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New fertilizer laws call for enhanced efficiency

Editor's note: This article was submitted by Agrium Advanced Technologies; it discusses how a complex web of legislation is affecting residential and commercial fertilizer applications across the US.

NE OF THE MOST SEN-SITIVE ISSUES facing the turfgrass industry today is the movement to limit the use of fertilizers—or in extreme cases, to ban them altogether.

Led by environmental activists at a number of levels, there is growing concern about environmental contamination from fertilizers in both residential and commercial settings. As a result, many states are moving to enact legislation which would restrict or prohibit fertilizer applications.

In April 2011, the state of Maryland passed new laws that affect numerous aspects of turf and ornamental fertilization, including product usage, ingredients, labeling and more.

This year, the New Jersey legislature ratified a bill which is being called the toughest fertilizer law ever. This law is being hailed by some proponents as a landmark, and is being closely observed by activists in nearby states who want to push for similar legislation. In Florida, there is intense disagreement about who has the legal authority to impose fertilizer bans or restrictions. Dozens of individual counties and municipalities across the state have already crafted their own laws to determine how, when and where fertilizers may be used.

"LOGISTICAL NIGHTMARE"

"The debate is generating a lot of emotion on both sides of the argument," said Sarah Fox, Sustainability Initiatives specialist, Agrium Advanced Technologies (AAT). "Aside from personal feelings, having different laws from county to county in any state would be a financial and logistical nightmare."

On the other hand, many people around Florida believe that broad-based statewide laws cannot properly address their unique local concerns and specific regional challenges. In fact, some counties are pushing to get "emergency" anti-fertilizer laws onto their books before the state rules take effect. "It's all very complicated, and I don't see it getting any less complicated in the near future," said Alan Blaylock, agronomy manager, AAT. "Policy makers are reacting to the fears of their constituents and interest groups with what seems like a logical solution. But part of the problem is these responses are often made without an understanding of the science of nutrient management and its consequences."

WHAT'S BEHIND THE LEGISLATION?

Why are so many lawmakers suddenly jumping on the anti-fertilizer bandwagon? The crux of the issue is fertilizer runoff, which can often be traced to improper application, especially of traditional, quickrelease products.

Unused plant nutrients may migrate through the soil for several reasons. Once that happens, they are considered pollutants. Water and gravity naturally deposit those escaped fertilizer elements in nearby ponds, lakes and streams, contributing to a problem known as eutrophication. Eutrophication occurs when excess nitrogen and phosphorus get into the water. They nourish the aquatic plants and other organisms there, especially algae.

"When people see algal blooms in their neighborhood pond or local body of water, they call their homeowners' association and want something done to clean it up," said Blaylock. "That gets various agencies and interest groups involved, and it can become a political battleground. Of course, everyone wants clean water, but these problems can be prevented with proper fertilizer use."

IDENTIFYING THE CAUSES

Many people feel that a rise in eutrophication and algal blooms can be attributed to a cumulative effect of both "point" and "non-point" polluting sources. A point source refers to a single polluter, such as a factory or a mine. Non-point sources are widespread and individually unidentifiable.

In the case of fertilizer misuse and runoff, there may literally be millions of non-point contributors. Fingers are specifically being pointed at the improper use of fertilizers by homeowners and other nonprofessional applicators.

State and local laws regulating fertilizer usage are evidence of concern about the potential for fertilizer misuse among nonprofessionals, and many of the new restrictions are based on common-sense considerations. For example, some laws prohibit fertilizers from being applied on frozen ground or near pavement, or right before heavy rain. Other laws require a fertilizerfree buffer zone between landscapes and water sources, such as streams or canals. Some states have "black out" periods when fertilizers cannot be applied at all.

"The legislative efforts are usually focused on homeowners and lawn care operators," said Fox. "Some homeowners don't realize the impact their fertilizer application could have on surrounding water bodies. They apply a bag of fertilizer without really thinking about it, and many believe that if some fertilizer is good, then more is even better."

Many industry professionals are exempt from certain fertilizer laws in their respective states. Legislation often makes exceptions for golf courses, sports/municipal facilities, agricultural uses and qualified landscape situations, frequently with a stipulation that the users have been trained and certified in proper fertilizer handling and application.

"They (the activists and legislators) understand that golf course superintendents, sports turf managers and lawn care professionals have a science-based knowledge of fertilizer," added Fox. "They know that skilled experts in turfgrass and commercial landscape maintenance are conscientious stewards of the environment."

ENHANCED-EFFICIENCY FERTILIZERS

The dangers and repercussions of fertilizer misuse exist on different levels, some of which cannot be fixed with rules. For one thing, many of the laws are essentially unenforceable. If a homeowner is going to overapply fertilizer, either intentionally or accidentally, what can be done to prevent it?

"That's definitely part of the problem," said Fox. "Local municipalities don't necessarily have the resources to actively police the laws. That's why manufacturers, blenders, retailers and university Extension services realize it's up to the industry to get people to comply."

One tremendous step forward is the increased recognition of enhanced-efficiency fertilizers (EEFs) as useful tools, particularly slow-release or controlled-release products. The Association of American Plant Food Control Officials (AAPFCO) defines EEFs as fertilizers that increase nutrient availability/uptake and decrease losses to the environment, when compared to appropriate traditional fertilizers.

EEFs encapsulate granular nitrogen and other nutrients within special polymer coatings. When applied to turfgrass, the coated granules release nutrients gradually and evenly over an extended period.

Meanwhile, traditional soluble fertilizers dissolve into the soil quickly. When plants can't readily absorb those nutrients, the potential increases for them to be lost from the soil (and sometimes into surface and groundwater).

"Nitrogen in the soil is very mobile, which is important for plants to be able to rapidly take up what they need," explained Blaylock. "Healthy roots are aggressive feeders. Actively growing turfgrass consumes nutrients quickly, so the trick is to synch the nutrient supply to the plant demand.

Continued on page 49

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Financing and constructing a new field

Charles Dickens might say it was the best of times and the worst of times. Field managers might not be quite that dramatic, but they're no strangers to the risks, rewards and challenges of their profession.

In terms of sports, however, it is the best of times. The demand for quality fields is at an all-time high. It's easy to see why: more kids are playing than ever before. In fact, the National Federation of State High School Associations (NFHS) just released its annual Sports Participation Survey, which as it has every year for more than two decades, shows more kids playing sports than the previous year. In fact, in the 2011-12 academic year there was an all-time high of 7,692,520 participants.



Look at the top 10 of those sports, and what do you see? A lot of sports fields getting used: football, soccer, lacrosse, baseball and softball are all in the top 10 most popular sports. That adds up to the previously mentioned demand for facilities.

Given the rise of these sports, the turf field could be the best of choices. After all, it's able to host multiple sporting events in the same day without getting skinned, it's not susceptible to many of the problems facing natural grass, and it has better drainage by far than fields that will become muddy following a rain.

Unfortunately, in the current economy, budgeting for new fields—natural or synthetic—continues to be a problem. And sports field builders are seeing schools faced with an impasse when it comes time to build or rehab fields.

But, say the builders and designers, things are looking up.

"We think the tide is slowly turning," says Paul Schinner of The Motz Group, LLC in Cincinnati. "Most contractors in our business were hit harder in 2010 than they were in 2008 or 2009. Now, as things are slowly picking up with the economy, we are hoping that people who have been on the fence will start to spend. The amount of off-season activity (re-

While budget planning can be intimidating, it can open the door to possibilities for more economical options. In fact, in some installations, project owners have taken the concept of saving money, and elevated it to a whole new level. quests for budgets, consultations etc.) seems to be encouraging."

So where does that leave us? With choices. Sometimes they're difficult, sometimes they're easier than others. According to the book, *Sports Fields: A Construction and Maintenance Manual*, sports field managers facing field construction or improvements can help by suggesting options to lessen the financial burden. Some concessions to be considered:

• Do you need a completed facility now or can you wait a while for fencing, lighting, seating or other aspects of the project? If some aspects will be delayed, be certain to include the means for future additions (extra conduit for future lighting, piping for future irrigation, etc.) in the initial phase.

• Have you decided upon a given surface or specific site, or are you willing to consider alternatives?

Seeking creative solutions to budgeting issues can be accomplished—but it must be done in the planning stages. Once construction has begun, change may not be easily accommodated, or if it is, it may wind up causing more delays and costing more money—the exact opposite result you were striving for.

The book also notes, "In budget planning, consider not just initial costs but also costs of accessories and amenities to be added later such as goals and maintenance equipment. The cost of financing should be considered. Consider also the long term plan for the use of the facility. Before committing to a project, be certain that you can afford the schedule of maintenance, as well as a reserve for eventual repair and/or replacement. Expert and diligent maintenance is necessary to extend the useful life of fields."

While budget planning can be intimidating, it can open the door to possibilities for more economical options. In fact, in some installations, project owners have taken the concept of saving money, and elevated it to a whole new level. Sam Fisher of Fisher Tracks in Boone, IA watched a high school build a competition-quality track and field facility by using community donations and input.

"Local people came in with tractors and backhoes and did what they could," noted Fisher. "They did a lot of fund-raising too, within the school."

The former facility had become dangerous and unusable, and had to be completely demolished before any work could begin. But with the town firmly behind the effort and merchants and residents contributing everything from materials to labor to monetary donations, a new facility was built, and came in 25% below budget. (The facility currently has a 400-meter all-weather rubberized track encircling a natural turf football field, with field events, restrooms, concessions, seating for home and visiting fans, a press box, parking for cars and buses and more.) Fisher points to it as an example of community involvement that can help finance a project.

Schinner, too, has seen schools working to raise funds for their own projects as well. "Booster groups are becoming a bigger part



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and taking a much larger role," he notes. "In some cases, they're completely financing projects. Also, there has been a shift to sponsorships from local business and hospitals that are adding funds in exchange logos on the fields, naming rights etc. Schools are trying to leverage donated 'in-kind' work from local contractors and alums for certain parts of the project that do not interfere with manufacturers' warranty such as drainage pipe and stone, excavation and concrete work."

All the pros note that cutting corners should never be done at the expense of the finished product. In working to bring down costs, it is essential for consumers to remember that sports facilities are specifically tailored to athletic use. They are not simply green spaces, grassy areas or anything else. (And when working with a turf surface, this goes without saying).

Seek out contractors, as well as designers and suppliers, who specialize in sports facilities, and ascertain that they understand all issues the project will be facing, including time constraints, budget requests and more. Ask where community involvement would be appreciated, and where it would be appropriate. The investment in knowledgeable partners will pay off throughout the course of the project, and in years to come.

If you're not sure about how to find a sports-specific contractor, ask for recommendations from colleagues who have put in or rehabbed sports fields. Find out who they've worked with, and whether they were happy with that person. In addition, find out whether the project proceeded on time and on budget—or whether there were surprises, good or bad. You can also go to the website of the American Sports Builders Association, www.sports builders.org, and use the search feature to locate companies in the area.

Once you have the right partners, it's time to make sure your organization works well with them. The old adage, "too many cooks spoil the sauce," is still valid. For a project to be successful, there must be one person (and only one) who is authorized to work with designers, contractors and more, in order to discuss the ongoing status of the project. Examples of this person might be a school principal, field manager, athletic director or other. That person, in turn, should establish a flow of communication with those working on the project, as well as with the end user. Regular meetings should be held to discuss the progress of the project, as well as any questions or concerns. That point person, then, can relay this information back to the design/build team.

Expertise and information are the most important commodities that should be working together to make your project succeed, both from a financial perspective and from a performance standpoint. Singly, expertise and information are valuable, but together, they're invaluable, and will give you the long-term satisfaction everyone wants.

Mary Helen Sprecher wrote this article on behalf of the American Sports Builders Association. Available at no charge is a listing of all publications offered by the ASBA, as well as their Membership Directory. For info, 866-501-2722 or www.sportsbuilders.org.



JOHN MASCARO'S PHOTO QUIZ

John Mascaro is President of Turf-Tec International

Can you identify this sports turf problem?

Problem: Yellow turf on 40% of field Turfgrass area: Soccer stadium Location: Denver, Colorado Grass Variety: Kentucky bluegrass

Answer to John Mascaro's Photo Quiz on Page 33



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American goes solo in maintaining baseball field in Germany

E KNOW the extensive amount of time, equipment and money it requires to take a baseball field to the level it should be at. In some places, like Neuenburg am Rhein, Germany, money and equipment is at a premium but accepting a low-quality playing surface just isn't an option. When in Germany you will be hard pressed to find any baseball field let alone a good one. But, in southwest Germany, right along the Rhine, you will find one of the best in Europe.

This field is host to the Neuenburg Atomics. They currently play in the second Bundelsliga but over the past 5 years have played two seasons in Germany's highest level, the first Bundesliga. Like most baseball clubs in Germany, Neuenburg has had a history of American influence. That combined with hard work and dedication by many German baseball enthusiasts has made this small town team very successful. The head groundskeeper is Rob Piscatelli who is originally from Poughkeepsie, NY. Rob has been on baseball fields all around the globe playing and coaching, and of course, maintaining them.

Most specialized baseball field equipment is not available in Germany. Importing this equipment is an expensive option for some clubs but not for the Atomics and their limited budget. It is amazing to say that a field of this quality is run on an annual budget of about \$3,500. Piscatelli has pieced this field together through hard work and problem solving. The pictures and success of the club show the results. We got a chance to talk with Piscatelli about his fields and how he has found success in a difficult place.

KNIFFIN: How many fields do you have in Neuenburg?



Facility&Operations

By Matt Kniffin

PISCATELLI: We have two fields: our main field that our first and second baseball teams play on, and the second field which we have completely skinned and hosts our softball teams and youth teams. We also have a clubhouse, which was built for when we hosted the European Championship in 2010.

KNIFFIN: What are some the difficulties of being a head groundskeeper for a baseball field in Europe?

PISCATELLI: The first problem is to me the biggest, because if you have no idea what a field is supposed to not only look like but more importantly play like then it really doesn't matter what tools or equipment you have. There are a lot of reasons for this. Most players or teams here were never taught how to do that or were taught by people who don't have a clue so even if a field is built new or renovated it's still brutal. So players end up playing on terrible fields their whole career and don't know any different and so it goes from generation to generation.

KNIFFIN: Is it difficult to find the right equipment in Germany?

PISCATELLI: This may not be a big deal for baseball clubs that have money after all we live in a global economy and anything you want if you have enough money you can get. But for most baseball clubs in Europe this is not the case and since the tools needed to maintain a baseball field are somewhat specialized, they are very difficult to find so there is a lot of improvising that needs to be done. Just a short story about when I was first looking for a simple hand tamp and couldn't find one. After looking in every store I knew I

The guy looked at me as if I just asked him if he could fly me to the moon and then said, "What would you need something like that for?" finally went up to a road construction crew that was working on a street project to ask where I could get one. The guy looked at me as if I just asked him if he could fly me to the moon and then said, "What would you need something like that for?"

So long story short I had to build my own until years later I could find one.

KNIFFIN: What are some of your innovative solutions for maintaining the field without the tools and material you would have here in the States?

PISCATELLI: A rake drag is something that I have had to create because our field has a large amount of worms in early spring and fall which leave a total mess on the grass making it nearly unplayable. For this I took a flexible metal mat drag with a wooden breaker bar in front then attached 4 metal hand rakes to the front. As soon as the sun has been out for a few hours and the worm excrement begins to dry the rake drag is pulled along and is able to not only break apart these small piles but smooth them out and in turn acts like a topdressing which we should be doing yearly but are not able to afford. So Mother Nature and a little ingenuity provide that for us.

One of the biggest problems here is the lack of specialized material like mound clay or quick dry. These products are nonexistent in Europe unless you import them, which is very expensive. As someone who hates holes in baseball fields I was determined to find a solution. I watch every week as other teams push dry, dusty clay back into huge holes in the mound or batters box only to see it come right back out on the first pitch. I spent hours upon hours talking to people, surfing the Internet, and making my own test samples or different materials added together. After years of evolution I was able to make a product that holds up to the test. It has been a lifesaver in repairing my bullpens, game mounds, and home plate area. It is worth more than gold here for a groundskeeper.

Piscatelli later explained how he was able to find at a 100-year-old brick factory, with owners of about the same age, hidden in the Black Forest. They provided unfired clay bricks that when soaked in water, have been critical in his making his own mound clay.

Of course, baseball in Germany is very different from baseball in America. Some clubs are shrinking or while others are flourishing. In this soccer-first society public funding for ball fields is hard to come by. Maintaining a high quality field is not easy under these conditions especially when you consider the lack of sports turf maintenance education. For Piscatelli and the Atomics they have come up with cost saving and effective ways to take their field to a high level but on a low budget. Using this example we can be inspired to do more on a lower budget.

Matt Kniffin teaches history Chapel Field Christian HS, Pine Bush, NY. He worked for the Neuenburg Atomic's grounds crew in 2009 and 2010.





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The 1st year at BBVA Compass Stadium in Houston

Bill Brozak works for WinField Solutions, a company that offers turf seed and chemical products from its base in Shoreview, MN.

HAT DOES IT TAKE to make a first-year field first-rate? Turf, teamwork and a whole lot of knowhow. Rodney Griffin took on Texas-size triumphs and challenges at the new BBVA Compass Stadium, home of the Major League Soccer Houston Dynamo. The stadium opened in May 2012, cost \$95 million, and has a capacity of 22,039. The venue will also host Texas Southern University football games. Also, beginning in 2013, the stadium will host the USA Women's Sevens, one of four events in the newly launched IRB Women's Sevens World Series in the sevens variant of rugby union.

Rodney Griffin is no stranger to laying the groundwork for athletic facilities. Griffin is the former turf manager for the Houston Astros' Minute Maid Park and Houston Texans' Reliant Stadium. And now, at Houston's newest downtown professional sports facility, the AEG Facilities-managed BBVA Compass Stadium, he completes a trifecta with the home to an MLS team.

To say that Griffin has "a lot of experience with turf" is an understatement. This former University of Houston football letterman was a groundskeeper for the Houston Astros and worked for four years as part of the grounds crew for Super Bowl XXXVIII. Griffin knows his turf and, obviously, likes a challenge.

So when the opportunity came along to be part of a brand-new stadium, Griffin couldn't say

no. He joined the stadium team in January 2012, as the turf and grounds Manager just a few short months before it opened. Since then, the stadium has hosted four to five events a week.

Griffin knew the first-year field at BBVA Compass Stadium would be full of new challenges, but he knew he had the experience, tools and teamwork in place to make this new soccer pitch feel like it had been there for years.

A new stadium meant the first challenge was selecting and installing new turf. Griffin recommended that TifGrand bermudagrass be selected. "The designers told me light was going to be an issue. The orientation of the stadium means that some of the field is in shadows and some in sunlight at different times of the day."

Other difficulties to consider are the summer heat and Houston's native humidity. "A big challenge to any new stadium is that every stadium has its own microclimate and this stadium, in the summer, is one of the hottest places on earth," says Griffin. "Usually heat is fine and we are using a bermudagrass that is really made for heat. But humidity, that's even more of an issue. The tissue of the field can stay slightly moist, which creates an environment for disease."

SOCCER STAR EXPECTATIONS

A second and interesting challenge for Griffin is the expectations of the players. "Soccer players are extremely picky about their turf," says Griffin. "They like their turf a certain way, so we always have an open dialogue with our players about what they like. They will travel to another stadium and come back and tell me what they liked about that stadium's turf."

Unlike football or baseball, the movement of the foot or cleat across the turf, and the way the ball travels across the grass, is an important component of the game. Players want their feet to move across the surface of the grass without ever touching dirt. To achieve this, Griffin says, the grass must be mown at three-fourths of an inch or below.

Plus, in soccer, the grass needs to look good. "For football, if the field is strong but doesn't look perfect, that's okay," says Griffin. "But for soccer, the field needs to be strong and look good. The aesthetics are really important. For instance, striping is a part of the rule book in major league soccer and players are very particular about the turf for that reason."

For Griffin, every stadium has new and different challenges but one expectation is always the same—he has to figure out how to solve problems. "Problems pop up all the time; and my bosses at BBVA Compass understand that happens but at the end of the day. I need a team of people who can help me handle the situation. I could have a main line blow up during a game or a mower that doesn't start. Ultimately, it's my

RODNEY'S RULES

Rodney Griffin's keys to success: Number 1, keep it simple. The Guy Who Mows, Knows. Any good groundskeeper knows his or her own field and mows it personally. That way, small problems are evident before they become big ones. Understand it is a team effort. Rodney surrounds himself with people he can trust. Surround yourself with people who can service what they sell. Timing is everything.