The *SportsTurf* Interview: Vickie Wallace, UConn

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June 2017

SportsTurf

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ALSO INSIDE:

- Maintaining nutrition during bermudagrass "grow in"
- Advice from sod farmers
- Keeping infield skins safe through the summer
- Tim Van Loo on embracing change

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STARTING LINEUP

June 2017 | Volume 33 | Number 6

FEATURES

Departments

On the cover:

We normally don't put individual STMA Field of the Year winning sports turf managers on the cover, or at least so prominently (see last month), but since Rob Galdieri of Marywood University in Scranton, PA won both the College Baseball and College Softball awards for 2016, he gets special treatment!

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THE IRONY OF IT ALL

So I'm sitting in the front row of a nearly full hotel ballroom at the STMA Conference last January as a presentation by Drs. John Sorochan and Andy McNitt, the latter with whom I'd just been chatting, began. Andy started to answer a question about why high schools choose synthetic turf over natural grass when building new fields, and he clicked for a photo to come up on the big screens flanking the riser.

As I looked at the photo being shown, Andy was mentioning how poor design and maintenance prevents schools from having great natural fields; I could see a familiar-looking scoreboard in the background. My shoulders slumped when I recognized it as being the scoreboard at my son's field. But since Andy works about 90 miles from this field, I wasn't surprised.

Opened in Spring 2014, my son's freshman year, as part of a $45 million new parochial high school campus, the baseball field sits on ground that is higher than the school, the football field and parking. On the first base side, maybe 30 yards at most from the foul line, the ground naturally slopes down steeply, a 15-20 foot drop. Along third base, there's even less room between the line and a slope steep enough that you're walking on your ankles only 5 feet behind the dugout. It wouldn't have taken an expert to see how crowning the space would lead to natural drainage down these hills.

That first year there was no scoreboard and no water line. There was plenty of "This field's going to be so great by the time our sons are seniors" talk though.

But the architect and the builder allegedly planned on having water drain out to centerfield, away from the slopes, and buried the outfield drains too deep to function. Of course the builder was a school alum that owns a construction company, and the subcontractor who built the field had never done so previously.

One school staff member was responsible for maintenance of the entire campus. Proper baseball field upkeep may not even have been on his priority list. Throughout the 4 years I've been on and around this field, the coaching staff, aided at times by parent volunteers, exerted steadfast effort in repairing and preparing the field. And it ain't been easy between extremely poor drainage and not enough resources to make the grass grow well. In early May this year a parent snapped a pic of the shortstop standing at his position with water over his ankles; 10 minutes later the dad drove by a rival school's field--dry as a bone. The baseball program has been stuck with a lemon.

It's ironic given my job that my son would play on a field that many readers might describe as unsafe. Should I or could I have done more? I'm in no position to offer advice; honestly for the first 3 years I was more concerned about my son's position on the team than the deteriorating field. Unofficially the field is going to be completely redone late this summer, and it's believed that someone involved in construction has given money to that end.

Lesson learned: hire a professional!

SportsTurf
SPORTS FIELD AND FACILITIES MANAGEMENT

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EMBRACING CHANGE

What we have all been waiting for—summer! At least I hope you have been waiting for summer. For me at Iowa State University, it's almost entirely maintenance and preparations for fall. If I had to pick a time of year when I find the most pleasure in working on the fields, it is right now, with that ever-impossible goal of reaching perfection before play begins in August. Sure, we have camps and other miscellaneous events, but nothing that rivals the demands that our teams place on the fields or the expectations that my crew and I strive to deliver.

> **"To embrace change means you need to accept that life does not stand still and that things are constantly changing."**

Recently I have had many reminders that life is constantly changing. I have the privilege to work with many college students in my role at Iowa State. I get to see them when they start in this industry and when they leave the University to begin their careers. Most of the students have changed from the first time I have met them into someone who is completely different. I have the opportunity to see each of them mature in who they are as a person and who they are as a professional. I get the front seat to see "change" as they begin to start their adult life. My favorite part is when we get to share life's struggles together and learn from each other, while striving to be better tomorrow than we are today.

I am also living through some change with whom I call my "boss." Many of you know Mike Andresen, CSFM, and if you do not, you should seek him out to get to know him at our next Conference and Trade show in Fort Worth. Mike hired me at Iowa State more than 7 years ago to take over the management of the athletic fields so he could do his new role of overseeing our athletic facilities. Mike is one of the most thoughtful, caring, and sincere people I know. He is a person who is respected by every department on this campus. I am excited for what is next for Mike, but am not excited that I am losing a great boss. Mike was far more than my boss; he has turned into a great friend who has helped me in so many ways. The word "mentor" is the best way to describe Mike in my life, and I thank him for what he has done for me.

To embrace change means you need to accept that life does not stand still and that things are constantly changing. The STMA will be constantly changing as our industry continues to evolve. Our new strategic plan that we will be working on at the summer board meeting will be our road map for change. Sometimes change is not what we desire, but I encourage each of you to embrace it so you can continue to grow and achieve your goals. If you need anything from the STMA, please do not hesitate to contact headquarters or me.

Once leaves emerge from nodes on sprigs.

MAINTAINING NUTRITION DURING BERMUDAGRASS "GROW IN"

BY DR. TOM SAMPLES & DR. JOHN SOROCHAN

When establishing a wear-resistant and well-rooted bermudagrass sports field from sprigs or seed, timely fertilization and balanced mineral nutrition are just as important as light, water, and appropriate air temperatures.

Photosynthesis. Thanks to chlorophyll contained in chloroplasts in some plant cells (not roots), once leaves emerge from seed or nodes on sprigs, they begin capturing light energy and use it to create compounds that provide energy or are stored in reserve for use by the plant at a later date. Bermudagrasses produce carbohydrates through photosynthesis, the combination of carbon (C), hydrogen (H) and oxygen (O) from carbon dioxide and water in the presence of light. Carbon, H and O make up about 90 to 95 percent of the dry weight of a bermudagrass plant. These three macronutrients are not deficient in bermudagrasses. Bermudagrasses obtain carbon from atmospheric carbon dioxide. Carbon, a component of amino acids, proteins, sugars and starch, is also found in the walls of plant cells. Water provides bermudagrasses with both H and O. In addition to C, organic compounds including carbohydrates, fats, proteins, enzymes and hormones also contain H and O.

Essential Mineral Nutrients. The soil supplies bermudagrasses with essential mineral nutrients. In order to be considered an essential mineral nutrient 1) A plant must be unable to complete its life cycle when the nutrient is not available; 2) The function of the nutrient cannot be replaceable by another nutrient; and 3) The nutrient must be part of an essential plant constituent or directly involved in the physical and chemical events of photosynthesis, respiration, and/or the production and breakdown of organic compounds. Essential mineral nutrients are classified as macronutrients or micronutrients according to their concentration in plant tissue.

The concentration of a macronutrient in dry turfgrass tissue must be greater than 1,000 parts per million (ppm), while the concentration of many micronutrients in dry turfgrass tissue seldom exceeds 100 ppm. Nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg) and sulfur (S) are classified as macronutrients. Of these, N, P and K are primary essential nutrients. Calcium, Mg and S are secondary essential nutrients. Although the amount required by bermudagrasses varies among these six macronutrients, each is equally important. The amount of each primary essential nutrient found in turfgrass tissue in

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Soil extracts being analyzed in the lab.

A soil sample should be sent for testing before planting.

An extractant solution is used to saturate and remove nutrients from the soil sample.

descending order, is N > K > P. The essential micronutrients are boron (B), chlorine (Cl), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), zinc (Zn) and most recently recognized, Nickel (Ni). Some essential nutrients affect many plant processes while others may be required to activate a specific chemical reaction or are involved in a very limited number of processes within the bermudagrass plant.

Soil Testing. The first step in developing effective and nutritionally balanced bermudagrass 'grow in' fertilization and liming plans is soil testing. A soil sample should be submitted for testing several weeks before planting. The primary goal of a soil-testing lab is to accurately predict the pH and the amount of each nutrient in the soil sample being tested that is available to turfgrasses. After drying, grinding and weighing, a solution is used to saturate and extract nutrients from the soil sample. The soil extract is then analyzed by a laboratory instrument (for example, an automated plasma atomic emission spectrometer) to determine the amount of each nutrient present. An automated pH analyzer is often used to determine soil/water pH (WpH).

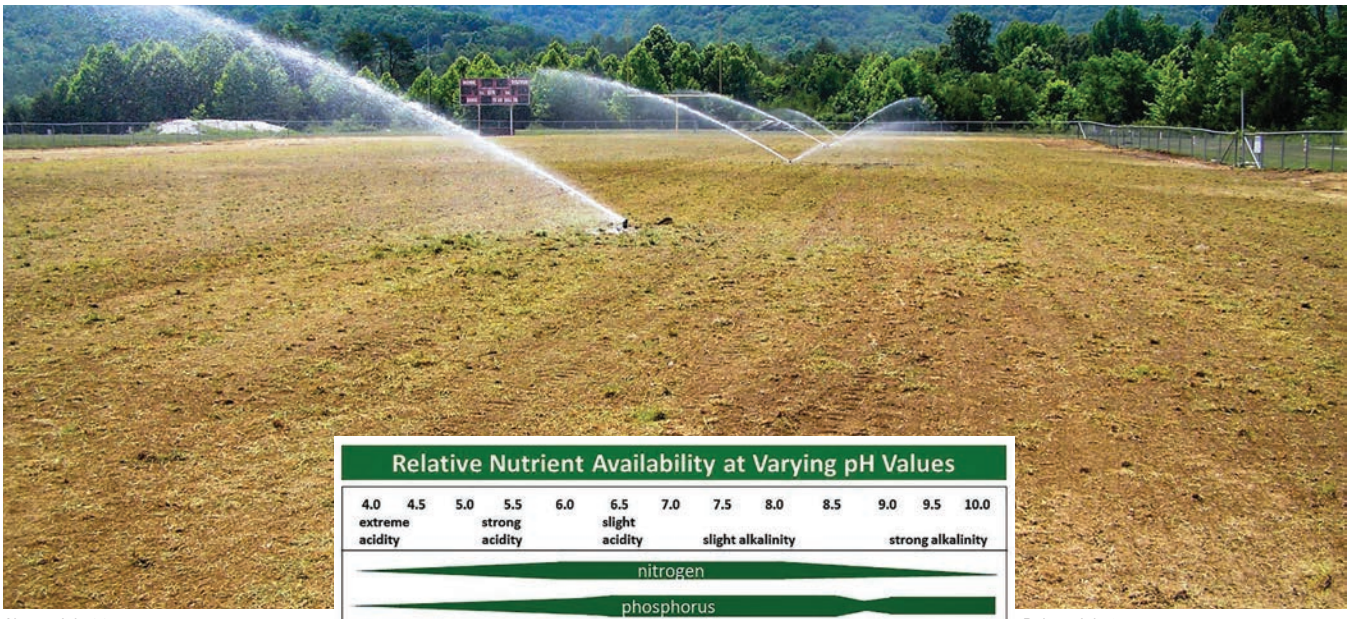
Soil pH. The pH directly affects the solubility and plant availability of essential nutrients in the soil. Slightly acidic soils (pH range between 6.0 and 6.5) are preferred when managing bermudagrass in native soils. The soil pH decreases with increasing soil acidity. In acidic soils, several nutrients including P, become less available to plants because of reactions with Fe and aluminum that result in the formation of precipitates that are not in a form that bermudagrass plants can use. As the soil pH increases above 6.5, a lack of Mn may

limit bermudagrass growth. Similarly, less Fe, Cu and Zn are available for plant uptake at high soil pH levels. However, as the soil pH rises above 6.5, P and Mo may become more available to plants. The amount of lime needed to neutralize acids in a soil depends on the soil's pH, and the ability of the soil to resist or buffer against a change in pH. Clayey soils have a greater buffering capacity than sandy soils. If lime is recommended, the buffer pH (BpH) will appear on the soil test report along with the WpH. The BpH is a value generated in the laboratory in order to develop specific lime recommendations.

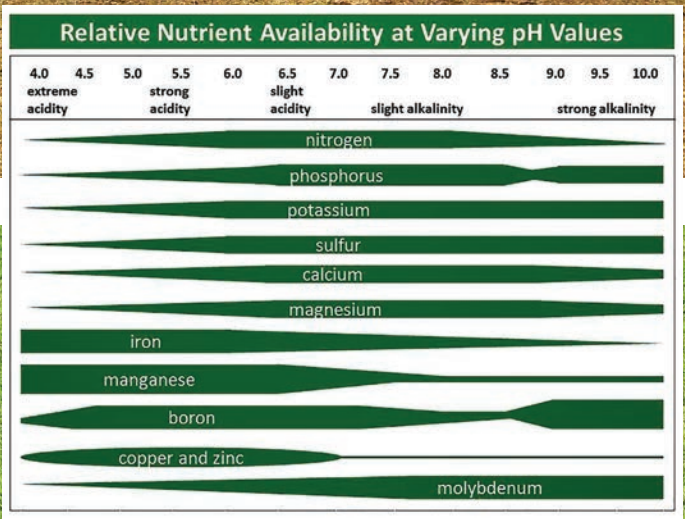
Lime. Lime is available for turf applications in both pulverized and granular forms, and can be purchased in bulk quantities or in bags. Granular or pelletized lime with uniform particles is usually preferred when applying lime with a walk-behind or 3-point hitch, rotary spreader. Calcitic lime is manufactured by grinding rock containing large amounts of calcium carbonate, while rock with a combination of both calcium and magnesium carbonates is used to produce dolomitic limestone. Dolomitic limestone is often about 50 % calcium carbonate and about 40 % magnesium carbonate. Dolomitic limestone is usually recommended when both the soil pH and the available Mg level in the soil are low. Generally, no more than 50 lbs. of lime per 1,000 sq. ft. is recommended per application to established bermudagrass sports fields. However, if necessary, much more lime can be broadcast and tilled or disked into the soil before sprigs or seeds are planted.

Soil test results. A soil test report provides information to assist in the selection and purchase of appropriate fertilizers. The results of a soil test performed at the University of Tennessee Soil, Plant and Pest Center are presented in the figure on page 12. The pH of this particular soil is 6.6 and no lime is needed at this time. A Mehlich 1 extractant solution was used to estimate the amounts of P, K, Ca, Mg, Zn, Cu, Fe, Mn and B, which are reported in pounds of nutrient per acre (lbs/A). Procedures to determine the amount of soil organic matter and the level of soluble salts were not

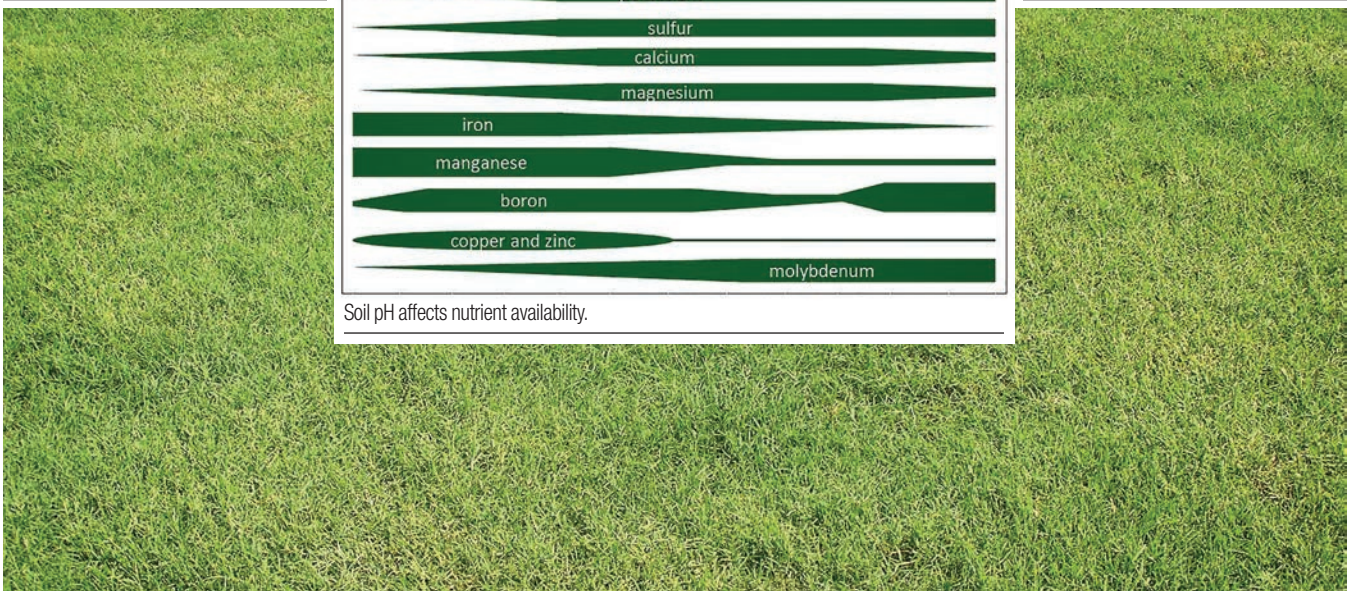
The first step in developing effective and nutritionally balanced bermudagrass 'grow in' fertilization and liming plans is soil testing.



Above: July 11.



Soil pH affects nutrient availability.



Below: July 25.

performed. This report notes that the soil is low in P (16 lbs/A), low in K (43 lbs/A), and sufficient in Ca (199 lbs/A), Mg (40 lbs/A), Zn (1.5 lbs/A), Cu (10 lbs/A), Fe (10 lbs/A) and Mn (2 lbs/A). The soil also contains 0.2 pounds of B per acre and 10 pounds of sodium (Na) per acre.

Bermudagrass nitrogen requirement. When fully established, bermudagrass usually requires from 0.5 to 1.0 or more pounds of N per 1,000 sq. ft. per growing month depending on weather, soil and the amounts of sand, silt, clay and organic matter in the rootzone. During bermudagrass grow in, the most effective N fertility programs have flexibility built in. For best results, both readily available, highly water-soluble N (WSN) sources and controlled-release N sources may be applied.

Highly water-soluble N. These sources are less expensive per pound of N compared to controlled-release N sources, and stimulate rapid aerial shoot growth and field coverage. Water-soluble N sources, often referred to as agricultural-grade fertilizers are more likely to cause foliar 'burn' and leach from the bermudagrass rootzone. To limit the potential for fertilizer burn, no more than 1 lb. of WSN should be applied per 1,000 sq. ft. per application. Urea (46-0-0), ammonium sulfate (21-0-0 w/ 24 % S), diammonium phosphate (18-46-0), monammonium phosphate (11-48-0) and potassium nitrate (13-0-44) are WSN sources. Ammonium sulfate, monammonium phosphate, diammonium phosphate

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SOIL TEST REPORT

'Latitude 36' Bermudagrass Sports Turf- Field 1

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County: Knox

Date Tested: May 10, 2017

Lab Number: 323241

Mehlich 1 SOIL TEST RESULTS and RATINGS*
(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium
00001	6.6		16 L	43 L	199 S	40 S	1.5 S	10 S	10 S	2 S	0.2	10

Organic Matter %	Soluble Salts PPM**

RECOMMENDATIONS

Sample Number	Fertilizer/Lime Application Rate and Timing
00001	Results Only

Nitrogen/Phosphate/Potash: $N / P_2O_5 / K_2O$ - / - / -

Limestone: Lime is not recommended at this time

Results Only

A soil test report contains valuable information.

and potassium nitrate are available in granular and in some cases, sprayable forms. Urea is formulated as a solid granule or hollow prill, and may also be applied as a foliar spray.

Once bermudagrass is fertilized with urea, and if the soil is moist, this WSN source reacts quickly (usually within 7 to 10 days) with water to form ammonium-N (NH4+). The naturally occurring enzyme urease speeds this reaction. If bermudagrass is growing in alkaline (high pH) soil, ammonia (NH3) may volatize from ammonium-containing N sources as well as urea. Nitrogen losses by ammonia volatilization as high as 30% have been reported. In addition to highly water-soluble N, the K sources muriate of potash (0-0-61)

Ammonium sulfate.

Urea formaldehyde.

Poly-coated urea.

Milorganite.

and potassium sulfate (0-0-52 w/ 17% S) are also considered readily available after application.

Controlled-release N. Although controlled-release fertilizers have a range of release rates, it is most common that 'slow-release' fertilizers contain a minimum of 50 % of the total N in water-insoluble form. Urea formaldehyde and polymer-coated urea are examples of controlled-release N sources. Compared to WSN products, fertilizers containing controlled-release N sources are more expensive per pound of N, and the color responses and rate of bermudagrass growth are more gradual following application. Advantages of using controlled-release fertilizers include less potential for N leaching and foliar burn, and fewer fertilizer applications. Fewer fertilizer applications means there are fewer times during grow-in that irrigation must be interrupted so that the soil can dry and the field can be fertilized. Application rates are often of 1.5 to 2 times those of quick-release fertilizers. Milorganite, a natural organic source of controlled-release N, and one of the oldest branded fertilizers in the US.

The growth of 'Tifway' bermudagrass sprigs on a high school football field in east Tennessee in response to routine fertilization with both highly water-soluble and controlled-release N as well as P and K is pictured on page 12.

Plant analysis. Many laboratories also offer plant analysis to estimate the nutrient content of turfgrass tissue. This test can be very helpful as bermudagrass is approaching or at 100 % total groundcover. Plant analysis serves as a 'snapshot' of the nutritional balance in the aerial shoot tissue of bermudagrass. If necessary, nutrients identified as being low or deficient may be applied as a foliar spray. In fact, it is often easier to uniformly apply small amounts of nutrients as a spray. For best results when applying nutrients in solution, it is essential that the spray tips and sprayer operating pressure deliver the intended amount of product and thoroughly moisten the foliage. Interestingly, nutrients enter bermudagrass leaves through tiny cracks or pores in leaves rather than the stomates, and leaf penetration is better at night. To allow for maximum nutrient uptake, bermudagrass should be sprayed during the day and irrigation should be delayed until late in the morning the following day. ST

Water provides bermudagrasses with both H and O.

Prilled urea.

Tom Samples, PhD, focuses on turfgrass science and management in his role with the Department of Plant Sciences at the University of Tennessee in Knoxville.

Dr. John Sorochan is a Professor in the Plant Sciences Dept at the University of Tennessee.

ALL PHOTOS BY PATRICK JONAS, CSFM

KEEPING INFIELD SKINS SAFE THROUGH THE SUMMER

Editor's note: *Many volunteers around the country manage infield conditions at local fields, often without much if any professional oversight. We asked some STMA members for advice for those less experienced in keeping baseball and softball skins safe throughout a summer.*

We know sweeping out water from low spots ***can create a larger puddle the next rain. How do you repair low spots in infield dirt areas?***

Andrew Siegel, University of Texas-Arlington: The past few years we've run between 95-115 summer games in June/July. We don't sweep or squeegee wet spots. We may suck water with a shop vac or work in calcined conditioner.

Joe Barr, Milton Hershey School, PA: The most effective practice to low spot repair is to be constant and persistent in maintaining the infield skin. During the season requires routine efforts of the high-traffic areas. I also know firsthand this is something that is a very difficult task for many of us managing multiple fields. In my situation there are just two of us. We prep 15 different playing fields for seven different sports.

Patrick Jonas, CSFM, Charleston, SC: First, we avoid sweeping water from low spots, and instead use hand pumps to remove the excess water, then use absorbent puddle pillows to get the rest of the water. To repair the low spots I have a pair of leveling bars that I drag behind the tractor as often as I can. This technique works well for small low spots. If low areas get larger and deeper I simply just take the tractor out there and with the front bucket move the high areas into the lower areas and then try to touch it up with the leveling bars. Most of our fields are so flat it's fairly easy for me to eyeball, so I don't really ever rely on laser grading.

David Presnell, CSFM, Gainesville (GA) City Schools: You should never sweep out a puddle. We try and just let them sit until they'll soak in. If you don't have that time then take a sponge or pump and remove the water. I like to mark the puddle and then come back and fill it in with clay. You can smooth and level it with a long board. I strongly believe in laser grading the skin every year to avoid this.

Dave Anderson, Hempfield (PA) SD: One thing that baseball fields at all levels must deal with is wet weather. While professional fields are tarped and cared for by trained grounds people, the local community field rarely receives that kind of protection.

If that's the case that field may be unplayable following a moderate to heavy rain. Since the game must go on, no matter what, volunteer coaches, parents, and sometimes players come out to attempt to dry the field. And while there efforts are commendable, the practices they use to dry the field can sometimes do more harm than good.

One of the most common practices is to take a broom or rake and push away the water that has accumulated in low

Continued on page 18

John Mascaro's Photo Quiz

Answer on page 36

John Mascaro is President of Turf-Tec International

Can you identify this sports turf problem?

Problem: Material filling steel drag mat

Turfgrass area: High school multipurpose field

Location: Lakewood, Colorado

Grass variety: Artificial turf and ryegrass/bluegrass mix

BACKGROUND ILLUSTRATION COURTESY OF ISTOCKPHOTO.COM

Continued from page 16

spots on the field. Doing this may get today's game in, but it also makes those low spots even deeper and causes a bigger problem the next time it rains. I've also seen people push or rake the mud out from the skin area and into the grass areas.

First of all, if the field is too wet either saturated or has puddles, leave it alone and cancel the game. No team's game is more important than the next, so there is no sense trying to get a game in if it harm's the field or makes more work for the next team's coaches or volunteers. The simplest and most logical solution to the wet field with low spot puddle problems is to not allow the low spots to form in the first place. Following games and even practices, teams should rake the usual low areas, around the mound, the batter's box and around the bases. Raking these areas to keep them reasonably level would take no more than 5-10 minutes following games or practice. Involving the players in this would also give them a sense of ownership of the field and help teach them responsibility.

Investing in a cheap vinyl tarp weighted down with something like sandbags and covering the plate and mound areas can keep those areas reasonably dry. If the budget allows it might be good to buy some infield conditioner or a drying agent to help dry smaller puddles. However, the best solution for low spots is the old ounce of prevention adage and rake the low spots level following each field usage.

Keith Lehman, Pine Grove Area (PA) SD: Concerning low areas I would first try and correct the practices that have created them. If the infield mix area was laser graded during construction the low area has probably been created by using the same drag pattern over a lengthy period of time; I have also created them often by being too aggressive when opening the mix to allow for game day drying. The aggressive opening loosens mix that can more easily be moved.

Being the head baseball coach, I sometimes forget what hat I have on when prepping our field for games, which usually creates a future headache for the groundskeeper. To repair a low area first I will try and determine if an excessive high area is close by and I will open that area manually or with equipment and gather and deposit the loose mix in the low spot. If this process isn't possible I will mark the area after a rain and when dry I will add mix from my stockpile. Whichever process I use I try and level to the best of my ability, tamp or roll (even with equipment tires) and then give a good soaking overnight.

What skin conditioning product and/or maintenance practice do you recommend if your skin is getting too hard mid-season?

Jonas: I seem to never have a problem with my fields getting too hard during the season as I used to in the past, (if anything they're way too soft), but due to the fact that we have smaller kids playing on the fields, that works toward our advantage. That wasn't always the case, I had to add calcined clay to the fields, and learn the art of moisture management of the clay. Of the four game fields I manage, we have quick couplers so we can fairly easily add the water that we need to.

Presnell: We keep a topcoat on the clay during the season. Moisture is the key to keeping your clay from getting to hard. You have to find the perfect amount so it'll stay firm but not to hard. You've gotta maintain the moisture through the entire skin profile. If you're still to hard you can always nail drag the clay.

Lehman: Moisture is the key; if the moisture does not come naturally and a water source is not available at the field I feel it is that important to exhaust any other options that are possible, starting with the local fire department. Knowing the composition of your mix and if there is any available money a calcined clay product to help retain some moisture could be incorporated into the top 1 inch of mix.

If you practice or play on soft infields, you must rake the low areas after so they don't get worse. — Dave Anderson

Anderson: On low maintenance fields, it is probably better to use the less expensive infield mixes; they have a higher percentage of sand to clay and this helps the field drain better following a rain. However, during the hotter and drier times of the summer these fields too, will become hard and compacted. Continuous mat dragging of the field can add to the compaction problem, so it is good to occasionally use something to scarify the field to a depth of about a ½ inch or so.

If the budget allows its always good to incorporate an infield conditioner to help alleviate compaction. This material can be worked into the top ½ inch or so of the infield mix. Infield conditioner is either of a vitrified or calcined clay material and will help manage moisture, relieve compaction and help make the field safer and more playable.

Siegel: During the season when the team is gone, we sweep all product out of low areas. I will flood it overnight then till first thing in the morning. After that we will work in fresh infield mix and till, smooth, pack and flood. During the summer we don't get as much down time to repair. We will if we can but August is usually time for a major skin grade/renovation.

Barr: I volunteer for 3 youth leagues in my area and this is always an issue as many fields do not have water nearby. I believe moisture is the key. If you have access to a water hose, I suggest you wet the dirt area down completely late in the day and let it dry overnight. In the morning lightly moisten the dirt area in preparation for dragging. Then spike drag slowly, lightly scratching the dirt. Next drag the field with a steel metal drag mat. When finished lightly moisten the dirt area once again.

In fact last year we were so desperate for water on our field we used a spray tank cleaner and neutralizer to clean our 50-gallon spray tank. We then filled it with water and used this to moisten the dirt area. It worked. Where there is a will there is a way.

Your skin is wet and soft and there's a game schedule for that evening or the next day. What do you do to make it playable?

Presnell: When the skin is wet I'll try and let it sit as long as possible. If we need to speed up the process I like to take leaf rakes and loosen the top up, spread dry product with a push spreader and repeat this process until you're able to hand drag. If we have time we'll hand drag until it's dry enough to machine drag.

Anderson: Soft fields take time to become firm enough to be playable. If the field is too soft you let the field dry and cancel the game. However, with tight league schedules that is not always possible. The biggest factor in drying a soft field is the weather. In the early spring when the weather is cool, or when days are overcast and cloudy soft fields dry more slowly. Wind can help, but even on cloudy and cool days wind can make little difference. The best weather factors for drying are a combination of wind and sun. Wait as long as possible to get the field ready.

If you determine that the field is firm enough to play on (you can walk on it without your foot making a noticeable impression in the infield mix) do your best to make it playable. If the field is still too soft to drag properly, keep equipment off. Rake the areas such as the batters and pitching areas as best as can be done. This is why it is beneficial that the previous teams that played or practiced on the field rake these areas after their use, to keep those low spots from forming causing water to accumulate and making these areas especially soft.

If the field is soft but firm enough for play, I like to use a liner with aerosol paint to line the batters box and baselines, instead of a liner that uses the traditional powdery chalk material. The aerosol liner is much lighter and will not make impressions like the heavier chalk liner will. Sometime after the game when it is determined that the field is firm enough to handle some equipment, lightly scarify and drag the field to level it out and make it more "game ready" for the next group to use it.

Siegel: We work in vitrified conditioners throughout the season. If we get caught too wet, we will topdress a calcined conditioner then nail drag it in. After we screen drag, if it's still spongy, we will roll it with roller (if it wants to run that day) or the tires of a Workman.

Barr: Starting immediately after the rain ends and working on the field will increase your chances of getting a game in. However my theory is, if it's too soft to walk on, you should not be on it. Then we wait. If you have standing water, you can use a puddle sponge, wet/dry vacuum, or a puddle pump to remove the water from the field. This is critical to giving the field a chance to dry. Do not push or pull it with the broom this will make it worse and spread the water creating a deeper hole. Next use a field rake to open the field. Just one pass over the soft wet areas, the idea here isn't to move the dirt or go back and forth, but to just slice open the field evenly. Now let the sun and wind to do their magic. A drying agent can be used on the really wet areas. However this will turn to a paste and eventually get very hard. Therefore at your earliest opportunity remove the material completely. As your field approaches its final drying stages lightly and evenly apply your infield conditioner. This will help maintain a smooth, cushioned, playable surface for superior traction and player safety and absorb excess moisture.

The basics from Joe Barr, Milton Hershey School

We like to drag our fields before and after every game and practice. First remove the bases and any foreign matter on the infield. Hand-rake the area at the bases by pulling the dirt back toward the base and sliding area. Never rake toward the grass. Hand-rake the first base and third base lines, always going from the plate to base. Never ever rake side to side towards the grass. When I do have access to water I lightly moisten the dirt area in preparation for dragging. Then spike drag slowly, lightly scratching the dirt.

Next I drag the field with a 6' x 6'metal drag mat using a spiral pattern from first to third; I then switch sides the next time as you never want start and stop at the same location every time. This process loosens the surface and levels low spots. Always keep the drag mat at least 6 inches from the grass edge to prevent lip build up.

Jonas: We will make a choice depending on how much time we have until the start of the game, to use ether coarse or fine calcined clay. If we have the time I prefer going with coarse calcined clay, it makes a better clay conditioning for the infield. We only use the fine particle product for when we need the field playable right away. I like to minimize using quick drying agents as much as possible. If we have adequate time before the next game, we will get a machine on to the field as soon as we can to open the clay up, which increases the surface area for the sun and wind, and start letting the clay dry out. This is where you have to know your field and how fast it can dry under different circumstances, such as the amount of rain you received, outside temperature and wind speed. Some of our fields perk water very well. Other fields I know will need a little bit of help with some calcined clay.

Lehman: To prep a wet and soft skin area I would first manually remove any water that has puddled in the low areas. Digging a hole in the middle of the low spot and scooping into a 5 gallon bucket or if the area contains a large volume of water and an electrical outlet is in the area using a submersible pump is a possibility. Always refrain from any sweeping/brooming action or you will be creating a larger area for the next rain. After this it is important to open the mix with equipment or manually to expose more surface area to the sun and any air movement to help in the drying process. As mentioned earlier, try not to be too aggressive while opening the mix or there is a good chance you will be creating a bigger problem for the future. There are plenty of infield mix drying products available to assist but when time permits and the natural methods are available I feel it is best to let them take care of the process as much as possible. ST

COURTESY OF OAKWOOD SOD FARM, DELMAR, MD.

SOD FARMERS: PLAYERS IN THE SPORTS TURF INDUSTRY

Editor's note: *We asked some prominent sod farmers the questions listed below about quality thick-cut sod, sod grown on plastic, and preparing to play on recently placed sod.*

- What details define "quality sod" to you?
- What questions should inexperienced sod customers be asking when visiting your farm?
- Are your best products always available?
- What should someone do to prepare their field when fresh thick-cut sod or sod grown on plastic, is scheduled and they intend to play on it immediately?

JIMMY FOX, EVERGREEN TURF
Chandler, AZ

Quality is an overused and under-defined term. As it relates to thick-cut sod that is to be played on, the number one characteristic that defines quality is "superior playing surface." The surface has to be mature, low thatch (if not zero thatch), with great shear strength. So much attention gets drawn to the looks of the sod, or the bottom of the sod, and people always ask questions like "Is it grown on plastic? Are the roots massive? Is the sand compatible? How does it look?"

All of these are important characteristics, but no one is playing on the bottom of the sod, they are playing on the top. If the top isn't the best possible quality, you will have failure, slips, divoting, shearing, poor performances by athletes, potential injuries, and you may get shredded on the evening news or ESPN. The number one definition of quality sod is sod that has a superior playing surface.

Inexperienced sod customers should ask:

- How much experience do you as a grower have in delivering a thick cut product that is played on instantly?
- How old (mature) is your sod? Sod grown on plastic (depending on the method) can be mature in 6-12 months. Sod grown conventionally can take up to 18 months to have good maturity.
- How much sod can you harvest and truck in a day comfortably?
- Do you have a back-up sod harvester, or a back-up plan if your machinery breaks down?
- Can you verify the source of your planting stock?

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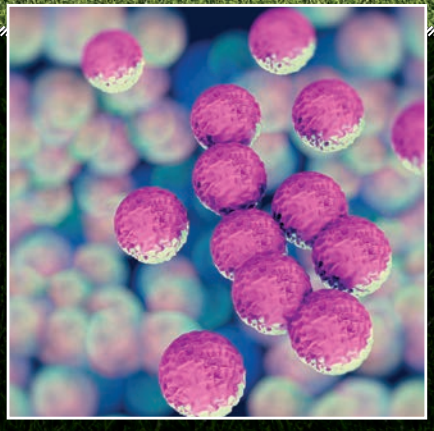

The dangerous MRSA bacteria found on surfaces like athletic facilities and locker rooms.

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- Is your soil or sand compatible with the field the sod is being installed on? If your stadium field has a percolation rate of 15 inches an hour, and your sod growing medium has a percolation rate of 7 inches an hour, you just slowed the drainage in your field down by 50%! It really sucks to spend $500,000 on a high-end stadium field, and then screw it up with one sod install!
- If we get a lot of rain or snow, can you still harvest?
- Do you have a list of references? Satisfied customers?
- What kind of mowing equipment do you have? Can you produce a mowing height compatible with my existing field?
- How much notice do you need to fulfill my order?

Our best products are never available all the time. We plan 18 months ahead, and then take a second look at our inventory at 12 months before potential harvest. Our sod field planting happens in the summer time, and once we hit October, we cannot make any adjustments to our planting schedule. If we have not made plans for thick-cut sod, on a specific type of sand before October, it will be 2 years before we can have more mature, quality sod to deliver. Managing inventory for thick-cut sod is difficult, and expensive.

Last year's NCAA national title game: no divots and no shearing.
COURTESY OF EVERGREEN TURF, CHANDLER, AZ.

If you are planning on playing on new sod immediately, the first thing to do is make sure you know the thickness of the sod so you can have the removal of the old field taken out at the right depth; if you can arrange for an actual piece of sod to be delivered prior to the removal process, that can be a huge benefit. You don't want to get the depth wrong and have to make adjustments after the sod is delivered.

Know your access points. Where will you begin sodding, where will you end? Make sure you have minimized traffic on the field when planning your installation strategy. If possible, aerify the field prior to sodding. Solid tines are all you need; you don't want to pull cores. All of the equipment from the removal process and sodding process will compact your field. Just a simple quarter inch solid tine aerification can make a huge difference in water percolation and sod rooting.

If you have time, rototill and laser level. You don't get many opportunities to expose your subsurface and alleviate compaction issues or level issues on your field. This is a great time to hit the "reset" button on your subsurface. Budget time and money for rototilling and leveling if possible.

GARY WILBER, OAKWOOD SOD FARM
Delmar, MD

Quality sod is healthy, clean, high tensile strength sod. Specifications that focus on sod age often don't account for the improvement/decline of sod strength because the growth potential of different species varies with the seasons.

The customer visiting the farm should come with an understanding of his/her need for sod in the future. The customer can then ask if the farm's production can meet that need. If the customer has a deadline or event, production can be reserved. Also, if the customer has specifications like soil type or sod thickness, they can be discussed and understood by all parties.

Farms want to please their customers. Unfortunately events like severe weather i.e., high heat/severe cold/drought/excessive rainfall can cause shortages because of unforeseen demand or production issues.

We do not produce sod on plastic and rarely do thick cut jobs. The keys to any successful sod project are site preparation and water. Is the base firm and properly graded? If the base is not stable or holds water the best sod can fail. Likewise, if water is limited then sod will stress and deteriorate.

JOE TRAFICANO, WEST COAST TURF
Mesa, AZ

For quality, we look at root mass, turf density, shear strength, mowing height consistency, consistent harvest depth, and nice green color.

Make farm visits as much as you think is necessary; most turf managers make a trip out 3 months before delivery and then another 2 weeks before installation. If necessary, a few come out when we are harvesting their sod. Possible questions include:

- How old is the material?
- When was it planted? Seed or stolons?
- Has this material been harvested this year?
- What is the mowing height at the time of harvest? Can I have it mowed at the same cutting height as my field?
- When was it last fertilized? What product was used?
- What is it grown on? (analysis of growing medium)
- Do you use plastic netting to help grow in?
- What varieties do you grow?

All our products are not always available; it depends on time of year and how much work this is. Best policy is to reach out to sales staff and give them a heads up on project and depending on quantity, we request a deposit to hold the material in inventory.

When preparing for thick-cut sod, plan ahead; make sure you have all the contractors scheduled, make a visit to sod farm, and have a plan B if bad weather is in the forecast, especially when dealing with the sod farm. It might not be raining at the facility but might be at sod farm. Typical thick cut sod ranges from 1 to 2 inches in depth; most like 1.5 inches if a quick turnaround is necessary.

Cost plays a big factor, due to thicker cut the sod weighs more and the trucks carry less material, so more trucking is necessary which not only increases costs but also increases the chances something might go wrong on delivery. If you have a quick turnaround it makes for a stressful time waiting on trucks.

Your field must be prepared for the thick cut depth, so if you have existing turf you must prep the field so it matches up correctly. We don't want any uneven surfaces. The field must be graded and firm so no rutting occurs during installation. Depending on access to field, plywood must be placed in areas where unloading of sod onto the field is placed to help with damage. Also to help speed up install process, a plywood path is placed on the field to the far end so the forklift can drop sod closer.

Once all sod is installed and you have a quick turnaround, water in the sod with a hose, roll, and mow if necessary.

JAMES GRAFF, GRAFF'S TURF
Fort Morgan, CO

Quality sod covers three major areas for us: strength, density and color. Lacking in any of these areas makes for an unhappy customer and a project no one is proud to have his or her name on.

Re questions, ask about soil, ask about seed, ask about fertility plans, ask about age of turf. The answers don't have to be complicated but there should be answers. Make sure no corners have been cut. You must have a supplier you trust and one that views your relationship as a mutual partnership. You must help each other out to be successful. Listen to each other. Learn the difference between maintaining a playing field and producing a field of turfgrass and respect the differences.

Our best products are in high demand. Our inventory runs tight and making plans far in advance is critical.

Grades are the most critical point. If the grade is solid, level and stable it will be a safe playing surface. The best sod on a poor grade will be difficult to get right. After the turf is down, don't complicate it. Don't turn the field into a science project. And as my dad has always said, "Relax…it's just grass." ST

MOVING FOR NEW JOB: ONE FAMILY'S EXPERIENCE

BY ADAM AND RACHEL THOMS

Rachel, George, & Adam Thoms

Last year was filled with changes for us when in January Adam accepted a new position at Iowa State University as an Assistant Professor of Commercial Turfgrass. Before taking that position, we had to think about many items and decide if it was a good move for us. It is our goal that this article helps those of you that are thinking about a job change, and that some of these topics help make your transition a smoother one.

When thinking about switching jobs, one of the first topics that came to mind was making sure this was a move in the right direction for our family as well as for Adam. We hope that it would be a highly important topic for you, too.

Adam: I had enjoyed working at the University of Tennessee and with the great turfgrass team there, but I also wanted to be able to build my own research program and take it in my own direction. I was also excited the Iowa State position offered so much Extension opportunities with it, so I could increase my interactions with the field mangers. I had been in a heavy research position, so this would be a big change of pace. I think day-to-day work operations are relevant to any field manager looking to make a change. You have to consider whom you will be working with daily, and if you will enjoy working with them. Additionally, you should consider if you will still get to work with the field, or will it be more of a managerial role? Also important for any field manager is how well will you be able to communicate with the coaching staff or staffs. You have to feel comfortable being able to have a conversation, especially explaining what you are doing to the field and why the coaches need to move drills. Try to avoid situations where personalities don't match up well, especially with coaches or superiors, as you will only be making yourself miserable.

In addition to your facility, you should also get a feel for turfgrass management in that state. I contacted several turfgrass managers in Iowa to help me get a feel for what issues they are facing, if there were new management restrictions, and how strong was the network of sports turf managers in Iowa. Every athletic field manager that I contacted, I felt gave good information to prepare me for what I would see in the first year on the job. Your professional network is a great resource to help you through anything that may pop-up while trying to manage your field, because they are probably seeing or have seen the same issues. In my case, the job change also meant I would no longer be working with warm-season turfgrasses and onto cool-season turfgrass management with a new set of weeds. Make sure you know what you are getting into if you are switching turfgrass species or growing conditions.

OTHER BENEFITS AVAILABLE

Do not forget to have negotiations with your future employer about more than just pay. You should try to negotiate for them to be willing to pay for memberships to national and state professional organizations and travel to meetings every year. This is critical to ensure you will not lose that professional network you can lean on when things get tough, and it will allow you to stay updated on the latest information. I have heard others negotiate for vehicles, more vacation, flexible work hours, new equipment, a moving allowance, and even additional staffing. This is your chance to get some things you might struggle with getting later after you have your job, so make the most of it.

Any change of jobs and move is not complete without considering your family. Make sure to research the cost of living, taxes, and where you might want to live in addition to information on your future job. States vary widely on income tax and property taxes, and those can really take a hit on your take-home pay. Also check to see if you would have to get different work-related licenses, or if they would transfer.

We were lucky because Rachel is a nurse so her job is in demand anywhere in the US, but we realize not every career has that flexibility. Having your spouse find a job they are happy with can be just as important. To make things more interesting, 2 weeks after Adam accepted the job at Iowa State, we found out we were having a baby!

For Rachel, it meant finding a new doctor and hospital to deliver in as soon as we moved. This created some stressful days while searching for a doctor.

It also meant selling our previous home and finding a new one in Iowa, both of which were patience-testing experiences, while waiting for others to make up their minds on if they liked our offers or counter-offers. One thing we did to help sell our house was to offer a small financial incentive to the realtor who sold our house. This greatly increased showings of our house after a slow start. Once things were sold/bought we found out that many forms can be filled out electronically, so you don't even need to make a trip back for closing.

We also found having the right realtor can make a world of difference, and they can provide a wealth of information about the new town. Our realtor helped us with where to live, potential taxes, what parts of the town flood, where the town was growing, and what school districts you would be living in. We decided to buy a house because I was familiar with the area, but for many renting is a great option for the few months while they get comfortable with an area. Many realtors can get you out of a lease if you rent from their companies' and buy a home with them when you are ready.

Moving can also present several choices, do you move yourself, or hire a moving company. Make sure in negotiations for your job that you at least work in a moving allowance. You can save money on boxes by looking online, or finding someone else who recently moved to get once-used boxes. Also, keep track of costs for moving such as the cost of boxes, packing supplies, the cost of actually moving, and any nights in a hotel while you are moving for potential tax deductions. If a moving company was for you, keep track of boxes that you bought and packed compared to those that the moving company supplied and packed.

We would also suggest making a list of all of your bills, financial institutions information, insurance, memberships and any other mail you may want to keep receiving before you move so that you can easily update this information once you have a new address. Some bills will arrive late if you rely on the mail service to forward them to you. This will also help you when it is time for tax season and you need to get those annoying tax forms to complete your taxes. A job change may also require a change in health insurance providers, keep track of when one job's coverage expires and the new one starts so you are covered.

We certainly haven't covered everything that might come up, but hopefully this gives you a starting point of items to think about if you are considering a job change. In addition, hopefully some of these things can help make your move a little less stressful. We survived new jobs, a multi-state move, and a baby all in one year. Best of luck to all of you on the growing season, and to anyone considering a change! ST

THE SPORTSTURF INTERVIEW: VICKIE WALLACE

This month in "The SportsTurf *Interview," we meet Vickie Wallace of the University of Connecticut, the Extension Educator responsible for the Sustainable Turf and Landscape Program in the state.*

Vickie recently was elected to the Board of the STMA Foundation, SAFE, The Foundation for Safer Athletic Fields. She is involved with IPM education and outreach programs for landscape professionals and municipal turf and grounds managers. A current focus is directed toward the ongoing installation of weather stations to schools across Connecticut, and subsequent educational outreach of these weather stations into general school grounds and turf care programs. She also is involved with the evaluation of low maintenance turfgrasses and the evaluation and efficacy of minimum risk weed management products. Before joining UConn in 2010, Ms. Wallace worked as an agronomist and sales representative in the turfgrass seed industry.

SportsTurf: *What are you responsible for as an Extension Educator at UConn?*

Wallace: My statewide Extension responsibilities focus on sustainability issues of school/municipal sports turf and grounds managers, as well as lawn and landscape professionals. Much of my programing involves education, centered on the pesticide-free management of safe athletic field surfaces and the care of municipal properties managed with reduced inputs. Programming effort also is directed toward environmentally sound lawn/landscape management protocols that encourage reduced inputs in the long-term care of the managed landscape.

SportsTurf: *How is life different now compared to when you worked in the seed industry?*

Wallace: A lot more report writing! Not fun! Seriously, in my former life as an agronomist and technical representative in the turfgrass seed industry, I was actively involved with developing seed recommendations and evaluating successful seed mixtures. I established a vast network of friends and professional contacts in the turfgrass industry during my years in sales. I was fortunate to be able to work closely with researchers and turfgrass breeders that were developing and evaluating new turfgrass cultivars when the seed industry was at its peak.

Now as an Extension Educator, I am more involved with the planning of educational programs, speaking at conferences, and some Extension-based research. While I am still involved with some turfgrass variety evaluation, I also am involved with other research projects. I continue to enjoy networking with industry friends when I am at conferences or workshops.

SportsTurf: *What do you think is the best approach in trying to educate parents, school boards, etc., on using chemical products safely?*

Wallace: The decision to use or not use pesticides is an emotionally charged issue. Decisions to ban pesticides on athletic fields/outdoor school properties often are made without understanding how pesticide applications may fit into the overall scheme of safe playing fields.

The most logical approach is to educate parents or other stakeholders, with a focus on player safety. Safe playing fields are the priority. It is important to highlight what makes an athletic field safe (uniform playing surfaces, improved soil health, reduced soil compaction to alleviate field hardness), and what will improve the overall health of the turfgrass. Here in Connecticut, we constantly promote and reinforce the value of IPM. Many people who advocate for legislation to restrict pesticide use on school or municipal properties have done so as they improperly trash IPM.

In Connecticut, we also have nutrient legislation that limits the addition of Phosphorus as part of a turfgrass fertility program. Therefore, the use of compost and its impact as part of the overall nutrient management program of a turfgrass system also has been a focus of our school IPM programs.

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

Wallace: Consistently, I hear five topics mentioned: professionalism, communication, staffing, budget and technology.

Sports turf managers must be professional and communicate well at all times whether speaking with administration, supervisors, colleagues, user groups, or town residents. They have to communicate their value and the role that they perform as it relates to turfgrass health, field safety, equipment, maintenance practices, field closures, or other technical issues. The days of sitting on a lawn mower and not interacting with the public or administration are over. The sports turf manager can offer a unique perspective about field care that needs to be included in all decisions that impact field use. Being professional and

communicating effectively creates opportunities to be recognized and be part of the conversation. It is equally important to appear and conduct oneself as a professional while performing any routine task.

Staffing is another huge issue. Often cities/towns cannot hire the appropriate number of people required to manage turf areas correctly or the skill set of those hired is limited. Few have the science background or understand what is required to provide a high quality turfgrass product. The sports turf manager must do as much as he/she can to improve the knowledge base of the staff/crew so that the crew understands how their tasks affect the ability to provide a quality turfgrass surface and/or a safe playing field.

Budget is another obstacle. There is a need to advocate for supplies, equipment, labor, and adequate field use. The sports turf manager must be able to communicate and justify what tools he/she needs for turfgrass maintenance in order to provide safe playing surfaces and meet user group expectations. Record keeping is critical. Here in Connecticut, we saw the majority of the school budgets remain the same or decrease as the pesticide ban went into effect. Pesticides were eliminated from the budget, and seed and fertilizer costs increased. Meanwhile, the labor required to care for the fields dramatically increased. Many sports turf managers with a limited budget are now recognizing that they need to strategically allocate their time, budget, and management strategies. Fields that are either highly visible or most intensely used must be prioritized over other fields.

Advances in technology have provided tools to help communicate and advance the value of the professionals in the industry. Municipal and school managers really need to embrace technology rather than shy away from it. Technology can efficiently support and communicate concerns about field safety. If the sports turf manager is reluctant or challenged to learn and integrate new technology into his/her management program, then he/she needs to hire someone that is familiar with the newer technologies to support his/her efforts.

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

Wallace: Changes in technology have dramatically influenced how sports turf managers can make decisions and communicate about athletic field care. Think of it: we now can easily email pictures to university specialists and technical reps. We have apps that diagnose pest problems, GPS devices that map irrigation heads or help determine the square footage of your fields, access to real-time weather reports, and tools such as water sensors and devices like the Field Scout, which influence irrigation decision-making abilities. There are some really neat tools that can be used to support the turfgrass industry. All of us need to be open to new technological advances and new opportunities.

Also, many look to the Internet for answers first (it provides a quick answer, might be because limited staff, or budgets to attend events are unavailable) but often the information on the Internet is marketed and potentially unvetted. So, a knowledge gap using the Internet as the primary resource for information may also be an issue. With the rapid release of new products, university specialists and extension programs, such as field days, continue to provide unbiased information. Individuals that make the effort to network and attend university events gain perspectives that improve their decision-making abilities. That being said, university faculty also have to use new technology to reach their target audience. We need to think "outside the box" too.

Mandated legislation for changes in pesticide use, nutrient management, and water conservation are greatly affecting the management of athletic fields. The need for sports turf managers to be part of the dialogue is critical, since legislative decisions directly affect how they care for their fields.

The pool of students entering college with a desire to attain turfgrass/plant science degrees is declining. Therefore, fewer students are entering the workforce with a plant science background and the necessary skill set required to be quality sports turf managers.

Increased demands of towns to provide sporting and non-sport related events on athletic fields, and the expectation that those fields be high quality safe playing surfaces, is another obstacle. There is less time for turf to recover from wear between athletic events and other non-sport related events.

Municipal and school managers really need to embrace technology rather than shy away from it

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

Wallace: Changes will continue in the advancement and use of technology that will support turfgrass management and sports turf managers. Changes will be multi-faceted (in-person training, communication to town residents or user groups). Newer technology will continue to be adopted by those turf professionals that manage sports fields.

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

Wallace: Friendships formed, first and foremost, is the thought that first comes to mind. Friendships are renewed each year at the annual conference. I have also benefitted by serving on STMA committees and the STMA board. Networking

Continued on page 47

INTERNATIONAL TURFGRASS RESEARCH CONFERENCE IS NEXT MONTH AT RUTGERS

BY DR. BRUCE CLARKE

The 13th International Turfgrass Research Conference (ITRC) will be held at the Hyatt Regency Hotel in New Brunswick, NJ July 16-21. These meetings are held only once every 4 years. The theme for the International Turfgrass Society (ITS) event is "Meeting the Challenges of a Changing Environment." This theme was chosen for the 2017 conference because it reflects the tremendous impact that the environment has had and continues to have on our personal and professional lives. From the changing climate, to the changing regulatory environment for pesticides and fertilizers, and the rapid technological changes in molecular biology and other aspects of turfgrass science, the environment continues to affect the way we live and conduct turfgrass research.

There will be a special Turfgrass Industry Session July 16 before an opening reception that night with a Mardi Gras theme. The reception is something that the entire family will want to attend and will feature a Dixieland band, jugglers, card tricks, and plenty of Mardi Gras beads. This is an opportunity to socialize and just sit back and enjoy a night of music, drinks and hors d'oeuvres. This will be followed by a week packed with educational and social opportunities that will allow you to re-engage with old friends and network with new acquaintances from all over the world.

KEYNOTE PRESENTATIONS

Keynote addresses will be presented July 17 by internationally renowned scientists focusing on the conference theme, "Meeting the Challenges of a Changing Environment" Dr. Timothy Colmer (University of Western Australia) will discuss "Managing water use by warm-season turfgrasses in a drying climate." Dr. William Meyer (Rutgers University), will present "Breeding improved cool-season turfgrasses for stress tolerance and sustainability in a changing environment." Dr. Jerry Hatfield (National Laboratory for Agriculture and the Environment, Ames, IA) will talk about "Climate impacts on crops and turfgrass: Building effective adaptation strategies." Dr. Christine Hawkes (University of Texas at Austin) will discuss "Can the plant mycobiome serve as a tool for improving grass stress resistance?"

Oral paper sessions will be held July 17-18 and July 20-21. Every effort will be made to limit the number of concurrent sessions. Each oral session will include an invited presentation, as well as volunteered presentations that fit within the session theme/ category.

Posters will be displayed July 17, 18 and 20 and, for the first time at an ITRC, 1-minute, rapid (oral) summaries will be presented by poster authors before each poster session. To entice meeting attendees to meet poster authors and discuss their latest findings, light refreshments and hors d'oeuvres will be provided at each poster session.

A Student Competition will be held to showcase some of the exciting, cutting edge research that students are conducting.

DR. JAMES WATSON CELEBRATION

ITS will host an evening program July 17 highlighting the many contributions of Dr. James Watson, one of early leaders of ITS and a pioneer in the turfgrass industry. Come listen to Dr. James Beard, President and Chief Scientist of the International Sports Turf Institute, Inc., Dr. Paul Rieke, Professor Emeritus, Michigan State University, and others reflect on Dr. Watson's accomplishments and the founding of ITS, and socialize with other attendees at the reception that follows this special event.

The last day of the conference will include oral presentations and a Zoysiagrass Symposium Friday morning, showcasing invited speakers who will give a world-wide perspective on this important and underutilized turfgrass species.

TECHNICAL TOURS

A full day of technical tours is planned for Wednesday, July 19, highlighting the extraordinary range of turf venues in the New Jersey/New York City region. There are six tours from which to choose:

- The United States Golf Association Museum/Testing Facility and Baltusrol Golf Club (the host location for the 2016 PGA Championship).
- The Red Bull Arena, home of the New York Red Bulls Major League Soccer team, and Bayonne Golf Course, called "the most audacious golf course in the world" by *Sports Illustrated* magazine.

■ The Met Life Stadium, home to the National Football League's New York Giants and NY Jets, practice facility and Yankee Stadium (home of the New York Yankees and the New York City Football Club of Major League Soccer).

■ Tuckahoe Sod Farm (one of the largest and most successful sod farms in the USA), and Monmouth Park racetrack, the site of the 2007 Breeders Cup.

■ Central Park, the iconic green space on Manhattan Island, and the American Museum of Natural History/ Hayden Planetarium, one of the world's pre-eminent scientific and cultural institutions renowned for its exhibitions and scientific collections.

■ The Bronx Botanical Gardens, a National Historic Landmark and one of the greatest botanical gardens in the world.

The day will conclude with a cocktail reception, an American-style BBQ, and an opportunity to informally view research plots at the Rutgers Turf Research Facility at Hort Farm 2 in North Brunswick, NJ. Brief, YouTube videos of the research trials will be accessible during the evening via free Internet. Wednesday night's BBQ will have a Beach Party theme and live music, so dress casually and be ready to have a great time under the stars.

OPTIONAL EVENTS

■ Wine and Cheese Tasting, Zimmerli Art Museum, Rutgers University, Tuesday, July 18 (http://www.zimmerlimuseum.rutgers.edu/)

■ Night at Citi Field Major League Baseball Park, New York City, Tuesday, July 18, (http://newyork.mets.mlb.com/nym/ballpark/)

■ Rutgers Turfgrass Breeding Program Tour, Friday, July 21, at the Rutgers Plant Science Research and Extension Farm, Adelphia, NJ (https://turf.rutgers.edu/facilities/adelphia.html). This tour will take place at the end of the ITRC. Come see the largest cool-season breeding program in the world, and hear about the latest advances in turfgrass breeding. Buses will leave from and return to the Hyatt. There is no additional charge for this tour, but pre-registration is required.

A Pre-Conference Tour will take in the sites of Washington, DC and Philadelphia, PA during a 5-day trip that will provide a mix of history, fun, and of course turfgrass. Hotel accommodations will be in close proximity to the Nation's Capitol, the Lincoln Memorial, and a myriad of museums including the Smithsonian in Washington, DC. There will be plenty of time for sightseeing and visits to turf-related venues that will include the newly renovated National Mall, the Grass Roots exhibit at the National Arboretum, the National Botanical Gardens, Congressional Country Club, and Nationals Park (home of the Washington Nationals major league baseball team).

In Philadelphia, participants will visit Lincoln Financial Field, home of the NFL's Philadelphia Eagles, PPL Park, home of the MLS Philadelphia Union, as well the iconic Liberty Bell, Independence Hall, local museums, and Longwood Gardens.

A Post-Conference Tour will be based out of Asheville, NC. Asheville is a city in western North Carolina's Blue Ridge Mountains known for its vibrant arts scene and historic architecture, including the dome-topped Basilica of Saint Lawrence. Participants will stay in the brand new Village Hotel at the world famous Biltmore Estate (America's largest house). The tour will include visits to several top-tier golf courses, as well as plenty of time for sightseeing in the nearby River Arts District. On the last evening, enjoy a Pub Crawl and sample the dizzying array of beer that Asheville offers. What a relaxing way to unwind after the 13th ITRC. Additional details and the cost of both tours are provided on the ITRC website, http://www.turfsociety.com/ itrc2017/?p=home. ST

Dr. Bruce Clarke is ITS President Director, Center for Turfgrass Science, Rutgers University, New Brunswick, NJ.

DR. JAMES B AND HARRIET BEARD—PARTNERS IN AN AMAZING JOURNEY

This photo of Dr. James B and Harriet Beard on this brochure about the MSU endowed graduate fellowship named for them is one of their favorites. PHOTO COURTESY OF THE DR. JAMES B AND HARRIET BEARD COLLECTION.Emerald Valley Turf Nurseries President

BY **SUZ TRUSTY**

Nearly everyone in the turfgrass industry has heard of Dr. James B Beard. A renowned consultant and lecturer and prolific author of books, scientific research papers and technical articles, he's typically referred to as the world's leading authority on turfgrasses and turfgrass science. Dr. Beard is the president and chief scientist of the International Sports Turf Institute, which he founded in 1992, and a professor emeritus of Turfgrass Science at Texas A&M University. He earned an MS in Crop Ecology in 1959 and PhD in Turfgrass Physiology in 1961, both from Purdue University. He held a research-teaching position at Michigan State University from 1961 to 1975. He was awarded a National Science Foundation Post-Doctoral Fellowship at the University of California–Riverside in 1969. He held a research-teaching position at Texas A&M from 1975 to 1992.

Many who know Dr. Jim also know his wife and behind-the-scenes business partner, Harriet. She has assisted in multiple non-paid roles in many University and turfgrass organization outreach efforts, accompanied him on his international travels—and typed every word he's ever written.

FORMING THE PARTNERSHIP

Jim and Harriet Beard can't determine exactly when they met. They grew up on adjacent farms near Bradford, OH but didn't go to school together because the district split between the farms. Their families attended the same church and Jim remembers they participated in confirmation classes and joined the church at the same time, when they were 11 or 12 years old. Harriet says, "I just tell people he had his eye on me at 11."

Their first date was the day Jim graduated from high school. "He took me fishing and practiced his valedictorian speech on me," states Harriet. "I should have known right then what was in store for us." That fall, Jim headed to The Ohio State University. Harriet reports she was not a straight A student so had no opportunity to attend college. She worked in a local bank. Jim was taking an entomology course so their dates when he was home on weekends were spent "collecting butterflies and bugs of all kinds and pinning them to a box." That solidified their status as a

Robert Daymon and Farm Manager Dick Garrell welcome county agents and Michigan State University professors who led the Emerald Valley Field Day tour on July 12, 1967. L to R: Donald D. Juchartz, Wayne County agriculture extension agent, Wayne, MI.; Dick Garrell; Robert Daymon; Dr. James B Beard; Duane Girbach, Livingston County agriculture extension agent, Howell, MI; Dr. K. T. Payne; Dr. Bob Lucas; and Dr. Paul Ricke. PHOTO FROM TPI ARCHIVES.

couple. They got engaged during his freshman year and married during spring break, on March 20, 1955, 62 years ago.

Harriet's dad had died when Jim was a freshman and she and her mom had moved from the farm to a two-bedroom house in town. She says, "I had a good job and knew nearly everyone in our small town. There was no decent place to live in Columbus at Ohio State within our budget, so I stayed put and Jim joined me on weekends and breaks until he graduated, Summa cum laude, in 1957."

Then Jim said, "I'd like to go to graduate school." And Harriet says she responded, "What is that?" Jim reports he'd originally thought he'd get into farming but figured out the only way to do that would have been to marry a wealthy farmer's daughter with 1,000 acres. "I told Harriet that rather than making $4,000 a year at the soil conservation service where I'd worked the past four summers, I could put in another four years of schooling and make $6,000 a year. So we headed for Purdue. My first research-teaching position at MSU in 1961 paid $8,000 a year."

MICHIGAN STATE UNIVERSITY AND ASPA

Jim's position at Michigan State began just prior to the sod production industry "exploding" in Michigan. Most growers had been producing onions and carrots on the organic soils referred to as "muck farms." When sales fell off many switched over to turfgrass sod and needed technical assistance on how to grow it.

Jim says, "Dr. Joe Vargas, Dr. Paul Rieke and I had the first and only sod production research farms at the Rose Lake Experiment Station. Our research on the muck soils there matched the growing conditions of most of the Michigan turfgrass producers. We included a visit there in some of the summer Field Days and started a sod section at the MSU Turf Conference that drew attendees from across the U.S. and Canada."

While Michigan growers were initially shipping their sod to Ohio, Indiana, Pennsylvania and New York state, when competition from other states began, the cost of shipping became a factor. During that time, Jim attended three or four different meetings with organizational attempts orchestrated by Ben Warren. Several smaller regional groups paved the way for ASPA, especially the Sod Growers Association of Mid-America, also spearheaded by Ben Warren. The Nursery Sod Growers Association of Ontario, which was established in 1960, was a great role model and is still going strong. They had

This photo of Dr. James B Beard checking a turfgrass root system made its way to the pages of *Life* magazine, where it was titled, "Headless Turfgrass Researcher at Work." PHOTO COURTESY OF THE DR. JAMES B AND HARRIET BEARD COLLECTION.

developed a marketing strategy based on different quality levels of sod.

"Ben's goal was to get the agreement to form the international organization," says Jim. "Some producers in the East wanted to limit it to a national organization, keeping their Canadian competitors out of it. Finally Ben overcame that opposition. And stiffer competition convinced those that had been guarding what they thought were secrets to realize they could all benefit from sharing information to help grow a better product."

The official establishment of the American Sod Producers Association (ASPA) took place on July 11, 1967, in conjunction with an MSU Turfgrass Field Day. Jim says, "Following their visit to the MSU sod farm, a group gathered in the evening in the MSU animal science building and worked out the key organizational details. Ben Warren, who had been the driving force in all this, sat in the background and I was there beside him. I felt very strongly that if their organization was going to succeed, it had to be established by the sod producers themselves. The academic arm needed to provide research data, technical support and the meeting facilities and opportunities to help them grow."

The following day, those gathered toured two sites, Bob Daymon's Emerald Valley Turf Farm and Daymon Manufacturing Corporation, and Bill Johnsons' operations at Halmick Sod Nursery. Jim says, "We'd been able to set up the tour quickly with the help of local sod producers and several suppliers."

The second year's summer Field Day was held at Rutgers University. It returned to MSU the following year. Jim says, "Dr. Bill Daniels, from Purdue; Dr. Henry Indyk from Rutgers, and Dr. Jim Watson of the Toro Company also were deeply involved during those early days. Henry served as the first executive director." Dr. Beard's "Evolution of Turfgrass Sod" is included in the *History of Turfgrass Producers International*, which was developed for the 40th Anniversary of TPI. Reviewing the decades covered in that publication reveals the depth of assistance Dr. Beard provided. He became TPI's second Honorary Member in 1975. Dr. Indyk was the first in 1973.

Harriet typed the programs for the field days and the research reports. She handled registrations and the sign up for mailings and collected the money for the lunches, working alongside University department personnel. Jim says, "She was the meet and greet person and got to know everyone. Most sod farms are family operations made up of people who work hard to be successful. We made some great friends among those sod producers, most of them the fathers of the generation running the business now, and Harriet was the instigator of inviting folks over for dinner or hors d'oeuvres."

Jim's work with the Michigan Turf Foundation also was supported by Harriet, serving as executive secretary, with no pay. Harriet chimes in with, "I don't get paid now—but I get my share anyhow. When Jim started the International Sports Turf Institute we looked into giving me a salary and determined that only the government would benefit from it. My role has been rewarding in so many more ways than a paycheck."

Jim reports, "A few years ago, I was asked to do a series of half-day lectures including one covering the old sod production research we did on that original MSU sod farm. Sod strength and transplant rooting were new concepts. We were faced with establishing the criteria for both and developing the measurement techniques for them.

"We were the first to research the heating of sod during shipping. Dr. John King did that research for his PhD. A sod farm would ship out three to five trailer loads of sod per day to a Pennsylvania site and would haul back steel. They could market to that distance rather inexpensively when they had a load both ways and it worked well for all involved. John would ride in a truck all night and get out at intervals to take compression measures and measure the heat, trying to figure out all the problems."

Dr. Beard states the original net sod production took place on the research farm. "Dr. Brian Mercer from England developed the extrusion process that developed the mesh netting in a continuous flow. It was much cheaper to produce than the earlier bonding method and could be set up for different thicknesses," says Jim. "He had read some of my research and showed up at my MSU office looking for Dr. Beard. He was surprised to find someone so young, but funded the research anyway. His netting was used at the Tokyo airport to reduce wear on the runway; in olive harvesting to keep the olives off the ground while separating them from the leaves; and in deserts as vertical windbreaks to cut down blowing sand around watering holes. We found we could seed Kentucky bluegrass into that netting and it would hold together in ten days."

Mercer's father or grandfather had invented mercerized cloth. Jim says, "Brian had the same type of mind, continually developing ideas and marketing them. He became a very good friend and one of our more wealthy connections."

When Jim joined the faculty of Texas A&M in 1975, Doug Fender was executive director of TPI and doing a great job of leadership in the water battle. Jim continued to be supportive of TPI and its initiatives, now with the opportunity to repeat much of the same research he had conducted, but this time on warm-season grasses. "That gave me the background to write the different books and the experience to work with turfgrass groups in all climate zones around the world."

It took longer for him to get the industry to use the term turfgrass, instead of grass or turf, Harriet reports, "Grass was something that many would smoke. Turf was related more to horseracing than the other usages. Turfgrass is more specific. Later, after the industry started using turfgrass, the artificial turf people latched onto the word turf. Now we need to say turfgrass or natural grass to differentiate it from artificial."

CONSULTING WORLDWIDE

Jim and Harriet have had many unique experiences linked to his international consulting. Generally, Harriet is a silent partner during the meetings she attends, but there are exceptions.

Jim was working with golf courses for the Italian Golf Federation in Rome, Italy, when their primary contact received a phone call from those in charge of the newly renovated stadium in Milan that was to be dedicated at the start of the final World Cup game in 1990. Jim says, "They were having extreme problems with the turfgrass. My contact told them, 'I have Dr. Beard here and can get him up there tomorrow.' I didn't want to go just to get my name associated with a disaster, but the next day Harriet and I were on the high-speed train from Rome to Milan. We went to the stadium and found they had killed off all the turfgrass by accident in December and the new seed was about ½-to-1-inch tall. We adjourned to the conference room with about 16 professors and groundskeepers and city officials around the table with me. Harriet was sitting over in a corner. They explained they had a subirrigation system but the ground was frozen so they couldn't get water to the surface where the turfgrass also was frozen. Then they said, 'We had to do something, so we rolled it.' Harriet moaned and all of them looked over at her."

They have been to Japan many times and report the Japanese are always gracious people. Harriet says, "It's customary to take gifts and I'd often take something unique from Texas. One year we'd spent the summer in Michigan. People suggested taking cigarettes, but I don't approve of smoking. We had grown a huge crop of zucchini so I took zucchini bread. It was like taking gold; everyone loved it and told me they hoped I would bring some again next time. That was my gift for a couple years."

Jim reports Harriet was sometimes "illegal cargo" in Japan as women were not allowed in lots of places. "We had dinner one night with a very revered person and his wife and asked his permission for Harriet to accompany me to an exclusive, male-only club in downtown Tokyo. He said no. When we arrived the next day, they separated us and took Harriet away as we had expected. But instead of entertaining her at a different location, they took her up in the freight elevator and rushed her down the hall to the dining room to join me. Apparently our contact's wife had said yes to our request."

Sorting through so many wonderful memories, brought back another favorite, a trip to South Africa Jim had to persuade Harriet to make. He had gone ahead for a couple weeks of lecturing. "So I took off by myself to join him," says Harriet. "Once the plane landed in Ghana, people in uniform boarded, brandishing their guns. We all just sat there and waited until

Dr. James B Beard at the TPI Conference in 2008 at the Caribe Royale Orlando.
PHOTO FROM TPI ARCHIVES.

they finally got off. Jim picked me up and drove us to and through Kruger National Park. It was a strange feeling. We were caged in a little Volkswagen, about one-quarter the size of the elephants we saw there and the animals were roaming free in their native habitat. We viewed wildebeests, black sable antelope, boa constrictors and herds of graceful and beautiful loping giraffes. We even saw a cheetah, but not one lion, even through there are 3,000 of them in the park."

THE JAMES B BEARD TURFGRASS LIBRARY COLLECTION

In the following press release, Michigan State University's Turfgrass Information Center (TIC) and the MSU Libraries announced the donation of Harriet and Dr. James B Beard's collection of turfgrass research materials, valued at $2.2 million. Dedicated in July 2003, The James B Beard Turfgrass Library Collection "is generally acknowledged to be the finest personal compilation of turf-related material in existence. It includes international coverage of the turfgrass research and management literature, including books, periodicals, and technical reports.

The Beard Collection serves as a non-circulating reference collection within the Turfgrass Information Center in the Main Library. This generous donation is the latest effort by Harriet and Dr. James B Beard in support of the Center's work and objectives, including the TIC Endowment.

It was under the direction of Dr. Beard, and then–Library Director, Dr. Richard Chapin, that the MSU Libraries began to systematically collect printed turfgrass materials in the 1960s. In 1968, the personal collection of the late O. J. Noer, a pioneer turf agronomist, was added to the holdings through the O. J. Noer Foundation.

The arrival of the Beard Collection makes MSU the strongest public repository of turfgrass literature in the world. Eventually, the Turfgrass Information File (TGIF) database will provide article-level access to all items within the Collections. TGIF, an online database jointly sponsored with the United States Golf Association (USGA), is produced and hosted by the MSU Libraries.

The MSU press release continues with this notation, "Beard's classic, *Turfgrass: Science and Culture*, published in 1973 and still in print, continues as the only true treatise ever written regarding turfgrass science. It remains the best-selling reference work in the field. Much of the book was written within the walls of the MSU Main Library. His *Turf Management for Golf Courses* was first released in 1982 and revised in 2002."

James B Beard, along with co-authors Harriet J. Beard and son James C Beard, were selected as the 2015 recipients of the Association of College and Research Libraries (ACRL) Science and Technology Section (STS) Oberly Award for Bibliography in the Agricultural or Natural Sciences for *Turfgrass History and Literature*: Lawns, Sports, and Golf. This biennial award is given in odd-numbered years for the best English-language bibliography in the field of agriculture or a related science.

Turfgrass History and Literature contains an extensive history of turfgrass research and the development of turfgrass as an important agricultural product. In addition, the book contains an extensive annotated bibliography of the literature of turfgrass, including many international publications. The bibliography entries are arranged by author, and there is a brief biography of each author.

Among his nine books already in print is a previous Oberly Award winner, Turfgrass Bibliography from 1672 to 1972, which he edited along with Harriet and David P. Martin.

Jim and Harriet currently are working on the tenth book, the history of the turf and soils of St. Andrews, the world-renowned golf course in Scotland. Jim says, "It's strictly history rather than science based as all the other books have been. St. Andrews' records go back to 1750. I was the first person to be given access to the greens committee minutes that I'm using to try to determine why they did what they did when they did it.

"One string of entries in those minutes covers correspondence between the spokesperson for a group of ladies and the chairman of the greens committee. The ladies wanted to play some golf and started using the caddies' putting green on some abandoned land. That made the caddies unhappy, creating a difficult situation. So the ladies sent a letter to the greens committee requesting a date to play the old championship course. The chairman responded with sorry no opening—expressed in precise and proper language, of course. The women kept pursuing it and getting the same response. Finally, the chairman wrote back, we do have a date available, December 24."

HONORS AND AWARDS

Honors and awards always are meaningful and perhaps even more so in the academic arena. Turfgrass scientists know what they've done and what others have done, and the level of study, research and plain old hard work it takes to reach those achievements.

Dr. Beard received the 2014 Crop Science Society of America

(CSSA) Presidential Award, its highest honor, "given to persons who have influenced the science or practice of crop production so greatly that the impact of their efforts will be enduring on future science." He also has been the recipient of CSSA's Turfgrass Science Award and its Crop Science Research Award.

Dr. Beard was the first president of the International Turfgrass Society (ITS). Harriet says, "Jim also was the first full-time turfgrass specialist elected president of the CSSA." Jim adds, "A former student of mine, Dr. Bob Shearman, University of Nebraska, was the second, about ten years after me." Dr. Beard has served on the Board of Directors of ITS, CSSA, the American Society of Agronomy (ASA), and CAST: The Science Source for Food, Agricultural and Environmental Issues, and has been honored as a Fellow of CSSA, ASA, and AAAS. He has also served on many national committees.

Jim says, "The awards are humbling and much appreciated. Sometimes they are a complete surprise, such as the honorary Doctor of Agriculture degree from Purdue University. Usually when you're nominated for something like that it's a very thorough process with four of five inches of documents that they review. The first I heard about the Purdue honorary degree was the contact telling me I would be receiving it."

Sod producers stepped up to the challenge on water issues ten years ago when no one was listening, Jim reports. "Doug Fender, representing TPI and TLI, took a stand with *Water Right—Conserving Our Water, Preserving Our Environment*." A statement in that publication, declared TPI recognizes "both the global need to use water efficiently and the benefits of public and private green spaces." TPI continues to play a leading role in education and promotion of that reality.

"For a long time I was the only turfgrass specialist doing research on water use and conservation," says Jim. "Now it's incorporated into most turfgrass research programs, and we're beginning to reap the benefits from it. That research will need to continue to meet the challenges of weather issues, population growth, governmental restrictions and environmental activist attacks."

Activists typically take the single-issue approach, notes Harriet. "They generally don't consider research or don't care about it and have little concern for the results of their actions besides eliminating something they don't like. You need a knowledgeable person with a broad perspective to analyze the impact of actions that exclude certain things from the use of society."

Jim adds, "Turfgrass is the prime target because it's not a necessity, such as food and fiber, and it has less governmental and organizational support—and less aesthetic appeal to the general public—than flowers or trees. It's the weakest of the links, so that's where activists start their attack. Along with water, attack points will continue to include fertilizer, pesticides, native versus non-native plant species, noise, emissions, and maintenance expense."

Another major challenge for natural turfgrass is artificial turf. "The financial selling points of artificial turf don't reflect the actual maintenance and replacement costs," says Jim. "To date, crumb rubber research has been more focused on single issues than the multiplicity of potential problems related to toxicity, exposure and disease."

Jim says, "The most fulfilling moments are the successes of my students, both undergrad and grad, American and foreign. We keep in contact with a lot of them, in North America and overseas. Some are turfgrass specialists very successful in their research efforts; quite a few have become department heads, too; and some are deans at their universities."

Both are grateful to have been blessed with a wonderful family and the opportunity to work and travel together. Harriet says, "Jim has been able to focus on work he loves and make significant contributions to the turfgrass industry. We've met fantastic people from all around the world and many of them have become great friends." Jim adds, "I appreciate Harriet's role in our partnership even more than she realizes. We've had an amazing journey, so much more than either of us imagined, and are eager for the next adventure." ST

Suz Trusty is co-editor of Turf News. *This article originally appeared in their March/April 2017 issue.*

John Mascaro's Photo Quiz

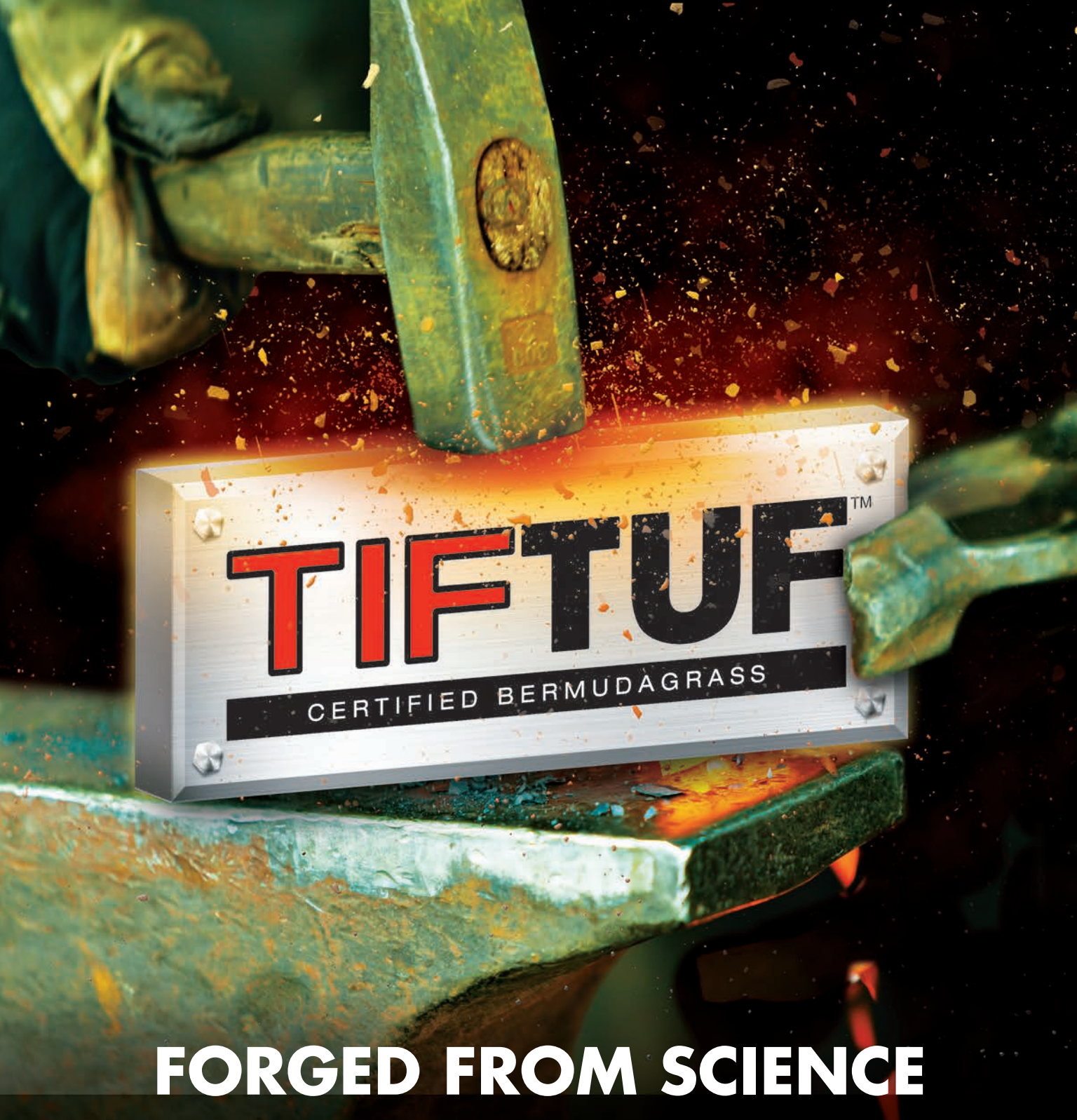
Answers from page 17

John Mascaro is President of Turf-Tec International

This high school multipurpose field in Colorado is a natural grass turf reinforced with artificial fibers. In this part of the country, wild Canadian geese tend to flock to this area from December to March. Even though the turf system works well for wear, for some unknown reason the geese also love to congregate on this type of field. The Sports Turf Manager is unsure if it's because they like the sand that was used in the seedbed or if they are after the grass roots in this hybrid turf system. With large amounts of geese feeding, also comes large amounts of goose droppings. When I visited this field on the 2015 STMA Tour on Wheels, the field had received a full winters worth of goose poop. The Sports Turf Manager had taken out the steel drag shown in the photo in order to break up the dropping and then blow them off the field for our tour group. However, recent snow melt caused additional moisture on the turf, making the drag mat look like this and the goose dropping removal process unsuccessful. The following year the facility purchased a turf sweeper, which does a much more effective job in cleaning up the goose droppings. As far as trying to deter the geese from congregating on the field the Sports Turf Manager has tried using a wooden coyote cutout and sprayed the field with an agent supposed to deter geese, but neither worked.

Thanks to Christopher Gray, Sports Stadium Manager at Jeffco Athletics in Lakewood Colorado for allowing me to take these photos.

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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Category of Submission: College **Baseball** and College **Softball**
Sports Turf Manager: Rob Galdieri
Title: Sports Turf Manager
Education: Bachelor of Science, Agronomy and Environmental Science, Delaware Valley (PA) College, 2009
Experience: After working three summers at a local golf course, in 2007, I was hired as a grounds crewmember at PNC Field in Moosic, PA, home of the New York Yankees AAA affiliate. Upon receiving my degree in Turf Management, I was offered a full time position at PNC Field to become the assistant groundskeeper. I worked with the club for six full seasons as assistant, and 8 years total. In that time, I gained first-hand experience with all aspects of maintaining a professional quality, sand-based playing surface. I also supervised a crew of 4-6 seasonal employees and was able to fill in for the head sports turf manager whenever needed. In September 2014, I was hired in my current position as sports turf manager at Marywood University in Scranton, PA.

Marywood is a Division 3 institution and competes in the Colonial States Athletic Conference. I am solely responsible for the maintenance of our three natural grass playing surfaces (baseball, softball, and soccer/lacrosse/field hockey) as well as our synthetic turf field. The natural grass fields total 5 acres. I am also responsible for maintenance of the areas immediately around the fields, including trash removal. It can be daunting at times to provide the quality surfaces that I desire since I have no crew, but it also makes me very proud to see how far the fields have come since my arrival.
Full-time staff: None
Part-time: The baseball team members assist with batting practice set up and breakdown. I occasionally use the help of the softball team and coaches to apply and remove the field tarp. Other than that, there are no volunteers at Pacer Field.
Original construction: 1996
Rootzone: Native clay
Turfgrass variety: Baseball: Kentucky bluegrass, perennial ryegrass, *Poa annua*. **Softball:** Kentucky bluegrass, turf-type tall fescue, perennial rye, *Poa annua*.
Drainage: No system

WHY STMA SHOULD CONSIDER YOUR FIELD A WINNER FOR BASEBALL?

I believe STMA should consider Pacer Field a winner because it has come a very long way in the 2 years since my arrival, and has become well known locally and regionally as a well maintained playing surface.

Upon my arrival in September 2014, Pacer Field was in great need of help. The turf had gone dormant from lack of water and nutrients, it was covered in weeds and disease, and dangerous lips had formed at all grass-dirt interfaces.

My most immediate goal was to return the field to a healthy state. I developed a sound agronomic program that included proper fertilization, irrigation, and an aggressive verticutting/core aeration schedule. Then, I focused attention on the safety/playability concerns of the surface. I removed all built up lips, resurfaced the pitcher's mound and home plate, built brand new on-field double bullpens for each team and corrected the poor warning track grade.

Bringing Pacer Field back to life has not been an easy endeavor. To begin, I am responsible for 5 acres of natural playing surfaces and I do not have a staff or assistant. I am also limited in budget allowance and equipment. I am given a total budget of $22,000 to care for all four fields at Marywood.

To make things more difficult, this particular field also does not have an automatic irrigation system or internal drainage. In order to properly irrigate, I must use an automatic reeling water wheel and two 360 degree stationary sprinklers, which I have to move 10-15 times. The entire process takes 8 hours. You can imagine how time consuming it can be during periods of drought just to simply keep the field alive.

The weather has been constantly extreme since my arrival. A historically cold winter of '14-'15 was followed by intense heat in summer 2015. An unbelievably mild winter of '15-'16 was followed by the #4 hottest summer in Scranton history. 104 days reached above 80 degrees this year, which set a new record. Also, Pacer Field received 12" of rain in a 30-day period from 7/25/16-8/24/16. With saturated soil temps above 80 for much of the summer, disease pressure was through the roof.

Despite the many challenges I've faced, I am proud to say that Pacer Field is always in the best shape possible for each practice and game. I am thrilled when I receive compliments from players, coaches and parents. Our student-athletes invest a great deal of money to enroll here, and it is always my goal to provide them with a playing surface they can take pride in.

WHY STMA SHOULD CONSIDER YOUR FIELD A WINNER FOR SOFTBALL?

I believe Pacer Field should be considered as the STMA Softball FOY because it has become the premier softball facility, locally and regionally, in the two years that I have been caring for it.

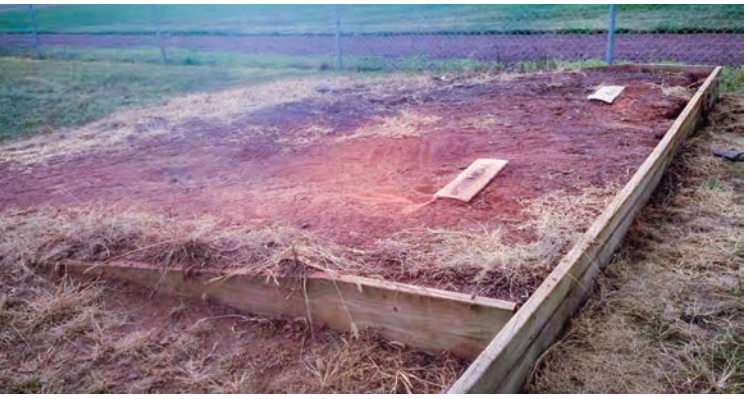
Upon my arrival in September 2014, the field had slipped into dormancy from a lack of water and nutrients. Lips several inches in height had built up at all dirt-grass interfaces. The infield skin grade was poor and there were no bullpen facilities. In short, it was a field that needed plenty of attention.

Much of the repair work occurred in 2015 and continued into this year. The first goal was to return the turf to a healthy state. This meant planning a sound nutrient program and making sure the field never slipped into dormancy from drought. Unfortunately, this field does not have an automatic irrigation system. In order to properly irrigate, I use a 360 degree stationary sprinkler, fed from a 1" hose, which I must move approximately 10-15 times to cover the entire field. This process takes about 6-8 hours. You can imagine how time consuming it can be to keep the grass irrigated and mowed while also caring for two other fields, with no staff to assist me.

The weather has been nothing short of extreme during my time here. Summer 2016 ranked as Scranton's fourth hottest. 104 days reached 80 or above, a new record, and 90 degrees was reached 20 times. This followed a record-setting warm winter. Summer 2015 was similarly hot. Keeping the turf stress-free has been a constant challenge. A preventative fungicide schedule and routine core aeration have been crucial in saving the grass from decline.

Another area that needed attention was lip removal and proper grading of the skin. The lips were removed shortly after my arrival with a sod cutter, but I wasn't able to laser grade the skin until my budget allowed. This occurred in August 2016. 50 tons of material were added, tilled and graded by an outside contractor. I spent approximately 25% of budget, which covers all the fields, on this project alone. This has greatly increased the playability and aesthetics of the infield surface, which is so crucial in softball.

I installed two bullpen areas, one for each team, in the fall of 2015. They are standard 16' radius circles with in-ground plates



and rubbers. Although this wasn't a major renovation, finally having a proper warm-up area was crucial to the legitimacy of the facility.

I am very proud of the turnaround that has occurred at Pacer Field. In 2014, several home games had to be moved to local rec fields due to unplayable conditions. This was obviously unacceptable for a D-3 institution. Since then, the field has opened earlier in the playing year than ever before. We hosted four Pennsylvania state high school playoff games this season with more planned in the future. It has been a long process bringing the field back to life, and the weather has certainly been difficult, but Pacer Field has established itself locally as a premier softball playing surface. Winning the STMA FOY award will establish its name nationally.

SportsTurf*: A lot of extra effort expended to win two Field of the Year Awards in the same year? How did you do it?*
Galdieri: The key to my having won Field of the Year in both baseball and softball is that I try to implement maintenance plans that are as identical as possible between the two fields. Both surfaces are fairly similar in physical composition, so it makes sense to treat them as basically one field. My fertilization/pesticide applications and cultural programs are usually carried out at the same time and at the same rates. It can be difficult to maintain this approach during the playing seasons, but much of the prep work occurs during the off-season. In 2016, I laser graded the softball infield. I plan to do the same at baseball this year. I've had to split up lasering the fields in order to stay within budget. I make sure to pay equal attention to all the fields I manage.

ST*: What attracted you to a career in sports turf management?*
Galdieri: I became attracted to the sports turf industry in probably the same way most other people do. I grew up involved in football and baseball, which I played through college. I've just always been interested in sports. When I was very young, I remember playing wiffleball in my grandparent's blacktop driveway and putting down the white chalk lines and batter's boxes and sweeping them away afterwards. I don't think too many 5 year olds do that. Later on, I found out that I actually enjoyed mowing the lawn as a kid. I also remember reading an article in a magazine about how to make a roller for your mower so that you could stripe your yard in a checkerboard pattern like on a major league field. Then I found out that you could major in turf management, so I enrolled at Delaware Valley College in 2005. It just kind of all made sense.

ST*: What are your biggest challenges in providing excellent playing surfaces? And how do you approach those challenges?*
Galdieri: Weather is by far the biggest challenge I face on a daily basis. I know most turf managers would probably say the same thing, but in this part of the country, we face extremes on every level. In 2016 alone, our temperature range was -8 to 97. We had 21 days over 90 degrees. We received over 1' of rain in a 30-day period in the summer. We had only 6" in the three months prior. Also, the main playing season occurs in early March through May. This year, we had a blizzard with almost 30" of snow one week before our first scheduled games. We essentially have to cram an entire home schedule into the most volatile months of the year, with no drainage systems to help. The way I address these challenges is by trying to stay a step ahead of the weather by watching radars/models and reading the National Weather Service forecasts. I have three radar apps

on my phone and several forecast pages bookmarked. Lacking automatic irrigation and a staff to help me, I have to plan my schedule a week ahead based on the weather. I'm rarely caught off guard by the weather from February to November.

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

Galdieri: Aside from laser grading the baseball infield and raising up the warning tracks, I really don't have any major changes planned for 2017. I will continue an aggressive core aerification schedule to try and improve drainage. I'm also looking to add a few more pieces of equipment to increase my productivity.

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

Galdieri: The greatest pleasure I receive at this job is seeing how thankful everyone at Marywood is for the work I do. Coaches, student-athletes and the administration are always quick to compliment the field conditions and show gratitude even for the little things. This is something I never take for granted because I know that isn't always the case in this industry. It's always easier to gripe than to be thankful and the people at Marywood really make me feel fortunate to work here. The biggest headache is just trying to find the time to get everything done, in the best quality possible, with no staff, and on a tight schedule. I probably spend a quarter of my week just mowing the fields, so you can imagine how hard it is to find time to work on the little details that make a field standout.

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

Galdieri: I don't know if there's one specific piece of advice that stands out, but finding something to improve upon each day is what I try to do. Also, the turf managers I have worked for, especially Steve Horne, have been very honest about the demands of the industry. No one promised weekends off or a big salary. I was always told to avoid complacency and sacrificing quality for the easy way out.

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

Galdieri: The only work-related social media I'm involved in is Twitter. Every now and then I'll post some pictures of what's going on, good and bad. It's a good way to show the student-athletes that their tuition money is being put to use. Plus, it's interesting to see what other managers are doing at their facilities and what problems they're dealing with.

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

Galdieri: It's very obvious that sports turf managers are going to continue to see their workloads and expectations increase. The higher expectations are even starting to make their way down to the high school level as people place more emphasis than ever before on safe playing conditions. Unfortunately, everyone wants the safest and best conditions and the budgets and field usage demands don't always reflect that. You see that at all levels of the industry, even professionally. It's up to each manager to balance safety/aesthetics and the demands that are put on us and it's up to the end users to understand how difficult the job is. You basically need to be a weatherman, farmer and a good communicator all in one. I hope that sports turf managers can close the gap, compensation wise, on the golf course industry. The time and skill requirements demand it. ST

TURF SCIENCE

MICROBES MATTER: REWRITING THE PLAYBOOK ON TURF HEALTH

Rightfully so, sports turf managers take great pride in their work. Creating a durable, healthy, beautiful playing field takes tremendous effort and a sophisticated understanding of the interactions of biology, chemistry, weather and exceptionally well—muscled men and women.

Still, one of the most overlooked elements in turf health and appearance are the microbial populations in the soil. Microbes are bacteria and other organisms that live in the soil and help create consistent, even growth, disease and pest resistance, and improved water retention. There are a variety of factors that determine the quantity and type of microbial populations in the soil. Moisture, pH levels and most importantly, temperature all affect how these organisms will be working for you.

Beneficial microbes exist naturally in the soil, but turf managers can increase their populations, and thus the health of the turf, by selecting a high—quality composted fertilizer. Healthy Grow Professional fertilizers are made using a unique aerobic composting process that creates the ideal environment for beneficial microbes to flourish. The litter from healthy, egg—laying chickens is mixed with organic materials and left to air—dry and breakdown at an indoor composting facility. The mixture is then carefully turned to ensure complete aeration, which is vital to promoting vital microbial growth.

SO WHAT EXACTLY ARE THESE MICROBES DOING?

Microbes increase root growth in the rhizosphere, an area of the soil that surrounds the root and is populated by a variety of microorganisms. When the rhizosphere contains the right mix of microbes and soil nutrients, something special happens. The roots provide carbon, which nourishes the microbes. In turn, the microbes "fix" the nitrogen in the soil, converting it to a form that can be absorbed by the roots.

Stimulating microbial growth is also an effective way to control pests. The beneficial microbes that dwell in the rhizosphere cause disease to harmful insects, invertebrates and bacteria that damage the turf. Microbes can be a turf manager's best friend when it comes to controlling pests without the use of costly chemical applications; the result is a naturally more robust and resilient turf.

Healthy Grow Professional is manufactured on—site at Pearl Valley Farms, one of the nation's largest fully sustainable egg farms and home to over one million egg—laying chickens. During the process of raising the chickens, the company founder realized that poultry manure makes some of the highest quality, lowest odor organic fertilizer available.

The proprietary, indoor composting process takes up to 10 times longer than traditional commercial composted fertilizer. Most companies artificially heat their compost, which allows them to make it faster, but also kills most or all of the beneficial microbes, negating many of its core benefits.

In addition to the beneficial microbes, aerobically composted chicken manure fertilizer is rich in humates, carbohydrates and trace materials, which naturally enhances any soil type and promotes turf quality. Plus, because it's completely organic, it won't burn the turf and the slow releasing nitrogen reduces fluctuations in turf appearance.

Backed by university research and available in nine varieties, Healthy Grow Pro works great with all soil types and can be used during aeration, sod repairs, topdressing worn areas and most other stages of turf development and maintenance.

GO TO THE SOURCE

Most fertilizer providers do not manufacture the products they sell and have little control over material quality, consistency and content. When you buy directly from the producer, you cut out the middleman and take control of the product of the product you receive. At Healthy Grow Professional, composted fertilizer is all we do. We make it, we sell it and we even feed our chickens corn that was grown with it.

—Jeff Leuzinger, Sales Manager, Healthy Grow Professional

TORO WORKMAN GTX UTILITY VEHICLES

The new Toro Workman GTX utility vehicle is one of the most versatile grounds and turf crossover vehicles in its class. Equipment managers are able to select from several models to match the right vehicle to their specific needs. Among these options are four- and two-seat configurations, a variety of front and rear attachments for garbage cans, hose reels or walk spreaders, and a number of flatbed options. An automotive-grade rack and pinion steering system provides control and coil-over shocks surround the vehicle for a smooth ride. The Workman GTX comes with low maintenance hydraulic disc brakes that require no cable adjustment and less pedal force for a reliable stop every time. This practical and comfortable vehicle comes with either the 429 cc gasoline or 48-volt A/C electric model. At just 47 inches (119 cm) wide, its narrow frame also allows access for working in tight areas.

PORTABLE BLEACHER SHADES

Teams and spectators alike can enjoy a cooler place to sit and watch the game with Portable Bleacher Shades from Shade 'N Net. This curved shade design blocks 98% of harmful UV rays overhead and from behind simultaneously while lowering the temperature underneath by up to 20+ degrees. Bleacher seat helps players recuperate and an upper shelf keeps cold drinks and equipment off the ground. Perfect for single- or multi-use playing fields, the wheels hold the weight of the entire team at once and allow the structure to easily be pushed by hand across grass, dirt, or gravel. Use the foldaway hitch to pull longer distances with a tractor, mower or golf cart. Endless color combinations to show team spirit and an extensive warranty backed by a company with over 21 years experience building over 70,000 shade structures. Increase revenues by renting out your Portable Bleacher Shades!

Shade 'N Net

PROTECT FLUIDS DURING TRANSPORTATION

Briggs & Stratton Commercial Power developed and patented the Vanguard TransportGuard engine feature to prevent damage caused by oil and fuel dilution during transportation. The innovation effectively reduces maintenance and increases productivity. TransportGuard's simultaneous fuel/ignition shutoff ensures that fuel stays in place during transport, preventing fouled plugs, hydraulic lock, oil dilution and other costly problems. In as little as 30 minutes, as much as 5 ounces of fuel can flow into an engine during transport due to jostling. This causes oil dilution, a costly problem that increases downtime and maintenance expenses. It only takes a few ounces of fuel to dilute the oil and reduce its viscosity, which leads to more friction, increased wear and a shorter engine life. Fuel leakage can also foul plugs, create varnish, erode parts and saturate filters.

Briggs & Stratton

HUSTLER TURF EQUIPMENT ENTERS UTILITY VEHICLE MARKET

Hustler Turf Equipment announced its Maximum Duty Vehicle (MDV) is available for purchase. The MDV signifies the company's first entry into the utility vehicle or side-by-side category. Designed for heavy-duty applications, the MDV features LeveLift, a patented, labor-saving cargo box that allows users to lift up to 750 pounds from the ground and dump material from any point in its arc of motion. The Hustler MDV saves time, by turning a two- or three-person job into a one-person job, freeing up people to focus on other tasks. With a simple flip of a switch, the LeveLift brings the cargo box up, back, and down, enabling loading at ground level or at any point. Once loaded, the LeveLift brings the cargo box back up and into position on the MDV. With minimum time and effort, the cargo is loaded and on its way.

Hustler Turf Equipment

RECOGNIZING OUR MEMBERS

Before the ubiquitous Internet, those who attained a college degree or followed a specific training program automatically joined their profession's association. Membership in an organization was the only way to connect with your peers. As resources, information and interaction with like-minded professionals became easily attainable electronically, many associations suffered a decline in membership.

Not so with STMA! Although STMA has not grown by leaps and bounds, it has maintained a steady membership with incremental growth. For that we are exceedingly grateful to you, our members.

Members tell us, colloquially and through surveys, that the primary reason they join STMA is for the networking, followed by access to information and resources.

Thus, we salute all of you for your commitment to improving your knowledge base through continuous learning from your peers and from STMA's offerings.

Do you know sports turf managers who should be members? Encourage them to join, and remember first time members receive a complimentary conference registration. You, as the person who referred them, will receive $100 credit per referral to use on STMA services, such as membership renewal and conference registration fees.

If you believe your service year is in error, please contact STMA headquarters, STMAinfo@STMA.org or 800-323-3875

35 YEARS
1982, the #1 movie was "ET: The Extra-Terrestrial"

John Fik CSFM, CGM
Harold Howard Ph.D
Paul Zwaska

30 YEARS
1987, the #1 movie was "Three Men and a Baby"

Ken Mrock
Greg Petry
Jim Puhalla
Marc Van Landuyt

25 YEARS
1992, the #1 movie was "Aladdin"

Michael Boekholder
Darin Budak CSFM, CPRE
James Cornelius CSFM
Mike Hebrard
David Pinsonneault CSFM, CPRP
John Pridgen
Robert Schneider

20 YEARS
1997, the #1 movie was "Titanic"

James Betts
Brian Blount
Roger Bossard
Robert Bradway
Chris Brindley
Raul Bueno
Rick Capecelatro
James Chianos
Michael Cline
Scott Dobbins CSFM
Dan Douglas
Allen Dressler
Donald Fowler
Dell Haverland
James Hlavaty CSFM
Austin Lanzarone
Jeff Limburg
Robert Martin
David Mellor
John Newell
James Rodgers CSFM
John Schmidgall
Clif Spangler
Dave Tuchek
James Vickerson
Phil Whitehouse
David Yarbrough

TOP 3 BENEFITS OF MEMBERSHIP:

NETWORKING. A group of peers who are willing to share their best practices.

CONTINUING EDUCATION OPPORTUNITIES. Education that is timely, relevant and cost effective to help you do your job better.

EASILY ACCESSIBLE INFORMATION. Quickly find resources to help you save time.

15 YEARS

(2002, the #1 movie was "Spider-Man")

Ken Curry
Dave Anderson
Pat Berger CGCS
TJ Brewer CSFM
Ted Broyles
Scott Burt
Chris Casper
Eddie Chittom
Sean Connell
Greg Curtis
Mike Davis
Joel Eaton
Gregg Engle
Jess Evans
Jim Fox
Thomas Garner CSFM
Bill Gillan
Steve Gnall
Andrew Gossel
Mark Grigg
John Hall III Ph.D.
Robert Harding
Bo Henley
Thomas Hertzel
Blake Hoerr
Fred Hoge
Andrew Hoiberg Ph.D.
Ron Hostick CSFM, CGM
Greg Johnson
Erin Kiney
Josh Klute
James Koontz
Joe Kovolyan CSFM/ ISA Arborist
Frank Lasasso
Timothy Legare CSFM, CPRP, CPSI
Allen Lowrey
Nick McKenna CSFM
Timothy McLarn
Christopher McNairy
Cheryl Miller
David Millet Jr.
Paul Miskimen
Carlos Moncada
David Mooney
Eddie Moore
Kevin Moore
Marc Moran CSFM
David Moxley
Ed O'Hara
Denise Onstad
Rick Perruzzi CSFM, CPRP
Dennis Pieretti
Jesse Pritchard CSFM
Shawn Ray
Bart Richards
Byron Riesen
Sun Roesslein CSFM
Casey Scheidel CSFM
Blake Siler
Jimmy Simpson CSFM
Kim Spearman
Joey Stevenson
Bruce Suddeth
Paul Syracuse
Peter Thibeault CSFM
Walter Tucker
John Walton
Clint Waltz Ph.D.
David Yarbrough

10 YEARS

(2007, the #1 movie was "Spider-Man 3")

Craig Schlender
Connor Schutzman CSFM
John Sears
Neal Sitzman
Michael Skelton
Paula Sliefert
Jim Speelman CSFM
Chris Stilley
Chase Straw
John Turnbull
Brad Wallace
Chris Walsh
Michael Watson
Keith Winter
Derek York CSFM
Donald Young
Shane Young CSFM
Scott Zeiler

SportsTurf MANAGERS ASSOCIATION

5 YEARS

(2012, the #1 movie was "Marvel's The Avengers")

Glen Aveson
Thomas Barry
Adam Basinger
David Beasley
Stephen Becker
Evan Blonde
Amy Brackin
Joe Breedon
Shana Brenner
Casey Carrick CSFM
Kenneth Churney
Cody Cimino
Lee Clinton
Matt Coates
Brendon Connor
Antonio Cordova
Dallas Cott
Darren Criswell
Jeff Cuthbertson
Craig Deleo
Ravi Devaguptapu
Ryan Dew
Cullen Dougherty
John Driscoll
Rick Femino
Joseph Ferrera
Evan Fowler
Berent Froiland
Chad Fulghum
Jordan Gleim
Greg Goetz
Art Goodhind
Dominick Guerrero
Casey Gural
Francisco Guzman
Randy Haffling
Kevin Hansen
Edward Harbaugh
Daniel Hargey
Robert Heggie
Mark Heinlein
Gerald Henry
Don Hijar
Joe Hill
Wayne Horman
Glenn Hussey
Jeremiah Johnson
Seth Jones
John Kaczynski
Greg Kimbrough
Charlie Krips
Aaron Kuenzi
Michael LaPlaca
Stephen Lentz
Michael Lewis
Elliot Linstrum
Eddie Lovett
Andrew Marking
Evan Mascitti
Parker McGlone
Joseph Medlin
Colton Metzger
Roger Moore
Eric Nelson
Trevor Odders
Bryan Ogle CSFM
Jonathan Palmer
Justin Patenaude
Pablo Peirano
Dianne Petrunak
Jay Pomeroy
Adam Portenier
Armando Puentes Jr.
Andrew Schwartz
Hunter Sexton
Tod Shafer
Eric Simmons PLA
Wallace Skipper
Jason Smith
Michael Stachowicz
Jimmy Stamps
Karl Stevenson
Anne Streich
Ian Stringer
Tom Stubbeman
Miles Studhalter
Nathan Tidwell
John Torres
Jeff Turtinen
Edgar Valdovinos
James Vaughn
Marcus Von Hertsenberg
John Wagnon
Brian Walker
Matthew Weaver
Von Welder
John Wells
Eric Williams
Ben Young

3 MOST IMPORTANT REASONS TO JOIN:

JOB SECURITY. Take advantage of STMA's programs and services, and you proactively enhance your value to your employer.

CAREER SUCCESS. The knowledge, skills and abilities you gain by accessing STMA's education and information can help you to prepare to take that next step in your career.

RECOGNITION OF YOUR PROFESSIONALISM. In addition to the individual recognition you receive because of your good work, STMA's advocacy with groups such as athletic directors, parks and recreation directors, coaches, and parents enhances the image of the entire profession.

STMA Affiliated Chapters Contact Information

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

Colorado Sports Turf Managers Association: www.cstma.org

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

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

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

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

Georgia Sports Turf Managers Association: www.gstma.org.

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

Illinois Chapter STMA: www.ILSTMA.org.

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

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

Iowa Sports Turf Managers Association: www.iowaturfgrass.org.

Kentucky Sports Turf Managers Association: www.kystma.org.

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

Mid-Atlantic STMA: www.mastma.org.

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

Minnesota Park and Sports Turf Managers Association: www.mpstma.org
MO-KAN Sports Turf Managers Association: www.mokanstma.com.

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

Sports Field Managers 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.

Chapter Sponsors

opportunities have been tremendous. I can reach out to any STMA member at any time to discuss any issue. I have been able to meet and communicate with people outside of my state boundaries/region and have been able to see sports fields across the country. Within the association, I have been able to work on committees that expand and strengthen my professional skillset and also support my genuine passions and interests. For me, right now, I am so glad to be a member of the Environmental committee. It has been exciting to be a part of the development of the STMA Environmental Certification Program. This program will help define STMs as environmental stewards, and provide great credibility and professionalism to the association and profession as a whole.

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

Wallace: Social media certainly has allowed sports turf managers the ability to refine techniques in field care, improve communication with regard to staffing, field playability/closures, and event scheduling.

Personally, I am a bit slow to embrace it, but at times I do see it as a valuable tool, as it provides quick information, maybe sometimes too quick! I also think social media has influenced people's civility towards one another. We all have to navigate respectful ways to deliver positive and negative communications.

Social media has indeed improved networking and the ability to communicate among green industry professionals here in the state and beyond state borders. Travel to programs often is a challenge, so people look to social media to help provide technical information. Extension specialists and educators certainly could use it more to promote ourselves and outreach programs. Younger generations certainly think differently about social media. In 4-H programming, social media is used extensively. Kids that have been born into the social media age think and use it differently than most in my generation. For all of the positive attributes of social media, though, there is something valuable about a direct, engaged conversation that often is missed if communicating only via social media.

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

Wallace: My interests outside of work are pretty simple. I love to cook, fuss with my plants (both in the house and garden), and go antiquing. In the summer, anytime I can, I enjoy kayaking on Narragansett Bay or walks along the beaches of RI. An occasional round of golf is fun, but it is not the first thing I would choose to do, if I had time available! I love to travel and enjoy spending time with my husband and my (now adult) children.

I am in my first year of a 2-year term as President of NESTMA, so that has occupied some of my available time, although I try to handle chapter needs during the week in the evening hours, so my weekends are free. ST

are referred to as the "4Rs" and they are aimed at making sure the nutrient program matches the turf's needs and to minimize loss of N from the system. The 4 Rs are as follows:

Right source. During the summer, the nitrogen source should be at least 50% slow-release (water-insoluble) or derived from a natural organic source. There are also slow-release liquid fertilizers where the nitrogen is applied in suspension. At the 1 lb. N/1,000 sq.ft. rate, a slow-release source of nitrogen should not create any turf injury (burn), regardless of granule size (SGN). Quick-release (water soluble) sources of urea and ammonium fertilizer are more susceptible to volatilization, particularly on thatchy turf. Other sources of N can be derived from returning clippings and mulching leaves.

Right rate. It is important to match the turfgrass needs to the amount of fertilizer being applied. Typically, Kentucky bluegrass and perennial ryegrass require more N than tall fescue. Improved cultivars will also require more fertilizer compared to common varieties. If the turf is actively growing, a 1 lb. N/1,000 sq.ft. application could be made during summer, either as one application or at 0.5 lb. rate over two applications. Keep in mind that excessive N during this time will substantially decrease drought and heat tolerance. Applications of too much N can also result in extra costs and much greater leaching potential, particularly on sandy soils.

Figuring out how much N to apply to a field is based on the percent of N in the bag. For example, if an 18-3-18 fertilizer is used and the application rate is going to be 1 lb. N/1,000 sq.ft., the calculation is as follows: 1(rate) / (divided by) 0.18 = 5.5 lbs. of fertilizer product needed for 1,000 sq.ft. To work out how much fertilizer is needed for the entire area, multiply the 5.5 by the area and divide by 1,000. So the calculation would be: 1/0.18 x 80,000 (example soccer field)/1,000 = 445 lbs. of fertilizer needed for entire field. Further divide by 50 to determine how many 50 lb. bags are needed. In this case, nine bags are required. Use this calculation to determine how many bags are needed each time, or simply use this table, a "cheat-sheet" I put together.

Right time. If the turf is dormant and the field not in use, no fertilizer should be applied. Similarly, fertilizer applications should be withheld or postponed if the soil is very dry and compacted and if there is little to no grass cover. During high temperatures, fertilizers should be applied in the cooler mornings, to minimize volatilization, and preferably watered in, to make sure the fertilizer enters the turfgrass root system.

Right place. Every effort should be made to ensure that the fertilizer is not lost from the field from run-off or leaching. Fertilizer should not be applied to hard surfaces, bare/overly dry/compacted soil or any other surface where run-off is possible. Fertilizer should not be applied before a heavy rainfall, especially on sandy soils, as this can lead to nutrient leaching into groundwater. Soils that are overly wet are also prone to denitrification, which is a process whereby soil anaerobic bacteria convert nitrate to nitrogen gas, which is then lost to the atmosphere. This loss to the atmosphere is not detrimental to the environment (since the atmosphere already contains nitrogen gas) but it is a waste of money and time. Lastly, if recreational turf or sports fields are immediately adjacent to any kind of water (lake, stream etc.) it is best to have a vegetative buffer strip between the turf and the water that does not get any fertilizer applied. The buffer strip is generally 8-30 ft. wide, depending on soil type and slope.

Summer fertilizer applications can be applied to actively growing turf to promote turf growth, recovery and seed/sod establishment, but every application should be made with the 4Rs in mind. ST

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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

Fertilizing in summer

Q: What kind of fertilizer program should I be using during the summer?

A: Fertilizer is applied to fields in the summer to prevent nitrogen (N) deficiency, to suppress leaf senescence during periods of high temperatures, to promote some growth for recovery (especially if fields are in use), to help turf tolerate traffic, to prevent stress (certain diseases) and to maintain turf color. However, because the grass is not growing as quickly, you will apply less in the summer than in the spring or fall. Fertilizer is also a key component during seed or sod establishment. Though summer establishment is less than ideal, constant use of fields means that renovations are ongoing throughout the season. The proper procedure for a renovation program would be to have the soil tested for nutrient status and pH, and to make corrections where necessary. A starter fertilizer that contains phosphorus is applied to the soil surface at time of seeding. A recommended rate would be no more than 1 lb. N/1,000 sq.ft. and at least 1 lb. P/1,000 sq.ft. at the time of planting. It is important that the N level is not too high, to prevent turf burn/injury to new seedlings.

There are four key concepts to nutrient stewardship that take into consideration all of the benefits that fertilizer provides and at the same time offer some guidelines on how we apply them to maximize plant growth and recovery but do so in an environmentally responsible way. Adopting these principals is a good idea, especially if you are going to seek Environmental Facility Certification through STMA. These four concepts

Table 1: Fertilizer Product Needed for Football and Soccer Fields @ 1lb Nitrogen per 1,000 Square Foot.

Analysis (%)	American Football				Soccer			
Nitrogen Analysis (e.g.15-0-0)	Regulation size: 360ft x 160ft (57,600f2)	# of 50lb Bags	Typical Size with Sidelines & Outer areas (70,000ft2)	# of 50lb Bags	Regulation size: 360ft x 180ft (64,800ft2)	# of 50lb Bags	Typical size with sidelines and outer areas (80,000ft2)	# of 50lb Bags
15	385 lbs.	7.7	467 lbs.	9.3	432 lbs.	8.6	534 lbs	10.7
18	320	6.4	389	7.8	360	7.2	445	8.9
19	303	6.1	368	7.4	341	6.8	421	8.4
20	288	5.8	350	7.0	324	6.5	400	8.0
21	274	5.5	333	6.7	308	6.2	381	7.6
24	240	4.8	292	5.8	270	5.4	334	6.7
25	230	4.6	280	5.6	259	5.2	320	6.4
27	213	4.3	259	5.2	240	4.8	296	5.9
29	199	4.0	242	4.8	224	4.5	276	5.5
30	192	3.8	233	4.7	216	4.3	266	5.3
32	180	3.6	219	4.4	203	4.0	250	5.0
34	169	3.4	206	4.1	191	3.8	235	4.7
35	165	3.3	200	4.0	185	3.7	229	4.6
40	144	2.9	175	3.5	162	3.2	200	4.0
46	125	2.5	152	3.0	141	2.8	174	3.5

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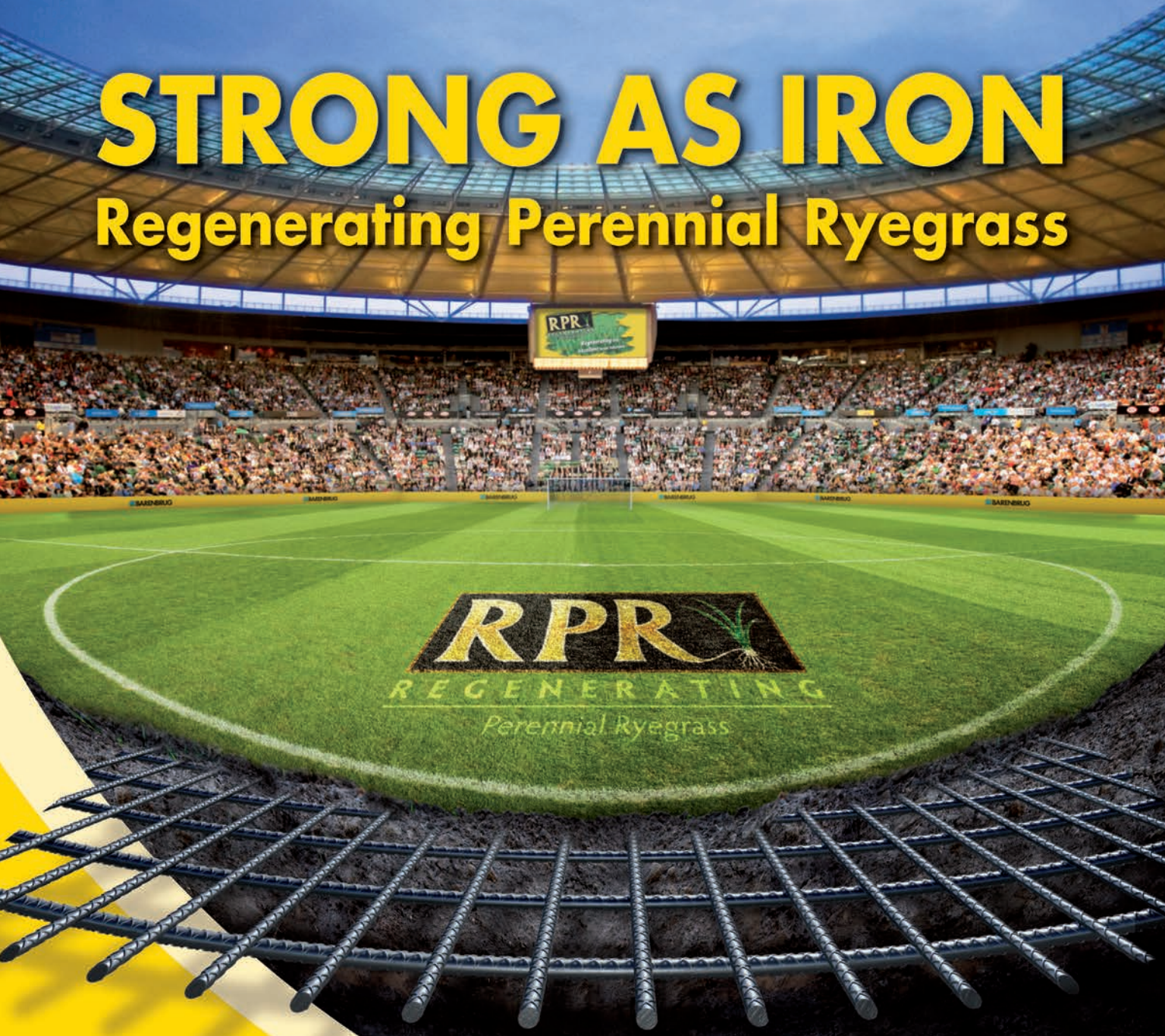

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