The *SportsTurf* Interview: Mike Andresen, CSFM

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July 2017

SportsTurf

SPORTS FIELD AND FACILITIES MANAGEMENT

green media

SportsTurf Managers Association

ANNUAL FOOTBALL ISSUE

North Area Athletic Complex, Jeffco Schools, Golden, CO

ALSO INSIDE:

- Using Time-Domain Reflectometers
- Advice on overseeding bermudagrass
- Warm-season annual bluegrass control
- Dr. Grady Miller on Roundup

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STARTING LINEUP

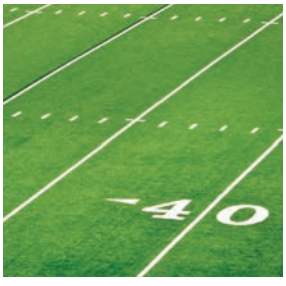
July 2017 | Volume 33 | Number 7

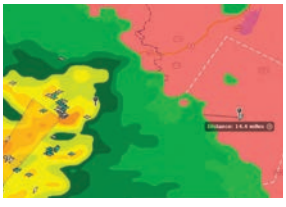
FEATURES

DEPARTMENTS

ON THE COVER:

Last year we used the wrong photo when we covered the Schools/Parks Football STMA Field of the Year winner, so this year we're making it up to Sun Roesslein, CSFM, and Christi Clay, Jeffco Public Schools, Golden, CO with a shot of the North Area Athletic Complex football field. See Sun's comments on overseeding on page 41.





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IN THIS ISSUE

Not to break my arm patting myself on the back but there is some great content in the magazine this month!

Interesting reading includes CSFMs Amy Fouty of Michigan State and Tim Van Loo of Iowa State on how they use Time-Domain Reflectometers to help maintain their fields with proper irrigation run cycles and as a tool to set up fields for optimum playability.

Our *SportsTurf* Interview subject is Van Loo's former boss, Mike Andresen, CSFM, who recently went back to the fields after a long stint in facilities management. Another good one is from Jay McCurdy, PhD, and Michael Richard at Mississippi State on annual bluegrass control in warm-season fields.

This month's "Q&A" (see p. 50) finds columnist D. Grady Miller of North Carolina State responding to a question from a concerned parent about using Roundup herbicide and whether it is now considered a carcinogen.

And while I know it makes some readers' blood boil to see it, we share this month the latest maintenance recommendations from the Synthetic Turf Council. We can't bury heads in the compost pile on this; many readers are responsible for taking care of these surfaces and we aim to help them do it right.

I also ask you to see p. 46 and read about the new Darian Daily Legacy Scholarships created by STMA and the SAFE Foundation. Darian was a role model within our industry who passed away last year, leaving a legacy of strong support for his peers and STMA.

Finally, here's an excerpt from our story on p. 20 that shares how some working turf managers handle overseeding bermudagrass:

Darren Criswell, Director of Sports Turf and Grounds at Georgia State University, said,

"Determined by our budget, sports season and proper irrigation setup, we overseed all our athletic fields. I have made it a priority to mix and match different seeds on different fields to assess the color, resistance to disease, transition back to bermuda and ability to withstand traffic. We do not overseed our common areas due to the lack of irrigation setup, though I believe overseeding these areas brings a high quality of aesthetics to a facility.

"Overseeding our athletic fields provides green fields year round, which keeps the coaches happy and keeps the weed control effort down. Our overseed plan begins in Sept/Oct; once temperatures hit our goal range we begin with a light verticut to open up our canopy. During this we also move our height of cut to .5 inch to help stress our bermuda to allow the ryegrass to out-compete once germinated. Following verticut and scalping, we throw our seed. Our soccer field went 10lb/M, softball 8lb/M, and baseball went 12lb/M.

"I did different varieties on each field with hopes to find the best for our future goals. A big problem we deal with is transition back to bermuda, mainly because we are not able to apply chemicals due to lack of equipment and funds. We focus heavily on cultivation and biological control to ensure a healthy bermuda base. In using different varieties, I hope to find one that doesn't hold up as well when cultivation and temps start stressing it out."

SportsTurf
SPORTS FIELD AND FACILITIES MANAGEMENT

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HOLD UP, TIME OUT!

The dog days of summer are becoming ever so close. Before we know it, football fields will be used by athletes instead of youth campers, and baseball field managers might be able to see the light at the end of the tunnel. Let us agree on one thing: summer might be a season for vacations and getting away for many Americans, but for most Sports Turf Managers it seems impossible. I also think that most of us can agree that our duties never seem to get less. I, for one, am in the camp of increased events, increased responsibilities, and increased pressure to keep it all together. Please let me be clear; I am not complaining, I am simply being real about the life many of us live.

> "I encourage all of you to find your daily time out, so you can better serve those who need you, too."

How do you escape, how do you hit the reset button and reboot? I am not necessarily talking about taking some crazy vacation for 2 weeks when you are likely needed at work this time of year. I am talking about day-to-day. How do you stay fresh? I am guessing that many of you do not even think about it, or ignore the signs that you need a break. Some signs might be a quicker trigger toward frustration or anger. Maybe an attitude of "what's the point?" I would encourage all of you to hit the pause button and evaluate where you are in regards to approaching "burn out."

Burn out is something that is present all over the United States, and our industry is no different. I find as I get older, the more I need to be deliberate with staying fresh and staying away from "redline." If I am not careful with my responsibilities at work and more importantly, my responsibilities at home, life simply does not flow as it should. Some days it is as simple as a "time out." Some days it is surrendering some responsibilities at work until the next day so I can be the father I need to be. I discovered a few years ago that a daily "time out" for me is a daily commute on a motorcycle. Those 10-15 minutes when I am unplugged from technology and alone with my thoughts is enough for me to reboot and continue on to the next day. Everyone's method will be different, but I encourage all of you to find your daily time out, so you can better serve those who need you, too.

The STMA has had many professional development articles and talks on avoiding burnout and balancing work and home. The STMA is not only a resource to make you a better turf manager, it is also interested in your obtaining your professional goals in a healthy manner. My hope for all our members is that you continue to use the STMA for all the resources it offers and to not hesitate to use our staff or me if you need anything.

USING TDRS FOR BETTER PLAYING CONDITIONS AND WATER CONSERVATION

The TDR, Time-Domain Reflectometer, is a tool used by many turf professionals across the country. We use TDRs to help maintain athletic fields with proper irrigation run cycles and a tool used to set up the field for optimum playability.

Tim Van Loo, CSFM

I depend on the use of a Field Scout TDR to give me actual soil moisture readings on all my irrigated surfaces before I turn on any irrigation. Before you can really start to use the TDR effectively, you will need to first learn what the soil moisture percentages mean for your specific fields. You will need to figure out values for what wet/saturated and what dry/wilting are for each of your different playing surfaces. Each will be different, especially when comparing sand-based and native soil fields. If you do not know the values for wet and dry, you will be unable to use the tool with any real purpose.

Once you have those values you can target values between wet and dry to obtain a value for optimum plant growth and potentially optimum playing moisture.

During non-game days, I use the TDR to help determine water cycles for irrigation. I try to keep it just above wilting by the end of the afternoon. Meaning, it starts the day with plenty of water, and by the end of that day it may need to have more applied or possibly wait until the next day to irrigate. I try to keep it from extremes of really wet to really dry. I also try to make a mistake on dry versus making a mistake on too much water. The TDR allows me to know when I am approaching wilting point so I know when to water and not stress the plant too much.

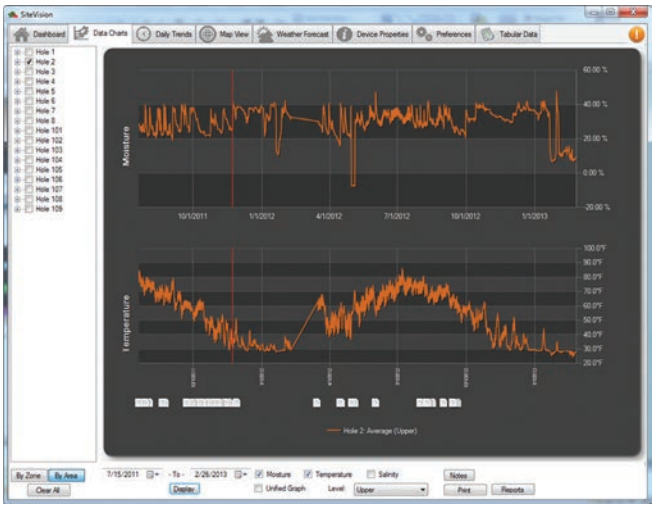
Setting up soil moisture for game days is a very similar process. I did this by knowing what the moisture was before an event and then evaluating the condition and wear of the field after the event. It was easy to find the optimum moisture after just a few events for optimum playing conditions. One could argue that proper soil moisture can increase the safety of the playing surface for the athletes. Obviously, this only applies when you have the ability to influence the soil moisture; sometimes Mother Nature has other plans.

I have two additional benefits that the TDR has done for me. The first is that most of my water cycles have decreased after I purchased the TDR. We still may water as often, but the run times are less than they were before we owned a TDR, therefore saving water. The second great thing about the TDR is that I can send any of my employees out with the TDR and they can give me values so I know how much to water that day. If I am too busy to do the scouting myself, I am not guessing anymore; I am still accurate without ever stepping foot on the field when setting up my irrigation run times.

Amy Fouty, CSFM

We have been fortunate to have TDR technology for 8 years now. There are two different types of units we use on a daily basis, the Field Scout hand held unit and the Toro TurfGuard, which is a system that you install sensors in the ground and provides soil moisture, soil temperature, and salinity data at your selected time intervals. We use both every day.

The hand held unit has been a great teaching tool for students and staff. Having actual data helps me, students, staff, coaches, and administrators to speak a common language when discussing concerns about the fields. Each day a student can go out and take TDR readings and text them to me so I can set up irrigation properly; it is an opportunity for them to learn and understand proper irrigation and its management and for me a time saver.



If a coach or administrator has a concern about the field we can discuss it using science and data rather than just my knowledge. It has helped our operation legitimize and resolve problems that would have otherwise continued.

The TurfGuard system has been a wealth of knowledge for us. We have the sensors set up to take data every 15 minutes. In the moment we can evaluate soil moisture and temperature to base irrigation, fertility, and plant protectant applications on information we acquire. Some of the old adages have gone by the wayside and using science and its tools for soil temp and moisture data allow me to base decisions on real numbers instead of by feel.

Using science has made our operation more efficient and productive using the resources we have. Over the year, or years, we can review data and compare data to applications that were made during those time periods. We log not only fertility and plant protectant applications, but also when we tarp fields. As a staff, we review the decisions that were made and learn from the decisions that we made good and bad.

TDR technology has been an invaluable tool in our operation. We have found uses for it over the years that we never dreamed of. The best by-product of the technology has been its assistance in professionalizing our operation at Michigan State University. We can speak science and numbers rather than art and feel to those who may question. I know I was a little afraid of it at first and it took a few years before I could "trust" the numbers but it has been a wonderful tool to have in our ever demanding and dynamic world of sports field management.

Tim and I have been fortunate to get in on the ground floor of the use of these new tools. We can both attest to its value and if asked, a tool we would rather not do without. If you have questions please let us know we would be happy to discuss our experiences with you. ST

Amy Fouty, CSFM, (fouty@ath.msu) is athletic turf manager at Michigan State; Tim Van Loo, CSFM, (vanlooti@iastate.edu) is manager of athletic turf & grounds at Iowa State, and the current President of the Sports Turf Managers Association.

Annual bluegrass (*Poa annua*) seed head and "boat shaped" leaf tip.

ANNUAL BLUEGRASS CONTROL IN WARM-SEASON ATHLETIC FIELDS

BY **JAY MCCURDY** & **MICHAEL RICHARD**

Winter weeds may seem like the least of your concerns during peak summer growing conditions, but with a little preparation, things will go a lot smoother later in the year.

Annual bluegrass (*Poa annua*) is a problematic winter annual weed in most maintained turfgrass. It has a bunch type growth habit with light green leaves having a boat-shaped tip. Annual bluegrass is a prolific seed producer and is commonly identified by its unsightly greenish white seed heads. Each plant produces hundreds of seed that can lay dormant in the soil for years before germinating. Annual bluegrass can withstand low heights of cut and frequent mowing. It grows just about anywhere but prefers areas with moist or compacted soils. Contrary to its name, both annual and perennial biotypes exist.

Annual bluegrass seed germinate in late summer and early fall when soil temperatures drop below approximately 70° F. During the fall, seedlings grow vegetatively, and the plant produces seed from late winter through early summer. For practical reasons, this is important, mainly because herbicidal control of plants in reproductive stage (having flowered or produced seed) is far less successful.

Several flushes of seed germination are common throughout the fall, winter, and spring. Heat and dry conditions during the summer usually lead to plant death; however, perennial biotypes may persist in certain climates.

Controlling annual bluegrass requires an integrated chemical and non-chemical strategy. Cultural practices such as proper mowing, fertility, and irrigation, are important, but rarely provide complete control. Proper herbicide selection and application timing are important for commercially acceptable control.

Cultural control

As is the case with most weeds, a healthy turf is the best defense against annual bluegrass infestations. Sound agronomic practices, such as maintaining the correct soil pH and fertilization, deep infrequent watering, appropriate insect and disease management, and proper mowing, will go a long

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way towards reducing annual bluegrass pressure.

Whatever you can do to improve drainage and root health will aid in turf competition. Weeds like annual bluegrass thrive in areas that are overwatered or are poorly drained. Improving soil drainage can aid in turf competition.

Unless you overseed, eliminate nitrogen fertilization during the fall and winter dormancy. This practice will unnecessarily promote annual bluegrass growth and potentially expose warm-season grasses to winter injury.

Raising mowing height in the fall can increase competitiveness of warm-season grasses. Scalping turf opens the canopy and leads to infestation by winter annual weeds. Although scalping and verticutting are useful for ryegrass establishment, they also promote annual bluegrass.

Early seeding dates may suppress annual bluegrass emergence. However, perennial ryegrass may suffer due to heat, drought, or disease stress. On the other hand, it's common to delay overseeding so that annual bluegrass can be controlled using post-emergence herbicides a week or two prior to overseeding.

In regards to cultural control of annual bluegrass, experimentation at your facility will be key.

Chemical control

Where cultural practices fall short, herbicides are often needed. There are several herbicide options and strategies for controlling annual bluegrass.

Use characteristics. For most practitioners, it is easiest to discuss herbicides based upon similar use characteristics (as an example: pre-emergence vs. post-emergence). Remember, pre-emergence herbicides are applied prior to germination. Post-emergence herbicides kill weeds already emerged from the seed. Some pre-emergence herbicides have slight post-emergence control. Some post-emergence herbicides have a little pre-emergence control. The consensus amongst weed scientists is that pre-emergence applications should almost always be applied with a post-emergence herbicide or should be followed up with a post-emergence herbicide treatment in order to eliminate escapes. Neither strategy should be relied upon solely.

You will notice that many pre-emergence herbicides are available in various forms of liquids, dry flowables, and granular materials. In general, the granular material that is broadcast through a fertilizer spreader does not have the same effectiveness as a liquid broadcast applied uniformly through a sprayer. This is due to poor uniformity of distribution.

Modes of action. A fuller, more meaningful conversation about chemical control of annual bluegrass must also mention herbicide mode of action. Best management practices include the use of multiple modes of action within season and across years. Relying upon a single mode of action leads to resistant biotypes. Alternatively, just because two herbicides have the same mode of action, does not mean they provide equal annual bluegrass control, thus the importance of regional University trials and demonstrations. Attend Field Days and Conferences!

Pre-emergence weed control

Pre-emergence herbicides are applied before annual bluegrass germination. Germination varies from year to year. Applying herbicides early rather than late is generally recommended; however, if you apply too early, there will not be enough herbicide remaining to prevent weed seed germination. This leads many managers to split fall pre-emergence applications. For instance, one might apply 60% of the recommended rate in mid-August and then the remaining amount roughly 8 weeks later in mid-October.

Some pre-emergence herbicides inhibit root growth of desired turfgrass. This can be bad if you are trying to recover from fall wear and tear, or if you are growing-in from seed, sod, or sprigs. Some pre-emergence herbicides are safer than others, but safety is rate and timing dependent. Always read and follow label directions.

Pre-emergence herbicides need to be incorporated into the soil after application via irrigation or rainfall. Once again these herbicides lack post-emergence activity so timing is critical to proper efficacy.

Root growth inhibitors. Fall applications of commonly used pre-emergence herbicides such as Pendulum (pendimethalin), Barricade (prodiamine), and Dimension (dithiopyr), may effectively control annual bluegrass. These mitotic inhibiting herbicides and others inhibit cell division in roots of young plants and are available in a variety of other trade names and formulations. Exclusive use of mitotic inhibiting herbicides has led to biotypes resistant to these herbicides. Rotating herbicide mode of action, as well as tank mixing with post-emergence options, is recommended to reduce resistance and allow for continued use of these pre-emergence herbicides.

Each of these herbicides has a unique application interval before overseeding with perennial ryegrass (approximately 2 to 4 months, depending upon rate and region). These herbicides are tolerated by established ryegrass when applied according to label directions.

Protox/PPO inhibitor. Ronstar (oxadiazon), a protoporphyrinogen oxidase inhibitor, is available in two basic formulations, liquid or granular. Its use as a liquid requires foliar broadcast application in a water carrier. Foliar applications of oxadiazon cause injury to non-dormant green tissue. Liquid applications have their place, but only in dormant bermudagrass or when injury can be tolerated. The granular formulation is typically applied on a fertilizer or inert carrier, like calcined clay. The granular formulation allows the herbicide to bypass the plant leaf blade and avoid foliar injury. Granular application is frequently used for high-end sports fields due to its relatively benign effects upon bermudagrass roots and pegging.

Pre-emergence activity of oxadiazon has been shown to vary, likely due to application timing and incorporation into the soil. Granular formulations on small prills help to evenly distribute the herbicide. Ronstar G is labeled for application at least 60 days prior to ryegrass overseeding but is labeled neither for nor against application to established ryegrass.

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Raising mowing height in the fall can aid in reducing annual bluegrass infestation. Left: Bermudagrass scalped to 0.5 inches in fall of the year. Right: Bermudagrass maintained at 1.5 inches

For all the positive attributes of oxadiazon, it does have one draw-back: it typically lacks control of winter broadleaf weeds, such as henbit, deadnettle, fireweed, and chickweed - thus requiring a follow up application of broadleaf herbicide (Trimec or the like).

Cell wall formation disruptor. Specticle (indaziflam), a cellulose biosynthesis inhibitor, is an important option for rotation where resistance to mitotic inhibiting herbicides is confirmed. Only use indaziflam in established sports fields free of pest, disease, or stress. This herbicide has longer soil residual than many pre-emergence herbicides (up to a 12 month overseeding interval).

Pre/post weed control

Herbicides with pre and post-emergence activity control young seedlings and prevent success of yet to germinate seeds. These herbicides work well as a late fall/early winter clean-up application.

PS II inhibitors. Two of the most common pre/post herbicides in warm-season turf are Aatrex (atrazine) and Princep (simazine). These photosystem II inhibiting herbicides also control broadleaf winter annual weeds. Atrazine should only be applied to dormant bermudagrass unless injury can be tolerated. Simazine is a bit safer but can also cause injury and stunting. Continuous use of these two products has led to annual bluegrass that is resistant to PSII inhibitors, so effectiveness is sometimes limited when these herbicides are applied alone. Their price makes them a good addition to the tank during winter dormancy. Neither is applied to overseeded ryegrass.

Root growth inhibitors. Kerb (pronamide) provides both pre-emergence and post-emergence control of annual bluegrass but is typically thought of for its early post-emergence activity. Pronamide is frequently used in instances where PSII and ALS inhibitor resistance exists. Like other pre-emergence herbicides, it must be applied well in advance (approximately 90 days) before overseeding. Pronamide is not safe on established ryegrass.

Protox/PPO inhibitor. Sureguard (flumioxazin), a protoporphyrinogen oxidase inhibiting herbicide, can be applied to dormant bermudagrass to control annual bluegrass. Applications to actively growing turfgrass, including ryegrass, will cause injury.

Post-emergence weed control

Post-emergence herbicides are more effective if applied to young seedling plants rather than mature stands. Applications in late spring, when seed heads are highly visible, are only modestly effective. This means proper post-emergence timing is late fall through winter, when weather cooperates.

Post-emergence herbicides are separated into two categories: selective and non-selective.

Non-selective herbicides should only be applied when turf is fully dormant in winter or when injury can be tolerated.

EPSP inhibitor. Roundup (glyphosate) is the most commonly used non-selective herbicide in turf. It inhibits amino acid production by interrupting the EPSP enzyme. Resistance to glyphosate is on the rise, thus it may be necessary to tank-

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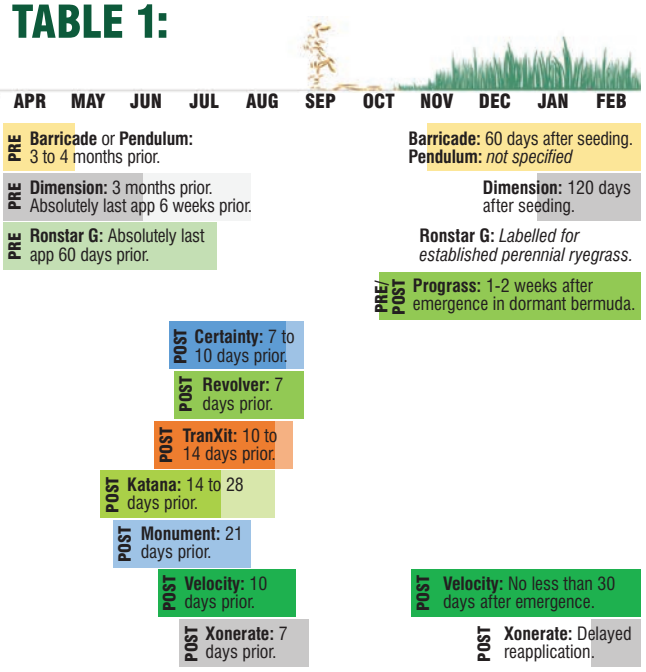
TABLE 1:



Herbicide options for September seeded perennial ryegrass as loosely interpreted from product labels for the mid-south. Pre and post-emergence herbicides have varying application intervals before and after perennial ryegrass overseeding. Intervals are dependent upon application rate and regional climate. Read and follow the label.

mix with another post-emergence herbicide, such as simazine. While there are "glyphosate tolerant" ryegrass varieties on the market, it is no longer advisable to rely upon glyphosate as a sole strategy for annual bluegrass control.

Glutamine synthetase inhibitor. Finale (glufosinate) inhibits nitrogen metabolism and is an option where glyphosate resistance is common. Control can be inconsistent due to weed size and maturity. There are no tolerant ryegrass varieties.

PS I disruptor. Reward (diquat) diverts electron energy in a way that leads to fast acting burn down of most green plant material. It too is an option where glyphosate resistance is common; however, control can be inconsistent due to weed size and maturity. It injures/kills ryegrass.

Selective herbicides

Selective herbicides control annual bluegrass with limited injury to the desired turfgrass species.

ALS inhibitors. There are several acetolactate synthase (ALS) inhibiting herbicides that control annual bluegrass, including Revolver (foramsulfuron), Katana (flazasulfuron), Monument (trifloxysulfuron), TranXit (rimsulfuron), and Certainty (sulfosulfuron). They are frequently used as transition aids during bermudagrass green-up.

Velocity (bispyribac-sodium) is an ALS inhibitor that is safe on established perennial ryegrass and controls immature annual bluegrass and some broadleaf weeds. Apply no less than 30 days after ryegrass emergence, which limits use to early- to mid-winter and spring application in mid-south and gulf-coast, respectively.

The herbicides mentioned can be applied before overseeding but with various timing, rate, and regional restrictions (*See Table 1*). Apply according to label instructions.

PS II inhibitor. Xonerate (amicarbazone), a photosystem II inhibitor, post-emergently controls annual bluegrass and has considerable safety on well-established perennial ryegrass. However, amicarbazone will not control annual bluegrass resistant to simazine and atrazine, as these herbicides share the same mode of action.

Lipid synthesis inhibitor. Prograss (ethofumesate) can be applied in established perennial ryegrass stands. Only apply to dormant bermudagrass. Ethofumesate has some soil residual and can limit spring bermudagrass emergence from dormancy if applied too late in the winter.

Key strategies

- **Cultural practices affect turf health and density;** these are basic tenets of any preventative weed control program. Increased mowing heights and decreased fall fertility are major components of this strategy.
- **Effective chemical control incorporates a pre and post-emergence strategy.**
- **The first line of defense is a properly timed pre-emergence application.** However, very rarely does pre-emergence alone completely control annual bluegrass.
- **A post-emergence application is applied in fall or winter to control late germinating bluegrass.** Products with pre and post-emergence activity are ideal options at this delayed follow-up timing.
- **Selective herbicides can be applied to non-dormant turf to control annual bluegrass.** Proper timing for effective control is late fall through winter. If you wait until March, you are probably too late.
- **Non-selective herbicides may be applied when turf is truly dormant.** Extreme caution should be used in high traffic sports surfaces due to potential for prolonged injury. Due to the potential for slowed recovery, use caution when applying non-selective herbicides in combination with pre-emergence herbicides.
- **In overseeded turf, have a plan that either relies upon early application of a pre-emergence herbicide, or applies postemergence herbicide at the appropriate time prior to overseeding.** In either case, a delayed pre-emergence herbicide applied to established ryegrass is a good idea. Post-emergence herbicides that are tolerated by perennial ryegrass (such as Prograss, Velocity, and Xonerate) work well when timed appropriately. ST

Jay McCurdy, PhD, is assistant professor and turfgrass extension specialist at Mississippi State University; Michael Richard is turfgrass extension associate at Mississippi State. *The information given here is for educational purposes only. References to commercial products, trade names, or suppliers, are made with the understanding that no endorsement is implied and that no discrimination against other products or suppliers is intended.*

John Mascaro's Photo Quiz

Answer on page 40

John Mascaro is President of Turf-Tec International

Can you identify this sports turf problem?

PROBLEM: Irregular brown areas of turf

TURFGRASS AREA: Multipurpose field

LOCATION: Northeastern United States

GRASS VARIETY: Bluegrass/ryegrass mix

BACKGROUND ILLUSTRATION COURTESY OF ISTOCKPHOTO.COM

STEP OUT OF YOUR COMFORT ZONE FOR PUBLIC SPEAKING

BY **WES KLEFFNER**

Everyone has strengths and weaknesses. Have you taken the time to identify yours? How often? Could these weaknesses inhibit you from reaching your short- or long-term goals?

Public speaking has always been an interest of mine. But, I struggled speaking in front of large groups. Many leaders in our nation's history had the ability to be an effective public speaker. I reflect back on every presentation. I ask myself was the delivery communicated in a way my audience understood. Personal evaluations are difficult. Feedback from others can be more beneficial. They may see something that you do not. The trick is don't give up. If it were easy everyone would do it. You must have the drive for improvement.

How do you become a great public speaker? I'm not sure anyone truly perfects public speaking but improves over time. Effective communication is important for your audience to understand the purpose of your speech. You must know your audience. This will help prepare you for questions, keeping them engaged, and providing pertinent information.

Have you heard the term Glossophobia? This is the extreme fear of public speaking. You may know someone that falls into this category. These people freeze up in front of audiences, tremble, and their faces often turn red. If you truly suffer from this phobia you shy away from any opportunity to speak in public. Some people may have challenges communicating. Please take one thing into consideration. Just because someone is not saying anything does not mean they are not listening. Listening is a huge part of effective communication. A presenter must listen not only with their ears but also with their eyes. Body language can tell you a lot about engagement of your audience. As you become a more crafted public speaker you begin to look for triggers. For instance if you notice restlessness with your audience, share a relevant funny story. Pick on yourself. Everyone has a funny story about a circumstance in his or her lives. Those are the easiest to remember!

What are your short and long term career goals? One long-term goal for me was moving into a turf industry sales role. Part of this job includes speaking in front of large groups. Public speaking was definitely stepping out of my comfort zone. On the other hand, I truly believe by challenging yourself leads to personal growth. Everyone has his or her own definition of personal growth. My definition would include activities that improve intelligence, talent development, and enhance employability. Some organizations, such as Toastmasters, and training courses in public speaking will help. A quick search on the web is a great start. It does not take long before you see information pertaining to Toastmasters.

Today there are two main educational programs within Toastmasters focused on competent communication and leadership. I am more familiar with the competent communication track of their program. This track contains 10 speeches. Each 5-minute speech focuses on different objectives. The first speech is the Ice Breaker. This is the easier speech of the program due to the fact you are introducing yourself to the audience. The second speech focuses on organization. By outlining listener's better follow, understand, and remember your message. The third speech emphasizes on getting to the point. This helps determine the general and specific purpose. The next speech focuses on word selection. Selecting the appropriate partnership of words can be very persuading.

Body language is also important when you're on stage. Your audience wants to see someone with high energy not someone simply reading from a script with their head down. High energy keeps engagement! The ability to use a vocal variety is important. Your voice should reflect the thoughts you are presenting. I personally like pauses to enhance messages.

Speech seven is all about researching a topic. Collecting facts from several sources to support a topic is critical to be effective. Visual aids also help get your point across! Knowing when, what, and how can be very persuasive. The ninth speech challenges presenters not to use notes. Memorizing a speech increases sincerity and conviction. The 10th and final speech focuses on inspiring your audience. Speeches are not simply written the night before a meeting. It is very common for me to begin writing speeches months in advance and practicing for hours.

The meetings themselves are very structured. The toastmaster calls the meeting to order and introduces everyone with a role, for example the "Ah-counter." The purpose of this role is to note pause fillers from anyone during the meeting. The Grammarian also plays an important role. Their responsibility is to introduce a new word to the group and comment on the use of English. Every speech gets evaluated along with being timed according to requirements. Most everyone has a role but most importantly everyone speaks. A way to ensure this is by the table topic master. This person picks members in the group to speak on certain topics that helps members think on their feet. Toastmaster manuals are available online at https://www.toastmasters.org/education.

When presenting you really give three speeches. The speech you rehearse. The speech you present. The speech you wish you gave! ST

Wes Kleffner is with the Crop Science Division, Bayer CropScience, Overland Park, KS.

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EXPERT ADVICE ON OVERSEEDING BERMUDAGRASS

From Brandon Hardin

Editor's note: We asked some STMA members these questions about their experiences overseeding bermudagrass; thanks to all those who responded:

WHAT is your main motivation for overseeding, e.g., color, playability, etc.?

DO YOU overseed at least in part to keep *poa annua* out of your bermudagrass? Or is that beyond your budget?

WHAT are the negative effects of the overseeding in the following spring? What have you done to counteract those effects?

Brandon Hardin, Mississippi State
Superintendent/sports turf

Our main goal with overseeding is to keep all of our fields aesthetically pleasing to the athletes, coaches and the fans once the bermudagrass has gone dormant.

We don't overseed to keep *poa* out, we pre-emerge for it every year so that it isn't in our ryegrass either.

Overseeding into bermudagrass in the South has always pushed spring green up back further into the summer growing season. The remnants left behind from either mechanically or chemically removing the ryegrass always cause big problems. Whether it's building thatch or causing increased disease pressure, the dead rye always has and always will cause headaches in the spring/summer. Once the rye has decomposed or been removed 100%, the bermuda must grow through and over areas left by the ryegrass. We start

preparing for the transition every year around spring break, when we start opening up our fields with core aerification to aid in raising the soil temps as well as allowing more light and nutrients down into the area where the bermuda starts greening up first. Over the past 2 years we have incorporated the use of growth blankets in our arsenal to aid in the removal of the rye as well as the early greening of the bermuda.

The driving factor is to get as much of the dead plant material out and off of the bermuda. Once we get into the transition and the rye starts to dye we will get aggressive with our other agronomical processes like vertical mowing. Two directions at ½ inch depth usually does a fantastic job of removing a great deal of the dead plant material. Once we have one vertical mowing and one core aerification done, we then bring in topdressing sand to help ensure the surface is left smooth during the transition from any undulations that may have occurred from removing the dead plant material.

In the college world with all sports 365 days a year now, we have a very short time to transition from the rye to bermuda before camps, clinics, show case games, and recruiting visits begin. It is vital we start the transition slowly during the mid to late spring so we have a jump start on the bermuda for the summer growing months and the transition period is as short as possible.

Hunter Sexton, LSU
Sports Turf Manager Athletic Facilities and Grounds

We overseed for playability and aesthetics. Once we enter into late October the Celebration tends to slow down so it won't cover most of the dings and nicks from a football game. Don't forget about HD television that everyone has, even on our phones! Perennial ryegrass sure can make a football pattern pop.

As far as *poa* goes, we apply a Revolver application a week before overseeding to keep it out. We typically do this in October, but it really depends on the football schedule. I might end up putting seed out in late September this year, it's still very warm.

The following spring we still have rye for our late April game. We tend to water heavily to keep it from getting hot and then when the spring game is over we let the bermuda take over. It's probably only 30% rye then anyway. Baseball/softball we still have rye but sometimes aerify to get the bermuda going before post-season play.

Brian Hinkley, CSFM, Liberty University
Manager of Athletic Fields

My main motivations for overseeding are playability (college athletics have almost no off season), aesthetics, and protecting

the dormant bermuda, as well as to prevent winter weeds, i.e., *poa annua*.

Negative effects: Can cause bermuda to be slow to come out of dormancy and rye can use up available nutrient reserves in the soil. To combat this I try to mow the rye as short as .5 inch once soil temperatures reach 50 degrees, to allow as much sunlight as possible into the canopy. I also will chemically remove the rye in late May to give the bermuda less competition.

Regarding overseeding, it is critical to get seed to soil contact the ensure germination. Regardless of how the field is prepared for seed (vertical mowing, slicing, or dragging) I have found that the best way to ensure soil contact is to topdress with sand or compost after putting out the seed.

Mike Echols
Clemson Athletics

I have been in the green industry for more than 35 years, starting as an assistant golf course superintendent in Virginia. As I moved along in my career and eventually became the sports turf manager at Clemson University, I realized that national televised events such as the PGA tour and MLB would raise expectations. And then came high definition television and the level of expectation rose even further.

Overseeding is something I always look forward to as it is a sign of the end of a long, hot, Carolina summer, and the beginning of a new opportunity. We overseed for multiple reasons, especially with expectations to have green, well-manicured turfgrass. However I have learned that overseeding rates dictate the best playing surfaces.

Because of the introduction of grow covers/frost blankets, we are able to keep the bermudagrass green longer into the season. As a result, we lowered our initial seeding rates to 8-10 #s of seed per 1000 sq. ft. We will add seed throughout the football season but we hope to not exceed 13-15 pounds of seed per 1000 sq. ft. I can remember when my rates would exceed 25-30 pounds of seed per 1000 sq. ft.

As we become a national football contender, more games are being played under the lights. Lowering the seeding rates also keeps the field safer, for too much ryegrass makes the field slick at night. Clemson head football coach Dabo Swinney, a wide receiver during his college days at Alabama, never liked too much ryegrass for this very reason, so Coach's preference also plays a role in my overseeding decisions.

Poa annua is not a seeding consideration or factor. We buy very high quality seed that is *poa* free. We use post emerge herbicides for long-term control, especially on our baseball field. We also spend many man-hours hand picking it from the playing surfaces. If you can keep the populations at a minimum and not allow the plant to mature you can have near *poa*-free fields. Historically, we have found that *poa* populations in our football field are only an issue for the annual Spring Game in April. Even then the plants are not visible to the untrained eye.

There are obvious drawbacks to overseeding. It requires intensive maintenance practices such as more frequent mowing, additional fertility, solid-tine aerification, and disease control. I always tell people that once the season is over ryegrass becomes a weed. By definition, a weed is any plant out of place. The ryegrass competes with the bermudagrass for water, nutrients, and creates shade. The fields at Clemson are bermudagrass and that species of plant is what determines the quality of the playing surface throughout the year. Therefore, I am all about chemical removal of the ryegrass plant. We use a combination of Revolver (foramsulfuron) and Rometsol (metsulfuron) herbicides. Depending on soil temperatures, the ryegrass will begin to check out within 10-14 days. Any *poa* present will die within 7-10 days. This application is generally made in early to mid-April. The cost of these removal products is a drawback too. The final drawback is the anxiety that happens between May and July as your bermudagrass fills in to create that optimum playing surface once again.

Ryan Storey, CSFM, Vanderbilt University
Assistant Manager of Facilities, Services, Systems

We have to overseed for playability and color. We have fall sports that carry into November and spring sports that start in February. We are in the transition zone so it is necessary. I have thought about painting some of our less used fields due to our crew size.

Yes and no to overseeding to keep *poa* out. It definitely helps but it is also a hindrance. We only overseed the playing field and a few passes beyond the boundary lines. We have a lot of common and low use/low visibility areas. We don't maintain too as high of standards. I find it amusing how *poa* and bermuda are loved or hated depending your region.

We have to hang on to our rye until graduation is over. Most of the colleges that have a good chance of hosting a baseball regional face the same issue. It is an added expense and pulls a person off the crew to spray out the rye every year. It seems like camps start earlier and are more frequent every year. This doesn't give us a lot of time to do maintenance. With Latitude greening up earlier than the rest of the 419, it is nice to have a solid stand when we do take out the rye.

Joe Collins CSFM, ALCLP, Samford University
Landscape and Sports Turf Manager

Our main reason for overseeding is for year round color, *poa* suppression is just a nice side effect. We actually play a large majority of our baseball and softball seasons on rye grass and the playability of a nicely overseeded field is much better than dormant bermuda. Soccer hardly has a chance to enjoy the ryegrass but we can really make a late season soccer match look great with the young rye seedlings instead of a tired bermuda field. Our recreation fields are overseeded primarily for playability reasons, color and appearance aren't as important as a true surface. That being said we do struggle a bit wit *poa* control on our overseeded athletic fields.

These days the ryegrass seed varieties are almost too good. They are much more heat and disease resistant or tolerant than

they were 20 years ago. Back then I could lower the mowing height and in combination with the higher temperatures and disease pressure in the spring the rye would basically go away on its own. Now we spray herbicides to speed up the transition back to bermuda. An added benefit to using herbicides is the other weeds we can control as we are taking out ryegrass.

If we did not chemically remove the rye we could easily see large sections of ryegrass turf hold on well into July. By then we are only about 4 weeks from the start of soccer practice and maybe 5 or 6 weeks from the beginning of football. That's just not enough time to grow in some solid bermuda and host summer athletic camps. So, lately our plan has been to spray herbicide at the end of our baseball season, which is normally at the end of May. That will give us another 5 weeks or so to aggressively grow bermuda before July. Our aerification, topdressing, and other cultivation practices are best done on bermuda in a monostand.

Pat Berger, University of Arkansas

Overseeding–what a love/hate relationship! This season in NW Arkansas has remained cool and overly wet creating a very slow natural transition from perennial ryegrass to our basic warm-season bermudagrass. We use the ryegrass to improve the stability of our athletes' footing and help cushion the impact of players being tackled after the bermuda slows its growth entering dormancy. It also allows us to create outstanding mowing patterns both in the fall and spring seasons, provide a cover crop to assist the warm season turf with protection should the winter grow harsh, and it stabilize weak turf areas. We purchase the rye with distinct characteristics such as cold and wear hardiness for fields, and also use varieties for tree areas that are more shade and drought tolerant. We have also used several varieties of intermediate ryes for smoother transitions.

We have never tried to limit *poa annua* control using ryegrass.

The negatives, of course, are the added organic matter in the soil that needs removed, the "not as impressive" mowing patterns of the bermuda, a transition that may be dictated by the weather conditions, added disease pressure, lack of uniformity in the stand of turf, and in some cases the need to use a selective herbicide to remove the rye.

We start with moderate core and/or slit aeration to help the transition begin before the spring events end. Once this period is over and before the soon-to-follow camps, we use a selective herbicide to start the removal along with aeration, dethatching and topdressing. Proper cultural management and a good mindset help us turn the corner and continue on a totally different playing surface before we start it all again. ST

DEEP, INFREQUENT IRRIGATION & THE "1/3 "RULE": HISTORICAL PERSPECTIVE

BY **ANDREW HOIBERG, PHD**

How to best irrigate turf? Deeply and infrequently. How much turf should be removed during mowing? No more than 1/3 of the total blade length. Two seminal philosophies and recommendations in turfgrass management, but do you know where they originated? We will take a historical look at the research that formed these tenets of turfgrass management.

DEEP AND INFREQUENT IRRIGATION

Deep and infrequent irrigation is a concept that takes advantage of a turf plant's tendency to root deeper when they are in need of water. The concept is that you apply a large amount of water (1+ inch) perhaps once a week (or when the grass starts to show drought stress) to wet the entire soil profile, and as the top dries out, the plant is forced to grow deeper roots to utilize the water further down in the profile. This seems particularly useful where irrigation is manual and time constrained, such as in home lawns. Instead of watering your Kentucky bluegrass (a species that is traditionally associated with being "water needy") lawn a little every day, apply 1- 1.5 inches of water and wait until it shows drought symptoms (wilted, "purple," footprints in the grass) and then repeat the heavy/deep application of water. After a few weeks of this practice and utilizing ET data, you can form an irrigation program to suit your turf's needs during the season, adjusting as necessary.

Investigation of irrigation principles and practices has been around for some time. There are numerous references in early

popular turf publications and some research articles from the 1930s. Welton et al. (1934) observed that rates of 1.5, 2.0, and 3.0x the normal (natural rainfall) all resulted in turfs that gradually became inferior to those that did not receive supplemental irrigation. Additionally, as the rate of water increased, the quality of the turfs decreased.

Early investigation (Sprague, 1931) of water logged soils showed that too much moisture will result in a poorly developed root system. This is caused by limited gas exchange and compaction from overwatering. Sprague concluded that a system of watering that delivers moisture to the upper 2 inches of the soil profile only will force the plants to confine their root growth to this thin, moist layer. He goes on to note that the smaller the supply of water during leaf growth, the smaller the leaves and the greater the cell wall thickness will be. Therefore, strengthening of the tissue will result and grass will be better able to withstand the wear during stressful periods.

For practices, it is suggested that watering should accomplish a depth the same as that of the root system. Sprague goes on to say, "periodic moistening to a depth of 4 or 5 inches is far more desirable than daily sprinkling which penetrates only 1 or 2 inches," followed by an editor's note that "Jno. Morley has said this for years," (I am not sure who Jno. Morley is!). The article concludes that the ideal system for watering the golf course should involve only enough moisture for slow, but hardy growth; wilting should be avoided, but occasional wilting is better than risking supplying too much water which will result in a soft, tender turf that is susceptible to "injuries of many kinds."

After further research, I came across another fundamental principle relating to plant physiology with regard to drought stress and irrigation. In experiments conducted by Meusel (1964), it was observed that the ratio of stomata to epidermal cells was increased by excessive watering, causing the overwatered plants to wilt faster than those provided with less water (two times per week versus six times per week).

Clearly, the deep and infrequent irrigation rule has been around for a long time and is firmly established into our collective turf management consciousness. Even if you never realized the history behind this practice, now you can rest assured that it's backed by good science and has been providing the basis for irrigation management for turf managers for more than 80 years.

1/3 RULE

We've all heard the 1/3 rule pounded into our heads over and over again during our turf education and careers. But where did it originate and how many of you actually follow it?

The reasoning behind this rule is to limit the amount of stress that you place on turf plants when performing the destructive process of mowing. By removing only 1/3 of the leaf during a mowing event, you will limit the amount of photosyntheswizing material removed and allow the plant to maintain reasonable growth by minimizing stress.

It is based on the correlation between the percentage of top growth removed and the subsequent effect this removal has on root growth. Root growth is severely impeded, and actually ceases for a period of time depending on the amount of top growth removed.

The research that first introduced this theory was conducted by Crider (1955), a USDA employee and conducted on pasture and forage grasses. Three separate studies were conducted within this experiment. The first, evaluating cutting leaf tissue at different intervals on smooth brome, tall fescue, and orchardgrass for cool-season species and Florida paspalum, king ranch bluestem, switchgrass, glue grama, and bermudagrass for warm-season. The second experiment examined the effects of cutting on root growth in the field on weeping lovegrass and breadgrass. The last experiment examined different percentages of top growth removed on Rhodes grass for a single cutting and Kentucky bluegrass, smooth brome, and Rhodes grass for

multiple cuttings. Although these were not examined in a turfgrass setting, the results are, in my opinion, still applicable to today's turf managers as they have been cited in popular textbooks on the subject (Christians, 2003) and there is many parts of grass physiology that extend to a majority of species, whether they be forage, pasture, or sports fields.

The research proved exactly what was theorized: cutting too much leaf tissue off will result in the stoppage of root growth and place unnecessary burden on the turf.

I have often witnessed or heard of turf managers growing grass long during the summer when the fields are not in use only to come back to the fields mere weeks before traffic begins again and remove far more than 1/3 of the top growth to get the stand back to "traffic height." We know this puts a tremendous amount of stress on the plant and is not the right strategy for preparing the stand for player traffic.

The 1/3 rule has been around for decades and is known to minimize plant stress and should not be ignored. As a side note, it almost seems like it has become cliché to mention the 1/3 rule, but it is all too often forgotten or brushed aside for convenience. Consistent mowing height and frequency will always put your fields in a more likely position to succeed the various other stresses that inevitably occur. ST

Andrew Hoiberg, PhD, is Vice President, Research & Development, for Calcium Products, Ames, IA.

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ONE-TURF CONCEPT & OTHER STC GUIDELINE UPDATES

Guidelines should accommodate field hockey, soccer and rugby on the same field

Understanding that regular testing and maintenance of a multi-use synthetic turf sports field are critical factors, the Synthetic Turf Council (STC) regularly reviews guidelines and research established by international sports governing bodies, including FIFA (soccer's world governing organization), World Rugby and FIH (International Hockey Federation), who have agreed on what the multi-use long pile community field should achieve when it is tested.

WILL THIS BE A BOOST TO THE INDUSTRY?

Promulgation of the guidelines can be considered "ground-breaking" as many believed the combination of field hockey and soccer or rugby would never be possible on the same field. Field hockey and tennis or rugby and soccer are the likely combinations, but merging the needs of field hockey, rugby and soccer in one field was deemed impossible. The game characteristics of each sport and the subsequent wear and tear impact it has on the artificial grass field vastly differs.

Nevertheless, after many years of working together, FIFA, World Rugby and FIH have managed to balance player welfare and performance with playability for one surface. While it is specific to multi-sport venues, the concept can also be applied to any artificial turf sports field not designed to comply with a specific sport-based requirement.

The new guideline is an addition and will not replace any existing standard. Its criteria have been derived from the existing FIFA Quality Standard, a standard commonly used to define the quality of artificial grass community fields for soccer. Most of the criteria of the FIFA Quality Standard are also used to determine in artificial grass rugby field. For the One-Turf concept, the guidelines for FIFA Quality have slightly been relaxed to accommodate the characteristics of field hockey.

QUANTITY OVER QUALITY

The guideline is expected to serve the interest of the FIH in particular. Field hockey is currently feeling the heat of other sports eager to obtain Olympic recognition. The International Olympic Committee (IOC) has made it clear that, as it stands, field hockey is the most-likely candidate to lose this status should a vote be tabled about sports that deserve Olympic recognition. Losing its Olympic status, and all its perks, could be a devastating blow for the sport. In order to maintain the status quo, the FIH will have to reduce the costs associated with the game. It will also have to boost its numbers in both nations where field hockey is played as well as the number of active players internationally. Currently, field hockey is being played by approximately 3 million people in 137 countries out of the 220 nations that are members of the IOC. By contrast, rugby is being played by 8.5 million players in only 121 nations.

The IOC has also instructed the FIH to reduce the costs associated to the game. Hosting cities of Olympic events have complained that hosting an Olympic field hockey tournament with 24 participants has become too much of a financial burden. They argue the high costs that come from accommodating and transporting the large teams and their support staff. They also complain that the investments made in new or additional field hockey fields (for the tournament) are excessive. FIH Director of Sport and Development David Luckes explains the agreement as follows, "While short-pile products are preferred for field hockey, the FIH recognizes that this partnership can aid development by providing opportunities to play field hockey on surfaces where there are no alternatives. This is particularly important in developing nations where many sports can join together to share facilities."

LESS MEANS MORE

The move is also an attempt by the FIH to stimulate good quality field hockey surfaces that are less reliant on precious resources like water. The FIH believes the need to spray approximately 7 cubic meters of water on a water-based field hockey field before each game hampers its drive to grow the sport internationally. At a time where millions of people still don't have access to fresh water and even world-class cities like Cape Town, South Africa, Sydney, Australia, and Vancouver are implementing severe water restrictions, the FIH believes it is no longer justifiable to use precious water to create the perfect playing conditions for field hockey.

As the focus of the new guideline places "accessibility" over "quality," it is highly unlikely the new guideline will be pursued by clubs and municipalities in first-world field hockey countries. This will be different in second- and particularly

third-world field hockey countries that are eager to have the benefits of an artificial grass field but lack the resources or support-base to invest in them. While a guideline has been adopted, the federations have agreed to continue working with manufacturers and test laboratories in refining guidelines so as to increase the performance and longevity of the playing fields.

THE NEW QUALITY CRITERIA

FIFA, World Rugby and FIH have defined the following criteria that a multi-purpose synthetic turf will have to meet.

As the STC moves forward with its vision to improve the world through synthetic turf by serving as the global forum to promote, develop, grow, and advocate for the synthetic turf industry by expanding overseas, it continues to develop and refine industry guidelines for its members.

Over the next few months, the STC intends to publish new guidelines for the Recycling and Reuse, as well as updates to the current Infill, the Essential Elements of Synthetic Turf Systems, and the Maintenance of Synthetic Turf. ST

We invite you to visit the STC website for more information: www.syntheticturfcouncil.org

PARAMETER	TEST METHOD	MINIMUM VALUE	MAXIMUM VALUE
Shock Absorption	AAA Version (FIFA Method)	55%	70%
Vertical Deformation	-	5mm	11mm
Rotational Resistance	EN 15301-1 (soccer studs)	25Nm	50Nm
Impact Attenuation (HIC)	EN 1177	1.3m	-
Ball Roll (large ball)	FIFA Method	-	12m
Vertical Ball Rebound (large ball)	EN 12235 (absolute)	0.6m	1.0m
Evenness (Surface Regularity)	EN 13606 (3m straight edge)	-	10mm
Slope	Surveyor's Level	-	1%

SYNTHETIC TURF HEAT SOLUTIONS

Synthetic turf fields are hot; two of the biggest issues that are being addressed by the industry are force reduction and heat.

Synthetic turf intends to imitate a well-maintained natural grass field. The core design it uses to accomplish this, green polyethylene fibers and black rubber, also contributes to its temperature shortcomings. The temperature on these fields can rise as high as 175 degrees.

The good news is technology advancements and research are leading to better turf systems and solutions that can help improve the temperature issue.

WHAT SCIENCE TELLS US

Natural grass blades transpire which means they release water vapor that has an evaporative cooling effect. Green synthetic fibers, on the other hand, absorb UV heat and transfer it to the black crumb rubber. The rubber acts as a heat sink, trapping the heat and increasing the temperature of the field.

The sun has a far greater impact on field temperature than air temperature or water. A period of cloudy skies or even a brief rainstorm can bring the temperature down significantly, but minutes later with more solar exposure, a field with traditional infill returns to its previous high.

COST OF HEAT REDUCTION

The synthetic turf industry has made a mad dash to invent, discover, or technique its way to cooler fields. Long fiber turf systems developed in the early 90's were designed around cheap and freely available recycled rubber. The delicate issue is that crumb rubber serves an important role providing force reduction in turf systems and does so at a very inexpensive cost compared to alternatives.

Be mindful of additional costs for irrigation, grooming and reapplication. If an owner pays $500,000 for a synthetic turf field and spends another $200,000 maintaining the cooling layer over time, was it really a $500,000 field or a $700,000 field? Remember that most warranties do not cover the cooling additive or guarantee field temperature reduction.

The new fad in synthetic turf is to top dress the field with a layer of organic material or alternative infill over crumb rubber that does not absorb as much heat.

Now that "cooling technology" has become one of the most talked about criteria for selecting a new synthetic field vendor, some manufacturers recite the pros and omit the cons. Topdressing works, but the benefit only lasts 1-2 years. Cleat interaction with the infill quickly blends the cooling

layer with black rubber beneath, removing the barrier to UV sunlight. Some topdressing solutions use "hydrophylic chemical reactions" that require significant and costly irrigation, or use extruded cork that floats and migrates requiring significant and costly grooming maintenance.

There are such things as cooling solutions that last the lifetime of the field. There are fibers available that are extruded with an additive that reflects UV, reported to cool fields by about 10%. Technology is pushing new infill choices that can provide as much as a 40 degree cooler field surface.

Adding a shock pad beneath the synthetic turf system provides better force reduction than crumb rubber and opens the door to infills such as hypoallergenic natural walnut and Zeolite, a mineral also used in water filtration equipment. These systems also produce additional evaporative cooling from the occasional rainstorm, although they do not require irrigation.

In evaluating field cooling options, don't base your decision on the price on day one. The cost of ownership over the lifetime of the field, balanced with the real benefit of the set of solutions you are purchasing, should drive that decision.

Our advice is to engage an expert that constructs these fields, not the manufacturer. Don't let the salesman fool you by claiming to be a construction company, talk to your local Certified Field Builder (CFB). At the end of the day, you wouldn't hire a carpet company to build your house; why would you hire one to build your stadium? ST

Editor's note: This piece on heat and synthetic turf was provided by Sports Turf Company, Inc., Whitesburg, GA.

THE *SPORTSTURF* INTERVIEW:
MIKE ANDRESEN, CSFM

Mike's daughter, Kristen, and her father both got turkeys on Kristen's first turkey hunt. At right is the family's dog, Ruby.

This month in "The *SportsTurf* Interview," we meet Mike Andresen, CSFM, Grounds Maintenance Manager at Kirkwood Community College in Cedar Rapids, IA. If that reads strange it's because Mike, a former STMA President and long-time member, has to most people always been associated with Iowa State University in Ames, where he was the athletic turf manager and then promoted to facilities and grounds management. "My wife is retired and we wanted to be closer to our daughter, who's a nurse in Iowa City. We are going to miss a ton of friends there but the move will not impair my involvement with sports turf industry, but rather will almost certainly enhance it."

***SportsTurf*: I was surprised when Tim Van Loo announced he had a new boss at Iowa State. Tell us about the recent big changes in your life.**

ANDRESEN: It was no secret to my boss at Iowa State that I had ambitions to eventually relocate to eastern Iowa should a perfect opportunity present itself. Our daughter is recently engaged and an RN in the bone marrow transplant/cancer unit at University Hospitals in Iowa City. The move was for family reasons and that perfect opportunity presented itself here at Kirkwood Community College in Cedar Rapids. My boss is a very good friend of STMA's, Troy McQuillen. Troy spent many years teaching horticulture/turfgrass and through the years brought many successful Student Challenge teams to the STMA conference. As was the case at ISU, Troy will be a tremendous resource for me to learn agronomics as well as campus culture and leadership from.

***ST*: What are you most looking forward to as you return to spending more time on your fields?**

ANDRESEN: Getting back onto sports fields and general campus turf and landscaping has been fun and gratifying. Not many people have found me yet so it has been really nice receiving 8 emails a day rather than 80. Kirkwood rebuilt two competition ball fields and three new soccer fields last year, which I've personally spent about an hour on so far. More time will come in due time but we're blessed to have a veteran crew that shares a unified vision. It recently struck me that I most missed simply interacting every hour of every day with a crew of dedicated grounds department employees. Tim [Van Loo] is such a pro and made my life so pain free in Ames that I've been forced to dust off some old skills like prioritizing workload, plant identification, pruning, working on clay areas and so many other things. Years ago I made a comment to someone that I felt like I was born to be a groundskeeper. I loved working facilities and grounds and could have done it for the rest of my career and been very happy. Moving here has reinforced that I live a pretty charmed life.

***ST*: Are there specific ideas or practices you want to try this 2nd time around that you didn't at Iowa State?**

ANDRESEN: Nothing specific jumps to mind. Our budget is tighter than it was in Ames so working efficiently will be at a premium. The crew here is pretty well dialed in so right now the challenge is to audit all that goes on then make any course corrections needed as we get a little further down the road. Kirkwood sits on a high hill so one practice I'm thrilled with leaving behind is erecting flood barriers! Honestly, I was paying attention a little bit and learned a few things from President VanLoo when he wasn't looking. Hopefully I can remember a few of those things but he'll be listed first on speed dial and put on retainer.

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

ANDRESEN: Tough question and one I may not have a good pulse on, to be fair. Lack of skilled manpower and increased field usage are the two I hear and read most about. Somehow we've got to make a dent in the low salaries for new incoming professionals. We have a duty to find and train others to be qualified to take our place if need be or to manage their own facilities. There's a disconnect though, with many employers not recognizing the value of labor redundancy. On the other hand, we do ourselves no favors by spending every daylight hour at work. The STMA Board and staff have worked very hard to isolate that issue and put a microscope on it. We'll figure out a balance and we'll be a better, more rewarding and valued profession.

***ST*: Will you have to "re-connect" with a younger generation or did you regularly interact with millennials when you were managing facilities? Or are you familiar because of your own adult children?**

ANDRESEN: Really good question. I did interact with many students while at ISU because the department used dozens within our custodial, grounds and facilities teams. I enjoyed it very much but honestly my influence was minimal compared to the student's direct supervisor. As managers that employ students our job in many cases is to help teach a young person how to navigate and be productive within a work environment. Kirkwood horticulture instructors have already welcomed me and we share a common vision of maximizing an interface between their students and our grounds maintenance department.

We have a responsibility and a lot to gain, frankly, by having our department be a small part of the student's academic experience. Most on our crew are former Kirkwood students so they understand the importance and are looking forward to playing a bigger role than is already in place. We'll let the horticulture department teach agronomics and maybe we can offer to help on the industry and profession side all the way from landscape design to grounds and sports turf management to tree and shrub care. Meanwhile they'll experience workplace dynamics in real time.

***ST*: What words of wisdom can you share with turf managers who leave the fields for jobs in facilities management? What are the challenges you overcame?**

ANDRESEN: As Sports Turf Managers we always strive to gain a seat at the decision making table for capital projects and facilities management. It was very fun and very challenging to learn how to first navigate within that environment, with the goal of advocating for your team's needs. I gained a greater understanding for coaching pressures, student athlete needs, true coordination of efforts, communication transparency and other things too numerous to name. As much as anything, being in the position I was in taught that having a vision and setting goals to ultimately see the vision become reality was most powerful. Hand-in-hand with that is transparency. It's very easy to have a teammate's back or to take chances when each of us knows the accepted rules and end goal. At end of the day my facilities experience was wonderful and will help me every day as I switch back 100% to turf and landscape maintenance.

***ST*: No member has more passion for the STMA than you; why are you such a believer in the association?**

ANDRESEN: Thanks for saying that but I have many friends with the same or more passion for STMA than I have. I have passion because they showed me early on the value of helping others and having kindness. My best friends reside in this association and my life is so much richer because of being active in STMA. Professionally I owe any success I've had to STMA and those dear friends. They are and were more determined to see me have success than I was even for myself. Helping others succeed charges my batteries but there are more than 3,000 STMA members that feel exactly the same way. STMA is made of very special people. It starts with membership, goes through the boardroom and is very real within our Lawrence, KS headquarters.

I live with the memory that shortly after my introduction to STMA, Steve Wightman had no clue who I was but when I asked for some minor baseball field advice he treated me as if I was his best friend. The great part is what I just said can absolutely be said by another 200 sports turf managers. Steve is my (and those hundreds of others) example but STMA has a roster full of others and each one of us has our own example. Fellow members understand the unique challenge our jobs present. The beauty of our association is that no one, including commercial partners and those teaching at our schools and universities are on parallel ground here, would deny helping you if you simply ask. Pride is one of the deadly sins and my trust is our profession stays humble. When the guys on STMA's Mount Rushmore are the first ones to offer to help or provide counsel then it's a pretty safe bet we're in good hands and will remain that way for a long time.

***ST*: You were president of STMA 10 years ago. What are the biggest changes you have seen in the association over that time?**

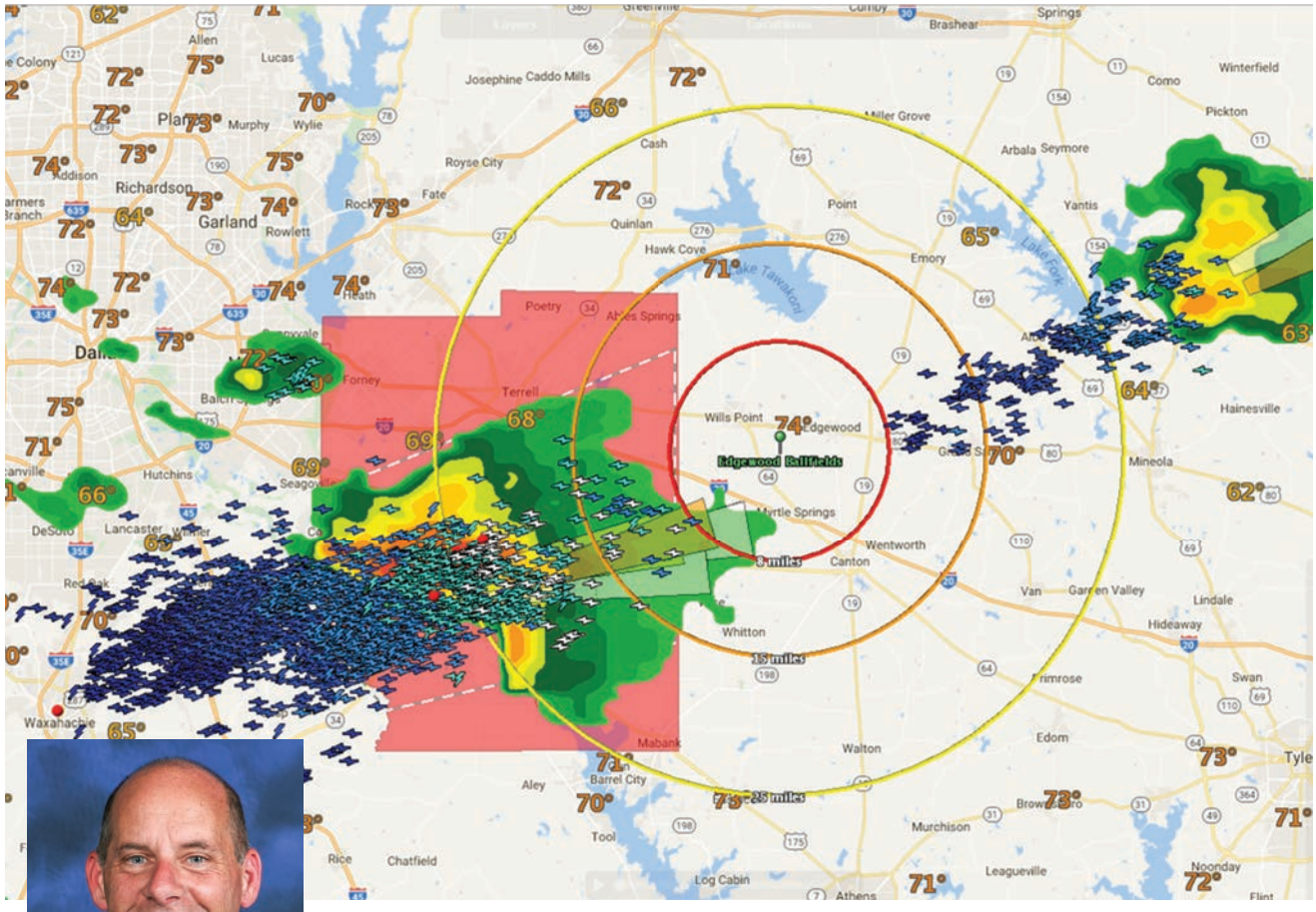
ANDRESEN: As usual, another great question and one I'll have to shoot from the hip on. I like that we're almost 100% electronic with communications now. We knew back then we needed to get there but it was surely tough moving that direction. SportsTurf magazine is a valuable tool and tremendous credit should be given to you and the publisher. The international influence at our annual conference is very impressive.

Wasn't long ago when Abby McNeal represented us at what may have been the first official STMA international trip. We owe much to past leadership and to Steve and Suz Trusty for helping us weather some very difficult growing pains and for keeping STMA in business, period. David Rosenberg built up the conference when we critically needed him to. Hiring Kim Heck and her staff has exceeded the wildest, most optimistic dreams any of us who were on the Board at the time could have had. The fluidity of having 1-year officer terms on the Board, driven by solid and cohesive strategic planning has been as fun to watch as it has been impressive.

More STMA members are now getting a chance to benefit from serving the association. What you give to STMA comes back to you exponentially, don't underestimate that. I'd say above all else, the belief in us that our commercial partners have and have shown nationally and within our chapters is most remarkable. Simply having our commercial friends recognized as friends and partners in our association and in our lives is awfully special.

Thanks for the opportunity to reflect a bit as I move to this new challenge. It's a pretty charmed life I live and much of it is due to friends I've met in STMA. STMA is simply an acronym that represents the special people we all know. It's the people that make STMA special. ST

CATCHING UP WITH JIM FOERSTER, SCHNEIDER ELECTRIC WEATHER



Jim Foerster is the Director of Meteorological Operations for the Weather division of Schneider Electric. He responded to these questions via email late last spring:

What services and products are you marketing to athletic facilities?

Our WeatherSentry Sports Edition supplies detailed local forecasts based on our proprietary forecasting system, which is managed 24/7 by experienced meteorologists. You can anticipate conditions up to 15 days out, with hourly outlooks for the first 3 days.

Lightning Manager provides real-time lightning data, allowing for safer events with fewer interruptions. Monitor real-time lightning as it approaches your area, as well as set up custom advisory and warning zones for your location.

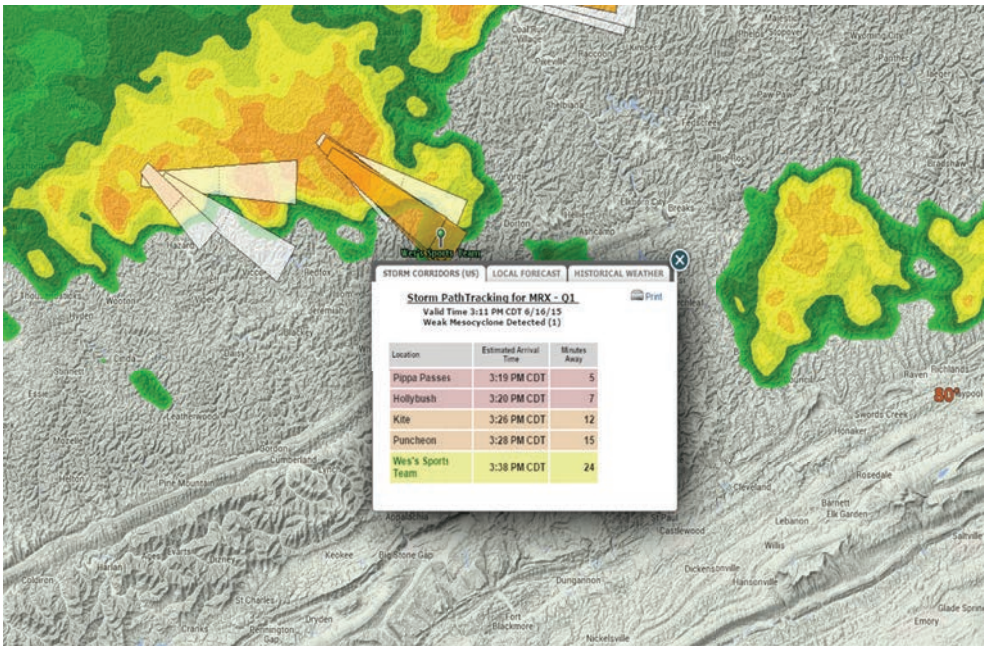
Storm Corridors is a storm tracking tool shows you where the severe weather is, where it is headed over the next 30 minutes, and what time it will reach locations in its path. In addition, storm attributes can be accessed to show specific details about individual storm cells, such as large hail or tornadoes.

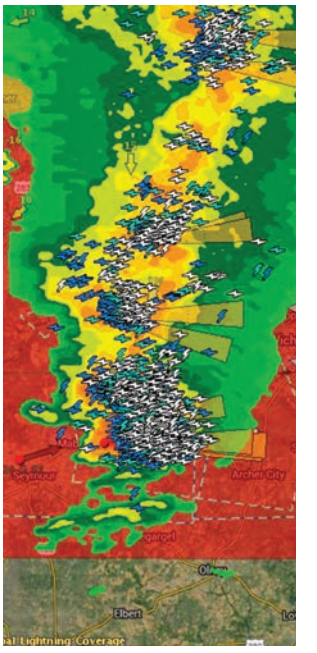
Wet Bulb Globe observations, forecasts and alerts, which don't require special equipment, can provide information to help meet NATA, NCAA, OSHA, and other industry safety protocols.

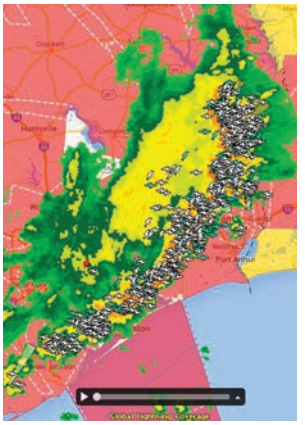
How does the consultant side work?

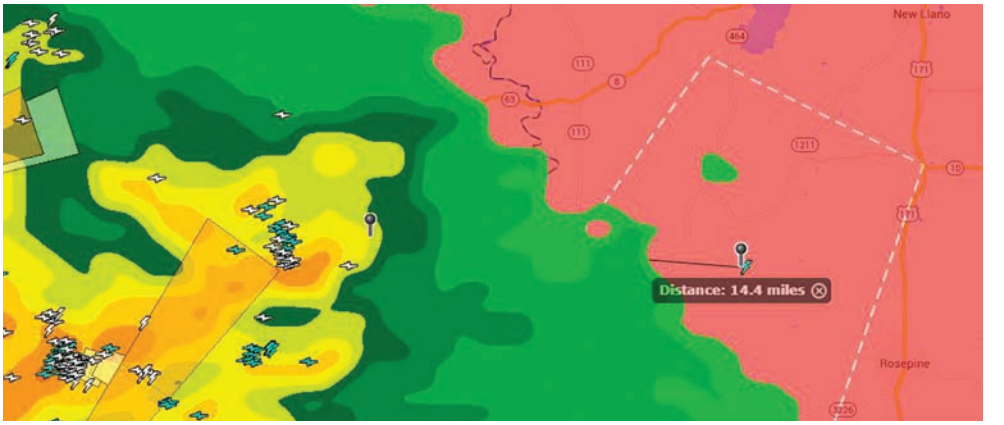
Our customers rely on our staff meteorologists to assist them 24/7 in making the critical decisions they are faced with surrounding safety and smooth management of events. Our weather consultants are degreed and certified meteorologists who work with a diverse client base.

WeatherSentry Online gives users the essential information they need along with frequent updates, but having a









meteorologist familiar with your location and weather types can be invaluable.

What are the choices for monitoring lightning activity for lower budget facilities?

Users of WeatherSentry Online and our mobile extensions are allowed to set specific ranges within their application to be alerted for lightning, as well as directing those alerts to multiple recipients to provide clear and actionable guidance. Additionally, these alerts even "follow" users when travelling, providing a full safety net at all times.

Users of WeatherSentry Online are also able to set alerts for thunderstorms in the forecast, allowing for an extra level of preparedness. Users can also set an All Clear time for lightning.

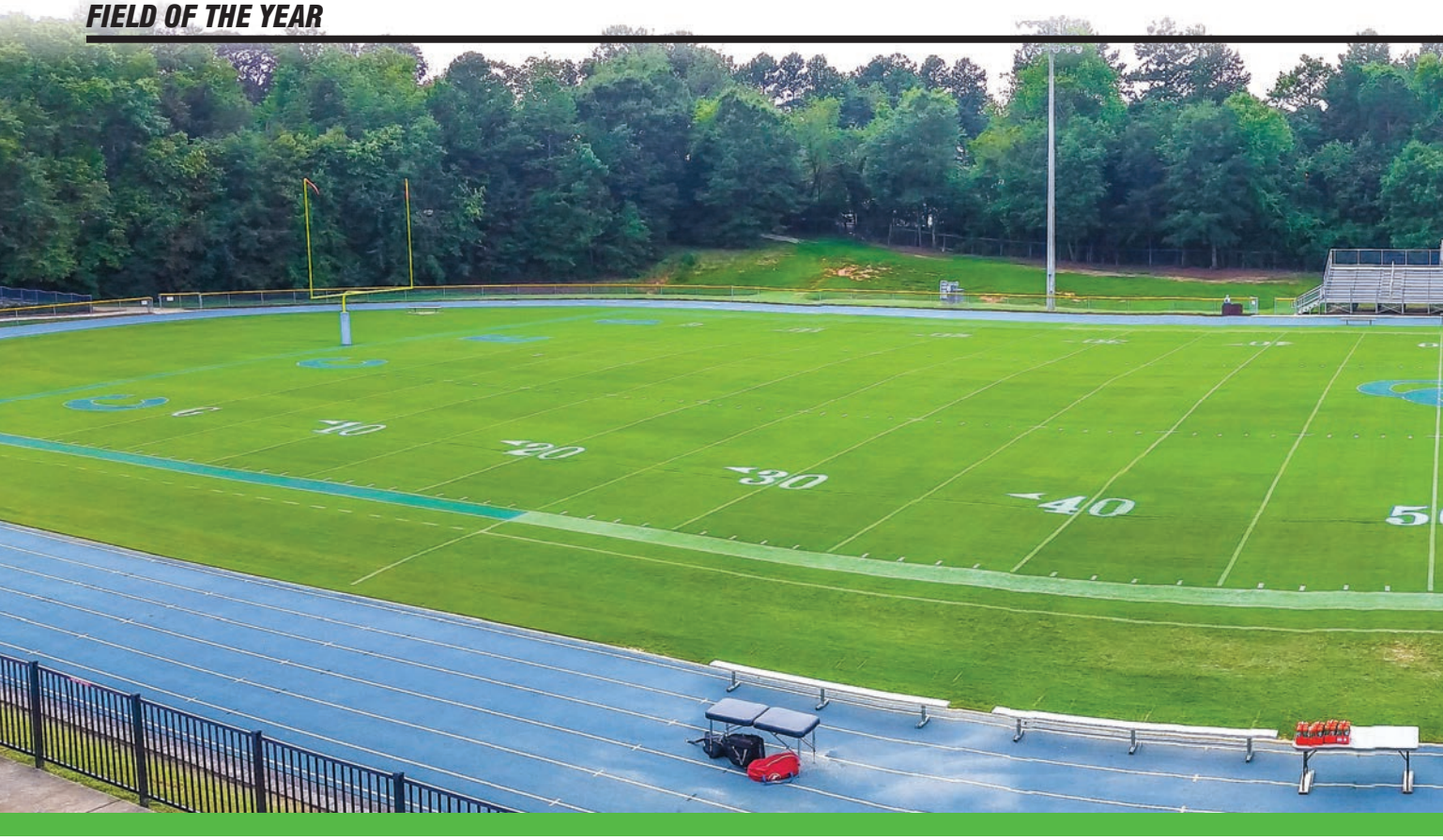
What sources do you use to develop your weather information?

Much of the weather information we use comes from government sources and we augment that with private networks of data as well.

What are your recommendations for how facilities should best conduct "take cover" operations to protect players and fans?

Using online weather platforms and mobile apps that update at a very high frequency are the best tools. However if you are unable to access these, one of the best rules of thumb is the "30/30 rule," which essentially entails counting the seconds after you see the lightning flash until you hear the associated thunder. If it is 30 seconds or less, the thunderstorm is within 6 miles and is a threat. If out in the open, immediately seek shelter indoors or in a hardtop, fully enclosed vehicle and remain until you have not heard thunder for 30 minutes. ST

Jim Foerster is the Director of Meteorological Operations for the Weather division of Schneider Electric. He is one of four Certified Consulting Meteorologists with Schneider Electric. Jim has a Bachelor's Degree in Meteorology from the University of Wisconsin, Madison. In his spare time, Jim is a professional soccer coach in Bloomington, MN where he resides.



CARSON STADIUM

CHRIST CHURCH EPISCOPAL SCHOOL, GREENVILLE, SC

Category of Submission: Schools/Parks Football
Sports Turf Manager: Brian Dossett, CSFM
Title: Head Turf Manager, Oxner Landscape and Maintenance, Inc. Education: Bachelor of Science, Turfgrass Management, Clemson University
Experience: For the past 10 years with Oxner Landscape, I have been managing all the fields at Christ Church Episcopal School as well as other various schools in the area that need specialty work done. During these years, I have built a field from top to bottom, installed and repaired irrigation, mowed, verticut, aerified, topdressed, boom sprayed, rebuilt pitcher mounds, reworked infields, laid sod, installed drainage, fertilized, and just about anything else dealing with quality field maintenance.
Full-time staff: I am full time with Oxner Landscape, we are contracted to maintain this field. I personally handle the vast majority of the workload for the field.
Part-time: Zach Dees, Jake Haynes, Travis Frost & Larry Frost
Original construction: 1973
Rootzone: Native soil, clay
Turfgrass variety: Tifway 419
Drainage: No system

CARSON STADIUM Annual Maintenance Plan

JANUARY

- Lime (base on soil samples)
- Blow field as needed
- Scout for improvements
- Scout for weeds

FEBRUARY

- Blow field as needed
- Scout for weeds

MARCH

- Ronstar Flo 3lbs. a.i. per acre
- Blow field as needed
- Scout for weeds

APRIL

- Fertilize 24-5-11 1# N per 1000
- Mow as needed (once or twice per week)

MAY

- Coron 28-0-0 1⁄2# N per 1000 Podium @ 18 oz/acre Axillo Mix 5 2#/acre Utilize @ 12 oz/acre
- Mow twice a week at 1⁄2 inch
- Aerate, verticut, topdress (50 tons sand)

JUNE

- Coron 28-0-0 1⁄2# N per 1000 Podium @ 18 oz/acre Utilize @ 12 oz/acre
- Mow twice a week at 1⁄2 inch
- AERO-vator on high traffic areas

Why STMA should consider your field a winner for baseball?

Carson Stadium is the focal point of all the fields at Christ Church Episcopal School. Of all the fields, this field is held in the highest regard. Due to this field's prestige, they try to squeeze as many events on this field as possible. This can create many problems in trying to maintain high quality turf with all the wear and stress that is applied. Over the years, we have tried to move several events off this field and have succeeded at times. This is mainly due to the construction of a new practice field a few years ago.

Secondly, we face certain situations many sports managers do not. We are a company contracted to maintain all the grounds at CCES. We have a maintenance, fertility, chemical, and cultural practice program that both parties agreed upon. We are paid upon this agreement. Any type of extra work has to be approved by the school. This can be very frustrating when something needs to be addressed. We normally have to wait on approval before proceeding tasks not outlined in the contract. We have to be very mindful of our time. We only have so many hours we can dedicate to each field or job before we start losing money as a company. Over the years we have been able to become more efficient, as well as negotiate changes in the contract. This has allowed us to provide a better field based on our past experiences. However, there is still a limit on money and time. With what we are given, I feel we produce a high quality field that would rival fields with fewer constraints and more time allotted to maintain them.

Thirdly, because of our unique situation we have little to no control of the activities on the field. We can make suggestions and offer opinions, but the decisions are still the school's. The school will try to work with us on scheduling for the most part, however if a PE teacher, coach, or even sometimes a parent wants to use the field they have priority. The only exception to this is when we are spraying a field.

Finally, I feel that when looking at the field most people would be shocked at the quality of playing surface with the relatively few hours spent to maintain it. While our situation is rather unique, the Oxner team has found a way to maximize our time and budget to give CCES a great value on their investment.

JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
• Coron 28-0-0 1/2# N per 1000 Podium @ 18 oz/acre Utilize @ 12 oz/acre • Mow twice a week at 1/2 inch	• Coron 28-0-0 1/2# N per 1000 Podium @ 18 oz/acre Axillo Mix 5 2#/acre Utilize @ 12 oz/acre • Mow 3 times a week at 1/2 inch until the week of the first game then we raise the HOC to 5/8 inch • Blow field as needed	• Coron 28-0-0 1/2# N per 1000 Utilize @ 12 oz/acre Barricade 2lbs a.i. per acre • Mow 3 times per week at 5/8 inch • Blow as needed	• Either mow or roll 3 times per week HOC now at 3/4 inch • Blow as needed	• Princep 4L 1oz per 1000 • Roll if needed for playoff game • Blow as needed	• Scout for weeds • Blow if needed • Soil samples

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

DOSSETT: I wasn't looking for a job in sports turf after college. I went to work for a landscape maintenance company to manage its turf quality division. One of the company's largest accounts was a private school. As time passed and the school wanted to elevate its playing surfaces, I became much more involved and focused on sports turf management. I never thought I would enjoy it as much as I do. I wasn't looking for a career in sports turf but it found me, and I love it.

***ST*: What are your biggest challenges in providing excellent playing surfaces?**

DOSSETT: Scheduling and the amount of activities on the fields are my biggest challenges. Besides the sports teams, I also have to work around many other activities. These include PE classes, church groups, youth summer activities, summer sports leagues, mini camps, individual workouts/training, and even people associated with the school or church that just want to fly a kite or run their dogs.

***ST*: How do you approach those challenges?**

DOSSETT: Patience, patience, and more patience. We start with the actual scheduled events and develop a plan based on what we want to accomplish that day. We always have a backup plan or two. For the most part, we are able to work around the unscheduled events or depending on the activity, we can ask the group to use a different field. For major projects, we do everything we can to let people know that a field or fields will be closed on a certain day.

***ST*: What changes if any are you considering or implementing for the winning field in 2017?**

DOSSETT: With the increasing amount of field usage, we plan more frequent cultural practices this year. Whether it be hollow tines, solid tines, slicing, or verticutting, anytime we can get on the field and open it up we will.

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

DOSSETT: I really enjoy overcoming the challenges we face during the year. This job is full of challenges from the weather to having good personnel. Despite your daily challenges, the playing surface has to be at its best on game day.

***ST*: What's the biggest headache?**

DOSSETT: The largest headache we have is trying to accommodate the short notice or not having any notice of the events that go on at the school.

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

DOSSETT: Focus on solutions, not on the problems. We all encounter problems, how they are handled is what makes the difference.

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

DOSSETT: I use social media as a resource tool. It's a great place to see other turf managers' challenges and how they have overcome those challenges, as well as share my own experiences.

***ST*: How do you see the sports turf manager's job changing in the future?**

DOSSETT: I feel the turf manager of tomorrow will have greater restrictions on time and what they allowed to use on fields. With growing field use and more concern about the environment, a well-defined chemical and cultural program will be a must. Also they will be limited to the time they have on the field and must be able to make difficult decisions on what is the most important thing that needs to be done that day. ST

John Mascaro's Photo Quiz

Answer from page 17

John Mascaro is President of Turf-Tec International

These irregular brown areas of this multipurpose sports field were a mystery to the person tasked with managing the field. The facility is short-staffed and under-budgeted so when they saw this damage, they called in an expert to look things over. When the turfgrass specialist arrived, she knew right away what was going on, as she had seen this pattern many times before. She took the person in charge of the field to an elevated position overlooking the field and from that vantage point, they could immediately tell the problem was caused by the irrigation system. Irrigation precipitation and uniformity is one of the major causes of turfgrass stress and health issues in the sports turf world; however, the irrigation system is often overlooked until a drought hits. In this photo, the dry areas are brown and the wet areas are green, clearly showing the sprinkler system irregularities. With utility vehicle traffic, mowing, field set up and maintenance as well as games and special events, irrigation systems take a beating all year long. Often head and nozzle repairs are done quickly and often the thought of "I will get back and fix that correctly" falls out of mind. Even though the turf is stressed with wet and dry areas, if a little precipitation is in the forecast, the field looks okay. But when a dry period of weather hits, fields look like this. To correct these issues, they repaired the heads and looked at distribution by doing an in-house irrigation audit.

Photo submitted by Pamela Sherratt, turfgrass specialist at The Ohio State University.

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.

OVERSEEDING SECRETS

Editor's note: *This piece was provided by Turfco.*

Overseeding is a standard practice in many football turf maintenance programs, but the methods used by turf managers are anything but standard in order to meet the needs of each particular field. There are a number of variables that can impact when and how overseeding can be done on a football field—and no one-size-fits-all solution to the challenges that come with them.

"I am convinced that there are a thousand right ways of doing things," says Tim Van Loo, CSFM.

Van Loo is currently STMA President and maintains the athletic fields at Iowa State University, including Jack Trice Stadium and three football practice fields. He and Sun Roesslein, CSFM, and manager of the North Area Athletic Complex for Jeffco Schools athletics in Golden, CO share some of the secrets they've learned in maintaining award-winning turfgrass stadiums and practice facilities.

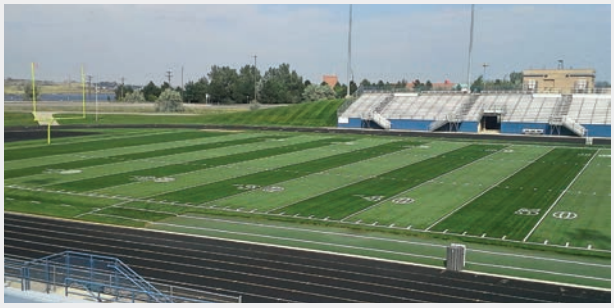
SEED IN FALL AND SPRING AND OFTEN IN BETWEEN

Spring and fall often have the best soil temperatures for germinating seed. Van Loo starts spring by slit seeding his fields in two directions, which is the most consistent way he's found success seeding with Kentucky bluegrass for the season, he says. In late August, however, he always broadcasts seed on the fields. The greater activity on the fields in the fall can help push seed into the soil. Both Van Loo and Roesslein even send out a team member to hand seed trouble spots at hash lines or centerfield.

"If you only have a bucket of seed and 15 minutes, put it down in the worst areas right before a game and let the players' cleats help to plant the seed," Roesslein says.

A slit seeder is Roesslein's first choice for springtime overseeding, too. The machine places seed directly in each slit, then runs a roller over the slit to ensure strong seed-to-soil contact. The slit seeder also acts similar to a verticutter, with enough power to break through thatch yet leave minimal surface disruption. This allows the field to return to play quickly, she says, an important piece when back-to-back activity on the field requires frequent maintenance without much recovery time.

Seeding at Jack Trice Stadium, Iowa State University



North Area Athletic Complex, Jeffco Schools, Golden, CO

One of the advantages of managing a school or university field is the break between fall and spring sessions when more intensive turf renovation won't disrupt athletes.

"I think our recycle dresser is definitely a luxury item that we are lucky to have," Roesslein says. "With our game schedule being heavy in the spring and fall, we are able to use it as a cultivation tool on the fields in a way that can't be matched by aeration alone."

Roesslein says her favorite way to prepare the stadium field for overseeding is to recycle dress in two directions, then use a slit seeder to place seed in a third direction. She follows up with a sand topdressing. Cultivating the field this way during the summer helps break up compaction from spring lacrosse, and build up a strong base for fall football and marching band.

Roesslein also applies a broadleaf herbicide approximately 2 weeks before overseeding, to reduce weed pressure on new seedlings.

Van Loo prefers following overseeding with aerification during the off season. He says he uses a higher rate of seeding (3 -5 pounds per 1000 square feet) depending on the timing and field condition, but also because aerifying the field will thin the seed growth.

"I try to time aerification after I think the plant can take it, usually 2 to 3 weeks after germination," he says.

Because many of the factors that influence overseeding success are often beyond the control of turf managers, like weather, scheduled events and even budgets, both Van Loo and Roesslein recommend having a plan that can adapt to the moment.

"Play is heavy on our fields during the best time to seed, so we fight weed pressure, play, compaction and sometimes less than ideal weather in order to find the best time to plant seed," Roesslein says. "It's important for us to have the seed and topdressing we need on hand so that when we do have a good window, we can take advantage of it."

Many challenges come with overseeding football fields and there are just as many methods for overcoming them. Like playing football, it comes down to spending time on the field to find what works best for each situation, being able to make a snap decision when ideal conditions open up and comparing notes on the playbook.

"Find a method that works for you, continue to tweak it and share your results with others," Van Loo says.

TURF SCIENCE

TIPS FOR CHOOSING AN OVERSEEDER

BY **STEVE LEPERA**

A **thick, healthy turf** that's been seeded regularly lends itself to the safety and performance of athletes, but not every overseeder lends itself to a thick, healthy turf. Whether overseeding is required weekly or monthly, the machine used can have a big impact on the results, so it's important to choose wisely.

Be sure to take a look at the **seed box**. If it's positioned too low, moisture on the grass may cause seed in the hopper to clog the opening, resulting in an uneven spread or no spread at all. A floating seed box ensures that no matter how uneven or bumpy the terrain, seeds are planted at a consistent and optimal depth, resulting in dependable results. When seeding on hills, consider an overseeder that can be locked in place at multiple depths for effective coverage.

Select a model that has a clear lid on the seed box so operators can immediately detect if the seed is clumping or if the box is empty. This helps reduce wasted time and energy from working without seed in the seed box. Some units also feature a seed dial and an instruction chart on the overseeder that allows operators to set the machine for the desired grass seed type so no seed is wasted.

Tires can impact turf quality. Turf tread floatation tires offer stability on hills, minimize soil compaction and eliminate tire ruts.

It's also important for the overseeder to have a tight **blade** placement for providing the best seed coverage. Closely placed blades result in a thicker turf because there's increased opportunity for the new seed to reach the topsoil, and a thicker turf means less weeds, diseases and insects.

Efficiency. Look for productivity-enhancing features, such as a hydrostatic drive, which provides variable speed in forward or reverse. With this, operators can adjust their speed for the job's soil conditions. Not only does this allow operators to efficiently work in changing conditions, but it also reduces grueling muscle-work from having to manually push the machine.

Service and **maintenance** mean downtime, and the less downtime the better. One area to reduce maintenance time is on the bearings. Greasable cast iron bearings on either side of the blade shaft require minimal maintenance and last longer than non-greasable cast iron bearings.

Also, look for blades with a cutting edge on both sides for double the service life, which helps minimize maintenance costs.

Lastly, look for a reputable manufacturer that provides easily accessible resources, such as educational information, operational manuals and phone support for quick answers to any challenge. Some manufacturers also have a turf care education section on their website with answers to questions, such as what problems to correct before overseeding. Reliable support saves on downtime and fosters long-lasting results.

Steve LePera is the director of marketing for Little Wonder, Mantis and Classen, three brands of Schiller Grounds Care, Inc., a PA-based manufacturer of outdoor power equipment.

NEW PRODUCTS

VREDO DOUBLE DISC INTER-SEEDER OVERSEEDERS

For the first time the range of Vredo precision inter-seeders is available in the US through AQUA-AID, Inc., Rocky Mount, NC the distributor for Campey Imants. The company has been at the forefront of inter-seeding innovation for the past 30 years. Now American grounds professionals can enjoy the 96% germination rates that can be achieved through the Vredo dual action of placing the seed directly into the soil and enclosing it to afford the protection it needs to grow. The double disc placement system is the only seeder consistently achieving these outstanding germination rates with minimum surface disturbance.

The cornerstone of any quality sports turf field is a solid agronomy program. This includes regular soil testing to ensure soil chemistries are balanced. Proper aeration practices for compaction relief and, air and water ratios in the soil.

With a strong agronomic base, introducing inter-seeding revitalizes your sports surface, replacing weak or thin turf grasses with new high quality seed to improve the turf stand and optimize performance of the surface for whatever sport is taking place.

The Vredo inter-seeding system is unique in the way it delivers precise seed placement with no disruption to the surface. This action is present in both the Vredo Compact with 3-inch spacing, and Super Compact inter-seeder with 1½-inch spacing to ensure the seed is placed in direct contact with the soil, giving an exceptionally high germination rate of 96%. The precise nature of the machine operation

also cuts down on seed waste; seed left on the surface is subject to adverse weather conditions or bird activity.

The real advantage of the Vredo inter-seeder is the ability to accurately deliver seed to your current sports field without affecting the play.

Campey Imants

SUREZONE FOR FAST BROAD-SPECTRUM WEED CONTROL

ArmorTech SUREZONE turf herbicide offers rapid and effective broad-spectrum weed control for common and troublesome weed species in sportsturf areas, including: dandelion, spurge, white clover and dollarweed (pennywort). Containing four proven ingredients – sulfentrazone + 2,4-D + MCPP + dicamba – ArmorTech SUREZONE is labeled for use on most cool and warm-season turfgrasses. Benefits include: energized with sulfentrazone resulting in a fast visual response; water-based formulation ensures applicator safety and maximum efficacy; 6-hour rainfastness protects your investment; 3-week reseeding delivers maximum flexibility.

United Turf Alliance

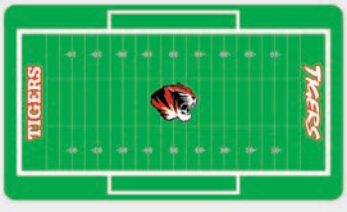
READY-TO-USE PAINT TOTE SYSTEM

World Class Athletic Surfaces, the manufacturer of the original Premium Concentrate almost 30 years ago, now introduces the world's first ready-to-use paint tote and mixing system. World Class has created a sustainable environmentally friendly paint system that uses less space, fewer buckets, reduces labor, shipping costs, and it always produces a consistent mix using a 275-gallon tote. This is a true "GREEN" system. We will even pick up your empty totes after eight uses and recondition them to be used again! Single and double OSHA approved tote stands are available. Imagine flipping just one switch and turning one lever for perfect paint consistency. Genius! Go green with World Class.

World Class Athletic Surfaces

STENCILS FROM MARKERS INC.

Enhance your field's appearance with colorful Team Name or Logo stencil(s). Our process creates a one-piece, easy to handle stencil-from simple to complex. Select a size for mid-field or even end zone use. We can help with design, sizing, and also furnish proofs, superimposed on a field layout. Stencils are made with heavy duty, UV-treated polyethylene sheeting that lays flat with no fold marks, cracks or breaks. The stencil can be rolled then stored after clean up for compact storage. A 10-15 year service life is common.



Markers Inc.

TRUMARK FIELD STENCILS

Show off your team pride using field stencils! TruMark works in a collaborative manner to bring your team's logo, team name or mascot to life on the field. This includes guidance when converting a printable logo to a paintable one, offering professional mock-ups and a quick turnaround for quotes and production. The stencils are cut using a very durable, yet flexible, single sheet of plastic that can be folded or rolled for storage. In addition, end zone letter stencils are produced in two standard forms on this same type of plastic, a 16-foot tall x 10-foot block letter font and a 22-foot tall x 16-foot wide collegiate font. And don't forget about the basics to make your job easier, like hash marks stencils and sideline numbers kits.

TruMark Athletics

POWRLINER 3500 SEALED HYDRAULIC LINE STRIPER

Titan has expanded its PowrLiner Series of line stripers with the introduction of the PowrLiner 3500. With PermaStroke Technology, it is Titan's first line striper outfitted with no piston, packings or clutch to replace. Backed by a lifetime WearGuard Elite fluid pump warranty, it delivers exceptionally sharp lines with very few inconsistencies, even on difficult field and pavement marking applications. Supported by a national network of authorized sales and service distributors, the Titan PowrLiner 3500 is setting a new standard for smooth operation and precise line striping.

Titan

EXMARK SLICER SEEDER

The Exmark 20-inch Slicer Seeder performs three jobs, verticutting, dethatching and overseeding, with each pass. Durable high-carbon steel blades remove thatch and provide maximum seed-to-soil contact for superior seed germination. A large-capacity 40-pound seed hopper makes quick work of big jobs. The large-diameter mixer uses ground speed to regulate seed flow, ensuring even seed delivery in all conditions. Infinitely variable hydrostatic drive with powered reverse makes the 20-inch Slicer Seeder as easy to operate as a self-propelled mower.

Exmark

FOOTBALL RESOURCE GUIDE

GRIGG BROTHERS' FERTILIZERS

Boost your nutrient management program with GRIGG Proven Foliar and soil specialty fertilizers. Research has shown that a combined approach of routine foliar nutrient supply and improved soil productivity will enhance turfgrass vigor and promote recovery from traffic, shade, and mechanical renovation. A foliar fertilizer such as Gary's Green Ultra (13-2-3; 0.5Mg, 1.4Fe, 0.2Mn, 0.2Zn, 0.12 Cu) provides efficient mineral nutrition in a complete and balanced formula, while a soil targeted fertilizer such as Rhozonify (6-4-4; 0.2Fe, 0.05Mn, 0.05Zn) offers nutrition, biological non-plant food ingredients, and a wetting agent designed to maintain ideal air/soil/water ratios, improve rooting, reduce localized dry spot, and potentially increase microbial activity.

Grigg Brothers

NORDOT ADHESIVES FOR FOOTBALL FIELD INSTALLS

It's important to know that there's no "one size fits all" adhesive for every job because, what might be outstanding for one application might be disastrous for another. That's why, for over 40 years, Synthetic Surfaces Inc. has been developing a wide variety of NORDOT one-part, solvent-based, high "green strength," easy-to-use specialty adhesives for synthetic turf football fields and other recreational surfaces. For example, when a football field is installed it is vital that the adhesive is easy to apply under variable weather conditions; has outstanding long-term exterior durability; and excellent fresh- and salt-water resistance. NORDOT adhesives have a well-established, time-tested proven record of successful installations worldwide.

Synthetic Surfaces

THE POWER OF SIMPLICITY

Nimitz Pro G is a phenomenal nematicide that offers unparalleled reductions in Lance, Sting, Root Knot and Lesion nematodes (among others) as well as remarkable gains in root length and weight creating visibly healthier turf. Fluensulfone, the active ingredient in Nimitz Pro G will not interfere with other scheduled treatment programs including fungicide rotational efforts and does not persist so long as to create a negative impact on the environment. Nimitz Pro G is your only choice for sound, effective low environmental impact nematode control.

Control Solutions Inc.

CIVITAS TURF DEFENSE

Intelligro brings you CIVITAS TURF DEFENSE, an EPA-registered plant protection product, fungicide and insecticide with stress tolerance technology. CIVITAS TURF DEFENSE delivers turf protection from biotic stresses including insects and disease, as well as abiotic stresses such as reduced water conditions and increased traffic. With no known pest or pathogen resistance issues, CIVITAS TURF DEFENSE improves wear tolerance, delivering resilient turf that looks great from the field and the side lines, while also improving playability. With a targeted focus on delivering turf that's as healthy and strong at the end of the season as it is at the start, CIVITAS TURF DEFENSE isn't just leveling the playing field – it's changing the turf management game altogether.

Civitas Turf

Q4 PLUS: 1 PRODUCT FOR BOTH GRASSY AND BROADLEAF WEEDS

Q4 Plus Turf Herbicide for Grassy & Broadleaf Weeds from PBI-Gordon combines four powerful active ingredients into a single formulation that kills tough grassy and broadleaf weeds, including yellow nutsedge, crabgrass, foxtail, chickweed, clover, and dandelion. Q4 Plus is highly selective in cool-season turfgrasses and labeled for select warm-season turf species making it ideal for use in perennial and annual ryegrasses, and listed bluegrasses and fescues. Labeled for use on golf courses, residential and commercial areas, cemeteries,

sod farms, and roadsides, Q4 Plus offers rapid visual response and has a one-week reseeding interval for most listed turf.

PBI-Gordon

PROSCAPE STARTER FERTILIZER 21-22-4 WITH MESOTRIONE

ProScape Starter Fertilizer 21-22-4 with Mesotrione is a homogeneous starter fertilizer granule impregnated with 0.08 percent Mesotrione herbicide. Unlike most herbicides, this distinctive product is ideal for use during turf establishment (bare ground seeding, sodding, sprigging or plugging), renovation or overseeding. ProScape Starter Fertilizer with Mesotrione can be used for pre-emergence control of 33 listed broadleaf and grassy weeds. This product is packaged in a 40 lb. poly bag with a typical use rate of 187 lbs/acre.

Lebanon Turf

HERITAGE ACTION FUNGICIDE

Heritage Action fungicide delivers hybrid technology that couples the proven disease control of Heritage fungicide with a boost of acibenzolar-S-methyl (ASM) to help plants better manage biotic and abiotic stress. ASM is the only active ingredient recognized by the Fungicide Resistance Action Committee (FRAC) to have systemic acquired resistance (SAR) effects. This empowers the plant to engage its own natural defenses to improve plant performance, providing optimal turf quality and playability.

Syngenta

H2OEXCEL FROM BROOKSIDE AGRA

H2OExcel from Brookside Agra is a proprietary blend of natural desert plant extracts and high-quality, humic-acid-containing biologicals and other natural, non-plant derived nutrient enhancers. H2OExcel's unique chemistry works deep within the soil profile to significantly reduce water, time, inputs and energy needed to grow healthy turf and vegetation. H2OExcel contains all of the following in one product: biologicals (living organisms), humates, fulvics, surfactants, natural sugars, vitamins and minerals. Made in the US, H2OExcel has the ability to infiltrate effectively through different soil types and reach farther and deeper into the soil profile, making water better managed and more usable. H2OExcel is tank-mix compatible with fertilizers, herbicides and pesticides and mixes easily in cold water and stays in solution. H2OExcel is safe for use on any vegetation, including turf, flowers, trees, shrubs, vegetable gardens, fruit trees, and more.

Brookside Agra

MATCHPOINT INSECTICIDE

MatchPoint insecticide is the latest innovation in annual bluegrass weevil (ABW) larvae control. With the power of spinosad and a new lignin technology, sports turf managers now have the freedom to make applications during a time that works for their schedule. This advanced formulation enhances photostability and lowers the UV degradation of the active ingredient, providing more consistent control. MatchPoint controls the 1st and 2nd instars in the plant, making it an excellent choice for the first application in any rotation program. When applied according to label directions, MatchPoint will control up to the 5th instar and will stop ABW feeding immediately. MatchPoint can be applied at any point during the day and watering can be delayed up to 24 hours after an application.

Dow AgroSciences

FOLIAR-PAK GROW-IN

Foliar-Pak GROW-IN is a new all-in-one liquid [8-4-5 (NPK) with boron, copper, iron, manganese, and zinc) that offers a complete turfgrass establishment program with the convenience of one single product. It delivers essential nutrients, natural plant extracts, and microorganisms to expedite maturity, density, and hardiness of the turfgrass stand. By combining the foliar nutrients required for rapid turfgrass establishment with seven species of beneficial bacteria to support soil health and Armament technology to keep the formula in suspension, Foliar-Pak GROW-IN is a comprehensive solution to turfgrass establishment. Foliar-Pak GROW-IN is labeled for use on sports turf for establishment, maintenance, and recovery on any turfgrass species.

EnP Turf

STMA INTRODUCES THE DARIAN DAILY LEGACY SCHOLARSHIP

STMA and the SAFE Foundation would like to introduce the Darian Daily Legacy Scholarship. As the association's membership knows very well, Darian Daily was a role model within our industry as well as within his own family. A man with incredible work ethic, Darian showed strong support of the STMA and his peers. As Darian was a loving father, the Darian Daily Legacy Scholarship is designed to help parents and guardians provide an education for their children.

Darian was the head sports field manager at Paul Brown Stadium in Cincinnati when he died unexpectedly last at age 47. An STMA member for 20 years, he was a former STMA Board member and a Certified Sports Turf Manager. He received the Dick Ericson Founders Award in 2011 for his work at Paul Brown Stadium. The award is given annually to someone who plans and executes the sports turf management of their facility, who effectively leads their team to accomplish their goals in field maintenance, and who positively impacts the sports turf industry.

James Hlavaty, CSFM, Natural Grass Product Line Manager at Pioneer Athletics and friend of Darian's for almost 20 years, can testify to Darian's impact on the industry. "I think he touched so many people industry-wise, and fostered so many people. Whether they were new to the industry or young in the industry, he shared those experiences with them. There was never anyone he wouldn't talk to and take the time with to share that knowledge."

The Darian Daily Legacy Scholarship will be awarded each year in the amount of $2,500 each to two qualified individuals. Recipients must be currently enrolled or enrolling into a recognized college or university. This scholarship will support students who have chosen an academic field of study outside of the turfgrass industry. The parent or guardian of the recipient must be a current STMA member for the past 3 years, and must fill out an application and complete an essay outlining their child's qualifications, along with sending in the student's high school or most current college transcript.

STMA board member Weston Appelfeller, CSFM, said, "Darian was a great friend, colleague, sports turf manager, and foremost, a father. One of his lasting legacies will forever be the interest and time he invested in students. The SAFE Scholarship Committee was honored to help in the creation of the Darian Daily Legacy Scholarship and hope this will embody the true spirit that Darian had as a parent and a mentor."

To apply, the STMA Member must complete and submit the application form and supply a transcript, original essay and letter of acceptance no later than October 15. The application requests information regarding the student's activities outside of school, academic distinctions or honors, and school-related activities the student has participated in. The essay prompt asks the STMA member, "What legacy do you want to leave your child and how has your career helped define that?" Members are asked to use specific examples detailing their relationship and how the Darian Daily Legacy Scholarship could help them achieve that goal.

Eric Brown, Managing Director of Paul Brown Stadium, explains why Darian's legacy is important: "He was a man who was not afraid to share everything he knew with anyone else in the industry. He thought it as a responsibility to train and teach younger people to make them better as they moved into the green industry."

All applications must be submitted electronically to STMAInfo@stma.org before October 15 to be eligible for the scholarship. The application can be found on the Scholarship Program page on STMA's website, stma.org, under the Professionalism tab. Please reach out to STMA if you have any questions regarding the Darian Daily Legacy Scholarship. STMA and the SAFE Foundation are excited for the opportunity for Darian's legacy to live on and help educate our next generation.

Tony Leonard, Director of Grounds at the Philadelphia Eagles and friend of Darian's for 15 years, expressed the importance of such an honor. "I think he represents everything we all want to be. A great husband and father, he always wanted to be a great leader in our industry, and promote it as much as he could. It's a tremendous honor and I can't imagine this scholarship being dedicated to anyone else."

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STMA Affiliated Chapters Contact Information

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

Colorado Sports Turf Managers Association: www.cstma.org

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

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

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

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

Georgia Sports Turf Managers Association: www.gstma.org

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

Illinois Chapter STMA: www.ILSTMA.org

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

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

Iowa Sports Turf Managers Association: www.iowaturfgrass.org

Kentucky Sports Turf Managers Association: www.kystma.org

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

Mid-Atlantic STMA: www.mastma.org

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

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

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

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

Sports Field Managers Associationof New Jersey: www.sfmanj.org

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

North Carolina Chapter of STMA: www.ncsportsturf.org

Northern California STMA: www.norcalstma.org

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

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

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

Ozarks STMA: www.ozarksstma.org

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

Southern California Chapter: www.socalstma.com

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

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

Texas Sports Turf Managers Association: www.txstma.org

Virginia Sports Turf Managers Association: www.vstma.org

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Q&A with Dr. Grady Miller

Professor, North Carolina State University

Questions? Send them to Grady Miller at North Carolina State University, Box 7620, Raleigh, NC 27695-7620, or email grady_miller@ncsu.edu
Or, send your question to Pamela Sherratt at 202 Kottman Hall, 2001 Coffey Road, Columbus, OH 43210 or sherratt.1@osu.edu

The Great Roundup

Q: I recently had a question from a concerned parent about us using Roundup herbicide. They mention that they heard it is now considered a carcinogen. Is that true?

A: Your question on Roundup provides a good opportunity to introduce a second storyline concerning Roundup. Your question relates specifically to glyphosate, which has traditionally been known as the active ingredient of Roundup. This active ingredient is the focus of your question as it has been in the "health news" for about 2 years now. Before addressing the carcinogen question, let me first briefly tell you about what is new with Roundup.

The second storyline is that Monsanto recently introduced several products under the general label "Roundup for Lawns." These products do not contain the nonselective active ingredient glyphosate, but contain other selective ingredients. The ingredients are not new chemistry. The "Southern version" of Roundup for lawns that contain dicamba, sulfentrazone, 2,4-D and penoxulam and the "Northern version" contains dicamba, sulfentrazone, MCPA, and quinclorac. The use of the product trade name Roundup (for Lawns) in a selective weed control product is sure to bring great confusion in the marketplace. It may take a while before consumers understand the difference between Roundup and Roundup for Lawns. I feel this way because I find that many consumers still do not know that glyphosate is available as a generic product that works the same way as traditional Roundup and is often much cheaper.

The background on your carcinogen question is also a bit complex. The active ingredient glyphosate has been in the US market since 1974. It is currently the most commonly used herbicide in the US, with the majority of its use in traditional agriculture on "Roundup Ready" crops. There has been greater opposition to using these herbicide-resistant crops in Europe than in the US. It is thought that this opposition in Europe initiated The World Health Organization's (WHO) International Agency for Research on Cancer (IARC) to reclassify glyphosate as "a probable human carcinogen" in March 2015. Although WHO has no regulatory or oversight jurisdiction, this ruling started the firestorm on glyphosate's use. Repeated stories on websites using shock headlines have fueled the flames.

> "The alarm has been set with parents to watch out for the kids and the thought that such a commonly used chemical could cause cancer sounds the alarm. This is a very understandable response."

In the US, the Environmental Protection Agency (EPA) is responsible for testing and regulation of pesticides sold and used in the country. While the EPA's decisions have not always been well received by consumers, they are known to thoroughly test products for acute and chronic toxicities to humans. In September 2016, the EPA classified glyphosate as "not likely to be carcinogen to humans" for the third time. The EPA made a statement related to the IARC classification, citing numerous errors and misinterpretations in their reclassification. The United Nations Food and Agriculture Organization (FAO) also stated in 2016 that glyphosate was "unlikely to pose a carcinogenic risk to humans from exposure through their diet."

During the time since IARC reclassified glyphosate, regulatory authorities in at least six countries have publicly reaffirmed that glyphosate does not cause cancer. So, there is a general consensus that IARC's re-classification was in error.

Unfortunately, this story has continued to circulate on the Internet because of Roundup (with glyphosate) is so well known by the US public. The alarm has been set with parents to watch out for the kids and the thought that such a commonly used chemical could cause cancer sounds the alarm. This is a very understandable response.

Unfortunately in today's society, a correction does not usually make the front page of the news. Even if there was a front-page retraction, some people will not change their opinion that glyphosate is bad. On a number of issues such as climate change, nuclear power, genetically modified foods, and childhood vaccines there are some people that reject science. Perhaps that is now glyphosate's position as well.

In the US, the label is still the law so your continued use of glyphosate per the label is legal. If you are challenged again by a parent, you may want to nicely state that whatever they have heard or read was a statement made by a non-regulatory agency but has not been substantiated by any regulatory agency. That glyphosate has never been proven to cause cancer, not thought to cause cancer, and is 100 percent legal to use. ST

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