Q&A: Good earthworm, bad earthworm

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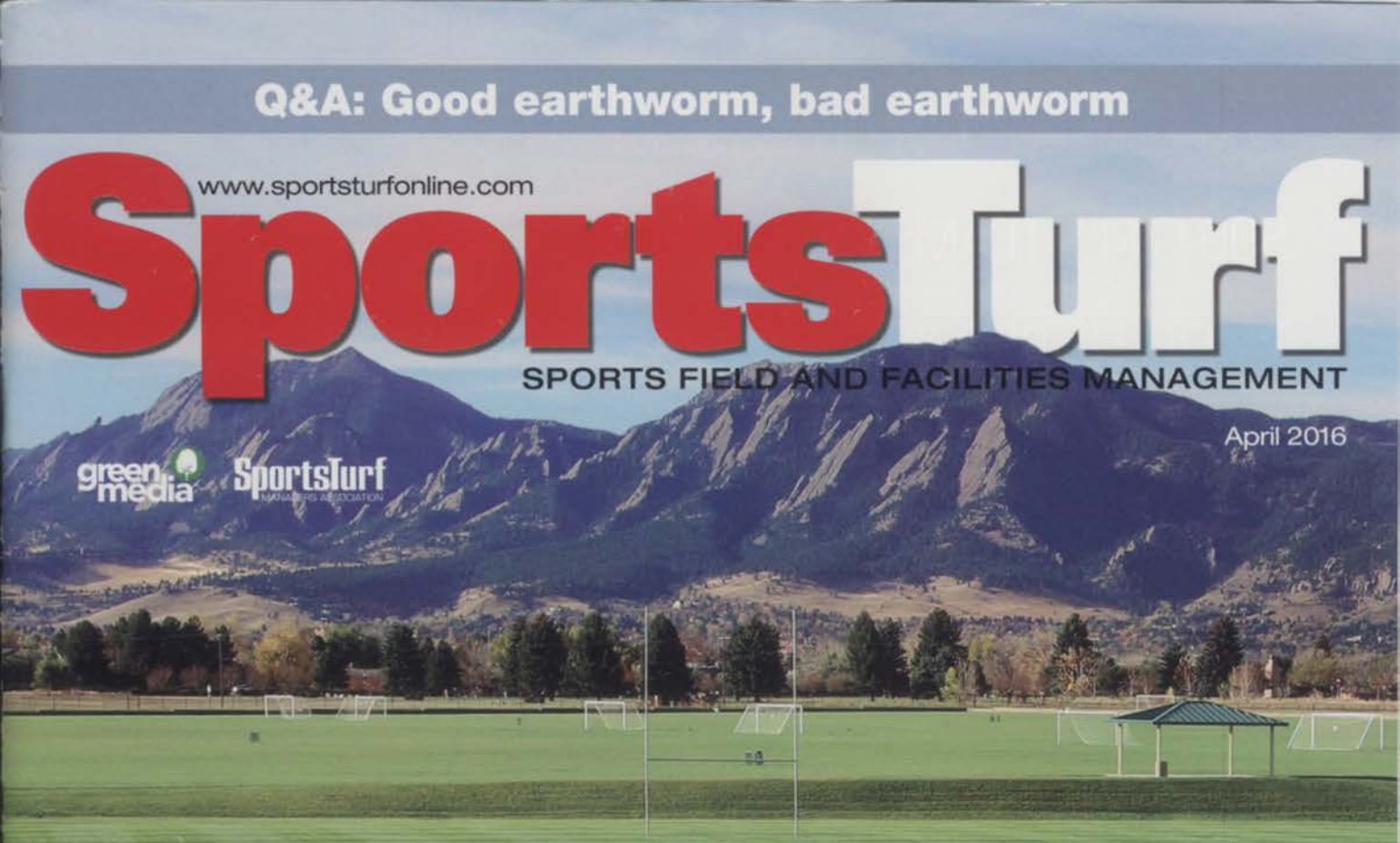
SPORTS FIELD AND FACILITIES MANAGEMENT

April 2016



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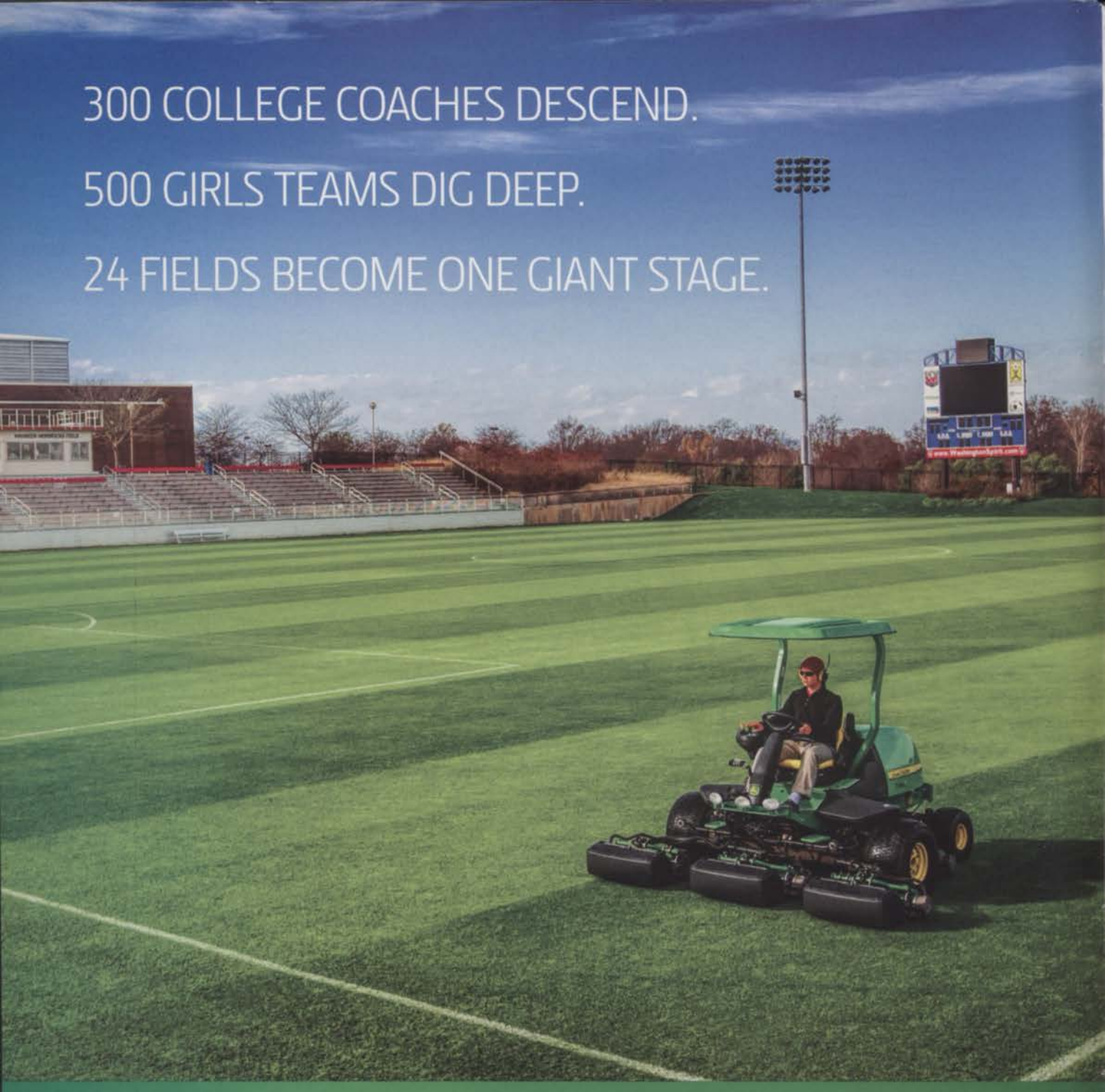

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April 2016 | Volume 32 | Number 4

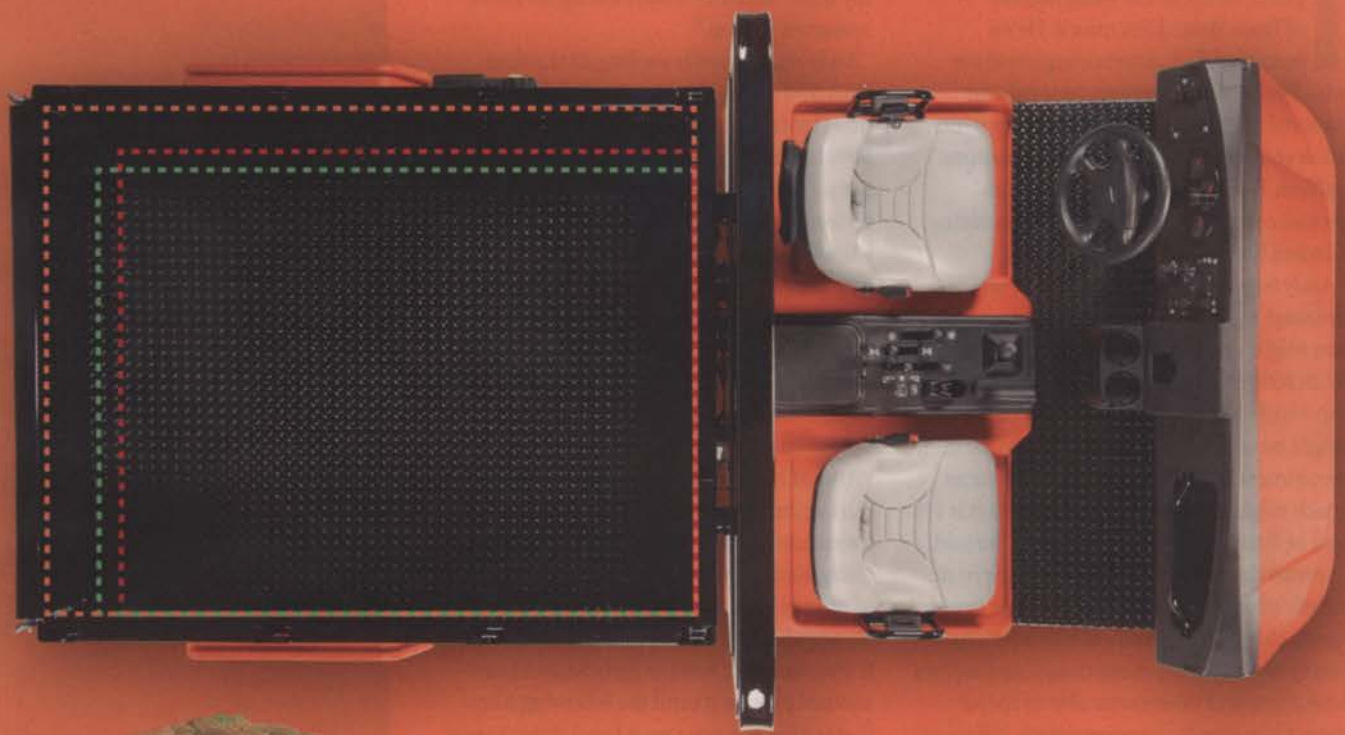
FEATURES

DEPARTMENTS

ON THE COVER:

Sometimes an empty field is beautiful to everyone, not just the turf manager! With the Rocky Mountains as a backdrop, the 2015 STMA Sporting Grounds Field of the Year in Boulder, CO sure looks inviting.

PUTS THE COMPETITION TO BED



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Eric Schroder
Editorial Director
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If you ever get a chance to attend a presentation by Dr. Andy McNitt of Penn State, don't miss it. He's a matter-of-fact, entertaining presenter who I've witnessed at state, regional and national meetings and he never disappoints. Most recently I caught him at the Keystone Athletic Field Managers Organizations' annual conference speaking on "Prioritizing Limited Resources":

Andy began by saying if you don't get your drainage right, you're wasting any money you might spend on improving your field. With 80% of compaction occurring in the top 3 inches of the rootzone, the solution might be rebuilding the field's crown, he said, recommending a 1½% crown. "The soccer coach might hate that but just tell him it is 1% and he'll never know the difference," he said.

Several times Andy advised to ask for more people after documenting where your time is spent. Show administration how much time you spend trailering mowers, etc., and explain how if you and others were able to spend more time actually mowing what a difference that would make in your fields' health. He's a big fan of mowing and mowing often. "Mow correctly, mow often, use a quality mower and change your blades every 40 hours," he said.

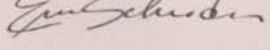
He also urged the audience to keep mowing heights consistent, explaining how many turf managers let their football field grass grow higher during the summer, then whack off more than half of it in late July/early August, just in time for hot weather and renewed foot traffic; the "triple whammy" of stresses, he said.

Andy told the crowd it was important to create a "showcase" field instead of spreading your resources around all your fields. "If all your fields are average, then administration will think you're average; when coaches see a showcase field, they will ask 'Why not my field?' and they'll start asking for more resources for you."

Andy recommends seeding all the time. "Put down 50% of your seed before the first (football) game, then use the other 50% bi-weekly or after each varsity home game," he said. He referenced a famous study by former Iowa State professor Dr. Dave Minner that tried to discover when putting down more seed was no longer worth the investment; Minner quit when he reached 200 pounds per 1,000 square feet and his graph line was still going up. His final recommendation was 30-35 lbs/1,000 as optimum and ideal use of your money.

And, at least for the Pennsylvania climate during the playing season, he recommends overseeding 100% with perennial ryegrass. Using Kentucky bluegrass (KBG) is a waste of money even though KBG is the best choice when it's mature and well maintained. If you can plant KBG in early September and not play on it until the following May, that is ideal but raise your hand if that's your situation! Andy referenced a study from Dr. Bill Dest at UConn that showed mature KBG is more wear resistant but "younger" ryegrass is more wear resistant than "young" KBG (tall fescue falls in between the two, mature or not).

I've shared only some of the highlights from Andy's presentation, of course, and here's how he ended it: Keep asking for more people, work to get your coaches on your side, and partner with the band to fund raise for your fields. The band as your friend — who'd have thunk it?



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

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

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

Leslie Palmer
Senior Account Manager - West
Phone: (248) 731-7596
lpalmer@epgmediallc.com

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

SUBSCRIPTION SERVICES
Phone: (845) 856-2229
Fax: (847) 763-9569
customerservice@epgmediallc.com

REPRINTS
Robin Cooper
rcooper@epgmediallc.com

GROUP PUBLISHER
David Voll
dvoll@epgmediallc.com

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

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VERIFIED AUDIT CIRCULATION

THE YOUTH OF TOMORROW

Jeff Salmond, CSFM
jsalmond@ou.edu

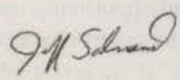
I started playing baseball at the age of eight. My dad was the head coach for the team my brother and I played on for my Little League years. I played baseball through high school and helped our team win its first-ever state championship (even though I did get picked off in the championship game!). I also wrestled and played football but high school was as far as my athletic abilities would take me.

The future of the sports turf industry could be determined by the amount of activity from our youth in outdoor sports. Without student-athletes being outside, enjoying nature, and playing on our athletic fields, our industry could suffer. There has already been a decrease in the number of youth who are playing football across the US. Baseball also has seen a decline in intercity youth participation, a place where it used to thrive. Major League Baseball has taken notice and has started its Urban Youth Academy around the US. But without youth involvement, how will we sustain growth in our industry?

We are seeing the youth of today stay sport specific, or not playing sports at all. There are many sports-specialized complexes being built that are helping the sports turf industry. Youth-specialized sports have made a great economic impact in many communities. Specializing in one sport versus being versatile in a few different sports could also play a small role in the future of the industry. However, the cost of participation for many youth is not affordable in showcase leagues and organizations. And, many grade school, middle school, and junior high school leagues are no longer in existence. There are many kids missing a chance to play outdoor sports.

But, could it also be a lack of safe, playable athletic fields for children? In Oklahoma City there has been a movement to improve dilapidated fields at the grade, middle and junior high school levels. Fields and Futures, founded by Tim McLaughlin and his wife, Liz, started renovating and improving athletic fields in the OKC public school system (see page 18 in this issue). Fields and Future is a 501c3 charity using local and regional resources to help their cause. OKC public schools is the largest school district in the state; at the middle school and high school levels we were seeing a steady decline in youth sport participation, and Fields and Futures wanted to do something about it. Fields and Futures are on track to renovate or totally rebuild 44 natural grass athletic fields in the district. Since the inception of Fields and Futures quest, OKC schools have seen a significant increase in youth sport participation in schools. Talk about making a civic duty impact as well as influencing the sports turf industry! These new fields have now brought the sense of community back to these schools.

I urge us in STMA and through our local STMA Chapters to look at how we can impact our local schools and recreational fields. We can help change the culture locally and continue to make the sports turf industry serve its purpose and also put value back into our communities for youth sports and participation. ST



WHAT'S YOUR NEXT CAREER MOVE?

BY CAROLE DAILY

Have you ever heard of someone who "lucked into" a job? I don't think anyone lucks into a job, any more than a grounds crew "lucks into" a perfectly groomed, healthy playing field. For a field to be game-day ready, it takes consistently applied preparation and effort. The same is true with preparing for new job opportunities. We are either investing effort and prepared for job opportunities that present themselves or we aren't — there's really not much luck involved in the scenario. But the reality is we are likely to spend more time thinking/planning the details of an upcoming vacation than on our actual vocations.

When I think of luck, I like the definition of, "the place where preparation and opportunity meet." We all have the ability to take more control over our career paths, to create our own "luck," if we invest just a few hours each week to be better prepared for our next career move.

PREPARING TO MEET NEW OPPORTUNITIES

The best place to prepare for our next career move is in our current job. Every day we go to work, we are "interviewing" for our next job opportunity by displaying our skills, abilities, work ethic, project management skills, and ability to get along with others. It is witnessed by a variety of decision makers, and helps establish, for good or bad, our reputation in our industry. Even if we are in a job that feels like it's not going anywhere or we may not really enjoy, we need to remember that it is a step to the position we do want.

So take as much out of it while you are there as you can; learn everything you can, be reliable and establish a great work reputation, make industry contacts, and gather up as many "resume builders" as you can, including taking advantage of continuing education programs, being involved in extra projects, volunteering for committees. Any transferable skills or knowledge can help you be prepared for future job opportunities. The more skills, abilities, and accomplishments we acquire in our current positions, the more attractive we are to future employers.

MARKETING THE GOODS

We are our own marketing department and the best way to sell a product is to get the list of the best qualities and attributes (resume) of our product (ourselves) to the buyer (decision makers) in a moment's notice. We should consistently invest the time to keep our resumes updated and immediately available when unexpected opportunities arise. Our resumes should be a constantly growing representation of our skills, abilities, and experience including any "resume builders" such as educational programs, volunteer or work experiences, or awards/recognitions we earn. When you receive notice of a job opening or a decision maker requests your resume, it should be immediately available and not a 1-week turnaround of your having to recreate a 5-year-old, out-of-date resume. The buyer/opportunity may be gone in a week! This is where preparation meets opportunity, so be ready!

In-person networking. Resumes are important in providing a decision maker with a synopsis of your skills/work experiences, but they will not open doors on their own. Doors are opened by people, not paper. Joining industry and local networking groups can be crucial in keeping you informed of upcoming job openings and keep your name in the right circles for opportunities. Attending training and trade seminars (like the STMA Conference and local chapter events) are imperative to putting a "face with a name" and getting exposure to a great number of industry decision makers, all in one spot. Growing contact lists by exchanging business cards is great, but remember to follow up and occasionally reach out to maintain a relationship and solidify the connection. Television and film producer Brain Grazer, who has co-produced more than 60 films, established a practice in his first job out of school where he tried to meet with/make a connection with a new person every 2 weeks. According to Grazer, "The more connections you make, the more valuable each connection becomes."

The best place to prepare for our next career move is in our current job.

Online networking. Joining sites like LinkedIn, Google+, Twitter, and industry-specific websites allows your resume to be in the hands of decision makers before you are even aware of a job opening! And with the ease of sourcing candidates online through social networking outlets, some recruiters and hiring managers will contact candidates of interest for an employment need without ever formally posting an "open position." In today's job market a well-crafted social media profile is as important, if not more so, than traditional, written resumes. When setting up a profile on any social media platforms, make sure to "think like a recruiter" by incorporating key words into your work experience. By using key words that would likely be used for a job description a recruiter is trying to fill, you can get more traffic to your profile. In the sports turf industry this may include key words like "field construction," "field maintenance," "irrigation systems," "natural grass and synthetic surfaces," etc.

If completing a profile on LinkedIn, make sure to complete your profile IN FULL until reaching the point where it signifies "100% Complete." Also, get at least one recommendation (preferably from a supervisor/former supervisor) that will give you a "1" next to the "thumbs up" graphic to help you stand apart from other candidates. If actively looking for a job, make sure to get on the radar of target employers by joining industry groups they host and get involved with their discussion posts. Add helpful, informed comments and perhaps even "look" at the profiles of other participating chat members, which may in turn may have them "look" at your profile as well.

Google+ is not often thought of for networking for jobs, but it can be very helpful simply due to the "Google effect." Google is one of the most popular search engines and we've all "Googled" people or events, things, etc. If a potential employer Googles you to get a little bit more information, your Google+ profile will more than likely appear first ensuring they see the carefully crafted professional representation of yourself. Once you have built your LinkedIn profile, simply replicate it on Google+ and you're that much easier to find!

Twitter is also a great tool as more and more organizations have a presence on Twitter. Before following or engaging with a specific business of choice or their representatives, make sure to build your bio using relevant keywords, and insert a link to your LinkedIn or Google+ profiles to find more information on you. Then start "following" (friendly stalking) desired organizations and decision makers and monitor their activities, corporate activities, and upcoming opportunities. Retweet or Favorite a positive post they may have sent out, or add a comment that may spark a conversation. The more they see your name and interest level in their company, the more interest they may have in you.

CLEAN IT UP/DAMAGE CONTROL

Surveys estimate about three-quarters of recruiters check out applicants on the Internet when hiring, and almost half of all employers do the same. Employers report rejecting job applicants when they find references to drug use, heavy drinking, sexually offensive materials, violent imagery, and so on. Some general rules of thumb for posting content include not posting anything you wouldn't want your current or prospective employer to see, remove or untag photos that may be controversial, remove any comments, even from friends, that may seem distasteful or could be interpreted as racist, sexist or discriminatory in any way and monitor your privacy settings carefully. And remember: even if

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you take down an indiscrete post or picture, it may have been reproduced or quoted elsewhere, others may have commented on it, or it may simply live on forever in the digital universe. Just make sure you have an explanation ready to go if this might be your situation.

TAKE CONTROL OVER YOUR CAREER

We can make the choices and invest the time/effort necessary to make sure we are ready for the point where "preparation and opportunity" meet. We don't have to leave our careers to the luck of being in the right place at the right time; we can control many of the factors that make us more employable, and more visible to employment decision makers. Be prepared for future job opportunities, and increase your own luck. ST

Carole Daily has a degree in human resource management and more than 16 years of experience in the HR industry. She consults through Daily HR Solutions, and also works at the University of Kentucky.

What do your sport fields say about you?

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EDITOR'S NOTE: *This article is not specifically aimed at a turf manager audience but rather more conventional business situations; however, we feel that some of the points made apply well so we decided to run it. In this age of exploding social media, any advice might help.*

TEN STEPS FOR REPAIRING AND PROTECTING YOUR ONLINE REPUTATION

BY **KATE ZABRISKI**

Ouch! Those hurt.

And there it is, right there in black and white for anyone and everyone to see — the naked truth: what someone thinks of your field, your service, or your organization.

Bad reviews can bite, wound, and sting. Worst of all, a mountain of them can appear in a matter of seconds. Social media, it's a wonderful thing, until it turns against you.

So, what's a person to do when his or her online reputation is suffering at the hands of others? Plenty.

Step One : Take a deep breath. You can fix it. Not overnight, but you can fix it.

Step Two : Get over any hurt feelings or embarrassment, and do it quickly. The people who complain have done you a great favor. It's now up to you to decide if negative reviews are going to be the kiss of death or a wakeup call.

Step Three : Uncover everything that is being said about you. If you found a bad review in one place, there are probably others. You will need to spend a few hours researching yourself online. Start Googling, and take a notes of what you find and where. A word of caution: resist the urge to respond to anything. Be strategic, not impulsive. You will need a game plan before typing a word.

Step Four : Automate. Sign yourself up for Google Alerts at www.google.com/alerts. If new content mentioning you or your organization shows up online and Google sees it, the search engine will send out an automatic alert letting you know. There are also a variety of free and paid services that will monitor online search terms and any major review sites for mentions, and will quickly notify you if new information about you is posted. If you are serious about managing your online reputation, these services are extremely valuable.

Step Five : Once you have a good picture of your online grade, get ready to roll up your sleeves and start problem solving. If your employees are rude, train them. If people hate working for you, investigate. Unless you are the victim of competitor sabotage, what you are reading is probably based in truth. If needed, revisit step two.

Step Six : Involve your team and communicate your improvement plan. You will reach your goal faster if everyone in your organization understands what it is and is working toward it.

Step Seven : When you are interacting with people, ask them what they think. You already know some of them have no problem sharing their opinions with the world, so they will probably be willing to candidly tell you the good, bad, and ugly. Asking your customers or clients for help can prove extremely beneficial.

"We are working hard to improve. Would you be willing to talk to me for a few minutes? Thank you. What two or three things could we have done differently in order to make you experience with us better?"

If at all possible, have these conversations verbally. You may be surprised by the quantity and quality of information you are able to quickly gather.

Step Eight : Once you have a clear sense of what is going on with your facility and are on the road to smoothing out the rough spots, get back to the reviews. It's time to answer them.

First, thank the reviewer for letting you know about a problem and include something good about yourself, too.

"Thank you for your feedback, and I'm sorry your son's birthday experience with us wasn't what you expected. We've hosted over a thousand birthday parties for children in our five years of business, and we strive to delight each of our guests."

Second, describe what you have done to prevent the issue from occurring again.

"We've taken a few steps to prevent what happened to you from happening to another parent of a birthday boy or birthday girl. Since your visit, our staff has taken several classes to improve their service skills. They've focused specifically on techniques for positively engaging with children."

Resist the urge to be snarky, judgmental, or to correct your customers. Yes, some customers are wrong; however, pointing that out will not help. Lots of people are going to be watching how you respond to others. Take advantage of the opportunity to be polite, helpful and solution-focused. People who rely on the reviews can often tell when other customers are being difficult. If you are gracious in your dealings with them, you will win in the long run.

Step Nine : Ask your happy customers to post reviews. Over time, your average will improve. Obviously this approach only works if you are indeed making changes and removing the causes of bad evaluations. If you are not, prepare for more of the same reviews you've gotten in the past because they're coming. You simply cannot turn off the social media tap.

Step Ten: As tempting as it may be, do not post fake reviews or go to a service to get others to do the same.

Apart from the fact that it's dishonest, it's also dangerous. If you get caught, you will look even worse than you did before. Instead, get busy writing more content to post on your site, press release sites, and other appropriate places. The more that's out there, the less visible bad comments are. Followed closely, this 10-step plan for a reputation overhaul could earn you five stars. ST

Yes, some customers are wrong; however, pointing that out will not help.

Kate Zabriskie is the president of Business Training Works, Inc., a Maryland-based talent development firm. She and her team help businesses establish customer service strategies and train their people to live up to what's promised. For more information, visit www.businesstrainingworks.com.

MAKE SCIENCE-BASED DECISIONS TO PROTECT PLAYING SURFACES

BY DR. JASON HENDERSON, BRIAN TENCZA AND DR. KARL GUILLARD

The mere thought of allowing a large vehicle to drive across one of your playing surfaces can inject a high level of trepidation in the most seasoned sports turf manager. Many current sports venues routinely host non-sporting events on their natural turf fields that often require a high volume of vehicular traffic over the playing surface to set up stages, seating, and other event-specific equipment. Retaining a playable surface throughout the event process poses a tremendous challenge to sports turf managers since many of these events occur during the season of play. Given the limited amount of time for re-establishing from seed, and the cost of resodding, there has been serious inquiry as to the most effective turfgrass cover protection system for maintaining the quality and integrity of the playing surface during the set-up, the event and the take down of non-sporting events.

Turf covers have been researched to enhance spring green up and turfgrass quality as well as extend the growing season in various regions. However, research on covers used to protect the playing surface from mechanical damage is lacking. Covers can be used to protect playing surfaces in several different types of situations and categorized accordingly such as static loads (chairs, stages or crane outriggers) and dynamic loads such as heavy vehicular traffic (trucks, forklifts or cranes), or light utility vehicles and foot traffic. This study focused on evaluating the effectiveness of different cover systems for protecting playing surfaces when subjected to heavy vehicular traffic. The objectives were to determine the effects of different cover types on turfgrass performance, soil physical properties, and surface displacement.

This study was conducted at the University of Connecticut

The loaded dump truck had a gross vehicle weight rating of 20,000 lbs. Ten passes were made over the covers on the day of covering and on the day covers were removed.

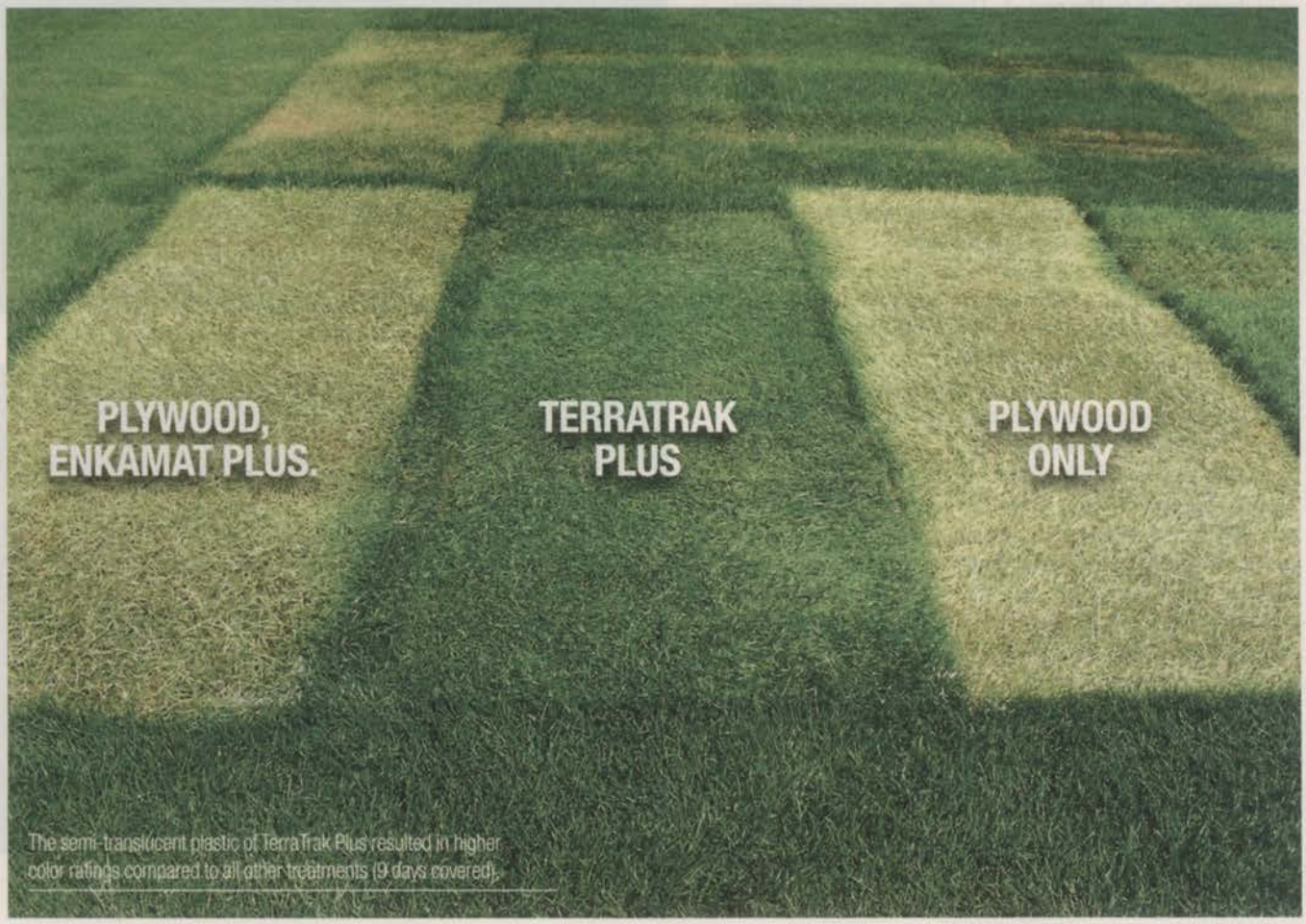
Plant Science Research and Education Facility in Storrs, CT, during the 2010-2011 and 2011-2012 growing seasons. During the 2010-2011growing season, the study was performed on a mixed, 2-year old stand of Kentucky bluegrass and perennial ryegrass. During the 2011-2012 growing season, the study was performed on a 2-year old 100% Kentucky bluegrass stand. In both seasons, the study was initiated in June and repeated in August. The six turf protection systems evaluated were: 1) 0.75 in. Plywood only (2 layers), 2) Enkamat Plus and Plywood (2 layers), 3) Enkamat Flatback and Plywood (2 layers), 4) Supa-Trac (Rola-Trak North America), 5) TerraTrak Plus (Terraplas, Inc.), and 6) an uncovered control. Each turf protection system was evaluated over these cover durations: 3, 6, and 9 days. Treatments were subjected to two traffic events conducted on the first and last day of each cover period. Each traffic event consisted of 10 passes perpendicular to treatments with a loaded dump truck (GVWR = 20,000 lbs).

RESULTS

The primary challenges associated with covering the turf system of an athletic field are minimizing any disruption to the surface and maintaining acceptable turf color, cover, and quality. The type of cover used will depend on the loads being applied to the playing surface and duration of the event being held. Given the load range tested, the plywood treatments provided the best protection against displacement, had the highest total porosity, and had the lowest bulk density values. There was little soil disturbance due to the plywood's ability to displace the weight of the vehicle. There were no observed benefits when Enkamat Plus or Enkamat Flat was placed under the plywood for added protection. If covering turfgrass areas with plywood for more than 3 days, a considerable drop in percent green cover, turf color, and turfgrass quality should be expected. In addition to the limited cover period associated with plywood use, it can also be difficult to handle due to the size/weight of the individual 4 foot x 8 foot sheets and inevitably numerous wood splinters are likely to be left behind on the playing surface after the plywood has been removed.

Retaining a playable surface throughout the event process poses a tremendous challenge to sports turf managers

TerraTrak Plus retained significantly better percent green cover and color, and had significantly higher turfgrass quality compared to all other cover treatments across all cover periods. Since TerraTrak Plus is made from a semi-translucent plastic, some photosynthetic light was able to pass through the cover



The semi-translucent plastic of TerraTrak Plus resulted in higher color ratings compared to all other treatments (9 days covered).

enabling the turfgrass to maintain its green color. TerraTrak Plus retained better total porosity values, and displaced the load better than Supa-Trac, but not as well as any of the plywood treatments. Due to the thinness and/or the flex of Terra Trak Plus, the soil surface had some minor rutting at the load range tested.

Supa-Trac also did not perform as well as plywood and Terra Trak Plus regarding maintaining the integrity of the playing surface when subjected to a vehicular load. Supa-Trac is made out of a light, non-translucent plastic that has hinges along the surface allowing it to form to the undulations of the ground. This design did not allow Supa-Trac to displace the weight of the vehicle like the plywood treatments or Terra-Trak Plus. This resulted in increased soil displacement, lower quality ratings and decreased total porosity values. Additionally, the underside of Supa-Trac was not flat. Instead, it had a raised rectangular grid pattern. When loaded by the vehicle, these raised ridges were forced into the ground and created a "honeycomb" impression on the soil surface.

Given the load range tested and the number of vehicular passes in this research, using two layers of 0.75 in. plywood resulted in minimal surface displacement. Although a single layer of plywood was not directly compared to two layers in this study, the top or bottom layer had a propensity to split during each traffic period. Therefore, a venue hosting an event subjecting the playing surface to heavy vehicular traffic (i.e. GVWR > 20,000 lbs with similar tire size and number used in this study) should use a minimum of two layers of 0.75 in. plywood to resist compaction and soil displacement. However, the plywood should not be left down more than 3 consecutive days due to a reduction of turfgrass color and quality. Also, time must be allowed for cleaning up splinters left behind from the plywood.

If the playing surface is going to have lighter utility vehicle loads and foot traffic, a cover system like TerraTrak Plus may be a better alternative, enabling the sports turf manager to leave the covers on field for longer periods of time. Regardless of the cover type selected, athletic fields should be dried down before the cover period to reduce the amount of moisture that can accumulate at the soil surface/cover interface that would help reduce potential soil displacement. The optimal soil moisture content before applying covers is very difficult to specify since this range will depend heavily on the soil texture and organic matter content of the root zone material. For more information, the complete research article is published in Crop, Forage, & Turfgrass Management (DOI: 10.2134/cftm2014.0030). Tencza, B., J. Henderson, and K. Guillard. 2015. Protecting quality and integrity of turfgrass surfaces during non-sporting events with portable roadways. *Crop, Forage and Turfgrass Management*. 1(1):p. 1-11 ST

Jason J. Henderson, PhD, is associate professor - turfgrass and soil sciences, University of Connecticut's Dept. of Plant Science and Landscape Architecture. Brian Tencza is athletic field assistant at University of Connecticut; he was a graduate assistant at UConn when this study was conducted.

Numerous plywood splinters were found after covers were removed; these could be a considerable problem if used over large areas.

The uncovered, trafficked plot shows the potential displacement when covers are not used.

Surface disruption can be significant when the bottoms of the covers are not completely flat, particularly when loads are large and dynamic such as high volume passes with trucks or forklifts.

John Mascaro's Photo Quiz

John Mascaro is President of Turf-Tec International

Can you identify this sports turf problem?

Problem: Irregular square worn areas
Turfgrass Area: Multipurpose fields
Location: Miami, Florida
Grass Variety: 419 Bermudagrass

Answer to John Mascaro's Photo Quiz on Page 25

BACKGROUND ILLUSTRATION COURTESY OF ISTOCKPHOTO.COM

FIELDS & FUTURES: IGNITING SUCCESS ONE FIELD, ONE COACH, & ONE STUDENT AT A TIME

What began in 2011 as a bus tour to show donors of the Wes Welker Foundation how their gifts were supporting the equipment needs of Oklahoma City Public Schools Athletics quickly became the launching pad for Fields & Futures, a nonprofit created in 2012 by Liz and Tim McLaughlin to help Oklahoma City Public Schools (OKCPS) grow student participation in sports by rebuilding or upgrading 44 athletic fields across the district. Fields & Futures is a member of the Oklahoma Chapter of the Sports Turf Managers Association.

"I'll never forget standing at Jefferson Middle School with other Welker Foundation supporters and hearing someone refer to athletic fields. My response was, 'Where?' Their response: 'You're standing on it.' You can imagine my shock when I realized that patch of broken earth was their athletic field," says Fields & Futures founder Tim McLaughlin.

The rest, as they say, is history.

With the full support of the school district and the generous help of Cimarron Construction, the Wes Welker Foundation and myriad other partners, Fields & Futures wasted no time in testing the theory, "if we build it, they will come." And it worked.

In 2011, Jefferson Middle School had approximately 34 students try out for football, with almost half not lasting through the season. In 2015, 34 became 125, resulting in a roster of almost 70 players, all working hard to stay on the team. Says Keith Sinor, OKCPS district director of athletics, "Rebuilding these athletic fields sent a loud message to the students at Jefferson Middle School. Through the gift of new fields and equipment, they could see just how much others cared for them. Today, these students walk taller, smile bigger and work harder to make sure they protect their sports eligibility. Love is a powerful thing."

But as you're likely to hear Fields & Futures supporters say, "The field is just the excuse." There is a much bigger objective playing out in Oklahoma City.

"Results have shown there is a direct link between athletics and the academic mission," says McLaughlin. "We believe if they play, they stay and if they stay, they graduate." Fields & Futures, along with its growing circle of partners, is on a mission to support OKCPS in its efforts to provide students the best education possible, while using sports as a platform to teach important life lessons and help the district's 265 coaches grow young men and women of strong character, better prepared to deal with life beyond high school.

Beyond academic performance and improving graduation completion, other potential outcomes include improved coach retention, a stronger sense of community pride, more opportunities to promote health and wellness, more confident students, and increased parent and community engagement.

National statistics show students involved in organized athletics experience better grades, better attendance, higher graduation rates, and have a higher sense of self-worth and better social skills than non-participants.

Now, fast forward to 2016. Since its proof of concept at Jefferson Middle School in 2012, Fields & Futures has completed 11 additional fields at Webster Middle School,

◀ Before and after photos of the first Fields and Futures project at Webster Middle School, part of the Oklahoma City Public Schools.

Tim and Liz McLaughlin

Capitol Hill High School and Taft Middle School, and will soon put finishing touches on three new fields at Northwest Classen High School. At the same time, construction has begun on two additional complexes at Star Spencer High School and Roosevelt Middle School, bringing the cumulative total to 20 new fields by the end of 2016. With 24 more fields to go, Fields & Futures is on track to complete all field work by the end of 2019.

Once each new field or complex is completed, Fields & Futures partners with the school district to assume responsibility for field maintenance. A special endowment is being established for perpetual field maintenance, ensuring each facility receives the care and attention it deserves, long into the future.

Here are some video links that help tell the story:
Proof of Concept - Jefferson Middle School:
https://www.youtube.com/watch?v=3NCxV16x85o
Proof of Concept - Webster Middle School:
https://www.youtube.com/watch?v=VuZcXLctl-E
Appeal for Support - "This Is That Place":
https://www.youtube.com/watch?v=RTW9RqV2bPU

Along the way, Fields & Futures has rallied support from local partners and service agencies to provide better resource support for coaches and create new and improved opportunities for the students and communities they serve. Partners include Oklahoma City Public Schools, Wes Welker Foundation, Oklahoma Cleats For Kids, Oklahoma City Police Athletic League, Oklahoma City Parks & Recreation, and Foundation for Oklahoma City Public Schools. Key vendor partners include Cimarron Construction, MA+ Architects and Olsson Associates.

For more information or to learn how you can help, please visit *www.FieldsandFutures.org* or follow them on Facebook and Twitter (*@FieldsFutures*). 100% of administrative and overhead cost is covered by a private grant, allowing every dollar of every donation to be applied directly to field or program costs. ST

THE BATTLE OF TRENTON: A DEBATE OVER SAFE PLAYING FIELDS

BY **RICH WATSON**

Over the past 10 years, I have given many presentations, written articles and answered phone calls and emails on many topics. One of those topics is Integrated Pest Management and its relationship to safe playing fields. I am currently starting my fifth year on the STMA's Environmental Committee where I am proud to have taken part in the creation of the Environmental Certification Program for sports fields. My promotion of IPM as a way to improve field safety has definitely taken on a life of its own. I was giving a talk a few years ago about infield skin maintenance at Rutgers University and after the talk someone approached me to ask a question. The question was: "Aren't you the IPM guy? I didn't know you did baseball too." So there it was, I am the IPM guy even at a baseball field maintenance talk.

How did this happen? With more than 25 years of experience as a sports field manager, what changed the way people viewed me? Simply put, the introduction of "The Safe Playing Fields Act" in 2011 and the legislative debate in New Jersey that ensued has propelled me from high school groundskeeper to an industry leader who became a voice of the sports field manager throughout the state of New Jersey and beyond.

THE SAFE PLAYING FIELDS ACT

I remember sitting in my office reading a headline from the local newspaper: "New Jersey Passes the Toughest Pesticide Law in the Country." That headline certainly grabbed my attention. As I researched more closely, I discovered the Safe Playing Fields Act legislation sought to ban synthetic pesticides from use at schools, parks, and day care centers and had been approved by a committee but was not an actual law yet. This was a relief; but how could something like this occur without anyone who manages sports fields knowing about it or having input into this proposed legislation? I looked up the sponsors of the bill and attempted to call their offices. After speaking with some junior staff members, I soon realized that I was not getting any more information from them than I had already read in the newspaper. I wanted to get involved but was getting frustrated because I didn't know how.

In 2011 I was on the Board of Directors for the Sports Field Managers Association of New Jersey (SFMANJ). Our President at the time was Don Savard, CSFM. Within a day of this legislation being proposed, Don was contacted by the New Jersey Green Industry Council (NJGIC) for the purpose of helping to bring some clarity to the issue of safe playing fields from the people who actually maintain them. The Environmental Committee that had passed this proposed legislation received a lot of testimony about how playing fields were being maintained but unfortunately most of it did not come from people that maintain sports fields. The general consensus from the original hearing was that pesticides are harmful and schools needlessly apply them to maintain their fields. Reading some of this testimony was upsetting because they were talking about me and how I go about my job. There were a lot of people with good intentions but poor facts driving this legislation forward. It seemed like a one-sided conversation. That was about to change.

A varsity field hockey surface in 2014: left, after 5 years without an herbicide application, taken in the spring; at right is same field just before the start of the fall season.

GETTING INVOLVED

The Board of Directors for the SFMANJ was about to head into uncharted waters with this issue. Our mission is to promote safe playing fields in New Jersey and the Safe Playing Fields Act was going to directly impact the safety of those fields if enacted. We are not a politically active group; however the political process in this instance needed the testimony of people with experience maintaining playing fields in New Jersey. The SFMANJ Board decided that it was necessary to represent the concerns of our members. There was going to be another chance to have our voices heard as the proposed legislation was going to be discussed again in another upcoming committee hearing. NJGIC encouraged our

It was also imperative to make the point that removing synthetic pesticides from sports fields does not automatically make them "safe playing fields."

organization to testify at this hearing. NJGIC is an advocacy group that represents and defends the interests of the Green Industry in New Jersey. They employed a lobby firm and were on the front lines leading the opposition to the Safe Playing Fields Act. As we learned more about the process, it became clear that SFMANJ was going to play a key role in crafting the opposition to this legislation. Our participation was not simply going to end after giving testimony at a legislative hearing. While the game plan included testifying at hearings, it also incorporated informational meetings with legislators and their staffs, follow-up strategy sessions with NJGIC and their lobby firm, and educating our members throughout the process to make sure that they understood the importance of the issue.

The first step in the debate was giving testimony at an upcoming state congressional committee hearing. At the time, I was the grounds supervisor for the Pine Hill School District. Having to take off work to testify, I made sure that my school administration was aware of where I was going and was able to get them to review and approve my testimony for the upcoming hearing. This was important for a couple of reasons. First, as a state employee it was important for me to make sure I was going to be testifying on my own time. Second, it removed some of the anxiety of testifying knowing that my school district approved of what I was doing. Moving forward, I represented myself as a board member from SFMANJ to build awareness that there is an advocacy group that represents the people who devote their lives to maintaining playing fields.

TESTIMONY

As someone who has lived in New Jersey for the majority of my life, it seemed odd that the only time I had been to the capital city was to watch a Trenton Thunder game. While Trenton is a great place to watch a minor league baseball game, the state capitol building is where most of the action takes place in the city. There is a certain amount of apprehension when you are about to do something different. "Getting involved" usually meant rolling up the sleeves and physically fixing something with a direct outcome. This was different. Don Savard, CSFM, Scott Bills, CSFM and I were walking into a situation that was new for all of us. We had a pre-hearing meeting with

NJGIC lobbyists in the morning and then made the short walk across the street to the capitol building. It was an interesting scene in the chamber where the hearing was held. Everyone who had an interest this legislation was packed into this room; it was an overflow crowd. There was a lot of testimony based on emotion and rhetoric about how schools were maintaining playing fields with many applications of synthetic pesticides and refusing to consider other methods. Our testimony was based on the work we had done and the experiences that we had maintaining athletic fields in New Jersey. An emphasis was made to show the role that the current New Jersey School IPM law played in how pests are controlled. The terms thresholds, cultural practices, resistant seed varieties and spot treatments were woven through our testimony. It was also imperative to make the point that removing synthetic pesticides from sports fields does not automatically make them "safe playing fields."

The members of the committee were interested in this type of testimony and had several follow up questions with regards to organic control products and related costs of these products. Through the genuine expression of real life working knowledge, the testimony we gave was received positively and it was the first step in our becoming recognized as industry leaders regarding safe playing fields.

After testifying, there was still work to be done. Scott Bills and I had become the spokesmen for SFMANJ when it came to legislative issues. We had a good working knowledge of the issues at hand and were able to make arrangements to attend meetings and events as they came up. The testimony at the congressional hearing was very well received so we took the same information and brought it to other legislators who were not in attendance. This was done through a variety of different avenues. There were meetings at the office of several legislators, stakeholder meetings and informational (fund raising) dinners where we had the opportunity to speak with the individual legislator and their staff members. Combined together these scheduled events gave us an opportunity to get the facts directly to the people who were considering the passage of this legislation.

Educating the legislators about safe playing fields was just one part of the equation. In addition, it was also very important to get the same information to our members. SFMANJ hosts an environmental session at the NJ Green Expo every year in Atlantic City. It is a very well attended session where attendees are given updates on environmental issues by the NJDEP and other speakers from around the country and state. It also gives us the chance to give the membership legislative updates and answer any questions as they come up during the course of the session.

RESULTS

Since the original committee passage of the Safe Playing Fields Act in January 2011, the same legislation has been proposed every year without becoming law. What has made the difference? I am not really sure but the reason "why" we became involved might have been a factor. The proposed

Rich Watson (seated) and Scott Bills, CSFM, at their presentation at the Sports Turf Managers Association Conference in San Diego.

legislation did not reflect what I know sports field managers stand for. The myth that opposition to this legislation was driven by the industry that profits from pesticide use was proven to not be true as the process played out. Conversely, the sports field manager was portrayed as the first line of defense when it comes to safe playing fields. In the end, those of us who opposed this legislation were able to explain exactly how we maintained safe playing fields in New Jersey and those who were supporting the Safe Playing Fields Act clearly wanted to ban pesticides in the name of safety without fully understanding the consequences that would follow.

This experience has shaped my thinking on how I see environmental issues as they relate to athletic fields. It has reinforced the concept that a sound and well thought out IPM program is the best way to deal with pest pressures on athletic fields. Before I moved on from my grounds supervisor position in Pine Hill, I had stopped using herbicides and was enjoying a certain amount of success by focusing on cultural practices, aggressive seeding and following a balanced fertility program. Truth be told, it was not perfect but I firmly believe that this is the way to proceed into the future rather than legislating our way to achieving safe playing fields by banning pesticides. The debate over safe playing fields is most likely not over but I am confident that when fair minded people look at *why* both parties were involved in this century's Battle of Trenton, the outcome will be the same.

This article is based on a talk given by Rich Watson and Scott Bills, CSFM at the 2016 STMA Conference in San Diego. The entire talk is available for viewing on www.stma.org. ST

Rich Watson is currently the Vice President of the Sports Field Managers Association of New Jersey and, since retiring last November, has joined the sales team at Laurel Lawnmower in Blackwood, NJ. Rich can be contacted at wats100@msn.com.

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THE SPORTSTURF INTERVIEW: BOB CURRY

Bob Curry, president of Covermaster, Inc.

Editor's note: *This month in "The* SportsTurf *Interview," we feature Bob Curry, president of Covermaster, Inc., Ontario, Canada. Bob is a long-time, active member of the Sports Turf Managers Association and a former Board member; in 2007 he received the association's highest honor, the Harry C. Gill Memorial Award.*

SportsTurf: How do you develop relationships with turf managers?

Curry: Involvement with STMA, both on a national and regional level, has greatly enhanced our relationship with turf managers. Nothing beats visiting turf managers in their own environment. Feedback on their issues with products is just as important as suggestions on product improvements. Many items in our product line up were developed from the turf manager's suggestions. For example, the heavy weight of tarps and rollers was always an issue with minor league teams. We introduced a lightweight material in the early 80s as the first step in making tarp handling a little easier.

Working closely with David Frey, former head turf manager of the Cleveland Municipal Stadium, was a huge breakthrough in tarp handling. David was always working on developing better tarp handling methods. He was one of the first to use plastic drainage pipe for rolling tarps, which was not only lighter in weight than traditional galvanized pipe, but also safer to handle. No sharp edges to cut your hands on. Not only did David's ideas make tarp handling easier, he went one step further. He designed a tarp roller device that hooked up to the PTO of a tractor. The tarp machine, as it is known, can roll large sections of tarps both across the field and re-roll off the field.

SportsTurf: How do you typically research and develop new products?

Curry: Developing new products is a must to keep up with industry changes. In addition to product testing in the field, we go to the lab to confirm findings. For example, our lightweight tarps are white and silver for a reason. Laboratory testing proved positive that the color white reflected the sun's rays and heat better than silver. Hence, if you cover your field at night because of rain, you have a longer time span in the morning to remove the tarp if the white side is up. Early morning heat buildup can damage the turf but with the white side up, you have less risk until crews are able to remove the tarp.

SportsTurf: Are there any new technologies you are developing that you can share with us?

Curry: Inflatable tarps with climate controls are the latest project we are working on. Not only can the temperature be controlled under the cover, the cover can be deflated due to high winds or snow load. And it can all done by the turf manager's telephone from any remote location.

The Minnesota Vikings and Tennessee Titans are both using the system with great results. In fact, Grant Davisson of the Vikings was able to grow grass in Minnesota in December under the cover.

SportsTurf: What are the most important changes you've seen in sports turf management during your career?

Curry: Two things stand out that are important changes in the sports turf industry. First, the tremendous growth of the STMA since I joined in 1986. The second is the recognition of the turf managers and the important role they play. Not only in providing safe turf, but all the roles they play in maintaining fields, not only for sporting events, as well as, all the multi-use events. Theirs is not an easy task.

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

Curry: As a company, Covermaster has become very successful by working with the turf managers and continued membership in STMA. Being involved as a board member and working on committees makes you more aware of issues the turf industry faces and how we as a company can try and help out.

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

Curry: It is difficult to predict the future of the turf industry, for example the introduction of new machinery, turf species and synthetic turf. We will continue to see new developments in all these areas in the future. It will be extremely important for commercial companies to keep up with the constant changes and develop new products that help improve the industry.

SportsTurf: How has social media impacted your work?

Curry: Social media is playing a major role in all industries. With all the means of communication available, nothing is sacred anymore. Answers to turf issues can be found online in the media and face-to-face conversations.

The world is a much smaller place because of social media. As a result, new market areas are developing all the time. There is a great opportunity for North American companies to benefit from social media. ST

John Mascaro's Photo Quiz

Answers from page 17

John Mascaro is President of Turf-Tec International

These irregular square worn areas are the result of wear. This park in Miami is owned by the Parks, Recreation and Open Spaces Department that oversees 245 parks. This one particular park is used for football and soccer and in the photo, it is soccer that is responsible for the square worn areas. To be more specific, the wear was caused by kids being supervised by adult coaches that are employed by the local sports organization. These particular marks were left after a torrential rainstorm had just left the area, and the coach decided the field was ready for practice. Typically, they practice 4 hours a day, 4 days a week and they play Saturdays and Sundays. The parks Division Chief is working with the Community Base Organization on schedules and field rotations. Before the start of each season they have a meeting and do a presentation to all the members of the Organization (coaches and administration). He says "better communication, better maintenance programs, high tech and efficient equipment is showing great results on our playing surfaces. Improving the quality, playability and safe playing of our fields is our number one priority." This is a much better approach as I had suggested an electric fence :)

Photo submitted by Gil Delgado (MDPR) PROS, Chief, Sports Turf Management and Landscape, Miami Dade Parks, Recreation and Open Spaces Department, Miami.

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

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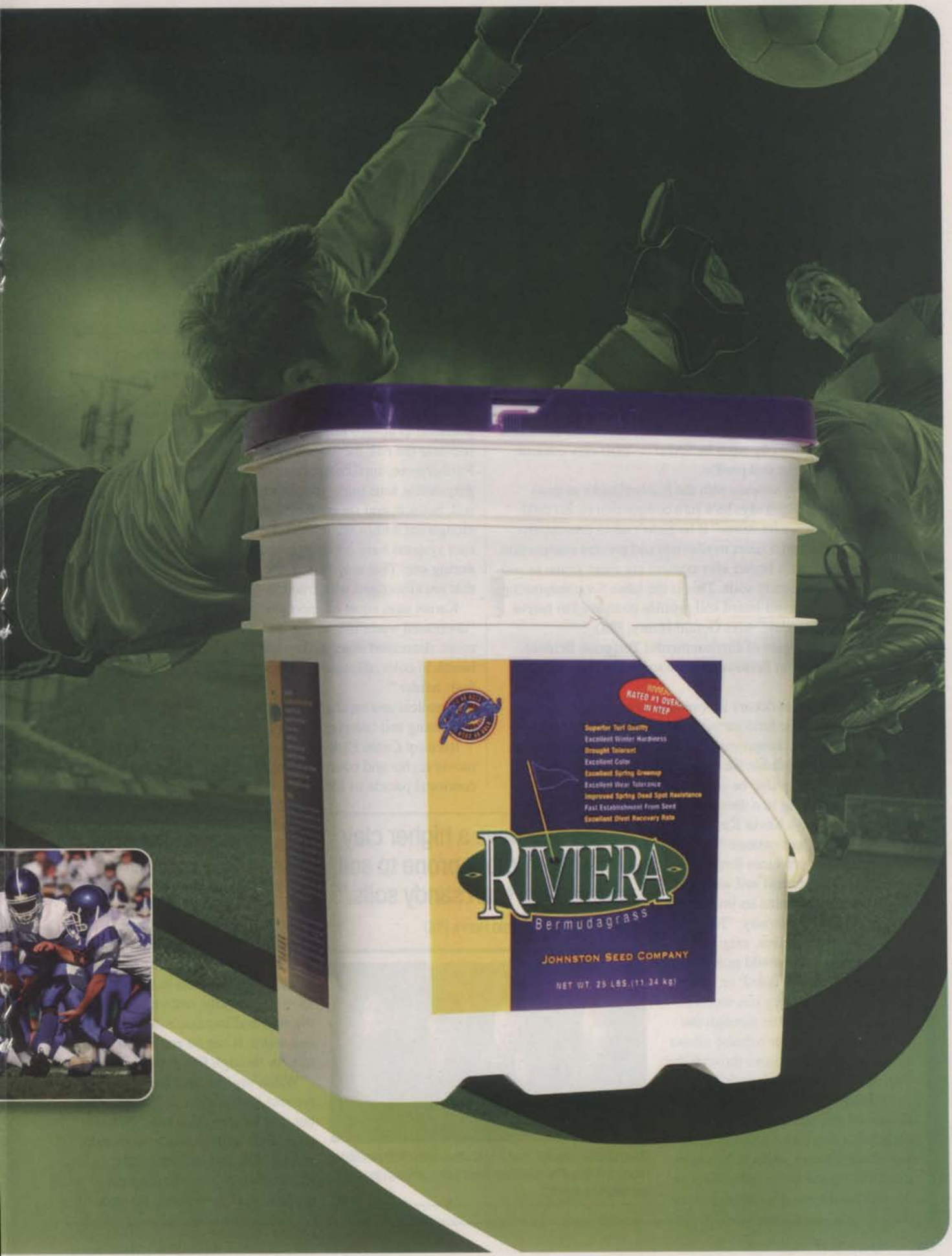
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BREAKING UP IS HARD TO DO: WHY IT'S IMPORTANT TO DECOMPACT YOUR FIELDS

BY **STACIE ZINN ROBERTS**

When the old turf was stripped off of the baseball field late last year to make way for new bluegrass sod at Canal Park, home of the Akron RubberDucks (AA Affiliate team of MLB's Cleveland Indians) in Akron, OH Chris Walsh was surprised by what he found — high clay content contaminated in the soil profile.

A veteran of five seasons with the RubberDucks as head groundskeeper, Walsh says he's sure compaction on his field "would have been a lot worse" if he hadn't taken preventative measures these past 5 years to alleviate and prevent compaction.

"Soils that have a higher clay content are more prone to soil compaction than sandy soils. This is the basis for constructing athletic fields on sand-based soil profiles compared to native soils that contain clay," says Gerald Henry, PhD,

Associate Professor of Environmental Turfgrass Science, Athletic Association Endowed Professor at the University of Georgia.

"Soil compaction occurs in response to excessive amounts of traffic on athletic field surfaces. The structural integrity of the soil may be compromised, causing a reduction in pore space normally available for water and oxygen," Henry says.

Compaction may also be caused by an imbalance of soil chemistry, resulting in a decreased soil structure, says Kevin Karnei, geologist with Performance Nutrition, a company that produces fertilizers, fertilizer additives and soil amendments. Karnei explains an imbalance in soil chemistry this way: "Not having enough calcium, magnesium and other ions that would normally keep the clay 'flocculated' or spread apart and open so they can receive air, nutrients and water through the pore spaces. A proper balance allows for air and water to move through the soil. An improper balance doesn't."

"What you have when you have decreased soil structure is you have collapsed clays that are stacking on top of one another, especially where there's not good water infiltration, or the soil conditions are not perfect, or the water conditions are sub-standard," Karnei says.

Compacted soils may cause a myriad of issues on sports fields.

"Compaction causes the soil to lose pliability and the potential to absorb impact. The resulting surface hardness may increase the risk for lower extremity injuries and concussions. Furthermore, surface hardness can greatly reduce field playability, thus impacting aspects of the game such as ball roll, bounce, and speed. Compaction can also reduce root elongation within the soil profile. Athletic fields with shallow root systems have a higher probability of being uprooted during use. This may also increase lower extremity injuries that are associated with traction," Henry says.

Karnei says signs of sports field compaction include: "decreased water infiltration that results in puddling, shallow roots, decreased vigor and health of the plant, decreased grass health in color, thickness and turgidity, and the ground actually feels harder."

Chemical and mechanical methods of relieving and preventing soil compaction are available for use on sports fields.

Because Canal Park hosts not just baseball games, but movie nights and other community events, Walsh has a nearly continual parade of foot traffic on his sports field. Since he started at the RubberDucks, Walsh has added KaPre ExAlt to every tank mix he's sprayed on his field. KaPre ExAlt is a blend of concentrated fulvic acid, polyelectrolytes and naturally derived plant-based surfactants from Performance Nutrition. The product is designed to correct compacted soils by solubilizing minerals in the soil to increase porosity, restore balance in the soil, and increase movement of air and water. It can be applied in a tank mix, or through fertigation.

Walsh says he uses the product to prevent compaction, reduce crusting, but also to help grass seed germination. High traffic areas at short stop, second base and in front of the pitchers mound require frequent applications of overseed. He says

> **"Soils that have a higher clay content are more prone to soil compaction than sandy soils."**
>
> — Gerald Henry, PhD

Group photo of research team, L to R: Chase Straw, PhD candidate; Rebecca Grubbs, PhD candidate; Kevin Tucker, research associate; and Gerald Henry, PhD.

Canal Park, home of the Akron RubberDucks, Double A affiliate for the Cleveland Indians, Akron, OH.

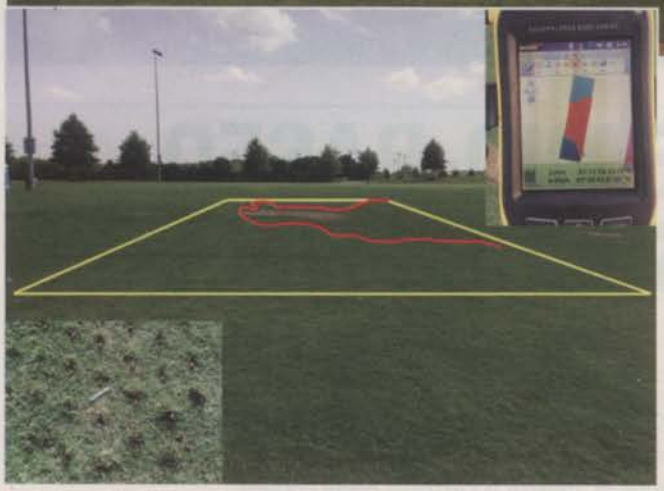


Photo of the University of Georgia's site-specific aeration trial. The picture depicts one of the test plots and the delineation that is created based on the amount of compaction present at the initiation of the trial. The yellow border is the outer edge of one plot and the red border within the plot depicts the "most compacted" area. Researchers run a mobile device over the plot to determine soil compaction with a penetrometer then plug that data into an algorithm that separates the plot into the upper 25% compacted area and lower 75% compacted area. This allows researchers to break the plot up into zones and manage them separately according to aeration frequency.

using KaPre ExAlt in those areas helps the new grass seed to break through the soil.

Walsh employs mechanical compaction relief, too. Each winter he contacts the front office to reserve a time in the summer when there won't be a home stand or event, so that he can hire an outside company to do full core aerification of the field. The rest of the year, if he has a one or two-day stretch in between games, or after events, he uses a pull-behind slicer from AerWay to break up the soil without damaging the turf.

In Hawaii on the island of O'ahu, Hawaiian Turfgrass is a company that grows and installs big roll sod for athletic fields and golf courses in the islands. The company also offers mechanical decompaction services to help their sports field customers relieve compaction. Sean Fong, president of Hawaiian Turfgrass, says he and his staff used both the Verti-Quake slicer and Verti-Drain aerification machines, manufactured by Redexim Charterhouse, on the baseball field of Moanalua High School in Honolulu.

"We installed the sod, let it grow in, and used the Verti-Quake and Verti-Drain to relieve compaction on the entire infield," Fong says. "We saw great results. No more puddling in the infield and good drainage."

More information about relieving compaction may be on the horizon. Henry and his team at UGA recently began a 2-year research project on sports field compaction. "The first trial is examining spoon aeration timing and frequency over the entire playing season while the other trial is comparing whole-field aeration versus site specific aeration," Henry says. "Since these trials are still ongoing, we are still in the process of initial data analysis and interpretation."

Still, relieving compaction may not always need to be so high-tech. Walsh and his crew have been known to take push aerators, even pitch forks and other hand tools out into the field's compacted areas, to open up the soil. "Anything to loosen the areas up," Walsh says, "and get some air in there."

Drainage trenches (6 to 8 inches wide) being cut using a laser-controlled machine.

CONSTRUCTING SAND-BASED FOOTBALL AND SOCCER FIELDS: EXCERPTS

Editor's note: *Our thanks to Alec Kowalewski and Jim Sloan of Oregon State University for allowing us to publish portions of this university publication. It was written with the Pacific Northwest region in mind. To read it in its entirety free of charge, see* https://catalog.extension.oregonstate.edu/pnw676/viewfile. *A version in Spanish is currently being created.*

Sand-based, natural turfgrass fields compared to synthetic surfaces are initially less expensive, more enjoyable to play on, cooler in warm weather, less hazardous when wet, have more resiliency and are 30 to 50 times less expensive to replace. However, high quality, sand-based sports fields able to withstand intensive traffic under a range of climatic conditions depend on many construction components, such as sand selection, base grade, surface and subsurface drainage, turfgrass genus and species selection. If any factor is neglected, the quality and use of the field can be seriously impaired. While proper construction can greatly improve the playability of an athletic field, there is a limit to the amount of traffic that a field will endure, and this should be recognized by supervisors and users. Fields constructed using the recommendations contained within this bulletin should support a minimum of 40 to 50 football contests or 100 or more soccer contests per year without being excessively worn.

BASE GRADING

Native soil fields high in silt and clay are not suitable for intensive use because they provide poor drainage and easily compact during use. Therefore, native soil will likely have to be excavated from the site. If topography permits, sand can be placed directly on the surface without excavation after level grading at a considerably reduced cost. If excavation is necessary, it should be performed so that the finished grade at time of planting conforms to the sidelines or track area.

Optimum grading depth for high quality fields should be 16 inches [this depth will be replace with 4 inches of base material pitrun (naturally occurring deposits of sand and gravel) and then 12 inches of sand (Figure 1)]; drain tiles are typically trenched into the subsoil at the bottom of this grading depth. Bases should be graded flat, or have a crown of 6 inches from the center to the sidelines.

Although a 16-inch depth is optimum, it is possible to build a functional field with a 12 inches layer of sand and no fine gravel base; however, similar to the design described above, drain tiles should be set another 4 inches down into the subsoil. After drains, the drain lines are trenched and before the sand is installed, the drains should be covered with fine gravel or coarse sand material.

Figure 1

INSTALLING BASE MATERIAL

Base material here is defined as sand or pitrun placed over the drain lines and the graded sub-base. This material should drain rapidly to facilitate faster movement of water to all drain lines. If ample quantities of low cost sand are available, the entire profile could be made up of sand to the grass surface. Base materials can include pitrun with a maximum of 2-3% total silt and clay. Other materials may include pea gravel, coarse sand, with particles ranging from No. 8 to No. 3/8 screen. Never permit abrupt profile changes, especially fine sands or soil over coarse gravel. Saturated zones will occur at these interfaces. Try to maintain textural uniformity in the profile.

The depth of base material can vary from 4 to 12 inches. Carefully deposit base material over the field to avoid disruption of the base grades and to prevent damage to the drainage lines. During installation never run wheeled equipment across drainage lines. The base material can be brought to grade with light tack type equipment or light grading equipment. Under no circumstances should efforts be made to heavily compact the base material in any manner other than normal grading operations to bring the field to grade.

SUBSURFACE DRAINAGE

Installation of drainage lines is necessary when water tables are too close to the surface and must be lowered. Drainage should also be installed when subsoils are impermeable or so slowly permeable that turfgrass rootzones remain saturated for extended periods. Subsoils that are moderately permeable (1/2 inch per hour or greater) do not require extensive drainage installation. A standard percolation test conducted at about 30 inches deep will help determine the need for drainage lines.

When drainage is necessary, adhere closely to the following procedures. Install drain lines on 15-foot centers ranged longitudinally on the football field. This spacing interval of drain lines will allow free movement of vehicles during the construction process and will facilitate rapid water movement into the drain lines.

Install drain lines 16 to 24 inches below the grassed surface at a 1 to 2% minimum grade. Drainage trenches should be 6 to 8 inches wide and should be dug with laser-controlled machines. This will insure the proper grade and depth of drain lines. Drainage trenches should be dug with a wheel ditcher with a cleaning shoe that leaves a "V" shaped, clean, and graded trench bottom. If other types of trenchers are used, the contractor should cut a level (flat) bottom and excavate 2 inches deeper than the required invert elevations and place (1/8 inch minus to 5/16 inch minus) pea gravel 2 inches deep, leveled to grade for placement of the drain lines. Drain lines can be placed longitudinally from end to end on naturally sloping terrain or crowned fields, but this is not practical on flat terrain. The herringbone method is a typical alternative to longitudinally oriented drain lines. Typically, the field should be divided from the center and trenched in each direction, reducing the length of run in half. Since a perimeter drain should be installed around the football field to facilitate drainage of both the field and the running track, these longitudinal drain lines can be coupled with the perimeter drain and discharged into storm sewers or other suitable sites. Some drainage lines are manufactured with slits 360° around the tubing and some are drilled with holes only on one side at 45° angles. In the latter case always place the holes downward. During installation, attempt to keep soil off the drain lines and trenches. Carefully cap blind ends and properly connect and tape all joints to prevent entrance of soil material or animals.

Drainage lines spaced on 15 feet centers should be installed with 3- or 4-inch semi-rigid drainage tubes with slits or drilled holes to facilitate inflow of water. After the drain lines are in place, backfill trenches with pea gravel (1/8 to 5/16 inch) or coarse sand to a depth of 2 to 4 inches over the top of the drain tubing to avoid migration of fine sand particles into the drain line causing clogging of the drains (Figure 2). Manufactured filter devices either wrapped around the tile or placed over the tile to prevent migration of the fine particles are not recommended. Cases have been reported where these filter materials have become clogged with fine particles and sealed the drain lines.

Extend drainage lines through the end zones to tie in with the perimeter drains near the running track. The drainage line surrounding the running track will intercept

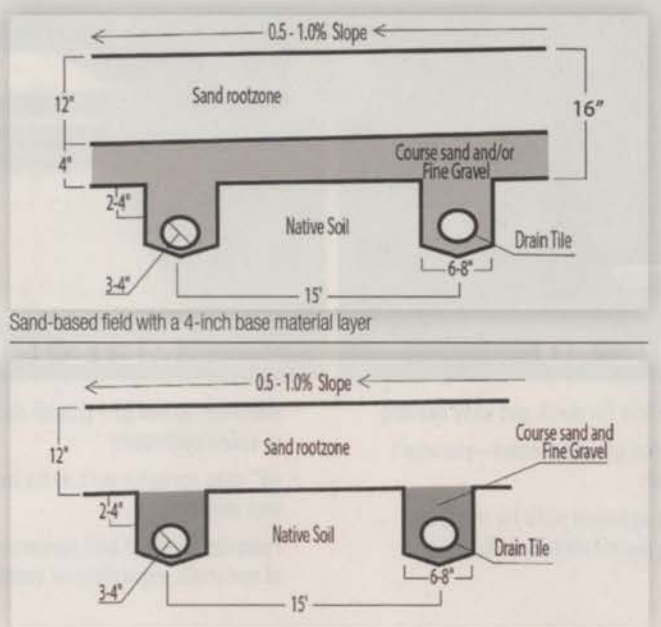


Figure 2: Cross sectional view of drainage profile with (top) and without (bottom) a 4-inch base material layer.

all field drains and should be 6 inches in diameter. Install catch basins around the perimeter of the field over the 6-inch drain at strategic locations for rapid evacuation of water from running tracks. Approximately 8,000 feet of drain lines will be required for fields of this design. It may be possible to also install irrigation lines in the drain line trenches. This should be discussed with an irrigation engineer.

IRRIGATION INSTALLATION

Irrigation is essential on sand-based fields. Determine availability of adequate irrigation water throughout the year at an early stage while planning the installation of an athletic field. Irrigation systems should be designed and installed by competent irrigation specialists. Sand fields cannot achieve their maximum usefulness unless irrigation systems are installed to maintain proper moisture relations during rainfall deficits. Automatically controlled irrigation systems with safety pop-up heads are the most desirable for sand-based athletic fields. Irrigation water can be more carefully controlled from this type of system. Install irrigation heads at a grade somewhat higher than the finished surface; after the soil has settled and the grass has become well established, these heads can be lowered to their proper final height.

SAND SELECTION

Ideally, the majority of the sand particles should fall between the ranges of No. 16 and No. 60 screen; however, sands with most of the particles between a No. 60 and 140 screen may be used for the rooting medium. With the latter, many precautions have to be followed in management to avoid slow infiltration of water caused by the accumulation of organic material and surface compaction. Always specify sand by sieve size. Most sand suppliers use Tyler Standard Screens that classify sand particles by the number of meshes per inch.

Surface sand depth will vary from 4 to 12 inches depending upon the quality of the base material. Pitrun materials with high proportions of properly sized sand and will allow the use of perhaps as little as 4 inches of finest quality sand for the surface.

The addition of organic material, mixed off-site into the surface sand medium is optimal. Materials such as well-composted organic matter or fibrous sphagnum peat moss are acceptable for the organic matter amendment. Organic matter particle sizes should range from 1/8 to 3/16 inch. Avoid all materials that are coarser or finer than those indicated. Under no circumstances should decomposed peat material be used as an organic amendment on high traffic sports fields. Organic materials increase water and nutrient holding capacity and give resiliency to the surface for the first 2 to 3 years. After approximately 2 years, however, the grass plants will produce adequate organic matter. With adequate attention to fertilization programs, organic amendments can be omitted.

If organic materials are included with the sand topmix, do the premixing off-site with bucket loaders or other mixing equipment to get a homogeneous mixture of sand and organic matter; then place the mix over the playing surface. Incorporate no more than 20% organic material by a loose volume with the surface mixture. It is best to have samples of both the sand and organic material sent to a qualified soil testing lab to ensure the best sand and organic material combination that will give the optimum water holding capacity and drainage for the field. Each batch of rootzone mix should be tested before it is placed on the athletic field.

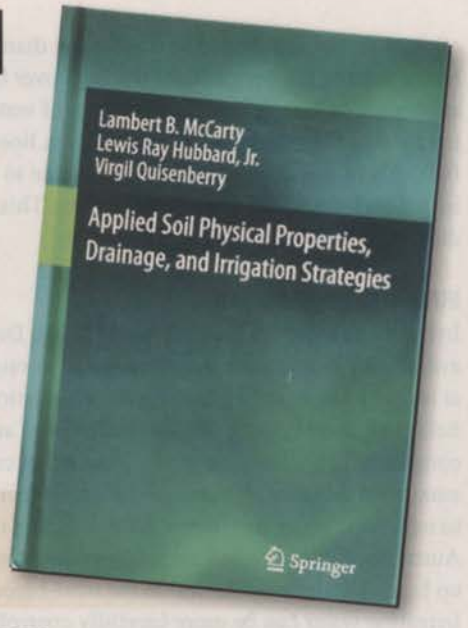
Bring the surfacing or rooting medium to a flat grade over the playing surface and moisten to permit easier grading and movement without severe rutting. Fields built to these

Continued on page 40

Typically automatic control irrigation systems will have wiring to each irrigation head, or a block of irrigation heads, to provide more precise irrigation.

Hydroseeding with grass seed and approximately 1,200 pounds of fiber mulch per acre have been most successful in preventing the blowout of seed and sand.

SELECTED QUOTES FROM *APPLIED SOIL PHYSICAL PROPERTIES, DRAINAGE, AND IRRIGATION STRATEGIES*



Editor's note: *Here are some sections of interest to sports turf managers from a new book recently published by some faculty at Clemson University. Many thanks to Dr. Bert McCarty for putting them together for us.*

BY **BERT MCCARTY, RAY HUBBARD, JR.** AND **VIRGIL QUISENBERRY**

To reduce soil compaction, according to the bulk density equation, either the soil mass has to be reduced or soil volume increased. In commodities such as turf, increasing soil volume is counterproductive to the purpose of the playing surface. Turf managers, therefore, reduce compaction (bulk density) by reducing soil mass. This is accomplished by punching holes and removing soil cores from the site (termed coring or aerification). Many devices punch or penetrate the soil but do not remove a core. Though many positive reasons exist for this "solid tine" aerifying, it doesn't reduce soil compaction as it has little effect on soil mass or volume since a core isn't removed.

Thinking sand injection into a rootzone reduces compaction. There are good reasons for introducing sand into a rootzone profile, but unless something is simultaneously removed, reducing soil bulk density is not one of them.

Excessive soil moisture acts like a lubricant, allowing soils to be damaged when saturated and then exposed to uncontrolled traffic.

For native soil constructed facilities characterized by low infiltration and poor internal drainage from high silt and clay content of the soil, surface drainage represents the only effective method for removal of excess surface water. For optimum water removal, a combination of surface and subsurface drainage is often required to quickly remove water from the soil surface to minimize delays in play, avoid excessive compaction, and allow maintenance practices to continue.

A major misconception in sports field construction is that an inch (~2.5 cm) or so of a coarse sand can be tilled into the top 3 to 6 inch (7.6 to 15 cm) of native soil to enhance internal percolation. Adding sand to native soil with a high degree of silt and/or clay, often "clogs' larger internal sand pores, actually reducing internal percolation. Typically, 80% or more of a topsoil mix as sand is needed before sufficient drainage occurs.

Installing narrow slit lines/drains to permanently "fix" drainage issues. Slit drains (0.5 to 2-inches wide, 6 or so inches deep) (1.3 to 5-cm wide, 15 or so cm deep) are touted as an effective means of correcting drainage issues. Variations of slit lines/drains are available, some which only incorporate sand into the profile while others also place a ~1-inch (2.5 cm) drain line at the bottom of the slit. This method is obviously much cheaper and less disruptive than traditional complete drainage installation. However, when involving heavy native soils and such narrow slits, their effects, though substantial initially, slowly decline due to slits collapsing or closing over.

Minimal measurements necessary to evaluate potential components of a rootzone are:

1. Particle size analysis,
2. Bulk density and porosity (total, capillary, and noncapillary),
3. Saturated hydraulic conductivity of an appropriately compacted rootzone sample, and
4. Soil moisture retention curves.

The following compares several means of scientifically determining necessary rootzone depths for sports fields and golf course fairway sand capping.

1. Depths based on soil moisture retention curves (SMRC). SMRCs determine depth needed to reach 10 to 25% aeration (air-filled) porosity. 10% aeration porosity = minimum; 15% = better; 25% aeration porosity = best. When drain lines are not used, minimum sand depth is where capillary and aeration porosity lines meet on the SMRC graph. Typically, a 10 in (35 cm) minimum depth is needed.
2. Depths based on adjusting air entry point (or top of the perched water table) values from SMRCs. From SMRCs, rootzone depth is based on air entry point (or top of the perched water table, also called critical tension) and these values are then adjusted. For golf greens, 4 in (10 cm) is added to the air entry point value while for fairways and sports fields, 6 in (15 cm) to the air entry point value. Hooghoudt's formula is also used in this method to determine drain line spacings.
3. Depths based on SMRCs over 100 to 600 mm range with drainage (air entry point) between 150 to 200 mm (6 to 8 in). The suction at which air-filled porosity is ~25% and water-filled (or capillary) porosity is ~30% is the optimum rootzone depth. If a gravel layer is used, 5 cm (2 in) is deducted from this 150 to 200 mm value.
4. Depths based on Ksat >100 mm hr-1 for soccer to 150 mm hr-1 for golf. From SMRCs, capillary porosity of 15%, air-filled porosity of >10% (preferably 15%) and a gravimetric moisture content between 10 and 18%. Again, SMRCs are needed to determine the proposed capillary porosity and air-filled porosity depths. SMRCs are used to convert gravimetric moisture content to volumetric water content.
5. Rootzone depth is based on the critical tension formula:

$$\frac{71.4}{D\ (mm)}$$

D = particle diameter of dominant pore

Rootzone depth is by estimating capillary rise of water in uniform diameter capillary tubes. Critical tension is inversely proportional to soil particle diameter (D in this equation). The construction depth for a sand soil perched over a gravel drainage bed should neither be more than the critical tension nor less than half.

Although quantitative methods for measuring soil moisture such as dielectric constant (TDR and FDR) probes detect the amount of moisture in the soil, they do not determine how much of it is available to plants. Therefore, calibration of various soils is needed to indicate moisture availability. Readings at saturation should be taken following an extremely heavy rainfall. Next, field capacity is recorded when soil drainage slows considerably following soil saturation. The last reading should be taken when unacceptable wilting is evident. The objective is then keeping soil moisture levels between field capacity and wilting point.

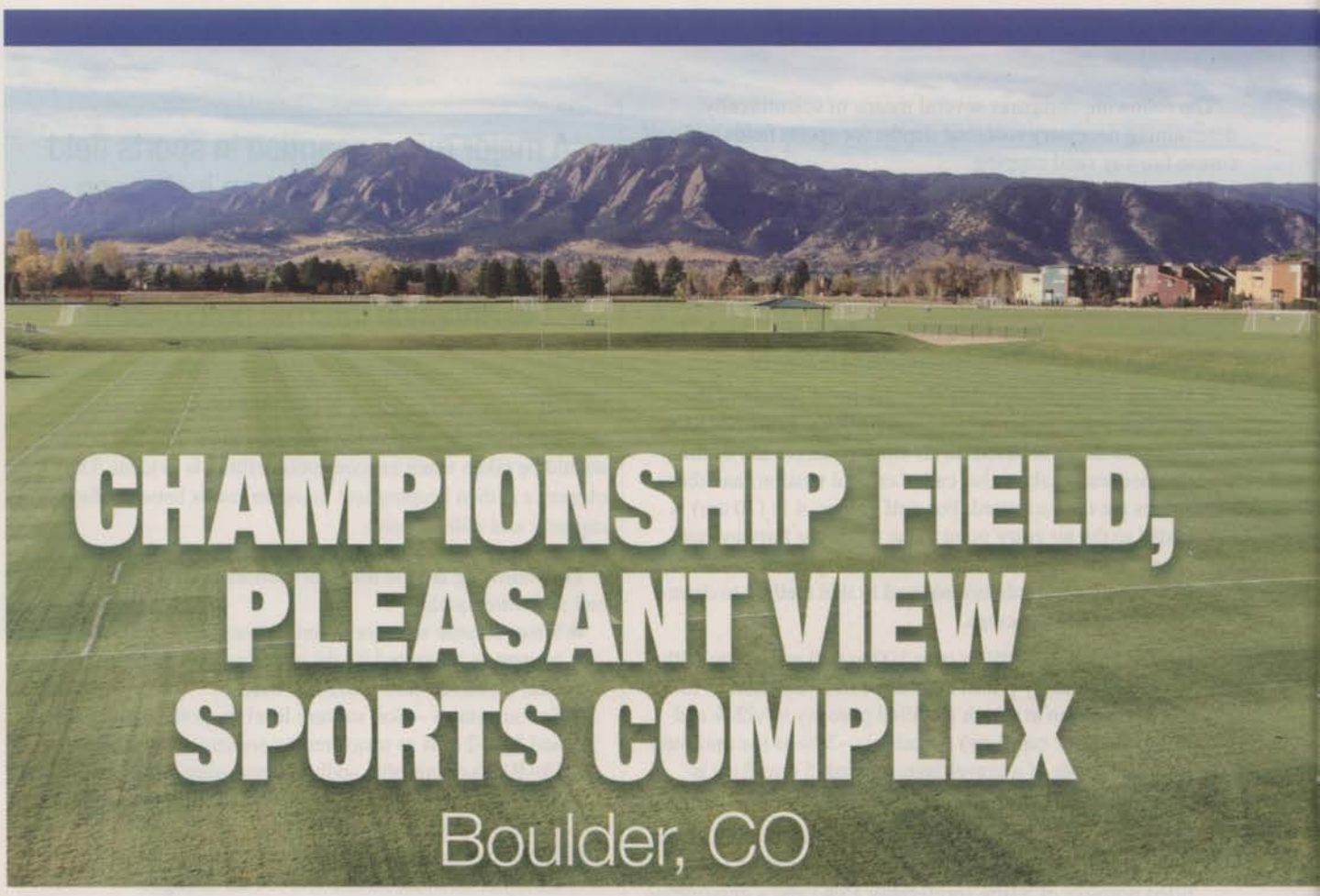
A major misconception in sports field construction is that an inch or so of a coarse sand can be tilled into the top 3 to 6 inch of native soil to enhance internal percolation.

The following are the necessary laboratory tests for soil and water quality:

- Water soluble salts (or Salinity drought hazard) - Total salt content as measured by the electrical conductivity (ECw) or total dissolved salts (TDS) of water.
- Sodium status – Soil sodium level proportionally to Ca+2 and Mg+2 ions as measured by sodium adsorption ratio (SAR), exchangeable sodium percentage (ESP), or adjusted SAR (adj. SAR). SAR also is used to assess the sodium levels of water.
- Specific ions toxicity - Toxic ion levels, especially boron, chloride, fluoride, sulfate and nitrate-nitrogen.
- Alkalinity - Bicarbonates and carbonates levels as measured by residual sodium carbonate (RSC).
- pH and lime requirement.
- Suspended solids, as measured by total suspended solids (TSS),
- Soil nutrient imbalance based on:
  - » Sufficiency levels of available nutrients and cation ratio,
  - » Soil cation exchange capacity (CEC),
  - » Percent base saturation,
  - » Percent organic matter.

ST

Dr. Bert McCarty is professor of turfgrass science at Clemson; Dr. L. Ray Hubbard, Jr., is Clemson's Experiment Station Engineer; and Dr. Virgil Quisenberry is a Professor emeritus specializing in soil physics at Clemson. Their new book's goal is to demystify the complicated math used in many of the soil physics formulas and to concentrate on the applications of these. The authors focused on actual field and laboratory situations with numerous examples of how practitioners can successfully use the information covered in the book. It is available through Springer International Publishing, Switzerland at www.springer.com/us/book/9783319242248.



CHAMPIONSHIP FIELD, PLEASANT VIEW SPORTS COMPLEX

Boulder, CO

WHY STMA SHOULD CONSIDER YOUR FIELD A WINNER?

The Pleasant View maintenance team faced the challenges of a heavy March snow and the wettest May in Colorado's records. The team was able to persevere around adverse weather conditions by implementing a solid maintenance management plan. The end result was maintaining a high level of excellence on the Championship Field.

Welcome to the City of Boulder Pleasant View's Championship field! Celebrated as " Boulder's finest sport's turf", this field is a sand based sports field that attracts regional, national, and international events such as national Irish Football, Ultimate Frisbee, Lacrosse, Rugby tournaments, and the annual Rocky Mountain Cup Showcase Youth Soccer Tournament. The championship field is located against the scenic backdrop of Colorado's Front Range; the field is in use from March through the middle of November and intended for Youth (ages 3 to 17) and adult sports leagues, camps and tournaments.

The Championship field has been in use since 1993. Throughout the years, the award-winning field has provided the City of Boulder with versatile field spaces for all to enjoy. The field's maintenance practices align with the community-wide culture of sustainability. As a result, the field's turf has been maintained without the use of pesticides and herbicides for nearly 15 years, and is free of products that can cause allergic reactions. The field is also equipped with an underground, full herringbone drainage design with 8: mainlines tied with flexible 4" coiled plastic drainage system that can accommodate many sports and play activities, even during various weather conditions.

» The field's turf has been maintained without the use of pesticides and herbicides for nearly 15 years, and is free of products that can cause allergic reactions.

Some of the major maintenance practices and field features include; Daily field assessment to determine if additional seed, top dressing, irrigation and aeration is needed, to promote

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

field safety, and to provide the highest level of field performance possible. An Irrigation audit is performed in early spring in order to better provide appropriate water delivery and promote Water Conservation. Weekly Irrigation checks are conducted to endure a healthy field. There is a weather station on site that provides updated information about the site in order to appropriately schedule Irrigation programs. The field is soil tested three times a year to ensure appropriate, yet not excessive, nutrient delivery. The field is

Category of Submission: Schools/Parks Sporting Grounds
Sports Turf Manager: John Cogdill
Title: City turf/Irrigation and sports field manager
Education: Bachelor of Arts, CLIA
Experience: 30 years of City Park and Sports Field development, softball, soccer, multi-purpose installation, renovation
Full-time staff: John Cogdill and Aaren Lemieux
Part-time staff: Ben Reuter
Original construction: 1993
Rootzone: 80% sand, 20% organic
Turfgrass variety: Mix of Barbeta (RPR) Perennial Ryegrass, Pinnacle II Perennial Rye Grass, Barlennium Perennial Ryegrass, Barrister Kentucky Bluegrass, Full Moon Kentucky Bluegrass, Barrari Kentucky Bluegrass, Barimpala Kentucky Bluegrass
Overseed: Broadcast seeding, slit seeding and spot seeding
Drainage: Underground full herringbone design with 8" mainline tied with flexible 4" coiled plastic
Soil amendments: Recycling dresser aerates the underlying soil vertically and horizontally, removing solids from the rootzone and re-distributing it across the playing surface. Laying and compaction are eliminated, biological activity increased and existing fertilizer in the soil are better used. The recycling dresser eliminates topdressing purchases, saving labor and material costs with sustainable recycling of soil within the profile.

checked multiple times a year via a Clegg tool to insure safety compliance, both before and after major tournaments.

Pleasant View's championship field has become one of Colorado's favorite places to play sports. The field is experiencing more use than ever before, with a growth of over 22% of play from 2014.

Sporting Grounds' maintenance challenges: Lacrosse always offers a unique challenge when maintaining the playing surface. Due to the high activity around the goal mouths, the turf is reduced to solid sand. The challenge is to re-grow the turf here and in other high use areas in a short time. This must be done without the field getting a break from other scheduled activities. We employed a more aggressive over seeding program to keep pace with the high level of play, and we also added an addition five fields to spread out the use the activity on each field.

Each sport requires a slightly different maintenance management plan. Many of the maintenance practices are similar, such as fertilization, mowing, and recycle dressing, but some of the practices differ when dealing with multiple sports. Seeding, irrigation, and aeration practices may change due to the different ware patterns that each unique sport causes on the field. Painting and goal placement is also an obvious practice that is also unique to each respective sport. ST

JANUARY
Dormant

FEBRUARY
Dormant

MARCH
Early season dormancy watering begins (based upon the year), overseeding (RPR) late in month based upon soil temperatures.

Paint lines using small percentage (2oz. per 100gal. of water/paint) Primo-every 15 days 1/2lb of BK 46-0-0 Urea

Consistent foliar injection application of 10-0-10 Liquid fertigation supplement at 5%. Aeration and field drag applied.

Mowing begins at the end of the month.

APRIL
Recycler dresser, 1/2lb of BK 46-0-0 Urea. Overseeding continues, Mowing continues at 2/5" as needed based upon temperatures and level of play

MAY
1lb of N applied- 15-0-15. Aeration and overseeding as needed in wear areas. Mowing at 2.5" continues three times per week, or more, as needed. Last overseeding for the spring is done. Introduce HGT Bluegrass as overseed for time period. Increase Irrigation as needed. Perform Irrigation audit in early May to address as necessary in play and wear areas.

Line painting, trimming, edging (as needed), and sharpening of all mower blades weekly to reduce leaf tear and Carbon emissions.

JUNE
1lb. pr. 1000. 41-0-0-N/METHx-40=31.8. 10-0-10 Liquid fertigation supplement at 5%. Increase Irrigation based upon ET/sensor and weather station (on site). Mowing occurs, as needed, for playability. Overseeding continues to be applied to wear areas. Top dressing and seed are applied to all divot areas. Paint lines, trim, edge, etc. Provide crack/seal to walkways, parking lots, etc.

JULY
10-0-10 Liquid fertigation supplement at 5%. Maximum water used during this month. Check and maintain Irrigation heads and provide additional bi-monthly Irrigation check as standard practice. Topdress and overseed, as needed, in wear and divot areas. Mow for best playability.

Aerate, Edge, Trim, sharpen mower blades, and field painting- weekly

AUGUST
10-0-10 Liquid fertigation supplement at 5%. Begin Bluegrass overseed work on, or about, first week in August. Continue irrigation inspections. Mowing for maximum playability, Aerate as often as possible (depending on day and night time temperatures), fertilizer application of 1lb actual N in the middle of the month.

SEPTEMBER
Fertilize with 1lb of N. Fertilizer injector continues to run 10-0-10 Liquid fertigation supplement at 5%.

Aerate, Trim, Edge

Additional overseeding- Bluegrass early in the month with supplemental Ryegrass in worn areas. Irrigation system check- raise, replace (as needed) any worn components. Mow at 2/5" for maximum play.

OCTOBER
10-0-10 Liquid fertigation supplement at 5%. Fertilize with 1lb N/K (slow release)- aerate- Irrigation slows down based upon weather. Divot fill with Rye continues based upon temperatures. Mowing continues at rate needed based on weather and frost.

NOVEMBER
Fertilize with .5lb slow release N/K. Blow out Irrigation system.

DECEMBER
Dormant

FOCUS ON SAFETY

The most enjoyable aspect of the job is a happy customer, regardless of age and background, and watching our community enjoy the benefits of our high-quality fields and physical activity. Every effort is put into keeping these fields as compliant as possible.

The Championship Field is more than 20 years old; our emphasis is on field safety, from the beginning of the play year and continuing throughout the year. Clegg testing is the central focus of our fields. The annual results of the Clegg testing are analyzed, recorded and archived for future reference. Every cultural practice is geared toward the findings that we receive from our Clegg and soil tests, which are done in the spring, summer and fall. We find that having a stable and consistent seed bank enables us to better control turf cover and health, which also keeps our sheer strength at a high level.

One of our biggest challenges currently is the high level of organic matter that we have on the field. Currently the level is at or above 5% organic matter on our sand-based field. We perform core aerating and then sweep the field to currently remove organic matter. We also use a Koro recycler/dresser and sweeper to better improve our ever-increasing challenge of field drainage/seed germination and soil compaction challenges.

Our field facility conditions include an on-site field manager during all practices and tournaments who is certified in CPR and AED. We have a lightning safety policy that is submitted to all users and four field managers are well versed in this. We use the safety field checklist from the STMA weekly and conduct quarterly Playing Conditions Index (PCI) inspections with photos for the purpose of keeping up to date with deferred maintenance and liability concerns.

Sustainable practices are at the core of the city's and our department's facility maintenance efforts. Our turf has been pesticide and herbicide free for nearly 15 years and is free of products that can cause allergic reactions. The facility is also equipped with a field drainage system that can accommodate many sports and play activities, even during inclement weather.

The small details are also import in operation of our facility. This includes covering valve boxes with artificial turf that stops the cleat slippage, irrigation head height, and divot repair.

We care for our user groups and have built strong relations with them. It is wonderful to see inclusive community pride unfold on our fields.

> It's all about empowering our local youth and engaging our future generations through the fun of play!
>
> — Aaren Lemieux and John Cogdill, Boulder Parks & Recreation

Continued from page 33

specifications do not need to be crowned because of the porous rootzone medium and installed drain lines. Practice care and caution to avoid damage to installed sprinklers and drains. Do not use compaction devices on the surface material except for normal grading and tillage equipment.

TURFGRASS ESTABLISHMENT

Nutrient applications should be based on soil tests; however, as a quick guide incorporate the following fertilizer elements into the sand profile before establishment at the indicated rates:

- **Dolomitic limestone** (supplying calcium and magnesium): 100 pounds per 1000 square feet.
- **Phosphorus (P):** 4 pounds P2O5 phosphate per 1000 square feet.
- **Potassium (K):** 5 pounds K2O per 1000 square feet.
- **Micronutrients:** Apply a blend containing iron (Fe), manganese (Mg), molybdenum (Mo), copper (Cu), zinc (Zn) and boron (B) according to manufacturer's recommendations or seek competent advice. Application rates will depend on the concentration of the formulation.
- **Nitrogen (N):** Apply 2 pounds of available nitrogen per 1000 square feet from slowly soluble or slow release sources of nitrogen. Sulfur-coated urea, IBDU, urea formaldehyde, Polyon or an equivalent PCSCU coating are all examples of slow release nitrogen sources.

Do not apply fertilizer materials until the field is brought to its final grade. Lightly rototill all fertilizing materials and soil amendments into the surface 4 inches of the final mix. After the fertilizer materials have been incorporated, no surface sand movement should be allowed. Movement will displace the fertilizers, causing streaks and windrows of materials with areas of total deficiency. Following the incorporation of fertilizers, slightly moisten the field and roll with a light roller or with a Brillion drill or suitable lightweight packing devices to slightly firm the surface before seeding.

After the fertilizer materials have been incorporated, no surface sand movement should be allowed.

PLANTING

Use a Brillion drill or comparable landscape seeder for planting. This type of drill uniformly spreads the seed and presses it into close contact with the soil surface. Divide the seed in half and sow in opposite directions. This will result insure fewer skips in the planting. In areas of considerable wind movement, hydroseeding with grass seed and approximately 1200 pounds of fiber mulch per acre have been most successful in preventing the blowout of seed and sand. Another advantage of hydroseeding is that additional starter fertilizer can be added to the hydroseeder's tank mixture and applied at the time of seeding. Broadcast methods of planting are less desirable than the methods mentioned.

After planting with a Brillion drill, no subsequent rolling is necessary. The addition of organic mulches to the surface is not necessary if automatic irrigation is available. Plantings can be made anytime during the normal growing season in the Pacific Northwest. The ideal time is late summer or mid-spring. After the seed has germinated, or immediately before, apply a quick release nitrogen source, such as urea ammonium nitrate or ammonium sulfate, at the rate of 1 pounds of product per 1000 square feet to provide soluble nitrogen for the emerging seedlings.

After the seed has been planted, it is important that the surface be kept continuously moist. This is one of the most important steps in establishing an athletic field. Exercise extreme care not to overwater the field, since nutrient leaching will occur. Apply frequent small amounts of water until germination and seedling emergence is complete; these applications must be made frequently (i.e. 6 to 8 times per 24 hours) throughout the 24-hour period to insure surface dampness at all times. Uneven germination and possibly lack of germination will occur if the surface dries.

After germination and seedling emergence is complete (usually within 7 to 14 days), decrease irrigation frequency (i.e. 1 to 2 times per 24 hours) and increase the amount of water applied according to rootzone needs. Allow some surface drying between irrigations. Although sands will drain rapidly, excessive water will cause nutrient leaching. After the turfgrasses have been mowed the first time, it is possible that one or two proper waterings per week will be adequate. Employ a soil probe to determine soil moisture. Do not guess; check the soil. When grasses have removed approximately 50% of the available soil moisture, it is time to irrigate.

It is important during the establishment period to provide balanced nutrition, including adequate sulfur. ST

This bulletin was authored by: Alec Kowalewski, turfgrass specialist at Oregon State; Gwen Stahnke, turfgrass instructor, Walla Walla Community College; Tom Cook, retired turfgrass specialist for Oregon State; and Roy Goss, extension agronomist (retired), Washington State University.

SAFE FIELDS FOR ALL

that's the root of our mission

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

62% of injuries happen during practice

50% IN KIDS UNDER THE AGE OF 15

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

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

COMMERCIAL SPOTLIGHT

STMA COMMERCIAL MEMBER SPOTLIGHT: Hydraway Drainage

Editor's note: *Another installment in our new series highlighting STMA commercial members. This month we hear from Jim Surrell, sales manager for Hydraway Drainage Systems, Caseyville, IL:*

Jim Surrell, sales manager, Hydraway Drainage Systems.


"The majority of our growth stems from our reputation [which is] spread by word of mouth advertising."-Jim Surrell

SportsTurf: How do you develop relationships with turf managers?

Surrell: Our Hydraway team takes great pride in working with turf managers, designers, coaches and owners to help them solve their drainage problems, eliminate standing water, and reduce their rain outs. A rain out is very costly for the turf managers when you consider the time required to reschedule the event, loss in concessions, the inconvenience and even worse, when it leads to a tournament cancellation. Hydraway provides cost effective solutions to keep the field in top shape and playable. We take ownership of their concerns.

We work with turf managers at all levels from the major leagues, universities, and high schools to the park and recreation fields. In addition, we work on projects from the single field application to projects with multiple fields and multi-sport venues. We also work with golf courses and any natural or synthetic turf project. The majority of our growth stems from our reputation and is then spread by word of mouth advertising. Once you provide a superior drainage system, coupled with long term solutions, these groups tend to talk to each other. We have a staff of engineers to assist in making sure our customers' expectations are exceeded, and coupled with our state-of-the-art production line and extensive quality control, our team is committed to satisfying our customers.

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

Surrell: We strongly recommend for our customers to do their homework. An educated buyer equals an informed customer; please, make sure you request references on completed projects. As in all industries, the customer has several choices when seeking a drainage solution for their project. It is extremely important to know the difference between the Hydraway system and the others on the market; the differences are clear. I always recommend that you look at quality vs. cost and you will see the value and benefit of the Hydraway system. You've heard the old saying, "You get what you pay for," well, it's true in our industry too. Not only should the turf manager demand a quality drainage product, but they also need to look and consider the experience and reputation of the installation contractors.

ST: How do you typically research and develop new products?

Surrell: Our system is known as the fastest drainage system in the marketplace. We pride ourselves in being open-minded in researching ways that we can improve our products, and that mindset has paid off over the years. We evaluate the market demands and consider how our product can serve that need. An example of growth recently was evaluating how we export our system all over the world. We took into consideration the size of the shipping containers and modified the length of our material rolls, to better use and maximize the capacity within the shipping containers.

ST: Are there any new technologies you are developing that you can share with us, or any new products that will soon be available?

Surrell: We try and maintain a level of confidentiality with regard to our research and development; however we can share that we are investigating an allied system that would work in conjunction with our system.

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

Surrell: We currently service several other industries beyond sports turf where our system is used such as the following: highway and runway edge drains, underneath liners for lagoon applications to minimize gas build up. Other applications include foundation drainage, landfills, radon venting, retaining walls, slope stabilization, tunnels or just about anywhere when water needs to be drained and managed.

INSTALLING THE SUPER BOWL SOD

The 2013 Sports Turf Managers Association's Innovative Award winner, Green Source, won with their introduction of the SIDEKICK sod installation machine that can install big rolls from 24 up to 48 inches wide and from standard thickness up to 2.5 inches. West Coast Turf employed the machine to install the new sod for Super Bowl 50. Here we catch up with company president Paul Carlson and one of his machine's proponents, Will Schnell, head groundskeeper at the Rose Bowl:

SportsTurf: Has the Sidekick been upgraded since it won the STMA's Innovative Award?

Carlson: Yes, when we won the award several years ago, the SIDEKICK was a less refined machine. We tweaked the hydraulics making it much more powerful and easier to control. We have made it much more maneuverable as well as easier to operate. We even added a cell phone charger as well as a cup holder.

ST: What does your machine do that makes it better than other sod installation methods?

Carlson: Sod used on athletic fields often times needs to be cut thicker for added weight and stability. The most common methods used to install this thicker sod are manually pulling and pushing with rakes or using plates with spikes attached to tractors. These plates are positioned to lay on the top of the sod and crudely pull and push the sod into place. Both methods are intended to close gaps between the rolls of sod being installed. Often times these methods would lead to damaged turf, un-uniform results and are not very efficient. Since the SIDEKICK does not touch the turf but rather pushes from the side, the chance for turf damage is eliminated. While positioning the sod into place, our machine is able to uniformly compress the sod. The SIDEKICK is the first patented machine to compress the sod as its being installed. This compression improves the quality of the turf making it stronger, softer, and the end result is a safer field. Using the SIDEKICK also saves a great deal of time and labor. This time, savings allows the facility the ability to replace the playing surface in a smaller window of time.

ST: If a facility is getting new sod but the farm doesn't employ your machine, can the facility contract with you for installation?

Carlson: Yes, we have been contracted by a number of facilities that would like to have the SIDEKICK used during a replacement. We have a crew that can be there to work with the installation crew to ensure the tightest field possible. Many facilities or stadiums have leased SIDEKICKs directly from us to keep "in house" and thus guaranteeing that one would be available. In one instance an NFL team had a SIDEKICK air freighted overnight to their stadium to ensure that it be used during installation. That SIDEKICK has continued to be used at that stadium and was used to install the field for Super Bowl 50.

ST: How were you able to impress the NFL that they wanted the Super Bowl turf installed with this equipment?

Carlson: The NFL Super Bowl Field Committee chose West Coast Turf to be the supplier of the turf for Super Bowl 50. They have been successfully using SIDEKICKs to install their quality athletic turf on many professional as well as college fields throughout California for several years. Since SIDEKICK has a growing number of fans within the grounds personnel of the NFL as well as NCAA, MLB, and MLS, we were invited to be part of the process.

[See a video at https://www.youtube.com/watch?v=0JRjhEkkJRA]

ST: What are the biggest differences between SIDEKICK turf installations and other methods you've seen?

Schnell: It is just an outstanding machine. It pushes the turf together with a consistent amount of pressure eliminating any seams. The SIDEKICK creates no damage or stress to the plant that just had its roots cut off. In the past, we used 12 men pushing and pulling with rakes. Many times, this would rip or tear in the sod with a rake or a rake would damage an edge. There is none of that with this machine. It allows my staff to focus and spend time on other details creating an even better install. At the Rose Bowl, having enough time is always an issue. We're sodding one day and playing the next. This machine cuts the time down by 10-15% and keeps my staff fresh so while sod is being laid, they can be prepping and painting the field for a game the next day.

ST: Is using SIDEKICK affordable for facilities with fewer resources than the Rose Bowl?

Schnell: Yes, and you get a better install as well. It provides the field with tighter seams, and the first year of using it I was able to reduce my overall costs by not having so much labor over time. We were able to reduce topdressing material as seams are no longer an issue. I had less sod that was damaged.

ST: How often does the Rose Bowl change their turf?

Schnell: The Rose Bowl has on average two full re-sods per year.

NEW PRODUCTS

JACOBSEN INTRODUCES WORLD'S FIRST 14-FOOT WIDE ROTARY MOWER

Jacobsen has introduced the all-new HR700 wide-area rotary mower featuring an industry-first 14-foot wide cutting width that can mow up to 13 acres an hour. The HR700 delivers a zero-uncut circle and easily maneuvers around obstacles. And with a transport width within the front deck, the HR700 mower will go places others simply can't go. New SureStrength decks constructed with steel deliver greater durability in a lighter, more sustainable design. Q AMP variable rate steering provides optimal response to operator input to mow effortlessly around obstacles. In addition, a new AdaptiCut system automatically adjusts mow speed to ensure consistent cut performance, even through the thickest grass. Individual hydraulic deck motors with self-lubricating integral bearings deliver cutting power to each blade and require no maintenance. The new mower also features an iso-mounted operator platform, full suspension seat and cruise control for unparalleled operator comfort.
Jacobsen

LATEST BLOWER FROM BUFFALO TURBINE

Last year Buffalo Turbine introduced its BT-KB5 EFI tow-behind turbine blower, featuring a fuel-injected 26.5-hp Kohler engine with no carburetor with a true wireless start/stop function, meaning the operator doesn't need to choke the engine before starting. The company says this engine is 20% more fuel efficient than comparable models. See www.buffaloturbine.com
Buffalo Turbine

NEW ADAPTABLE SPREADERS

EarthWay Products, Inc., has added a new broadcast spreader family to its product line. The EarthWay EV-N- SPRED FLEX-SELECT Commercial and PRO Series broadcast spreader models built in the USA and are engineered for accurate application rates, easy operation, and long life. The spreaders feature an exclusive interchangeable tray system; you can select one of three uniquely suited "trays" that includes precision engineered apertures and shut-off systems for all kinds of materials and output rates. All models are available with either epoxy powder coated, or stainless steel chassis.
EarthWay Products

BOB-CAT UPDATES ZERO-TURN MOWERS

BOB-CAT has announced several updates to its premier commercial zero-turn mowers, the Predator-Pro and ProCat. Both feature new terrain-gripping Zero-T drive tires as a part of an exclusive 2-year partnership with OTR Wheel Engineering. These tires bring improved grip, puncture resistance, tight turning with minimal turf damage, and self-cleaning to both models. The newly modified double-wave baffle system enhances cut quality, as does the new, longer 61" DuraDeck cutting deck. On both models, a newly re-engineered discharge chute design fans out clippings, leaving the grass with a clean finish. Both also now have a new trim side deck guard to protect the deck from damage. The Predator-Pro also includes new rounded no-flat caster wheels, allowing for better handling and maneuverability. BOB-CAT supports these models with new industry leading 6-year / 2750 hour MOW WITH CONFIDENCE™ limited warranties.
BOB-CAT

XTREME GRASS HYBRID TURF ENTERS US MARKET

The latest reinforced natural turf system has entered the US market, to offer up to 30% more playing hours compared to natural grass alone. The system, called Xtreme Grass, will reinforce full field installations or high wear zones, such as soccer goalmouths or center field playing areas. It can be used for soccer, American football, baseball, rugby, golf and other sport applications to enhance the aesthetics and durability of the natural turf. Xtreme Grass features synthetic grass fibers attached to a strong, open weave backing. It is simple to install using typical natural pitch construction methods, and can actually improve the growth phase of the natural turf. The system creates a micro-climate that facilitates quicker germination, better root development, and thicker ground cover. The system is designed to be 100% recyclable at end of life.
Act Global

"NO DIGGING" SPRAY SPRINKLER REMOVAL TOOL

Easy Out, the first spray sprinkler removal tool that requires no digging, is now available from Underhill International. Easy Out fits all major brands and simplifies head removal (2" to 12" sprays) for repairs or modifications. Easy Out can be used to replace a broken sprinkler; add a fitting to increase height; cap off unwanted heads; or convert heads to drip line. It saves time and prevents damage to turf. The Easy Out kit includes an alignment rod that prevents dirt from entering the piping system and heavy-duty removal tool with hex head at the bottom end. How it works: User removes cap and inside components, then inserts alignment rod into body. Easy Out removal tool is placed over rod and slides into sprinkler. Tool is then rotated counter-clockwise to remove body from piping system. Replacement sprinkler is placed over rod and down into ground. Removal tool is rotated clockwise to connect new sprinkler to pipe. The same steps are followed to add a fitting to the bottom of the spray head, or to cap off a sprinkler, or when converting to drip by removing the sprinkler and attaching drip tubing to a barb fitting.

Underhill International

LEBANONTURF RELEASES NEW PROSCAPE FERTILIZER WITH ACELEPRYN PLUS DIMENSION

LebanonTurf has announced the release of Proscape Fertilizer with Acelepryn plus Dimension. This new combination product features fertilizer, insecticide and herbicide that controls and protects against grubs and crabgrass, all season long. Billed as a "one-two-three punch in turf care", Proscape Fertilizer with Acelepryn plus Dimension is designed for just one spring application in most environments. The Proscape fertilizer has been a high quality staple brand in the professional market for years and features patented MESA, Meth-Ex and Expo nutrient components, but the additions give the product new versatility. The Acelepryn insecticide combats grubs, caterpillars and weevils, as well as cinch bugs and billbugs. Also, the Dimension herbicide kills and prevents crabgrass, goosegrass and Poa annua, among other unwanted grasses and weeds.

Lebanon Turf

NEW DEERE GATOR MODELS

John Deere introduces the Gator XUV590i and XUV590i S4 Crossover Utility Vehicles equipped with twin-cylinder engine, independent four-wheel suspension and availability of more than 75 attachments. New models feature a top speed of over 45 mph thanks to quick acceleration powered by a 586 cc, 32 horsepower, liquid-cooled inline twin-cylinder gasoline engine. The XUV590i offers operators 10.5-inch minimum ground clearance, 800 lb. load capacity and 1,100 lb. towing capacity. Likewise, the XUV590i S4 has a 9.3-inch minimum ground clearance, 1,200 lb. load capacity and is capable of towing up to 1,100 lb. Both new Gators also come standard with an 875 watt, 65-ampere alternator to run auxiliary attachments, such as lights, winches and sprayers, without the fear of discharging the battery. Low noise and vibration levels are benefits achieved by isolating the powertrain and using sound-dampening material around the engine and CVT intakes.

John Deere

CONTROL EMERALD ASH BORER

ArborSystems adds Emamectin Benzoate insecticide-miticide for 2-year control of Emerald Ash Borer to their direct-inject chemical line that is used in their Wedgle Direct-Inject Tree Injection System. Boxer Insecticide-Miticide is available in 120 ml and 1000 ml Quick-Connect Chemical Packs. It is for the control of mature and immature insect and mite pests of deciduous and coniferous trees and palm trees including those growing in parks. Boxer contains the active ingredient Emamectin Benzoate and is formulated to translocate in the tree's vascular system when injected. It must be placed into active sapwood and will actively control pests for up to 2 years. The Wedgle is the only tree trunk injection application method that does not require a drilled hole. Also there is no mixing in the field, waiting for uptake of chemicals, guarding during draining process, need for power, pumps or return trips by applicators

ArborSystems

STMA Committees begin work

The STMA Committee year kicked off on March 1 with nearly 200 volunteers being placed on 24 standing committees, task groups and councils. Committee work flows from the STMA mission, vision and strategic plan. Some committees execute a set program annually, such as the Awards Committee. Other committees and task groups may have their charges changed each year, such as the Technology Team.

Committee involvement keeps members' perspective at the forefront when STMA is developing, implementing, and evaluating new programs and services or adjusting existing programs. According to the Bureau of Labor Statistics the overall volunteer rate declined by .4 percent in 2015. STMA's volunteer program has not seen a decline. Ninety percent of our volunteers have volunteered previously and for 2016, 10 percent are new members.

Following is a list of those who are serving on STMA's committees, task groups and councils in 2016:

Awards:
Chair – Bobby Behr, CSFM; Members - Nicole Andrews, Noel Brusius, CSFM, Paul Carlson, Alan Dungey, CSFM, Robin Francis, CSFM, Steve LeGros, Dean Rush, CSFM, George Trivett, CSFM, Charlie Vestal, Trent Wagner, Rob Walls, John Watt, CSFM, Derek York, CSFM

Bylaws:
Chair - Mike Trigg, CSFM, TJ Brewer, CSFM, Alan Dungey, CSFM, Ron Hostick, CSFM, Scott Miller, Mary Owen, Don Savard, CSFM, Bruce Suddeth

Certification:
Chair – Brian Winka, CSFM; Board Liaison – Nick McKenna, CSFM; Members - Noel Brusius, CSFM, Jesse Driver, CSFM, Michael Flowers, CSFM, Josh Glover, CSFM, Marc Moran, CSFM, Mary Owen, Rick Perruzzi, CSFM, Grant Spear, CSFM

Certification Review Panels:
Chair - John Sorochan, Ph.D.; Members: James Bergdoll, CSFM, Jason DeMink, CSFM, Ron Hostick, CSFM, Joe Kovolyan, CSFM, Steve Peeler, CSFM, Will Rogers, CSFM, Don Savard, CSFM

Chapter Relations:
Chair - Matt Tobin; Members: Grant Davisson, Mike DiDonato, CSFM, Cody Freeman, Jonathan Hall, Jacob Holloway, Kevin Meredith, CSFM, Scott Miller, Debbie Savard, Bruce Suddeth, Peter Thibeault, CSFM, Erin Wilder, Anthony Wise

Conference – Bowling:
Co-chairs: Brad Jakubowski and Mike McDonald, CSFM

Conference Education:
Chair – Beth Guertal, Ph.D., Vice-chair Jeff Fowler, Members: Adrian Austin, James Brosnan, Ph.D., Steve Bush, CSFM, Jason Campbell, John Cogdill, Bryan Hopkins, Ph.D., Stephen Lord, CSFM, Andy McNitt, Ph.D., Troy McQuillen, Gregg Munshaw, Ph.D., Brad Park, Craig Potts, Chris Ralston, Chrissie Segars, Paul Hollis, David Schlotthauer, John Sorochan, Ph.D., Matt Tobin, Doug Vescio

Conference – Tours:
Co-Chairs – John Mascaro and Tim Legare, CSFM; Members: Joe Collins, CSFM, Dale Croft, Weston Floyd, Brian Hinkley, CSFM, Patrick O'Connor, CSFM, Andy Parker, Justin Raney, Christine Sionne, Buzz Splittgerber, Sean Veilleux, CSFM, Rusty Walker, CSFM

Editorial:
Chair – Mark Frever, CSFM; Technical Editor – Joey Young; Editor – Eric Schroder; Members: TJ Brewer, CSFM, Joe Churchill, Jim Cornelius, CSFM, Jeremy Driscoll, Cliff Driver, CSFM, Matt Hollan, Paul Hollis, Chrissy McLarn, Jamie Mehringer, Scott Stevens, CSFM

Environmental:
Chair – Jimmy Simpson, CSFM; Vice-Chair – Tim VanLoo, CSFM; Members: Ryan Adams, Richard Calarco, CSFM, James Catella, Steve Dugas, CSFM, Blair Elliot, Alpha Jones, Jack Karlin, Dan Leonard, Donn Mann, Jason Mueller, Danielle Scardino, Gwen Stahnke, Ph.D., Mike Trigg, CSFM, Victoria Wallace, Rich Watson

Ethics:
Chair - Ken Mrock; Members: Amy Fouty, CSFM, Seth Greenwood, Martin Kaufman, CSFM, Scott MacVicar, Mary Owen, Don Savard, CSFM, Joe Churchill, David Schlotthauer

Finance & Audit:
Chair – Sarah Martin, CSFM; Members: Joshua Bertrand, Nick Caggiano, Bob Curry, Dan Jennings, Boyd Montgomery, CSFM, David Pinsonneault, CSFM

Historical:
Chair - John Mascaro; Members: Mark Clay, Sam Doak, Steve Guise, Rich Moffitt, Mike Schiller, CSFM Ret., Steve Trusty, Suz Trusty, Steve Wightman

Information Outreach:
Chair – Darian Daily; Board Liaison - Dan Bergstrom; Members: Brad Fresenburg, Ph.D., Sam Doak, Mike Goatley, Ph.D., Jason Kopp, Jeff Langner, Doug Linde, Ph.D., Pam Sherratt, Ryan McGillivray, CSFM

Innovative Awards:
Chair – Mike Andresen, CSFM, Dan Bergstrom; Members: John Frankenfeld, CSFM, Mark Holder, Jacob Holloway, Mike Trigg, CSFM

International:
Chair – Abby McNeal, CSFM; Members: Jose Aldrete, Rene Asprion, Tab Buckner, Richard Campey, Murray Cook, Ken Curry, Roberto Gurgel, Jason Kruse, Ph.D., Joshua McPherson, CSFM, Marcela Munoz, Chad Olsen, John Schedler, Don Scholl, CSFM, Paula Sliefert, John Sorochan, Ph.D.

Membership:
Chair – Nick McKenna, CSFM; Members: Tanner Delvalle, Brandon Hardin, Eric Harshman, Chris Hohnstrater, CSFM, Jason Holt, CSFM, Troy McQuillen, Kevin Mercer, CSFM, Kevin Meredith, CSFM, Trent Wagner

Natural Grass Task Group:
Co-chairs – Mike Tarantino, CSFM, and David Pinsonneault, CSFM; Members: Dustin Campfield, Patrick Coakley, CSFM, Zachary Dodenhoff, Simon Gumbrill, Chris McCardell, Carol Partridge, CSFM, Ben Polimer, David Presnell, CSFM, Joe Traficano, Joel White, Paul Carlson, Scott Thompson, CSFM

Nominating:
Chair – Allen Johnson, CSFM;
Committee to be appointed

Scholarship:
Chair – Weston Appelfeller, CSFM;
Paul Anderson, Stephen Crockett, CSFM, Jesse Driver, CSFM, Steve Dugas, CSFM, Dan Douglas, Ken Edwards, CSFM, Edward Hall, CSFM, Ben Jackson, CSFM, David Mellor, Justin Moss, Ph.D., William Pipp, Kyle Slaton, CSFM, Brett Tanner, CSFM, Matthew Weaver, Zach Willard

Student Challenge:
Chair – Matt Anderson, CSFM;
Members: Jeremy Atkins, Scott Bills, CSFM, Brian Bornino, CSFM, Tanner Delvalle, Sam Doak, Michael Hrivnak, CSFM, Brad Jakubowski, Andrew Northeim, Glenl Wear, CSFM; Ken Edwards, CSFM; Rusty Walker, CSFM

Technical Standards:
Chair – Jason Henderson, Ph.D.;
Members: Kyley Dickson, Andy McNitt, Ph.D., Kevin Mercer, CSFM, Ed Norton, Brandon Schanz, Tony Strickland, CSFM, Doug Vescio

Technology Team: Chair – Jeff Fowler;
Members: Matt Anderson, CSFM; Chris Bell, Jason Craft, CSFM, Grant Davisson, Steve Dugas, CSFM, Jeff Foor, Joe Rodocker, Sun Roesslein

Turfgrass Education Council:
Chair – Adam Thoms, Ph.D.; Vice-Chair - Beth Guertal, Ph.D., Chad Follis, Ph.D., Brad Fresenburg, Ph.D., David Gerken, Mike Goatley, Ph.D., Jason Henderson, Ph.D., Jared Hoyle, Ph.D., Brad Jakubowksi, Andy McNitt, Ph.D., Troy McQuillen, Grady Miller, Ph.D., Justin Moss, Ph.D., Gregg Munshaw, Ph.D., Mary Owen, Brad Park, Pam Sherratt, John Sorochan, Ph.D., Gwen Stahnke, Ph.D., Vickie Wallace

U.S. Fields Task Group:
Chair – Dan Douglas, Board Liaison - Weston Appelfeller, CSFM; Members: Julie Adamski, TJ Brewer, CSFM, Steve Bush, CSFM, Cody Freeman, Jacob Holloway, Ryan McGillivray, CSFM, Kevin Meredith, CSFM, Patrick O'Connor, CSFM, Andy Ommen, Trent Wagner, Matthew Weaver, Anthony Wise

STMA Affiliated Chapters Contact Information

STMA thanks new chapter sponsor, Team Premier Pro, which is part of Riverside Turf. Their latest grass release, PremierPRO, has a versatility not seen in other Bermudagrass varieties.

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.

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

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

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

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

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

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

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

Northern California STMA: www.norcalstma.org.

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

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

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

Ozarks STMA: www.ozarksstma.org.

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

Southern California Chapter: www.socalstma.com.

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

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

Texas Sports Turf Managers Association: www.txstma.org

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

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

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APRIL 2016

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1 What is your company's primary business? (*check **ONLY ONE***)
F ❑ Sports Complex G ❑ Athletic Field and/or Park Architect/Designer T ❑ School, College or University P ❑ Park
H ❑ Other (please specify)_____

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

3 Do you have the authority to buy, specify or recommend products and/or services for your business or organization? Y ❑ Yes N ❑ No

4 Yearly operating expenditures (excluding salaries)
F ❑ Over $1 million C ❑ $50,001 - $100,000 E ❑ $500,001 - $1 million B ❑ $25,001 - $50,000 D ❑ $100,001 - $500,000 A ❑ $25,000 and under

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Q&A with Pamela Sherratt

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

Good earthworm, bad earthworm

Q: Our softball field has a big problem with earthworm castings. It's bumpy and every footprint has at least 10 castings. What a mess! Obviously we have a problem, so my questions to you are: Why did this happen? How do I properly clean this up? How do I prevent this from happening again? AND if this happens on a game day what do I do? Thank you.
—Terry Day, Dayton, OH

A. Let me start off by saying that earthworms are wonderful creatures!
They help decompose organic matter, especially thatch, and play an important role in nutrient recycling. They are our soil aerification tools: improving pore space, root growth, gas exchange, and drainage. They play an important role in the reclamation of compacted soil, they enhance soil microbial activity, and are vital to the soil food web. And if all that isn't cool enough, they have five hearts, can tie themselves in knots and help you catch a fish! So what's not to love about earthworms?

Well as you rightly point out, on an athletic field they can create some problems. The castings create a bumpy, inconsistent playing surface that can adversely influence foot traction and other athletic maneuvers. Ball roll and bounce can also be affected, which is not good for sports like baseball, softball, soccer and field hockey. From an agronomic perspective, if the castings are smeared across the surface, they can reduce surface drainage and on sloped grounds may even be carried away in heavy rain (soil erosion is not a good thing). Castings, rich in phosphorus, are considered mini-seedbeds for weeds like *Poa annua*, and since they contain soil mineral particles can damage mower blades. Last on the list of their wrongdoings, earthworms are the major food source of moles, and may encourage those pesky varmints onto a field.

Moving on from their pros and cons, let's address your first question: why did this happen? Well, North America has more than 200 species of earthworms that reside in the soil. They range from nearly microscopic to the familiar, larger night crawler, which is probably the culprit on your field. Earthworms create small mounds, called castings, on the soil surface when they emerge and feed at night. The common night crawler is a fairly large species that normally uses a single burrow opening from which it will gather grass clippings, leaves and thatch. The earthworm will extend its head out from the burrow at night to gather this carbohydrate-rich food. The earthworm will ingest the plant material but then excretes its castings (soil mixed with undigested plant remains) around the burrow opening. Since an acre of turf can support more than a million earthworms, the chances of an athletic field containing earthworms and the resulting castings is much greater than not. That's why it happened.

If castings appear on a game day they can be cleaned up by allowing them to dry and then dispersing them, either with a leaf rake (small scale) or drag mat/brush. A light roller might help to even out surface bumps, but be careful not to smear wet castings over the field and make more of a mess. Raising the mowing height slightly may also help, since castings are more apparent on low-cut turf.

How do you prevent this from happening again? Because they play such an important role in soils, I certainly would not recommend attempting to control earthworms in home or commercial turf, but there are definite reasons why sports turf managers may want to reduce earthworm populations. Cultural ways to discourage earthworms include: (1) removing their food source (leaf clippings etc.), and

(2) topdressing with a coarse, angular sand in the spring and fall when they are most active. Topdressing with sand deters them but does not eliminate them. At the very least, the castings are sand-derived and more likely to dry and disperse more quickly, and (3) apply acidifying fertilizers, like ammonium sulfate. These three approaches will not offer complete control, but could reduce the amount of castings to a tolerable level.

No pesticides are registered for controlling earthworms but research has shown that some insecticides, fungicides, fertilizers and detergents kill earthworms or lower their populations, at least temporarily. It's important to note that some of these products, like the detergents, may also cause phytotoxicity on turf. A recently introduced organic fertilizer product called Early Bird 3-0-1 has shown good suppression of earthworms. The fertilizer is derived from tea seed pellets and it acts as an expellant. Early Bird does not have information on its label for earthworm control since it is sold as an organic fertilizer, but research by Chris Williams at the University of Wisconsin has shown 80-95% reduction in castings for about 5 weeks after application.

In summary, it is a challenge to manage earthworms in turf, particularly since they are a mixed blessing. There is no magic bullet to eliminate them, but using the options listed above it should be possible to keep them at an acceptable threshold. Good luck! ST

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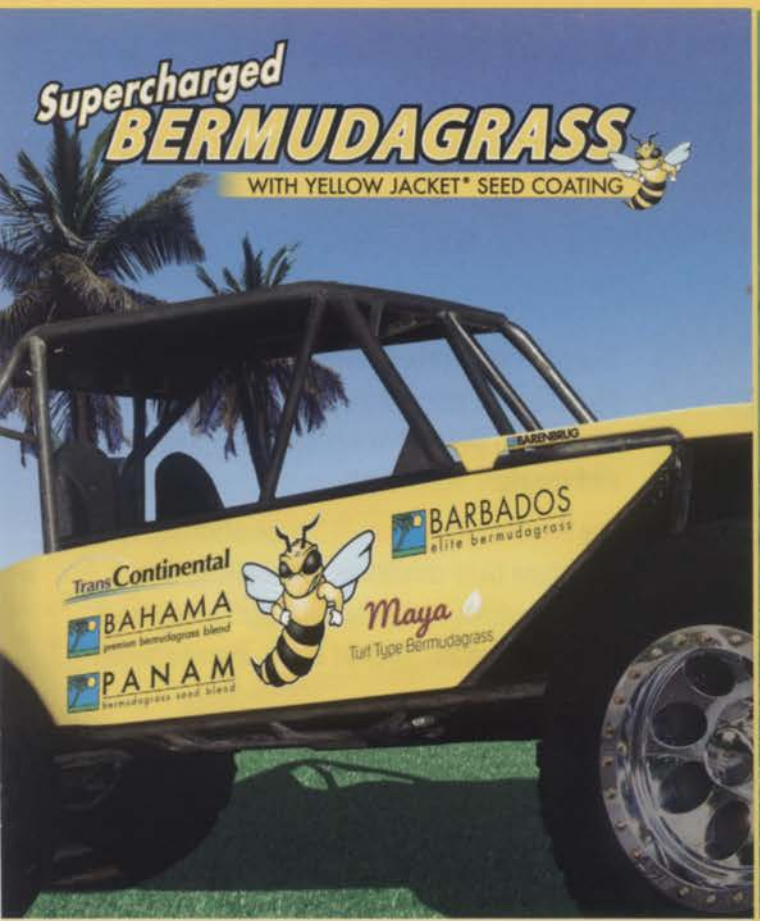

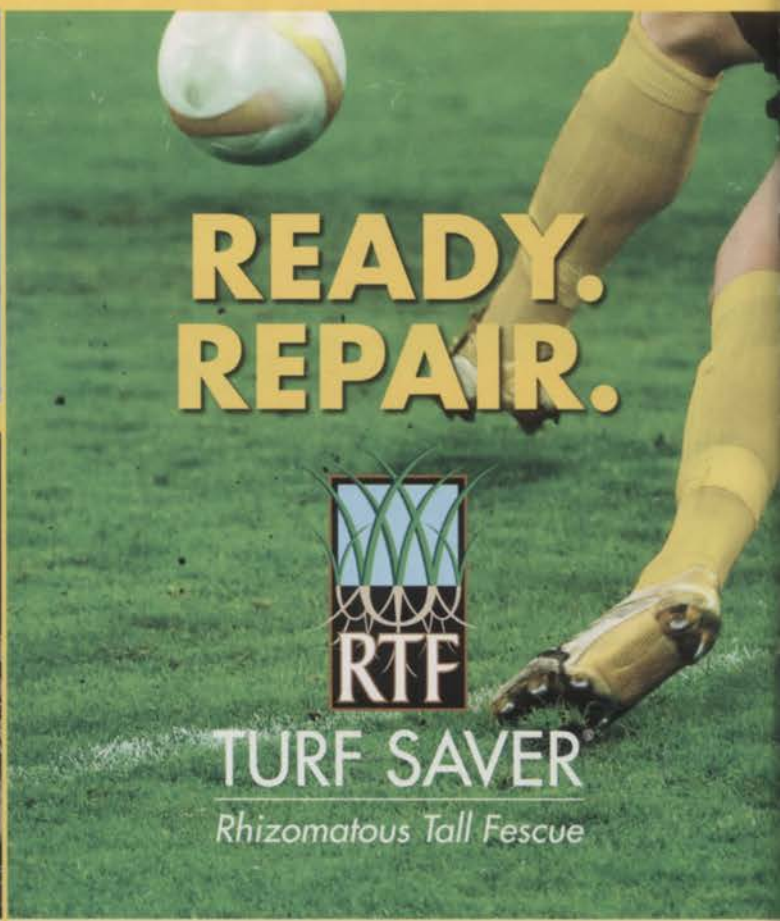

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