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Bull's-Eye was actually developed at Mississippi State by Drs. Jeff Krans and Wayne Philly. According to Krans, the plant's broad leaves and tightly closed canopy create a dense biomass, resulting in a "cushion of grass" so football players are running on top of the grass rather than through it. "It gives better traction for the players and less wear on the field," said Krans. "Also, the color is a deep, dark green, which is most desirable on athletic fields."

The turf density is what made Jeansonne a fan. "One of the best elements I found with this variety is that you play the game 'on' the grass and not 'in' the grass. Its vigorous growth pattern and plentiful stolons provides great footing for the athletes and they are always happy about that," he said.

The grass variety was chosen, but now they had to find it. When selecting turfgrass, purity is extremely important. Jeansonne decided to check out West Coast Turf's Arizona facility for himself. "I liked what I saw. The entire farm was well maintained with lots of attention to detail. It was the quality of the grass out there that sealed the deal."

Because they had plenty of time for grow-in, Jeansonne chose to sprig the field. In mid-May last year, 1,300 US standard bushels of Bull's-Eye were shipped from Scottsdale, AZ, farm to Baton Rouge and mechanically planted at double the normal rate.

How did the new field hold up in its first season? "It's only 4-5 months old, and I have to keep reminding myself of that. It showed some wear from use near the end, but a young field is going to show the wear more than a mature field," Jeansonne said. "It's going to only be better next year."

New baseball stadium

Alex Box Stadium was the next order of business. A new ballpark was needed to accommodate the growing crowds and facilitate the state-of-the-art amenities necessary to continue the baseball program's winning tradition. They built the new stadium just south of the old one, and it will debut with the '09 season.

The San Diego Padres have had Bull's-Eye since the 2004 inauguration of PETCO Park, and the Arizona Diamondbacks played their 9th consecutive year on Bull's-Eye at Chase Field. The Rose Bowl and Kauffman Stadium in Kansas City have had success with the grass as well.

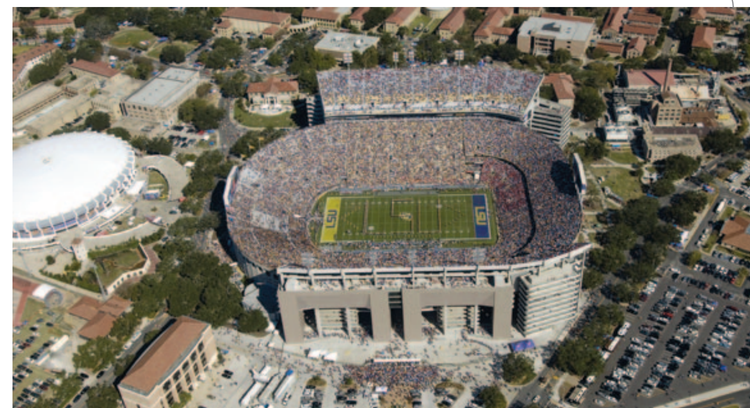
Grant Trenbeath, head groundskeeper for the D-backs, has a unique circumstance at Chase Field, as the ballpark is covered by a retractable dome resulting in a great deal of shade. "Bull's-Eye has been the backbone of our field all of these years mostly because it performs better in shade," said Trenbeath. "We tried other grasses, but this one is by far the best for our low light situation."

Jeansonne has sunlight issues as well. "We have an enormous roof over the stands which can sometimes make it tough to grow grass. One of the reasons I put in Bull's-Eye at the ballpark is because of the good shade tolerance."

After a 6-week delay caused by two hurricanes, the baseball field was finally put down in early October. The decision was made to use sod instead of sprigs due to the timing, so 103,000 square feet of washed sod was shipped from Scottsdale to Baton Rouge, and rolls were cut 3.5 feet wide and 30 feet long. Because the sod was soil free, each refrigerated truckload contained up to 16,000 square feet, making the nearly 1,500 mile drive an economically feasible option. The temperature was kept at 44 degrees F.

"I saw the turf when the trucks rolled in," said West Coast Turf spokesperson John Marman. "It arrived with minimal shocking and had excellent sod strength when it was installed. It was rooting in just 2 days."

The playing field contractor, Munie Green Care, applied "VermaPlex" (an all-natural microbial soil amendment) to the sod as each truckload was delivered, and daily at a rate of 2 oz./1000 sq. ft. Root growth within seven days of installation reached 3 inches.



Aerial view of "Death Valley," LSU's Tiger Stadium

"By the end of October I had roots up to 7 inches out there," Jeansonne said. ■

This article was supplied by West Coast Turf, Scottsdale, AZ, www.westcoastturf.com.

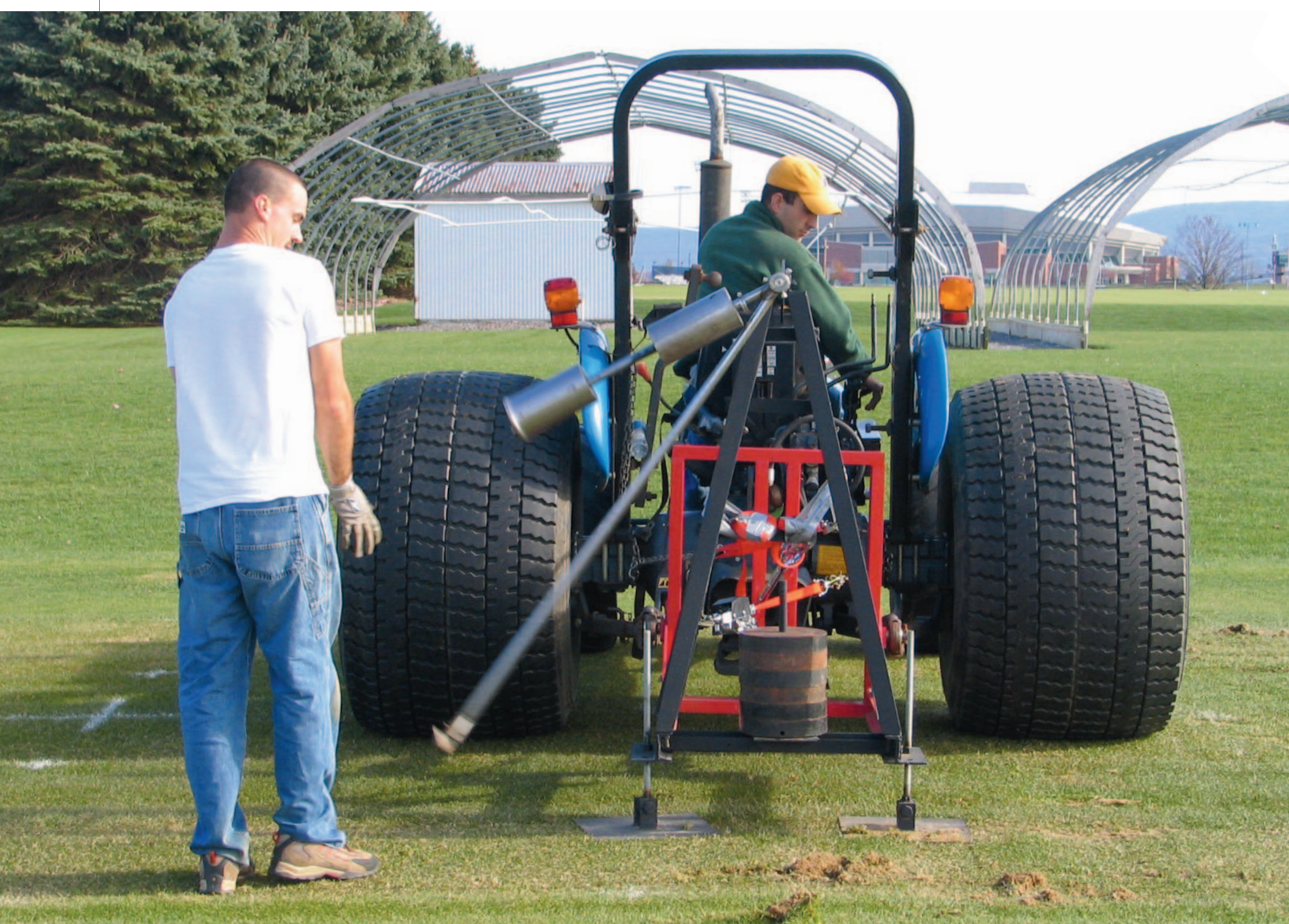
By Thomas Serensits and Dr. Andrew McNitt

Can plant growth regulators *improve your field?*

WE HAVE ALL SEEN FOOTBALL GAMES when a player goes to make a cut only to slip and fall, kicking out a chunk of sod, leaving him to shake his head and go back to the huddle. These divots happen because the playing surface lacks stability.

As athletic field managers, we know that it is often what lies beneath the surface that ultimately determines the playability of our fields. We tailor our maintenance practices to promote rooting so we can go into the season with a "tight" field. We do things like core aerify and verticut to stimulate root growth and select plant species that have aggressive stolons and/or rhizomes. Most of us would agree that anything that makes our field "tighter" is a good thing.

So what about plant growth regulators (PGRs)? The old



rule of thumb was that PGRs have no place in athletic field management because the turf will not be able to recover from damage. And in some cases that is correct. For instance, on high-use fields that are continuously used throughout the year, spraying a PGR may not be the best idea. But, on a field that is only used in the fall, like a football stadium field with moderate wear, applying a PGR can help improve surface stability.

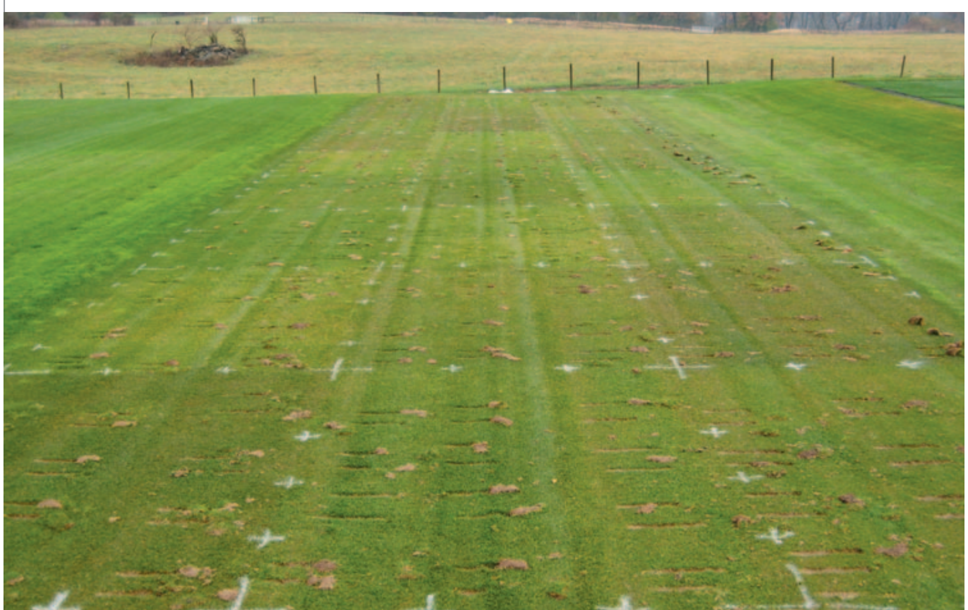
In order to understand why PGRs can improve playing surface conditions, we need to look at how they work. We will focus on products containing the active ingredient trinexapac-ethyl (TE), such as Primo Maxx. TE inhibits the biosynthesis of the plant hormone responsible for cell elongation, gibberellic acid. As a result, the plant's newly produced cells are smaller, thereby reducing vertical growth.

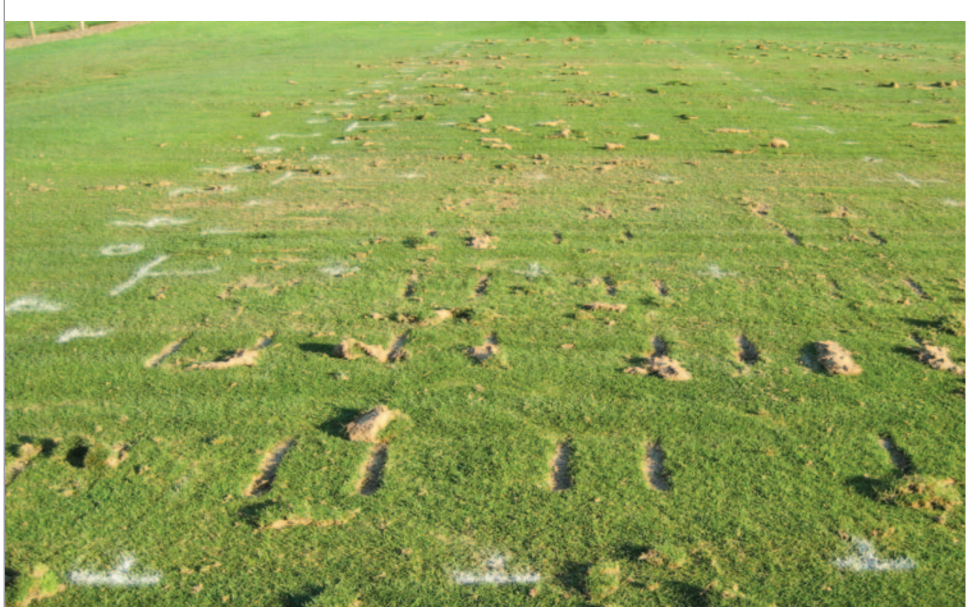
While it is easy to see the effects of TE on shoot growth, it is what is happening at and below the surface that really matters to us as athletic field managers. Turfgrass plants absorb TE through their leaf blades and crown. Less than 5% of the applied TE is actually moved to the root and rhizome system of the plant. So, while shoot growth is reduced, root and rhizome growth is not. In fact, TE application can stimulate root and rhizome growth. In addition, TE can also increase tiller density. An increase in tiller density means more plants to provide more surface stability.

With the idea that TE could increase both root/rhizome growth and tiller density, we investigated how TE applications affected divot resistance compared to cultivation methods and an untreated control. Research plots were constructed at Penn State's Joseph Valentine Turfgrass Research Center on both a USGA sand-based rootzone and a silt loam soil. Nine cultivars of Kentucky bluegrass were planted on each soil type. Each cultivar received TE treatments and a cultivation treatment in addition to a control area. We also applied various levels of simulated wear to each cultivar from late July through October to replicate the stresses of a football season. Divot resistance was measured once per year in November using a weighted pendulum with the head of a pitching wedge attached to one end.

We evaluated two TE treatment regiments. One regiment included TE (0.5 fl oz/1000ft2) applied monthly from May-July (3 applications). We chose this treatment schedule so that our last treatment coincided with when football practices typically begin. In essence, our goal was to pre-condition the turf before the onset of the stresses of our simulated football season, then, allow the turf to resume normal growth for the duration of the season.

The other treatment regime included TE applications from May-October (6 applications). The cultivation treatment was performed in early May and consisted of core aerification coupled with a deep vertical mowing. The vertical mower blades were set to penetrate one-half inch below the soil surface. The reason for setting the blades this deep was to sever existing roots and rhizomes with the hopes of stimulating additional growth.





While our main objective was to measure divot resistance, we also evaluated a number of other factors related to playing surface stability. For instance, we measured tiller density and root/rhizome weight. We also evaluated wear tolerance throughout our simulated football season.

Results from our research show that TE applied from May-July increased divot resistance by up to 20% on the sand-based rootzone and up to 15% on the silt loam soil. Applying TE from May-October resulted in little change from the control. Also, results from the combination of core aerification and vertical mowing showed slight divot resistance improvements.

Why was the application of TE from May-July our most effective treatment? For the answer to this question we need to look at the effects of TE on our other measured factors. TE applied May-July was the only treatment to affect root/rhizome weight, increasing it by about 10%. TE May-July also increased tiller density by about 10%. No other treatment affected either root/rhizome weight or tiller density with the exception of the application of TE from May-October, which increased tiller density.

We included various wear levels to determine if our treatments showed consistent performance under different field conditions. If we observed divot resistance improvements with a particular treatment under no wear, we wanted to evaluate if those same improvements were observed under high wear. If the effectiveness of a treatment disappeared under high wear, the treatment would have less value late in the season or in the high wear areas of a field. Our data indicates that our most effective treatment, TE applied from May-July, consistently improved divot resistance at each wear level compared to the control.

What about wear tolerance?

What about the effect on wear tolerance? There is a school of thought that TE increases wear tolerance because it increases tiller density. The reasoning goes if there are more plants, it will take longer to see the effects of wear. However, we also need to consider the fact that because shoot growth is slowed, recuperation may also be slowed. In our studies, we found minimal effects from each of our TE treatments on wear tolerance. We did see a slight trend that under heavy wear conditions, wear tolerance was slightly reduced when the turf was treated with TE through October.

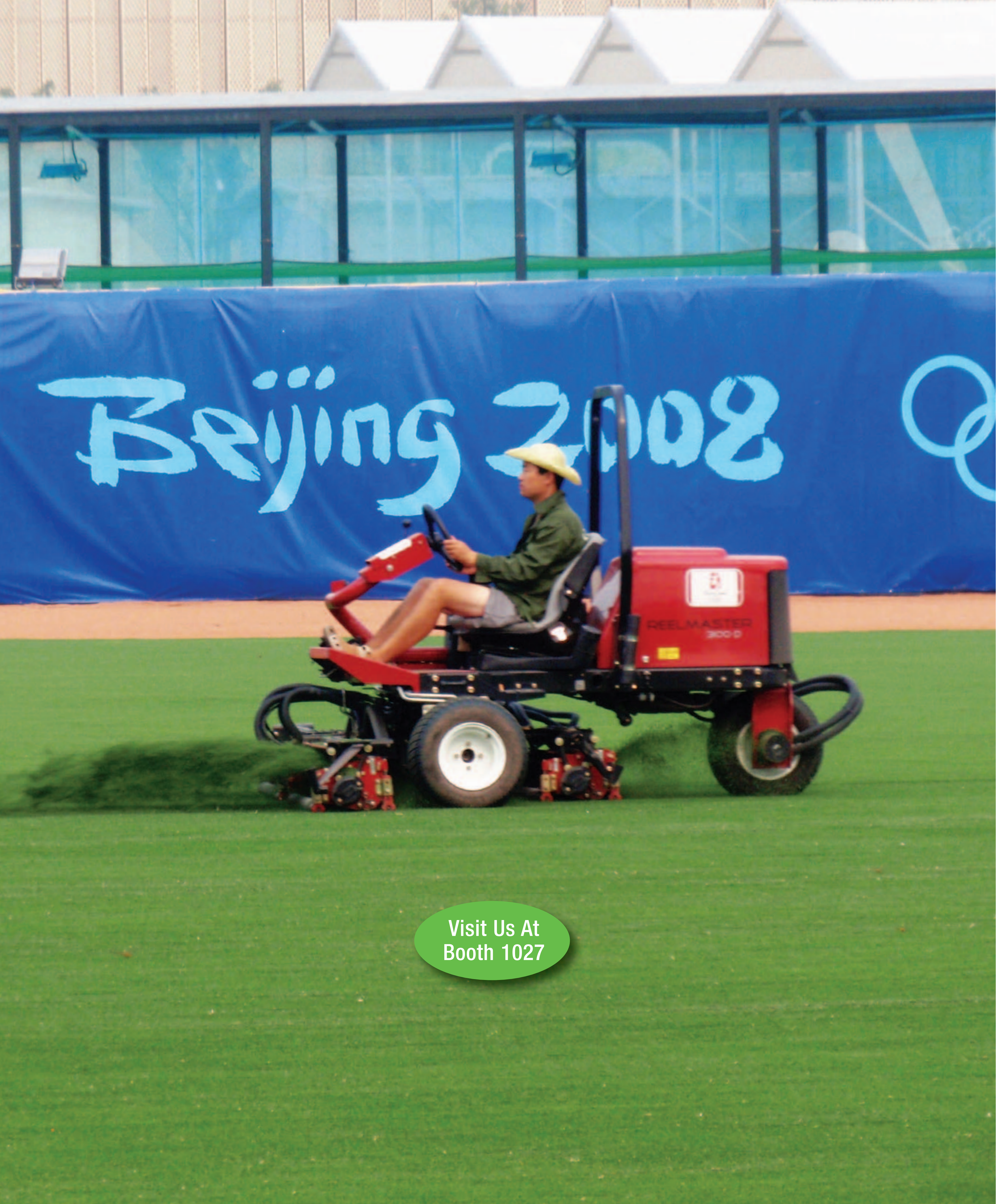
Another thing to consider when applying TE is the post-suppression growth surge or "rebound effect." Once the turf breaks from growth regulation, a flush of growth occurs. If applied at the labeled rate, this flush typically occurs 28 days after application. Growth rates can be as much as 160% of the normal growth rate in the days following the break. We can use this flush of growth to our advantage. If we follow the research-based suggestions and apply TE from May-July, we can time the final application of TE to wear off immediately after the first game. This provides an increased growth rate for accelerated early-season recovery.

In our study, we also evaluated the divot resistance of various Kentucky bluegrass cultivars. On the USGA sand rootzone, 'Limousine,' 'Rugby II,' and 'P105' were the most divot resistant cultivars. 'Midnight' was least divot resistant, with 33% less divot resistance than Limousine. The differences in divot resistance among cultivars on the silt loam soil plots were minimal. 'Julia' had the highest divot resistance on silt loam soil while all other cultivars had the same resistance to divoting.

Our treatment of TE applied from May-July produced some interesting effects on the tested cultivars. For example, the least divot resistant cultivars benefited most from TE application. In fact, TE-treated Midnight, the least divot resistant cultivar, had greater divot resistance than untreated P105. So, while your field may not contain the best cultivars, by applying TE from May-July, you can make your turf perform like the most divot resistant cultivars.

We have found that plant growth regulators can indeed fit into an athletic field maintenance program. Golf course superintendents often talk about pre-conditioning their turf with TE before summer stress. Our research shows that TE can pre-condition athletic fields before the stresses of a football season. So, give plant growth regulators a second thought. They can be another tool for improving field playability. ■

Thomas Serensits is a graduate student in Penn State's Turfgrass program. Dr. Andy McNitt is his mentor and associate professor of soil science in University Park, PA.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 By Gordon Kauffman III, Ph.D.

Sample your Soil

SOIL TESTING may seem like a routine practice, but how many of you actually do it regularly? And then use the data to make management changes? Understanding the key concepts will allow you to make better educated decisions regarding fertilizer and/or soil amendment applications.

Traditional soil testing consists of a soil chemical analysis including pH, CEC, and exchangeable nutrient concentrations, likely with a fertilizer or lime recommendation, but little consideration given to nutrient solubility, organic matter and dominant cation percentages, irrigation water quality, and soil physical properties. Agriculture fertilizer recommendations are based on crop requirement, yield goals, weather and soil characteristics. Recommendations for turfgrasses are more comprehensive and based on crop requirement, quality goals, playability, establishment, species competition, disease management, weather, water quality, and soil characteristics.

Rely on the careful consideration of the most meaningful soil test data to generate the best and most practical management considerations.

Sampling

Most error associated with soil testing occurs during sampling, therefore doing it right and staying consistent is important. Pull samples (10-12) at the same depth and randomly at a given location. Sample to a desirable depth, generally where most roots inhabit the soil, and typically 4-6 inches for grasses mowed at 1-2 inches. Combine sub-samples into a single, composite, sample and send to the laboratory for analysis.

Carefully discard any thatch and place the soil in a labeled brown paper bag. Allow the samples to dry thoroughly. Pull soil cores for analysis at the appropriate time to maximize your opportunity to implement changes based on the information.

For example, test the soil if a nutrient deficiency is suspected and routinely during a growing season in order to generate baseline levels, and then to determine if management strategies implemented are working to alter/correct soil physical or chemical problems/concerns. Sampling a minimum of two times annually is usually sufficient.

Laboratories often use different methodologies (extraction agents) for the same test or perform a different variety of tests to generate data. This data could subsequently be interpreted differently; therefore stay consistent with a laboratory once you have identified the best format and/or services provided.

Testing soil physical properties will provide information pertaining to soil drainage, aeration, and/or compaction. A rootzone particle size analysis, infiltration rate, total porosity, and capillary pore space determination will be useful to assess drainage capabilities

Tests such as saturated hydraulic conductivity and bulk density provide an indication of the level of compaction. Labs can also test to determine the moisture content where the soil becomes prone to compaction. A complete analysis of soil physical properties will be helpful for evaluating the potential use and/or effects of added soil amendments such as organic matter, zeolite, calcined clays, or diatomaceous earth.