake/power brooming turf edges to keep warning track and infield material out of turf, regardless if the team is at home or on the road. They also use a custom made 7.5-foot-wide GreensGroomer to level the infill and just started to spot topdress areas using a Stihl Yard Boss broom to work Geofill infill material in.

SportsTurf: *Have there been any problems and if so, how were they resolved?*

Hall: No problems but simply a learning curve. The Geofill infill does require some water, so understanding the right timing and frequency to keep moisture on the field has been something we have constantly tweaked as weather conditions have changed. For our groundskeepers to be able to work with a closed roof most of the time has been an enormous improvement in workplace conditions when temperatures consistently exceed 110 degrees daily during the majority of our season.

SportsTurf: *The iconic dirt stripe from the mound to home plate didn't make the switch though originally it was slated to. What happened?*

Hall: It was simply a decision we made to remove the feature as we replaced the field. We felt that a continuous infield surface would be simpler to maintain and present a more aesthetically appealing look with the new field. **/ST/**



Jeff McManus, University of Mississippi

JEFF MCMANUS

In this “The *SportsTurf* Interview,” we meet Jeff McManus, Director of Landscape Services, Ole Miss Golf Course & Airport Operations. Jeff has been with the University since 2000. Jeff has a bachelor’s degree in Landscape and Ornamental Horticulture from Auburn University. He is also an International Society of Arboriculture Certified Arborist. His background in 5-star resorts such as Grand Cypress Resort in Orlando and Turnberry Isle Resort and Club in North Miami, have given him the vision and understanding of how important it is to make a great first impression with landscaping. “You only get one chance to make a first impression,” McManus says. “Whether we like it or not, people often judge our organization by the outside appearance.”

SportsTurf: First question: How did you end up in charge of the airport?

MCMANUS: I am often amazed at how I ended up at the airport – and several other things I get to do. When I started at the Landscape Services Department, I began the job with the understanding that first impressions matter. For the first few years, I used that idea to drive some changes I wanted to make within the department. We didn’t have a lot of resources, but with a little engagement and effort, we began working smarter and becoming, overall, highly efficient. There were some key things we did that created some high-profile results. We lowered our cost of operations. Our daily mowing time went from 10 days to 4 days. We got some national recognition for the beauty we created and maintained. The airport, known as UOX, is the first place many new visitors see of Ole Miss, Oxford, and the state of Mississippi. First impressions matter both in appearance and customer service and UOX was in need of both. When asked to do it, I extended the thinking and training we were doing in Landscape Services to

cover UOX. In the past several years we have become the second busiest airport in the state.

ST: Who do you root for when Ole Miss and Auburn play?

MCMANUS: I love both schools because I have given the last 19 years of my life to Ole Miss and I went to school at Auburn. I love them both just as you love your children. That said, I work hard everyday to recruit top talent and students to Ole Miss to be one of the best of the best.

ST: What experiences led to your interest in professional development?

MCMANUS: Professional development has given me some amazing opportunities for personal growth and connecting with others. I know I feel better about my life when I am growing and improving. When you are around others who want to do the same, it produces an incredibly positive culture. It was that culture that led to our five national championships in beautifications. We are blessed to work in an environment that is positive and produces results.

ST: Why did you decide to become a leader in managing resources and “turning weeders into leaders”?

MCMANUS: Most people I meet don’t have a lot of people believing in them and many of them are trapped in a lie that says, “You’ll never be more than what you are” or “You can’t change your life.” But living in this country is a great gift. We have opportunities others only dream of. Yet, the fear of “what if” holds us back from fully accessing the opportunities. “What if I fail?” “What if they laugh at me?” “What if I actually do it and succeed?” I think most people go to the grave with their best gifts, talents and dreams still inside them. Over the years, I have had the pleasure of watching others break through their fears and become their best self. A good part of that process is due to the support and professional development we experience on our job. Watching that happen is amazing and fulfilling and I simply wanted to keep doing it.

ST: How do you manage your time with so many competing responsibilities?

MCMANUS: First, I make sure to prioritize daily what is important. I set routines in my life, such as working out

and running. They are on my calendar; therefore, I do them. Next, I look at who is best suited to do the various projects, assign them to the job and then make sure we schedule times to communicate and review. When I hire someone to run a department, project or even a crew, we review the vision, mission, goals, budgets, discuss strategies and desired outcomes together. Once we are on the same page, my role is to get out of the way and let them run it. Of course, I check in and review key elements of our plan periodically, but I learned a long time ago I had to give up some control and my perfectionist attitude to be able to do more. I must have faith in those that I work with to get the work done. That takes practice. One of the biggest and most damaging fallacies we live with is that we can actually manage time, but the truth is, we can only manage our priorities. Time is the great resource we are not given more of, so we have to use it wisely.

ST: What's your favorite work activity now?

MCMANUS: I really enjoy cultivating leadership culture for teams and organizations. There is nothing quite as satisfying as seeing the light bulb turn on for one person, then another and another, and then watch them excel in their success. When you get the opportunity to mentor younger leaders, owners, supervisors, executives, and see how it changes their life, it makes the work fun.

ST: What's new on the Ole Miss campus with regard to your athletic field surfaces?

(This response is from Brian McNeill, Assistant Director, Sports Turf in Athletics): "Our newest fields are the football game field, this season will be the fourth year of bermuda 419. The football practice fields, we have one natural 419 turfgrass and one artificial field; this is our fourth year on both surfaces. Our natural track field is bermuda 419 and is in its fourth year. Our soccer field is in its third year, after we resurfaced the top and had the addition of certified bermuda 419 sod. The Ole Miss baseball and softball fields are original fields and doing well (also 419)."



I REALLY ENJOY CULTIVATING LEADERSHIP CULTURE FOR TEAMS AND ORGANIZATIONS. THERE IS NOTHING QUITE AS SATISFYING AS SEEING THE LIGHT BULB TURN ON FOR ONE PERSON, THEN ANOTHER AND ANOTHER, AND THEN WATCH THEM EXCEL IN THEIR SUCCESS.



ST: What's next on your to-do list regarding your speaking and professional development business?

MCMANUS: I am excited about our next Leadership Academy November 6-7 on the Ole Miss campus. It is a great way for leaders to grow themselves while working to develop leadership from within. This time, we will focus on communication and creating systems that allow a leader more time to focus on growing the business, not working in the business; how to increase high standards and even how to retain top talent. (For more information see <http://jeffmcmannusspeaking.com/>) **/ST/**

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Irrigation and water conservation BMPs

When rainfall is insufficient and water resources become limited, supplemental irrigation required to sustain plantings, such as turfgrass and other landscaping plants, is often the first to be placed on water use restrictions. When managing turfgrass and other landscaped areas, conserving water use to the lowest possible level protects water resources. However, it is also important that when water restrictions are threatened or imposed that sports field managers can effectively communicate that one of the most critical components of maintaining a safe field is having adequate water to maintain actively growing turfgrass and provide another tool in the management

of soil surface hardness. Applying water responsibly can conserve resources and save money while still maintaining a healthy, safe turfgrass surface and aesthetically pleasing landscape.

Regulations

Always comply with local and state water use regulations and restrictions. Contact federal, state, and local water use authorities to determine annual or specific water rights, permitting guidelines, and other requirements allowed by regulators. Determine what is required to adhere to water quality standard rules regarding groundwater and surface water flows resulting from

removal of water for irrigation use. Protect aquatic life and impairment of water systems by adhering to state and local water withdrawal allocations (gallons/day).

Regulations vary by state. Be aware of the following:

- Surface Water Withdrawal and Permit Regulations
- Groundwater Withdrawal and Permit Regulations
- Withdrawal Reporting Requirements
- Water Reclamation and Reuse Regulations
- Backflow Prevention and Cross Connection Regulations
- Drought Response Plan

EDITOR'S NOTE: Kristen Althouse, the STMA's Education Manager, compiled these BMPs for the association's Institute of SportsField Management, using sources including the USGA/GCSAA BMPs.

Irrigation timing and amount

Plants should be watered as needed to enhance root growth and improve overall plant health. Irrigation scheduling must take plant water requirements and soil intake capacity into account to prevent excess water use that could lead to leaching and runoff.

Watering deeply and infrequently helps encourage deep rooting, gas exchange, and soil temperature moderation, while discouraging surface soil compaction. In practice, the irrigation system applies water to fill soil pores to the depth of roots and then does not irrigate again until surface soil moisture has been depleted to near the wilting point. Soil type, effective rootzone depth, and estimated evapotranspiration (ET) demand determine irrigation frequency and soak cycle needs. When these factors are considered as a group, soil moisture management usually applies to the top 6 inches of a soil profile.

Depending on composition and levels of compaction, the infiltration rate for heavier soils such as silts and clays can range from 0.1-1 inch per hour. Infiltration rate of sandy soils can be 2-20 inches per hour. Irrigation rates should not exceed the maximum ability of the soil to absorb and hold the water applied at any one time.

Effective rootzone depth is the depth to which 90% of the root system penetrates and must be determined with a soil probe or spade. Soil type and effective rootzone depth together are used to estimate the soil water-holding reservoir available to the root system.

ET is a combination of transpirational water needs of the plant and water lost from the soil surface via evaporation. As temperatures increase and relative humidity decreases, ET demand rises. ET requirements vary based on turfgrass species, maintenance conditions, and time of year. Use computed daily ET rates to adjust run times to meet turfgrass moisture needs. Manually adjust automated ET data to properly consider wet and dry areas.

Adjust irrigation run times based on current local meteorological data. Irrigation should not occur on a calendar-based schedule, but on actual site conditions for each head and zone.

“REDUCE WATER USE ON UTILITY TURFGRASS BY CREATING LANDSCAPED AREAS THAT DO NOT REQUIRE WATER IN ADDITION TO RAINFALL. CHOOSE PLANTS, TREES, AND SHRUBS THAT ARE DROUGHT TOLERANT AND THRIVE IN YOUR CLIMATE.”

When scheduling irrigation, consider evapotranspiration rates, recent rainfall, recent temperature extremes, soil moisture, and pending field use schedules.

Cycle irrigation so sprinklers run in shorter increments to give water time to infiltrate into the soil and minimize runoff. Excessive irrigation can transport pollutants and cause erosion, which can negatively affect waterways.

Irrigate in the early morning hours before air temperatures rise and relative humidity drops.

Create a drought management plan for the facility that identifies steps to be taken to reduce irrigation/water use and protects critical areas.

During a drought, closely monitor soil moisture levels. Whenever practical, irrigate at times when the least amount of evaporative loss will occur.

Monitor and record the amount of water being applied, including system usage and rainfall. By tracking this information, areas can be identified where minor adjustments can improve performance.

Water conservation practices

Select drought-tolerant varieties of turfgrasses to help maintain a safe, attractive and high-quality playing surface,

while minimizing water use. Of the cool-season grasses, tall fescue and perennial ryegrass exhibit the best drought tolerance. The water use efficiency of warm-season grasses is about 50% greater than cool-season grasses. Bermudagrass exhibits the best drought tolerance for warm-season species. Websites like the Turfgrass Water Conservation Alliance (TWCA), provide choices for turfgrass species/varieties with water conservation in mind.

Reduce soil compaction to improve water infiltration and decrease water use and runoff. Slicing, spiking, aerating and other cultivation practices help relieve surface compaction and promote better water infiltration and penetration.

Use mowing, verticutting, aeration, wetting agents, nutrition, and other cultural practices to create a healthy turfgrass environment to encourage water conservation and efficiency.

Visually monitor for localized dry conditions or hot spots to identify areas with specific water needs. Supplement watering only for the establishment of new plantings and new sod, hand watering of critical hot spots, and watering-in of chemicals and fertilizers (if permissible).

Reduce water use on utility turfgrass by creating landscaped areas that do not require water in addition to rainfall. Choose plants, trees, and shrubs that are drought tolerant and thrive in your climate. Indigenous plant species are adapted to the precipitation and diseases associated with the region. Work with your local cooperative extension service to determine the best native plants for your situation.

Design the irrigation system to target only the field and immediate surrounding areas. Create zones to address the areas that are most intensely trafficked/managed. The irrigation system should be designed and installed so that the field can be watered independently from out of bounds and landscaped areas.

Consider having separate zones for turfgrass and landscaped areas. Use micro-irrigation and low-pressure emitters in non-play areas to supplement irrigation.

Make sure tall grass, groundcovers, or shrubs are not blocking or deflecting the water spraying out of the sprinklers. When

the water pattern is deflected by tall grass or leaves it results in uneven watering and water waste. To reduce water waste, use sprinkler heads that pop up 3 or more inches or trim plants around the sprinkler.

Locate part-circle sprinkler heads 4-6 inches away from the edge of sidewalks, curbs, patios, etc. This will reduce the amount of spray onto the paved surface and will not create a dry area along the edge. Locate sprinkler heads 12 inches away from shrub areas.

System efficiency and upkeep

Irrigation systems should be properly designed and installed to improve water use efficiency. An efficient irrigation system maximizes water use, reduces operational cost, conserves supply and protects water resources.

Design and/or maintain a system to meet the site's peak water requirements under normal conditions while being flexible enough to adapt to various water demands and local restrictions. Conduct irrigation audits to maximize water use efficiency. The audit should check sprinkler head operation and output as well as irrigation distribution, uniformity, and pressure. Conduct irrigation audits annually. Irrigation audits can be performed by trained technicians, however, audit kits are available for those wishing to conduct their own audits on a regular basis and/or if the facility has many fields.

Check application/distribution efficiencies annually. Catch-can tests should be run to determine the uniformity of coverage and to accurately determine irrigation run times. Catch-can testing should be conducted across the facility to ensure that the system is operating at its highest efficiency.

Inspect the irrigation system daily for proper operation by checking computer logs and visually inspecting the pump station, remote controllers, and irrigation heads. A visual inspection should be carried out for leaks, misaligned or inoperable heads, malfunctions, breaks, and chronic wet or dry spots, so that adjustments can be made. Often, irrigation heads tend to settle or are set too low after years of topdressing. They should be set back to grade as needed for proper operation.

“CONDUCT IRRIGATION AUDITS TO MAXIMIZE WATER USE EFFICIENCY. THE AUDIT SHOULD CHECK SPRINKLER HEAD OPERATION AND OUTPUT AS WELL AS IRRIGATION DISTRIBUTION, UNIFORMITY, AND PRESSURE. CONDUCT IRRIGATION AUDITS ANNUALLY.”

Observe your irrigation system in operation at least weekly. This process detects controller or communications failures, stuck or misaligned heads and clogged or broken nozzles. Do not assume a remote system operated from a smartphone is operating properly.

Perform frequent system checks and routine maintenance on pumps, valves, fittings, and sprinklers. Manufacturers typically provide recommendations for timing and process for checks.

Ensure that the irrigation system is equipped with an emergency shutdown in case of a line break and high- and low-pressure sensors that shut down the system in case of breaks and malfunctions.

Keep records of filter changes, as this could be an early sign of system corrosion, well problems, or declining irrigation water quality.

Check filter operations frequently. An unusual increase in the amount of debris may indicate problems with the water source. Even under routine conditions, keeping filters operating properly prolongs the life of an existing system and reduces pumping costs.

Monitor water meters or other measuring devices for unusually high or low readings to detect possible leaks or other problems in the system. Make any needed repairs.

Evaluate pressure and flow to determine that the correct nozzles are being used and that the sprinkler heads are performing according to the manufacturer's specifications. Pressure and flow rates should be checked at each head to determine the average application rate in an area.

Inspect the backflow device to determine that it is in place and in good repair.

Monitor the power consumption of pump stations for problems with the pump motors, control valves, or distribution system.

Winterize the irrigation system to prevent damage.

Implement a preventative maintenance program to replace worn components before they waste water. Document equipment run-time hours to ensure that all lubrication, overhauls, and other preventive maintenance are completed according to the manufacturer's schedule. Periodically review the condition of infrastructure (such as pipes, wires, and fittings). If the system requires frequent repairs, determine why these failures are occurring.

Collecting information on the cost of maintaining the system as part of system overall evaluation allows for planning necessary upgrades and replacement. Recordkeeping can also provide comparison data after changes are made.

Alternative sources

Reclaimed, effluent, and other non-potable water supplies may be an option for sports fields to help conserve fresh water supplies.

Identify and use alternative water supply sources to conserve freshwater drinking supplies.

Post signage in accordance with local utility and state requirements when reclaimed water is in use.

Monitor sodium and bicarbonate buildup in the soil using salinity sensors or conduct soil tests annually.

Routinely monitor shallow groundwater table of freshwater for saltwater intrusion or contamination of heavy metals and nutrients.

Monitor reclaimed water tests regularly for dissolved salt content.

Use salt-tolerant varieties of turfgrass and plants to mitigate saline conditions resulting from an alternative water supply or source.

Amend sodic water systems appropriately (with gypsum or an appropriate ion) to minimize sodium buildup in soil.

Flush soil with freshwater or use amending materials regularly to move salts out of the rootzone and/or pump brackish water to keep salts moving out of the rootzone.

Reclaimed, effluent, and other non-potable water supply mains must have a thorough cross-connection and backflow prevention device in place and operating correctly.

Account for the nutrients in effluent (reuse/reclaimed) water when making fertilizer calculations.

Where practical, use reverse-osmosis filtration systems to reduce chlorides (salts) from saline groundwater.

Design the irrigation system so there is still access to freshwater. Salt buildup from poor-quality water sources will occasionally need to be leached from the soil.

Technology

Irrigation system planning should incorporate practices and technologies that conserve water as well as ensure the efficient and uniform distribution of water.

Invest in an onsite weather station. Stations provide an effective method of collecting data that can be used to determine actual site ET rates. The data can be logged and interfaced with irrigation central control software to aid in determining water applications.

ET gauges are available which allow a daily reading of evapotranspiration creating water savings that easily offset the cost of the gauge.

Use rain gauges, rain shut-off devices, flow meters, soil moisture sensors, and/

or other irrigation management devices to manage the site's irrigation schedule. Rain sensors can be programmed to shut off the system after 0.25 to 0.5 inch of rain is received. Computerized systems allow a manager to call in and cancel the program if it is determined that the field has received adequate rainfall.

Place rain shut-off devices and rain gauges in open areas to prevent erroneous readings.

Use soil moisture sensors to bypass preset or to create on-demand irrigation schedules. Use multiple soil moisture sensors/meters for accuracy and to reflect soil moisture levels. In-ground (wireless) sensors can be placed in representative locations of the irrigation zone. They should also be installed in the driest irrigation zone of the irrigation system. Hand-held moisture meters can also be used to enhance schedule timer-based run times. Soil sensors can be integrated with computerized irrigation systems to

provide critical soil profile data in specific locations and allow for micro- climate specific water applications.

Invest in a rain switch that detects measurable rainfall, then turns off automatic irrigation valves.

Measure the amount of water that is delivered through the irrigation system via a water meter or a calibrated flow-measurement device. Knowing the flow or volume will help determine how well the irrigation system and irrigation schedule are working.

Reset irrigation controllers/timers as often as practically possible to account for plant growth requirements and local climatic conditions.

Hand-held soil moisture meters can also be helpful to determine soil moisture for those facilities without high-tech monitors. Walking and probing fields allows the field manager to check soil moisture as well as making a visual observation of their fields. **/ST/**

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The Rieker family

JOEL RIEKER, CSFM

This month in “The *SportsTurf* Interview,” we meet Joel Rieker, CSFM, grounds manager at City of East Peoria (IL), and turfgrass instructor at Illinois Central College. Joel was in the CSFM Class of 2018 and previously was recognized by the STMA with its Environmental Facility Certification for his work at the Eastside Centre in East Peoria. These facilities showcase ecologically friendly and sustainable best practices.

SportsTurf: What are your current responsibilities?

RIEKER: As grounds manager I oversee all properties that are owned by the city. This includes Eastside Centre, a 15-field sports complex, East Peoria Civic Plaza Complex, Riverfront Park, and various other properties.

ST: What does a regular working week entail?

RIEKER: During the summer months we are very weekend heavy with activities at the sports complex so my weekends are spent at Eastside Centre for travel tournaments and games. During the week I manage a crew at the sports complex and take care of fertilization, weed control and irrigation at the various other properties.

ST: How did you first become involved in sports turf management?

RIEKER: When I turned 16 I applied to work for the local minor league team, the Peoria Chiefs. For the next 4 years I spent every summer at the ballpark and fell in love with sports turf management.

ST: How did you first become involved with STMA?

RIEKER: While working at the Peoria Chiefs we would always have the

STMA magazine in the office and that was when I was first introduced to the STMA. Since then I've enjoyed serving on committees, I've competed in and judged the Student Challenge, and I am looking forward to serving on the Board one day.

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

RIEKER: The STMA has helped every step of my career. I choose Iowa State University for my turf degree because, at the time, Mike Andresen was president of the STMA and worked at Iowa State. Being a part of the STMA introduced me to the New York Red Bulls and helped me secure my internship with them. It also has helped me advance my career currently with the CSFM certification and qualifying the Eastside Centre with the STMA's as an Environmental Facility Certification.

ST: What specific challenges do turf managers at the Parks and Rec level face that differ from your peers in other STMA membership categories?

RIEKER: Our biggest challenge is the evolution from “in house leagues” or true recreation leagues and tournaments to a purely travel sports

society. The level of competition in the youth sports leagues have become increasingly more competitive and these teams and organizations are demanding more of the complexes and facilities they are playing at.

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

RIEKER: As with other industries, we are seeing a great deal of employee shortages. Illinois just passed a \$15/hour minimum wage. This is really going to put a strain on the seasonal employee budget and I believe we will have to start making changes to reduce the number of employees we will have. Using autonomous mowers, painters and other equipment that can reduce the number of employees needed will have to be implemented.

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

RIEKER: I really enjoy sharing my passion and knowledge of the turfgrass industry by working and volunteering at the local community college. I spend a great deal of time following Iowa State University athletics and enjoy following professional sports. I love spending time with my family and working out in the yard with my son. **/ST/**



JOHN MASCARO'S PHOTO QUIZ

JOHN MASCARO IS PRESIDENT OF TURF-TEC INTERNATIONAL



ANSWERS FROM PAGE 17



These irregular brown areas and green squares are the "aftermath" of a professional fireworks show that was recently shot from one of this municipality's recreation league softball fields' outfield. This was at the conclusion of the Freedom Blast Event, which is this City's Independence Day Celebration, and drew about 15,000 people. The field is 419 Bermuda with a current height of cut of 3/4 of an inch.

Since this is the 11th year for the event, the Sports Turf Manager now knows how to handle the event. He first applies a plant growth regulator about 9 days prior to the event to help avoid any damage from the setup "boxes" and truck bringing in the fireworks. The reason why the event is held on the field itself is that this outfield is located outside the 450-foot blast / fall out radius from the crowd, which is required for the fireworks and does not impede any area business or residents. The green squares are the areas where the setup "boxes" held the fireworks and the brown areas are the resulting burns from the propellant



used to launch the fireworks. Since the area is Bermudagrass and the damage occurs in July after the show the field is fertilized, and the PGR program is continued on a 14-day basis. By the time baseball practice begins in Early August, the areas will be completely healed over.

Photo submitted by Travis Durham, Grounds Superintendent for the City of Greer in South Carolina

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



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Efficient and economical mowing

// By BOYD MONTGOMERY, CSFM, CSE



Boyd Montgomery, CSFM, CSE currently serves on the STMA Board of Directors as Vice-President, Commercial and is the Regional Business Manager in the Commercial Products Division of The Toro Company.

For the turf industry, mowing equipment has evolved over the years as regulations and innovation continue to change the paradigm. Grounds professionals continue to seek out ways to control budgets while still trying to deliver high quality results. While costs continue to rise on equipment, many professionals purchasing equipment have come to understand that the “purchase price” is not all that needs to be considered. This element is always a critical part of the purchase transaction, but should not be the primary factor in the purchase.

When turf professionals look at the total aggregate life of the equipment being purchased, there are many more elements that should be factored in. In fact, the “purchase price” becomes one of the smaller elements in the total picture of ownership of the equipment. Too often during the purchasing process decisions are made solely on the lowest price with little attention paid to long-term costs of labor, maintenance/service, downtime, fuel, or other factors that will influence future budgets or other soft factors such as human factor and politics. Many times decisions that are strictly based on lowest price alone will not end up satisfying the needs of the end user over the lifetime of the machine.

Hours vs. miles

Mowing equipment generally is measured in the number of hours of use. While hours of use may mean something to grounds professionals, many of those making decisions around the purchase of new equipment have had a hard time relating to what hours on a mower exactly mean. Most people use miles on their own personal automobiles as a frame of reference. So how do you factor what truly should be the life expectancy of the equipment you are purchasing and how do you advocate for replacement?

In an article published in 1986 in the USGA Greens Section publication, they provided the logic for this comparison that “a



The legendary George Toma mowing at one of his 53 Super Bowls.

car would have to travel approximately 60 miles per hour to have the same wear factor as turf equipment.” Consider these adverse factors for equipment used in the grounds industry:

- Operated at full RPM for the majority of the day
- Have adverse working conditions such as dust, grass clippings, debris, moisture and terrain
- Works at a slower ground speeds, which are not ideal for cooling of the equipment

Using the logic provided by the USGA¹, if you are operating a rotary mower for a week and it logs 24 hours during this time, 34 weeks a year (northern assumption), this gives you a total of 816 hours each year. If you are in a warm southern climate, your weeks and hours of use may be considerably more. If you use the 60 miles per hour figure, your mower will have traveled the equivalent of 48,960 miles every year. If you keep this mower for six years it would have an equivalent total of 293,760 miles on it. You can quickly see how this would impact your maintenance and service costs and why there would be a case to replace the equipment.

In the turf industry, productivity for mowing equipment is measured as the rate at which work is performed. Most manufacturers will display this in terms of acres per hour. There are a few variables that impact productivity. These are the speed at which the mower operates at and the width of the cutting unit. Another note to be aware of is that as speed increases it can have an adverse effect on the quality of cut on the grass. Knowing these factors, it is a simple rule-of-thumb math calculation to figure out how many acres per hour the machine will mow.

$$\text{Acres per hour} = \frac{\text{Inches of cut} \times \text{speed in mph}}{100}$$

A more technical equation would be :Acres/Hour = (((Mowing Width [in inches])/ 12 Inches per Foot) X ((Average Mowing Speed) [in Miles per Hour]) X 5280 Feet per Mile) / 43560 Square Feet per Acre¹.

For the more technical equation you would divide the “5280 Feet per Mile” by your efficiency estimation before calculating.

¹USGA Green Section Record, November/December 1986 Issue.

²Working 9 to 5? by Charles (Bud) White

³Estimation

One thing to consider when factoring mowing productivity is that operators generally encounter elements that do not allow for them to mow continuously. Elements such as overlaps, stops, turns, trimming, and maneuvering around obstacles all impede the mower's speed. While the equation above assumes 100% efficiency, a more realistic measure would be to 80-85% efficiency to allow for the above factors. The more productive the equipment, the better grounds professionals can manage labor costs per acre.

Surprises can be received one of two ways, either good or bad! Most people will admit that they like good surprises more than bad. With equipment ownership, if "purchase price" is the only consideration then hold on for more experiences trending towards the bad surprises. Looking at acquisitions based on the best value expands the impact of that piece of equipment "purchase price" further into your operation. Considering operational costs such as fuel consumption, maintenance and service, downtime, and labor are keys to understanding the true economics of the mower.

The cost of fuel continues to be a moving target in many states. Increased gas taxes, supply and demand challenges, and consumption are just a few impacts that can cause volatility in fuel. Mowing equipment fuel consumption is determined by a number of factors:

- Mowing equipment is evolving to be designed with the proper engine to meet the requirements of the machine. While the old rule of thumb in engineering was to design a machine and then an engine that would handle the "worst-case" experience, the E.P.A. enacting Tier 4 on the industry has brought more focus on proper outfitting of engine power to the application. This provides a more fuel-efficient machine for the operation.

- Engine horsepower needs to factor in many characteristics that the main traction unit and cutting units need to perform in the various cutting conditions. For example, will the machine be cutting under a heavy load frequently (elevation or thicker grass stands).

There are rotary mowers and reel mowers. Generally, reel mowers require about half the horsepower of rotary mowers. Consideration for how the cutting units are driven is important. Hydraulically driven equipment will generally consume twice as much power as mechanical devices. The way equipment is designed will directly impact how efficient the machine operates. A properly designed cutting unit will use aerodynamics to help discharge grass properly versus one that is poorly designed. Fuel consumption of the poorly designed product will be higher because of the mechanical load.

Mowing equipment operates at a lower ground speed, so selecting an engine with proper cooling is critical. Products such as air-cooled engines, in some cases, will consume more horsepower and fuel versus liquid cooled. Liquid cooled diesel engines can be more fuel-efficient than their gas powered counterparts.

To factor fuel costs, most manufacturers provide information on a machine in terms of fuel consumed per hour. Simply multiply fuel consumed by hour by the cost of fuel per gallon and you can then multiply this by the hours of use.

$$\text{Total Fuel Costs} = \text{Fuel Consumption (per hr)} \times \text{Fuel Cost (per gal)} \times \text{Hours of Use}$$

Innovation and technology converge

As innovation in mowing equipment continues to advance, we are seeing more hybrid and electric technology start to replace the large traditional gas or diesel engine. Many of these hybrid machines introduce a marriage of electrical components with smaller horsepower engines. These machines may reduce fuel consumption (15-20%), while also reducing noise levels of the machine. Many hybrid machines use electric motors to operate the cutting units. This reduces the need for hydraulic components on the machine. Hydraulic components are wear items over the life of a mower and need to be properly maintained or the machine will lose the efficiency and possibly impact the quality of cut. Wear on hydraulics also increase the potential of leaks and exposure to turf damage that could increase cost as well as customer satisfaction. Hybrids also incorporate technology that allows the operator to have a better understanding of how their equipment is performing.

Recently, some mowing equipment has become all electrically operated, reducing indirect fuel cost entirely. While this technology is primarily focused on reel mowers, it allows for innovation to be focused on how the machine directly impacts the quality of cut and turf.

Hybrid and all-electric machines will tend to have a higher acquisition cost than traditional mowers. Considering the best



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value will show that over the long run of the equipment there will be significant savings in a number of the operational areas.

Do I have to change the oil again?

One of the largest single expenses for mowing equipment is equipment maintenance and servicing. Remembering the impact of hours versus miles, one can quickly understand the need to stay on top of routine maintenance and service. If equipment is not properly designed for the intended use, maintenance costs can quickly escalate. There are a number of factors that need to be considered with maintenance and servicing, including cost of parts; availability of parts; labor costs; and downtime (loss of productivity).

There are two types of maintenance and service. One is predictive and focuses on routine maintenance the manufacturer recommends for the piece of equipment. The other is reactive and is generally one of those “bad surprises” we talked about earlier. Both of these have a major impact on operational costs. When you look at the recommended manufacturers maintenance and service intervals, not all are created equal! The more the frequency, the higher the cost. The larger the hydraulic system the higher potential cost in hoses and fluids.

The annual cost of maintenance and servicing can quickly escalate to be more than the acquisition price of the equipment

LABOR COSTS

Many operations are finding it increasingly difficult to find qualified individuals to operate their equipment. This can lead to inexperienced operators on a machine that results in reactive maintenance costs or potential damage to the facilities.

Compensation continues to evolve as many areas are seeing a rise in minimum wage and generational work focus changes. Based on geographic location the labor market conditions can be a constraint. Factors to consider when looking at labor costs include:

- Hourly rate
- Employee FICA contributions
- State and Federal taxes
- Any possible pension or profit sharing contributions
- Workmen’s compensation costs
- Vacation or sick pay
- Medical, dental or life insurance contributions
- Educational or training allowances

A key to labor costs is maximizing hours of operation on a machine to get the work done by that employee. Consider the impact of loading and unloading, paid breaks, transportation, cleaning, and fueling equipment, which all reduce the effective time mowing. For mowing, labor utilization is the amount of time that employee actually spends mowing. To figure out labor costs:

$$\text{labor cost per acre} \div \text{the total labor cost} \\ = \# \text{ of acres the employee mowed during that time}$$

if it is not properly maintained. Using sound maintenance and servicing practices along with proper record keeping can help a grounds professional decide when it is the proper time to look at replacement. These documented practices can also be an advantage when it is time to trade in the unit.

What to do now

Too often grounds professionals experience this question when they have a mower not operating properly and they have personnel expecting to work. All equipment will experience downtime whether routine service or a breakdown occurs. The objective for any operation when this happens is to minimize the amount of time the equipment is out of service. For planned downtime on equipment, many operations will choose to redirect their labor costs by having them perform other duties within the operation. That works if your employee has the proper qualifications and knowledge to perform the work.

Those that experience an unplanned break down may have a “circle the wagons” event to try and get the machine back up and running. When this occurs the operation will incur costs not only associated with the machine repair (labor & parts) but also:

- Downtime costs of that employee (hourly rate)
- Possible overtime to get the work that was to be finished done (hourly rate)
- Potential impact on the customers on expectations
- Additional usage on other equipment to try and supplement
- Additional purchasing of back up equipment
- Additional cost to get the necessary parts for the fix expedited shipment

Downtime should be discussed and agreed between the grounds professional and management team so that everyone understands the true cost associated with it.

SUPPLIER QUESTIONS

What are a supplier’s service capabilities?

How many certified technicians do they employ?

Do they have mobile service techs?

What is the value of parts that they stock at their location?

What do they offer for parts shipment?

Ask for references from your supplier(s). Follow up and consider asking: How long does it take for them to respond to a service request? Have you visited their service shop? Was it professional and clean? How soon do you get a part if I need one? How was the purchase process? How is your machine(s) operating? What type of training did they offer?

There are many more questions, and these should be based on your region and overall expectations. Service by your supplier should bring some weight to the final decision as you look at operational costs and try to minimize the amount of downtime you experience.

To this point, we have discussed the key operational costs into the total ownership cost for the acquisition of mowing equipment. One additional cost that should be considered is the ownership costs associated with the acquisition.

For operations, the ownership cost can impact the business in many ways. There are generally three key impacts that should be considered. Depreciation, investment, and tax cost. Unlike operational costs that are fluid and can escalate, ownership costs tend to be more “fixed.”

Larger mowers or those designed with more expensive components may have a higher ownership cost but lower per acre operating costs. The rate at which the higher ownership costs are “paid back” depends on the amount of operating savings and the degree to which the equipment is used versus alternative options.

Depreciation simply means the calculated manner in which the value of a fixed asset is decreased with time to become zero or negligible. This is critical for most operations when it becomes time to move the cost from the balance sheet to the profit and loss statement for that mower. If the mower has “book value” (year(s) value still left to depreciate), then the unit must have a trade-in value equal to the book value or the business will take a loss. There are also some tax benefits available for private entities if they choose to depreciate.

The government also offers incentives in terms of accelerated depreciation or varying percentages of depreciation based on business structure. The best council on figuring depreciation expenses is to check with your financial officers of the business to see what method they use.

A very simple method to figure out depreciation cost would be to take the purchase price and divide it by the expected useful life of the equipment (this would assume the book value would be zero).

A dollar in hand today is worth more than a dollar tomorrow! This phrase refers to the time value of money. This is the assumption that a dollar in the present is worth more than a dollar in the future because of variables such as inflation and interest rates.

As financial people look at investments for equipment, they have to consider the fact that a purchase of a mower today consumes cash that may produce a better return if invested elsewhere. Individuals may consider leveraging finance and leasing options that may give you a better return. This is after all the operational costs are considered for that mower. While the work may still be required, there may be other options, such as outsourcing the work, which produces a better return for ownership.

To calculate the investment cost, multiply the purchase price by the interest rate available on the other investments and multiply that by the number of years of expected use of the mower. Then divide the investment cost by the hours of mowing life.

It is critical as you start the selection process to make sure that you have the appropriate mower for the desired results for your operation. To do this you need to engage your equipment supplier(s) and make sure that you are comparing “like” products. Today’s mowers can offer many different configurations that may not be the same from manufacturer to manufacturer. Explain to your supplier(s) the current situational needs you are trying to accomplish

and the desired results you want to obtain. Work with them to make sure you are comparing units that are set up with the same configuration. If you require a demonstration of the machine, make sure you provide setup requirements including your desired height of cut and machine configuration. Make sure the units are tested under the same conditions on the same area.

Public agencies should also consider an additional cost exposure, transactional costs! This cost is associated with the hard dollars spent to procure the desired equipment for their constituents. Many public agencies that utilize bids, RFPs, and tenders all experience additional costs of acquisition by personnel in their procurement office that prepare and guide these processes.

Many procurement individuals are now using cooperative purchasing agreements. These allow them to utilize contracts that have already gone through the competitive bidding processes by a lead agency and are now open to their members to utilize. This reduces transactional costs for many procurement agencies that may be limited in staff or budgets.

Quality doesn’t cost more, it pays! Use the key points in this article to understand the crucial elements of your mowing equipment and evaluating the true cost of ownership. **IST!**

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Irrigation evolution at Blue Valley School District

// By JOHN R. PETERMAN, CSFM

Summers are typically hot and dry in the Midwest, so regardless of what type of grass you're trying to grow you will need irrigation. The ability to precisely control irrigation is essential today. Coming to Blue Valley (KS) Schools in 1996, I realized the sports field irrigation left quite a bit to be desired. Only two of the three high schools and two of the five middle schools had automated irrigation; to make things more confusing, each school had a different brand and model of controller. The schools that did not have irrigation used water reels, which are effective but labor intensive and slower.

In 1997 we converted all existing irrigation controllers to one brand and model for simplification. We also started plans to install our own irrigation in-house. My experience from the golf industry gave me the know-how to pretty much start from scratch. Blue Valley owned no specialized equipment for irrigation construction so we relied upon rentals, starting off with a slow, walk-behind trencher (I don't like trench installs!). We graduated quickly to a ride-on machine, but still it was trenching, just faster.

At this point all the installs were into existing fields, so trenching was even less desirable. My experience had been with 40-60 horsepower vibratory plows, so in 1998 we bought our first Ditch Witch 6510 with a backhoe on the front and steerable vibratory plow on the back. The 6510 was fairly worn out but we spent the next 10 years installing miles and miles of pipe and wire with it.

Our goal became to install irrigation for every athletic field in the district. Some sites had a water source, others had a 2-inch dedicated meter installed. Support from administration came easily after we showed we could irrigate a football field for around \$6K. Also with the 6510, three people could install the system in around a week. During



John R. Peterman, CSFM

those early years we spent time in the summer installing systems and bringing life to dormant turf.

This early period also overlapped with our bermudagrass conversion. For sprigging purposes an automated irrigation system can't be beat versus above ground aluminum gasketed pipe and manual valves. Two things drove the design of our systems: supply pressure/volume and the size of our machine. The 6510 and later RT75 are fairly large machines to be operating within the confinements of a track, long jump runways and fences, so these factors drove our design and install methods.

In 1997 we also started discussing central irrigation controls. Even though we only had five schools with irrigation, it was challenging to adjust controllers often enough. So basically we were either under-watering or over-watering. My experiences with Toro VT3/VT4, Network 8000 and Rain Bird Maxi 5golf showed me just how effective central control is. The commercial version is called Maxicom and that's what we settled on and started installing in 1998. From 1998 until 2003 we relied upon dialup connections often with an analog bag phone and modem in the controller pedestal. The central controls allow us to use ET replacement watering and control without having to leave the office. The weather station is located at the district office and provides the ET for Maxicom. By 2004 we had all communication converted to operate on the Ethernet. This was obviously much faster and cheaper to operate. We were fortunate enough to piggyback onto a district-wide Ethernet installation that connected all the schools.

The actual physical installation of the pipes, valves and rotors once again took a page out of my golf background. On existing grass fields we dig a hole either by hand or with backhoe wherever we want a rotor or valve. Then using a King Grip and the vibratory plow we pull the pipe from hole to hole. Generally all the main lines are 2½-inch class 200 pipe. We first pull all the pipe passing through all the valve location holes, stopping at the end of the run. Then we go back and cut the pipe to allow for a "T" to be installed and push the glue joint together from the next valve location down the line using a custom made push tool. About 740 feet is the typical mainline around our

football fields. This can be installed with T's by mid-day.

Then we change the King Grip over to 2 inches. All laterals are 2-inch pipe that we pull from the valve to the last rotor. A little overkill for the last rotor or two on a zone, but the ease and speed of installation outweigh the cost of the using the larger pipe. By the middle of day two, all zones were done and we put the wire-pulling blade on and install all the conductors. We don't use two wire valves, so we pull individual wires all the way back to the controller. Day three wraps up the back filling and the system is ready to flush and test.

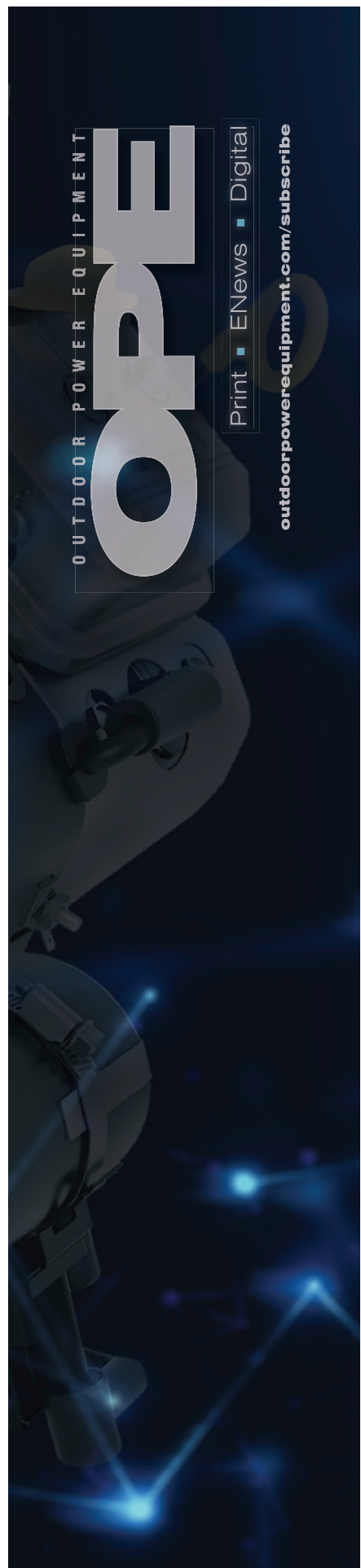
In 2014 we were doing the irrigation on five new fields being built at a high school. We met all of our performance objectives but a contractor did not, so we were given a field with almost no installation window between the grading company and sod installer. To overcome this we decided to install the entire soccer field system in one day using multiple crew members and operators to keep the machines working. Not sustainable but was a fun experience!

Installing our own systems and using standardized valves and rotors also allows the irrigation tech to carry the minimal variety of fittings and parts, because when he starts digging a repair he knows what size pipe he will find, what brand swing joint he will encounter, etc. This reduces trips to the supplier, storage, and wasted time.

In 2008 a new Ditch Witch RT75 and a John Deere 110 backhoe were purchased, retiring the 6510. Currently 25 of our 34 schools have irrigated fields or soft play areas. All of them are centrally controlled. Eighty-two acres of athletic fields and another 22 acres of elementary school fields are irrigated.

It's been a very gratifying part of my career bringing irrigated life to fields for our students and student-athletes. Knowing that these systems will be working long after I've retired is satisfying. I never dreamed when I was 22 years old "learning" how to pull pipe around golf greens and tees that I would later use that passion to irrigate an entire school district athletic program. **/ST/**

John R. Peterman, CSFM, is senior grounds supervisor, facilities and operations, Blue Valley (KS) Schools.





TOPDRESSER FROM REDEXIM

The Rink DS 800 is a topdresser with dual spinners with a spread pattern variable up to 33 feet (10 m). The operation of the belt and spinners can be done from the tractor seat by switching the hydraulic lever. No unnecessary drop of material takes place between stopping and operation, since the material release gate automatically closes when the belt is stopped. The spinner disks have been designed in a way that they will handle wet material very well. The Rink DS 800 can be configured as a tow behind unit or as a mounted unit on certain utility vehicles. For more information, go to www.Redexim.com or call 636-825-8300.

is standard. Hydraulic drive is available as an option, offering benefits for owners of tow vehicles with remote hydraulic valve and minimum of 6 GPM flow.



TORO PROPASS 200 TOPDRESSER

The innovative Toro ProPass 200 broadcast-style topdresser offers a variety of cost-saving features including the unique four-wheel walking beam suspension that allows all four wheels to stay in contact with the ground regardless of terrain. The drop zone system ensures an even application, and the smooth belt eliminates load shifting to prevent material from escaping. Additionally, the 21-cubic foot hopper capacity level ensures high productivity and the capacity to finish a job with minimal stops. Available in vehicle-mounted and towable models, the ProPass is a highly versatile and productive topdresser.



TURFTIME EQUIPMENT TOPDRESSERS

TurfTime Equipment topdressers have a capacity range of .75 cubic yd. to 8 cubic yd. The long hopper allows faster loading without spilling. The TurfTime topdresser can be used anywhere - golf course, sports field, horse track, polo field, and open spaces. TurfTime's high quality topdressers are designed to spread wet or dry materials allowing a very light dusting or a heavy application. The unique configuration of the belt and metering gate eliminates bridging and delivers a consistent flow of material to the spinners. Like a drop spreader? Adjust spinner and belt speeds to get a narrow drop application, or to broadcast the material over a wide area, all with the same topdresser.



MULTISPREAD 320

The Earth & Turf LLC product line includes its MultiSpread Model 320, a 1-cubic yd. topdresser spreader with exclusive, wide-spread beater, for lawn-maintenance professionals, schools, universities, golf courses, and athletic fields. This versatile machine spreads topdressing materials, infield mix, calcined clay, and grass clippings. With a convenient light-material sides option, available for dealer or customer installation, this topdresser virtually doubles its capacity, especially great for spreading light compost to improve turf quality! Overall height with light-material sides, plus narrow overall width, allows operators to reach in easily from either side when loading. Maximum load capacity using the light material sides is 3,600 lbs. Two-wheel ground traction drive



JOHN DEERE TD100 TOPDRESSER

Designed for the John Deere ProGator heavy-duty utility vehicles, the TD100 Top Dresser is ideal for use on athletic fields and other areas where an efficient means of top dressing is needed. The hopper on the TD100 Top Dresser has a capacity of 12 cubic feet level-full or 19 cubic feet heaped, a rated capacity of 1500 pounds, and is made of galvanized steel to reduce corrosion and supported by steel-members to increase strength. The fixed-speed, nylon/polyester

cord, endless conveyor belt on the TD100 efficiently moves material under the metering gate and through a rotating brush for even distribution. The full-width metering gate opening can be adjusted from zero to three inches, with a two-lever system allowing the operator to adjust the gate height and lock the gate into position.



NEW ECO 600T TOPDRESSER ATTACHMENT

The ECO 600T 3-point hitch top dresser attachment is unique in Ecolawn Applicator's line of broadcast top dressers. Equipped with a category 2, 3-point hitch and a PTO drive, the new generation ECO 600T makes handling heavier products feasible without sacrificing maneuverability or ease of operation. It has been designed with a hydraulic flow-gate system, for effortless adjustability directly from the driver's seat. Whether applying compost, sand, soil, or a custom blend; the ECO 600T's large capacity, rear-delivery hopper (22 cu. ft) broadcasts bulk material in a 180-degree arc (up to 22 ft. wide), making topdressing quick, smooth, and effortless.



WFR SPREADER FROM LELY

With a hopper capacity of 600-800 lbs., the Lely Ground Driven WFR is ideal for use on golf courses, sports fields, parks and green areas. All Lely spreaders feature a force-feed mechanism that achieves spreading accuracy up to 52 feet wide, carry a two-year limited warranty and can be outfitted with

several accessories. In addition, they offer the flexibility of being compatible with a workman, UTV, tractor or most other power units. With a forward speed of 4.5 mph, the Ground Driven WFR incorporates a unique differential gear system, which allows the tires to turn independently. This design prevents turf damage on the most sensitive areas and offers an even application.



DRYJECT GOES WET!

DryJect will no longer be limited to the use of only kiln-dried sand. The company says it now will be able to inject NON-KILN DRIED sand through its machines. This technology will be available through select regional service centers on a limited basis by October and will be available through most of their centers in the late winter/spring 2020. The company says it has engineered a special hopper configuration that includes rotating agitation and staged screening with vibratory assistance to assure affective flow of anywhere from slightly damp sand to wet sand.

Field testing revealed that the "Damp" and/or "Wet" sand applied through this special new design went out at about a 90% rate by VOLUME as compared to kiln dried sand. The 10% discrepancy is largely from that same percentage (10%) of holes not receiving any sand. This is noteworthy because 90% of the holes with sand were filled just as full as the kiln dried process. The DryJect aeration and injection process now becomes a viable option that did not exist in all areas before. The ability to save a substantial amount of money by using moist non-kiln dried sand is now an option.

TREE-STAKING SYSTEM

After an all-encompassing, long-term R & D program, Tree Hugger has brought its Tree Brace tree-staking system to market. Trees can now be totally supported by an easy-to-use, high-technology molded system that can be used over and over again. "Generally speaking," stated Lloyd Gerber, president of this new company, "staking of a tree can take anywhere from 12 to 20 minutes... and sometimes, two installers are needed. Our new Tree Brace™ system



can be installed in as little as five minutes... and, generally requires only one installer." Engineered to eliminate improper angles, easy-to-install Tree Brace™ offers optimal tree stability. This reusable staking system is manufactured with molded polypropylene, custom formulated to endure harsh weather conditions for decades. No specialized tools or related equipment are needed for the staking of each tree. This, along with ease of installation, translates into the overall cost of staking to be reduced significantly.



NEW EXMARK COMMERCIAL WALK-BEHIND MOWER

Exmark has expanded its line of 30-inch walk-behind mowers with the introduction of its new Commercial 30 X-Series model. According to Exmark Product Manager, Lenny Mangnall, "With 40-percent more cut area per pass than the industry-standard 21-inch walk-behind mower, our Commercial 30 quickly found favor with landscape contractors looking to get jobs done faster without sacrificing cut quality. The new Commercial 30 X-Series takes that proven formula to the next level with Kohler's premier single-cylinder commercial engine - the Command Pro CV200, along with a powerful transmission, for increased performance and durability." The increased displacement of the powerful Kohler engine gives it 30-percent more torque than competing engines to quickly power through the toughest, thickest grass.



► FIELD

DONALD LAMBERT FIELD

BRENTSVILLE DISTRICT HS

► LOCATION

Nokesville, VA

- **Category of Submission:** Schools/Parks Football
- **Sports Field Manager:** Andrew Miller
- **Title:** Turf Program Advisor
- **Education:** Degree in turfgrass management from Virginia Tech
- **Experience:** I spent four years working on the grounds crew of Virginia Tech Athletics, one year with the New York Mets working on the grounds crew under Bill Deacon, one year with the grounds crew for the Pittsburgh Pirates at PNC Park under Matt Brown, and one year with Pittsburgh Steelers working on the grounds crew under Chris Ecton at Heinz field. This is my second year working at Brentsville District High School as the Turf Program Advisor.
- **Full-time staff:** Seth Cameron
- **Part-time staff:** Cole Couch, Caleb Heaton, Claire Lancaster, Collin Brady, Roger Hancock, Sam Beard, Justin Hairfield, John Carayianis, Bronco Deeds, Tate Laing
- **Original construction:** 1965
- **Turfgrass:** Patriot bermudagrass
- **Rootzone:** Clay loam

- **Overseed:** We overseed once per year in early fall with a Perennial ryegrass variety.
- **Drainage:** None

Why should STMA consider your field a winner?

Donald Lambert Field is maintained full-time by students enrolled in the Brentsville Turf Program at Brentsville District High School in Nokesville, VA. They apply classroom education to maintain a field that is occupied year-round and used by multiple sports. Students are responsible for daily maintenance, topdressing 4-5 times per year with sand, designing and painting the field on a weekly basis, mowing, edging, trimming, and any other maintenance needs of the property. Students learn how to safely operate all machinery, performing these tasks with appropriate supervision and little assistance. The students maintain the flowerbeds and other landscaping decorations around the field, maintaining the aesthetics and overall presentation of the field. The reason that our field is the best field in the nation is the love and care put into the field by future sports turf managers. This field is

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

special because the students are learning first hand, for the first time, the ins-and-outs of the turf industry. Our top priority is player safety, and all decisions of the field reflect the decisions needed to maintain the safest playing surfaces for all of the athletes that take the field.

Students design the field based on themes that we feel reflect our community. Our themes include stars and stripes to honor our country, a breast cancer awareness game, and orange, black, and white to reflect our school colors. Students have hands on experience with paint machines, mowing, design layouts, and other cultural learning. Students also learn first hand mowing skills, not only proper technique, but intricate designs as well.

Our work is recognized throughout the state, as well as by guests at the field. Staff, coaches, athletes, spectators, and students at Brentsville consistently recognize the efforts of our students towards the quality of the field and of the designs they create. Opposing coaches and staff have commented on the high quality of the playing surface and the outstanding designs, both mowed and painted. On social media, our work has been recognized by Virginia Tech Turfgrass, University of Maryland Ground Crew, STEC Equipment, STMA, University of Texas Grounds Crew, Prince William County Schools, Prince William County CTE, Ohio State Turf, Pioneer Athletics, multiple other high school turf programs, and former presidents of STMA who have spoken highly of our field.

SportsTurf: What's your background? How did you get into agriculture and sports fields?

MILLER: My love for sports field began at a very young age when I played youth baseball. While I played with my dad, he would tell me stories of how he took care of his field when he coached. I only thought of it as a hobby until my 12th grade biology teacher mentioned that Virginia Tech had a major in turfgrass management. After looking into it, I knew that this was what I wanted to do for a career. It was the perfect way

to combine my love of sports and outdoors to obtain a career where I get to call a sports field my office.

My career in turf started as a student at Virginia Tech on the grounds crew working for Casey Underwood, Associate Athletic Director for Grounds, where I learned more about the turf industry than I ever thought possible. This led me to different opportunities working on professional fields including Citi Field (home of the NY Mets), PNC Park (home of the Pittsburgh Pirates), and Heinz Field (home of the Pittsburgh Steelers). I owe so much to the Head Groundskeepers, Bill Deacon, Matt Brown, and Chris Ecton who continued to teach me more about the industry. Finally, the education I received from the Virginia Tech School of Agriculture.

I come from a family of educators that led me to think about teaching turf management. After the great experiences of working on the professional fields, I returned to Blacksburg to complete my Masters degree in agriculture education. After graduating, I was lucky enough to obtain a position as a teacher at Brentsville District High School in Prince William County, VA. I have spent the past 2 years creating the Brentsville Turf Management program in Nokesville. We currently have 200 students in our program that care for 14 acres of natural turf fields with five different bermuda varieties, and the landscape of the high school and neighboring elementary school. The program also provides work throughout Prince William County Schools' athletic fields.

ST: What are the challenges in connecting with students today? How do you spark an interest in athletic playing surfaces?

MILLER: The challenge in connecting with students today is finding common ground. Students often feel misunderstood and disconnected from the adults in their lives. I deal with this by being personable with each and every one of my students and getting to know them as an individual not just another student in my class. I find that if you are honest and open with them it is much easier to connect with them. This creates an atmosphere of





trust, which is important in any classroom, but even more so in this program because I need to trust 13-year-old students to operate machinery and in some cases heavy machinery such as a 5-gang reel mower. Our program was built on trust and mutual respect.

By getting to know students individually and showing them trust, I have been able to empower them. In our program we help train our students to the point where they become self-sufficient on industry grade equipment. As a career and technical education teacher, it is my job to prepare our students to the point where they can teach the skill that we taught. The students have ownership of their program, of their learning, which makes them more invested in the process of taking care of the athletic playing surfaces.

At Brentsville we have spent the past 2 years creating a culture where we have an entire student body that takes pride in our program and our natural playing surfaces. We have taken a program that had less than 80 students just two years ago to this year where we will have over 200 students this year. We have done this with presenting students with a unique opportunity during school to spend class time outside learning about a career in the turfgrass industry. Presenting students with the idea that all of the work that is done on our athletic playing surface, would be a learning process that would lead to a feeling that most careers do not provide.

When introducing my students to the industry and the cultural processes, it is important that as the instructor I allow them to be a part of the decision-making process. I explain to my students at the beginning of the year that I treat my classroom similar to that of a sports turf workplace. Allowing students to come up with themes and designs for football field paint schemes or having them decided the mowing pattern in next soccer game. The interest turns to passion and this is how we can lead students who were unaware of our great industry and create the opportunity for them to become the future industry leaders.

ST: *What are your biggest challenges in providing excellent playing surfaces at the K-12 level? And how do you approach those challenges?*

MILLER: There are several challenges that every sports turf manager faces. The biggest challenge of course at our level is the budget. In order for an athletic field to be maintained properly, a great deal of money is needed and in public schools, there is very little of it. We are extremely lucky to work with an athletic director who truly cares about the athletic fields and does all he can with

the budget he is given. There are many practices that I would love to implement to deal with the challenges of a native soil athletic field but K-12 education usually doesn't have the funding that collegiate and professional fields do. However, we make do with what is available to us.

We approach our challenge of budget through fundraising of not just your normal high school fundraisers but through our students' trade of sports turf management. We are contracted by different schools in our county to do jobs like laying out a football field to reconstructing mounds. Our students get even more exposure to what the industry has in store for them. We truly try to provide the best education possible to inspire these kids to become the next generation of turf managers while our program benefits from their work.

The other major challenge that we face is the lack of industry-grade equipment. We have received a lot financial help from our county's Career and Technical department in order to get the basic equipment to maintain our athletic fields. We approach these challenges by seeking partnerships from our great northern Virginia business community, who allow us to use the necessary equipment so that we are able to better the playability and safety of our nationally recognized field. We have been able to work through these challenges while teaching the students how to overcome the hardships that many turf managers face daily but still produce a product worthy of a professional athlete.

ST: *What changes if any are you considering or implementing for the winning field in 2019?*

MILLER: With every year come new challenges that require a different approach to maintenance. This year with the addition of a couple pieces of equipment, we will be able to verticut and aerate to help relieve compaction and thatch to help rejuvenate our aging field. We also have plans to increase our mowing program to help with the health of the plant as well as aesthetics for our venue. Depending on weather and other factors of our seasons, there may be changes to a couple practices like adding a topdressing if we have the budget.

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

MILLER: Like every turfgrass manager, I take great pride in our work and derive great pleasure from the finished product that we produce for the games, but to be honest the greatest pleasure of



my job actually has to deal with the teaching side. What I love about what I do is that I am able to teach my passion for turfgrass to the youth and give them the experiences that I got from all of my former jobs. The best part of my job is watching a student who has struggled throughout his or her schooling experience take an interest in the class. It is even better when a student has the same passion I have for turf. By instilling this passion in my students for the industry, hopefully they become better students and become determined to improve their grades in hopes of attending a college program like Virginia Tech or Penn State, some of the top programs in turf. The moments I share with my students and the gratification of having a lasting impact on a student will last longer than any field.

ST: What's the best piece of turf management advice you have ever received? How has your career benefitted from being a member of STMA?

MILLER: I owe my career to the STMA because without the annual Conference I would not have gotten the jobs I've had or met the people who have mentored throughout my career. I have received lasting advice from former bosses and professors who I connected with through STMA, but there are three lessons that have resonated with me through all of these years.

The first piece of advice from Chris Ecton is that it is important not to overthink what you are doing to your turf. If managers overthink their practices, it could lead to issues in the turf that were inflicted by themselves. He taught me to trust what I know and what I have learned to provide the best and safest playing surfaces.

My first boss in the industry, Casey Underwood, gave me a life lesson for this industry. However, he did not teach me the lesson through words but by the way he led his grounds crew. Casey taught me that leading by example is so much more powerful than explanation or verbal direction. While some bosses delegate and give most of the work to their subordinates, Casey never let an individual outwork him a day in his life. His work ethic made me want to work harder and prove myself. This lesson has translated to my classroom where I try to lead by example like Casey did, it will motivate my students to work hard and take great pride in their work. They can show the community and their fellow students that they worked hard to showcase their work.

And finally, Dr. Mike Goatley, professor at Virginia Tech, showed me the importance of teaching in the industry. Through

knowledge and kindness, he helped me learn more about turf and inspired me to pass that along through my program. His advice manifested in his continued mentorship, helping me grow the program at Brentsville in ways I could not have foreseen.

ST: How are using social media at work?

MILLER: In the age of technology, my entire student base has a presence on social media so we use it frequently in different capacities. In all capacities, we use social media to make connections. First, we use it to showcase our program to not only our students and their families but to the community and the sports turf industry. We take great pride in our students' work and how serious they take it to provide a professional product. Students not only use it to showcase their own work, but they get inspiration and ideas from fellow sports turf managers. We have even met new people and programs through social media. We connected with Penn State Turfgrass program through Twitter because they saw that we were a unique program offering turf class in a high school setting. They invited us up to the campus to learn about the opportunities that were available to the students in furthering their education at Penn State.

Another use of our social media is recruitment of new students and prospective future turfgrass managers. Our program is a specialty program in Prince William County Public Schools allowing any high school student in our County to attend our high school specifically for the turf program. It is important to understand that we are working toward creating the opportunities for students to be a part of this great industry before they leave high school. We use social media to show that these students are not only competent but also talented at the age of 15. We use social media to help better our program so that we can help teach the future.

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

MILLER: Outside of work, I love to spend quality time with my family and friends. I could not have made it to where I am today without their support. We have always loved baseball and I still enjoy playing, going to games, and arguing about baseball with my brothers. This past year, I became a coach with my two brothers at our alma mater, Stonewall Jackson High School in Manassas, and continue to impact kids in a positive way through a different passion. I love spending time with my good friends, usually ends up being a competition from a game of pickup basketball to a round of golf (whether it be real or mini). Like any Hokie, I am also passionate about my other alma mater, Virginia Tech. I love to go down to Blacksburg for football games to cheer on the Hokies and catch up with friends. I love all Italian food, from pizza to alfredo, and hope to travel to Italy sometime soon. Most of my recent free time has been spent with my dogs; I have a new golden retriever puppy named Wrigley and a lab named Brooklyn Dodger (I really love baseball). Wrigley has become the latest addition to the Brentsville Turf family. The kids love her and she loves to run on the fields. **/ST/**

Cheers for the leaders of nearly 5,000 of you!

From STMA's first affiliated chapter, South Florida formed in 1988, to its most recent, the Mid-Atlantic chapter that was incorporated in 2017; each chapter has played an important role in elevating the image of sports field managers. Membership in each chapter varies from a low of 25 members to those that have nearly 300 and, overall there are approximately 5,000 total chapter members. But, no matter what their size, chapters have strong local connections and virtually all have given back to their communities through field rebuilds, providing advice to local school boards and municipalities, through fundraising events, governmental advocacy and more.

Without a strong chapter network, STMA would not be a sustainable association. Every event hosted on a local chapter member's field brings attention to the importance of a safe, playable surface. The influence of each chapter locally advances the STMA nationally. STMA always recommends to every national member that they join their local chapter.

STMA salutes the leadership of its chapters and encourages you to support your chapter through annual membership for you and your staff, attending meetings and events and through volunteering for board service. As your chapter holds its next annual election consider candidacy. The experience of serving as a chapter board member is invaluable to your career and can enhance many skills including project management, leadership and communication.

STMA also values the support it receives from its chapter sponsors: Hunter Industries and John Deere. Thank you!

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Note: this chapter is dissolving and collaborating with other industry associations to sustain the newly formed KTA

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STMA's Innovative Award

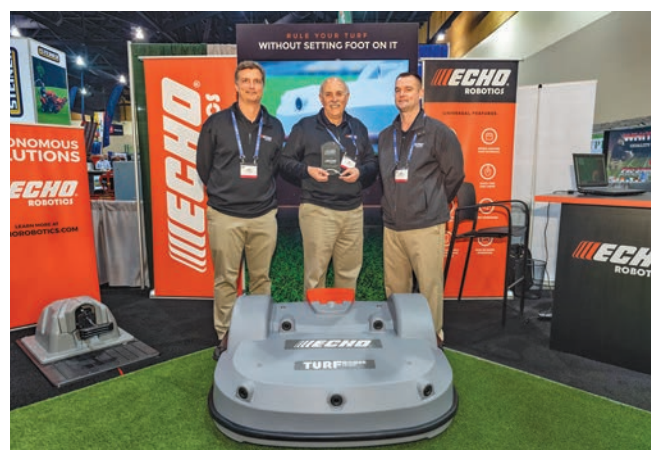
Sports Turf Managers Association has a broad range of members, from those who work every day on the field, to those who sell products and services to those members. STMA's commercial members are the latter and consist of individuals who work for a company engaged in a commercial enterprise providing services and/or products to the sports turf profession. Commercial members have proven to be a vital part of the association, as they help enhance and support our programs and services. Without them, a lot of STMA's efforts would not be as comprehensive. To recognize these members, STMA created the Innovative Award program.

STMA's Innovative Awards recognize STMA commercial companies who've developed a product, service, equipment or technology that substantially enhances the efficiency and effectiveness of the sports turf manager and/or makes the playing surfaces safer and/or more playable for athletes. Chosen by STMA's Innovative Awards Task Group, entries are evaluated on a wide range of qualities including whether or not they fill a need; are creative; save time and resources; are cutting-edge; make a task easier or more productive; improve quality; protect the environment and improve efficiency. The Task Group is comprised of non-commercial members.

The award, first presented in 2011, allows STMA to spotlight leaders within our industry. Multiple companies can win the annual award. Throughout the years, winners have included innovations from portable baseball mounds, turf printer technology, LED turf panels and more. Previous winners of the award have credited winning the award to an increase in sales and a broadened recognition of their brand and the product.

Previous Winners

2019	ECHO Robotics
2018	The Perfect Mound
2017	New Ground Technology
2016	Royse Green Industries
2015	GT AirInject Inc.
2014	None awarded
2013	Green Source
2012	g2 turftools Inc.
2011	Barenbrug USA
2011	Bush Sports Turf
2011	Sports Edge



ECHO Robotics

ECHO Robotics won for their Autonomous Mower TM-2000. Vice President of Robotics, Joe Fahey, speaks on winning the award, "It was a great honor for us to receive the 2019 STMA Innovative Award. We are in the process of introducing a completely new technology to the industry and awareness of this award has opened doors for us. It has given our robotic mowers an assist in discussions with potential dealers and turf managers."

Innovative Award winners are announced with a press release leading up to the Conference. Winners are presented with an award at their exhibitor booth and may use the Innovative Logo on their product and in their promotions throughout the year. The winners are also highlighted in the STMA Awards Banquet held the last night of the conference, and featured in *SportsTurf* magazine.

How to apply

To apply, applicants are required to fill out the online STMA Innovative Awards Form. Within the form, the company must describe how the product, service, equipment or technology substantially enhances the effectiveness of the Sports Turf Manager and/or makes the surfaces safer and more playable for athletes. Links to videos, brochures, marketing materials, etc., can be added to the application to better explain the innovation. Go to stma.org to apply. Deadline to apply is October 15. If you have any questions, please contact Kenzie Jay at STMA Headquarters, kjay@stma.org.



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



Reducing field hardness

Q: I read your column on field hardness. My question is, what are my options to reduce my field's compaction so it is not so hard?

A: My July issue column on measuring field hardness encouraged several folks to send me a message. Most of you had questions related to alleviation of compaction/hardness. So I thought I would follow up my previous "Q&A" to address those questions related to alleviating soil compaction.

First, I should mention that my co-columnist, Pamela Sherratt from Ohio State, wrote a great spring aeration "Q&A" as recently as April 2018. Go back and review that article online if you get a chance. Most of your follow-up questions were about either aerification frequency or new equipment technology for aerification, a little different than the subject Pam addressed back then.

Let me briefly address the issue on aerification frequency. If a regular reader, you may know that I encourage frequent aerification. There are few things that can turn around a high-use, compacted field like aggressive aerification. While using the techniques I mentioned in July's article may be valuable for monitoring field hardness and determining the best time to aerify, it is not a requirement. Most fields will benefit from aerification regardless of their compaction status. So, if you are thinking about aerification then your field is probably ready for its next aerification.

The more common follow-up question was how should I aerify given the new technology currently available? It is interesting to consider that one can now aerify a sports field with steel, water, or air. I know, it sort of sounds like an 80's rock band. But even before big-hair bands, aerification was accomplished by pushing either steel solid spikes or hollow tines into the soil. The resulting hole diameter, depth, and spacing varied based on the equipment used. The solid spike pushed impacted soil away from the spike toward the bottom and sides of the hole. A hollow tine allowed the impacted soil to be removed from the profile and then deposited on the soil surface. Another take on solid tine aeration is the oscillating, solid-tine aerators. This uses an oscillating motion of a solid spike to fracture the soil. For this reason the process is often called shatter tining or the more commercial label, aeravating.

Using water and air for aerification, while not new, has continued to be refined over the last 25 years. Pulsing a stream of water or air are like solid tines when it enters the soil surface, but as it impacts soil particles it disperses within the profile to provide some lateral shattering. The benefit is there is less surface disruption while one may still get a pretty

substantial void below the surface. A University of Tennessee study found that air injection reduced surface hardness by 19% immediately after treatment. Long-term effects were not reported, but the positive to using air injection is that with minimal surface disruption, they could be used during the playing season with minimal surface disruption.

I am also increasingly hearing the term decompaction to describe a way to remove compaction that is different from aerification. From an equipment perspective what is usually used to decompact a soil is some type of vertical linear aerator. These are sometimes called rotary decompactors. One commercial name that is used today is the Shockwave. The Shockwave uses slowly rotating thick steel knives to vertically slice through a soil profile. With a roller following the knives, there is minimal surface disruption. In some respects, "shockwave" is a bit like a deep verticutting of the soil profile. In a recent Iowa State study, hollow tine aeration increased water infiltration by 148% and shockwave aerification increased it by about 70%. Old-fashion solid tine aerification increased infiltration by only 17%.

Longevity of these treatments is a common question. Several researchers are presently looking to answer this question with the new technology, so stay tuned for more of that information. We do have some longevity data on more traditional core aerification. In an Auburn University study they evaluated deep-tine aeration on compacted native soils growing Tifway bermudagrass over time. Aerations were applied either once (July), twice (April and July), or four times a year (January, April, July, and October) with 0.75-inch solid tines that penetrated 8 inches on 4-inch spacing. Despite the total area impacted by those big tines going down deep, the effects only lasted about 1 month on heavily trafficked turfgrass. This study proved that turf managers should aerate more than just once or twice a year.

While not normally considered an aerification method, fraze mowing could be used to alleviate soil compaction since the zone of greatest compaction is often near the surface. By removing the top surface layer with a fraze mowing, compaction can be carted off the field. Obviously this is a pretty drastic technique to use to reduce compaction since the entire turfgrass surface is removed. At least fraze mowing results in a smooth surface unlike the ultimate remover of compacted soil – a chisel plow and rototiller. **/ST/**

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