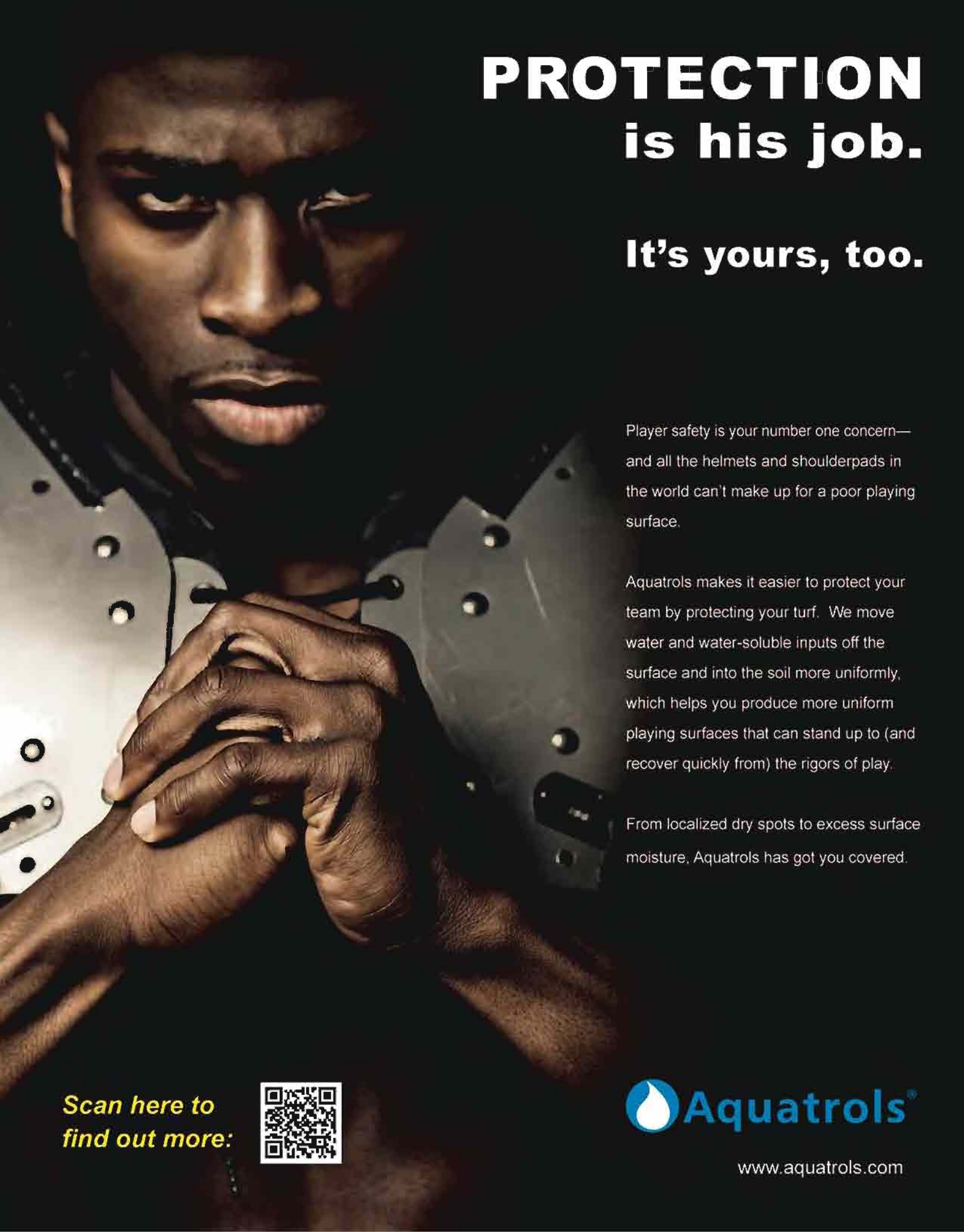

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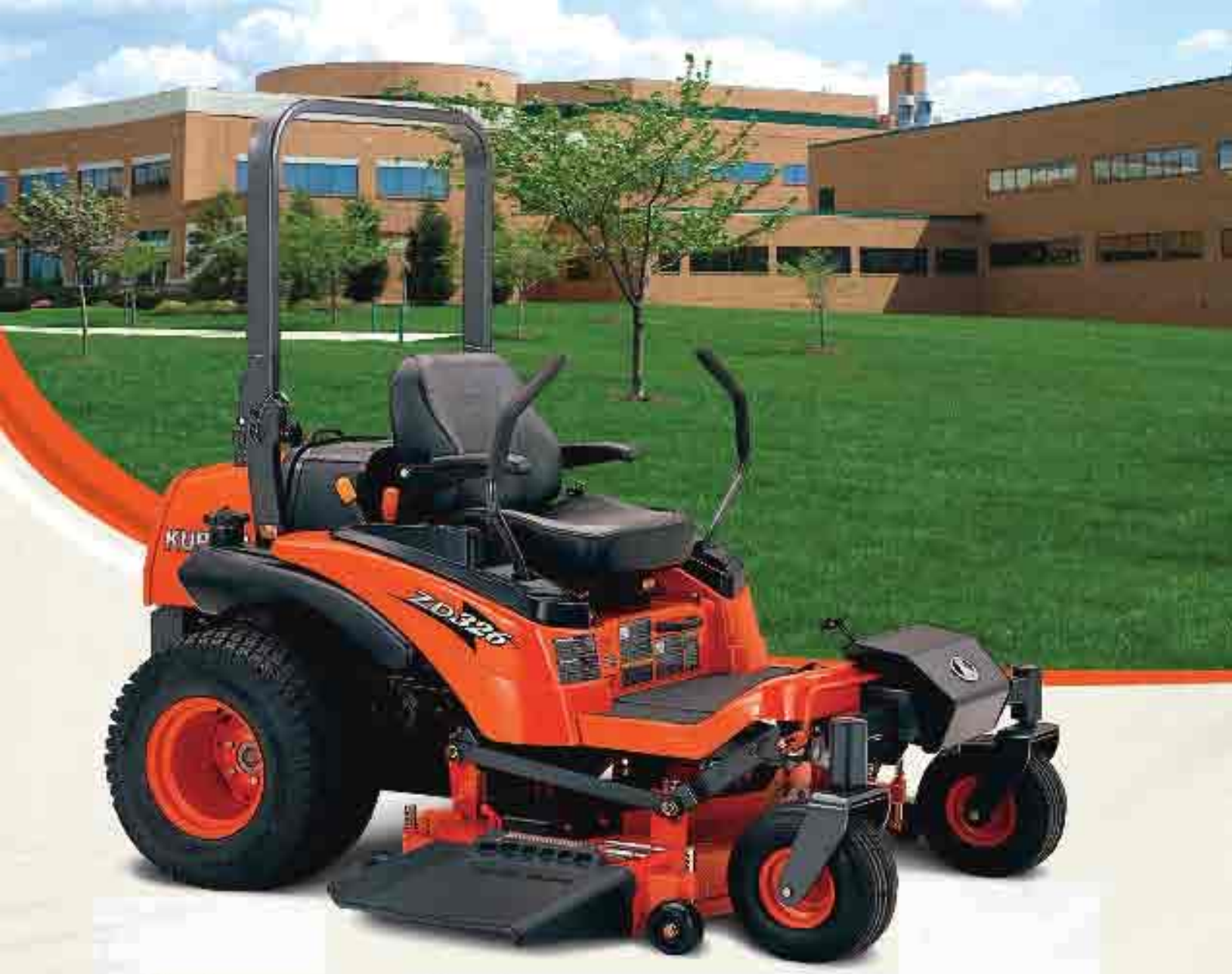

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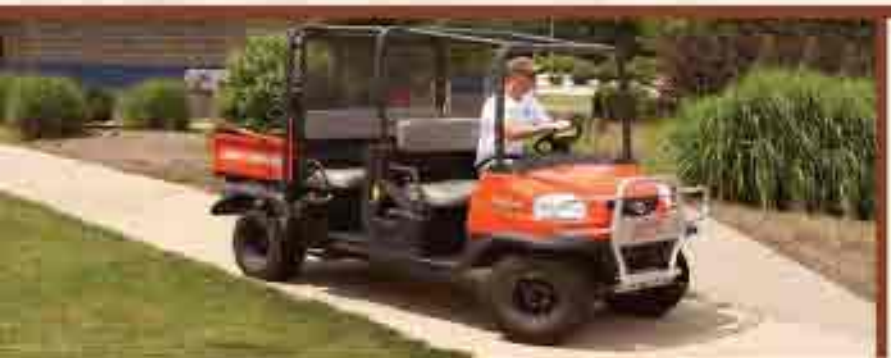

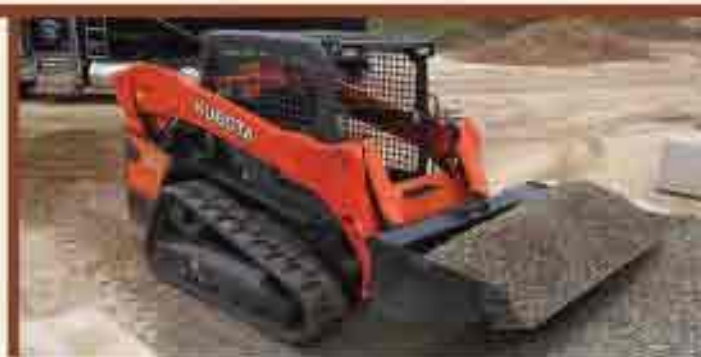

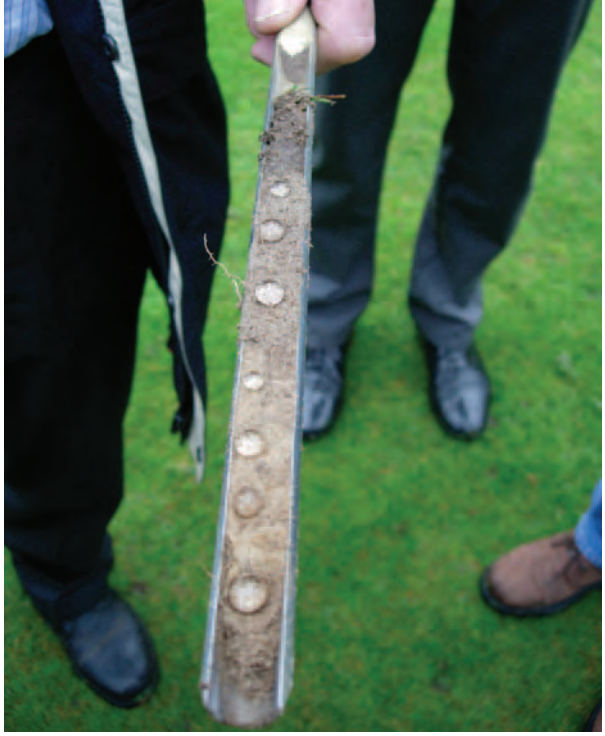

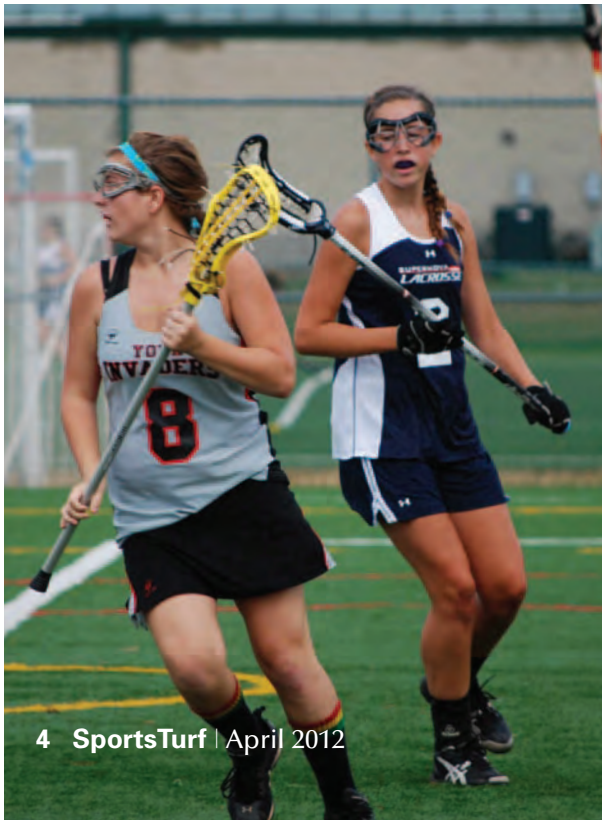

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On the cover: Ashley Ridge HS, Summerville, SC wins STMA Schools/Parks Softball Award for 2011. Here turf manager Adam Davis stripes down the left field line.

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From the Sidelines

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Growing field use demands turf knowledge

SPORTS TURF AND RELATED VENUES continue to be in demand because more kids than ever are playing sports and field sports are particularly strong. Participation in high school sports increased for the 22nd consecutive school year in 2010-11, according to the annual High School Athletics Participation Survey conducted by the National Federation of State High School Associations (NFHS). NFHS members reported for the 2010-11 school year broke the record with 7,667,955 participants.

The number of field sports is holding strong compared to the number of indoor sports or those using other facilities. The top 10 sports for boys, in terms of numbers of students participating, were (from 1-10 in ranking): 11-player football, outdoor track and field, basketball, baseball, soccer, wrestling, cross country, tennis, golf and swimming/diving. Among girls, the top 10 were outdoor track and field, basketball, volleyball, fast-pitch softball, soccer, cross country, tennis, swimming/diving, competitive spirit squads and lacrosse.

Among girls' sports, the emerging sport of lacrosse led the way with an increase of 9% from the previous year. With 74,927 participants nationwide, lacrosse cracked the girls Top 10 listing for the first time as it moved past golf. Outdoor track and field was close behind lacrosse, followed by soccer, volleyball and cross country.

All this activity demands turf management and that's where you come in. With safety and playability foremost in mind, many turf professionals already take advantage of available resources to enhance their skills. But those of you who may be reluctant for any reason, I urge you to reconsider. Last winter I attended the annual conference put on by the Keystone Athletic Field Managers Organization (KAFMO), one of the oldest conferences of its kind in the nation, here in Pennsylvania.

More than 300 turf guys and gals attended the 16th version of this event, which raises money for chapter activities including scholarships and university turf research grants. Educational sessions included a panel discussion on how to handle fields that have been flooded. [Tim Foreman of the Harrisburg (AA) Senators got a laugh from the crowd when he said he's seen three separate "100-year floods" in his 19 years with the team!]

For not the first time, KAFMO's program included the current national STMA president, which this year is Dr. Mike Goatley of Virginia Tech (see page 7). Dr. Goatley spoke on strategies for spring recovery, including making points regarding use of rollers (it's wrong to say "never use rollers" per compaction issues; see Dave Minner's "Q&A" on rolling page 46); off-season lip maintenance; use of turf covers to "accelerate and manipulate" turfgrass; and being smart with your spring fertilization timing to both save money and protect the environment. Dr. Goatley advised, "Don't sacrifice your fields' safety no matter what; a safe field is not necessarily a good-looking field."

Other sessions included Dr. Peter Landschoot of Penn State's update on the progress of fertilizer regulation in the state; Mike Shelley, a graduate student at Penn State, shared his findings from research on establishing fields with tall fescue in the summer; and Tom Serensits, manager of PSU's Center for Sports Surface Research, shared the latest information on what herbicides to use in specific situations and time frames.

All STMA Chapters have educational sessions and conferences, field days, test drives, etc., events where you can learn how to be better and work smarter. If you're not taking advantage of those that you can, you may be selling your fields, and yourself, short.

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President's Message

Dr. Mike Goatley

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Have you hugged your academic today?

OKAY, that headline is definitely a little overboard, but maybe it got your attention? You will find an overarching theme of "collaboration" in this month's issue of *SportsTurf*. One of many basic definitions of collaboration is **the action of working with someone to produce or create something**. That pretty much defines the scope of sports turf management on a daily basis as we are all about partnerships whether it is working within our management teams, interacting with our supervisors or our athletes, or and organizing and coordinating parents, boosters, etc., as we try to deliver safe, aesthetically pleasing playing surfaces.

I had the privilege of speaking to the Keystone Athletic Field Managers Organization in February at their annual conference, and I have nothing but great things to say about the group, its membership, and its activities. I had the chance to spend a little time with Don Fowler, one of the founding fathers of KAFMO, and congratulate him on what KAFMO has become over the past 18 years. Don told me that one of his emphasis points to make KAFMO a success was the involvement and utilization of the knowledge and skills of the faculty and staff of Penn State University. What Don also told me was that as important as having the academics on board, a successful organization and its activities involve everyone, and whoever joins an organization must feel comfortable. I can think of no better model of that than STMA and its chapters.

I have to chuckle sometimes when my Virginia STMA chapter colleagues are hosting field day tours of sports facilities, and I am asked to comment on a particular hands-on practice in the daily management of a sports field. I used to try to bluff my way through an answer, but I finally figured out that some of my best collaboration takes place when I get out of the way.

As an academic, I do hope that you realize the wealth of information available to you in the people and resources from your local or regional 2-year and 4-year colleges and universities that have turf programs. STMA's membership from this group truly understands the importance and the value of sharing information. Part of what really makes our organization supremely different from others is the role that academics play in this association that goes beyond simply one of traditional academic support (i.e. making presentations). STMA has heavy academic participation in almost all of its committees and the regular interaction and exchange of ideas and information between academics and practitioners gives our membership perspectives from all angles.

I encourage you to develop a relationship with academics working in your area (either geographical or subject-based) and collaborate with them as much as you can on ideas, research, educational programming etc. Trust me—we enjoy hearing from you and the learning goes both ways. I hope that you will meet and greet your local academics and truly embrace the STMA slogan of "Experts on the field. Partners in the game."

IPM

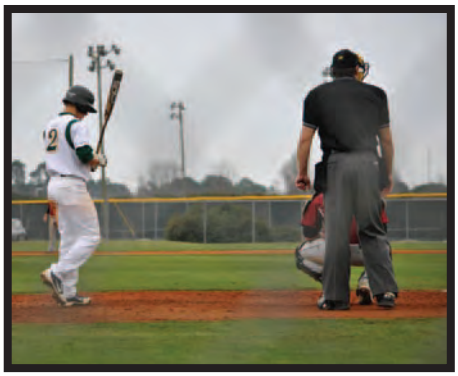
Integrated Pest Management for sports fields

SUSTAINING A HIGH QUALITY TURFGRASS STAND requires a well integrated pest management program. Integrated pest management will not only provide effective pest prevention and control, but it will also reduce maintenance costs and management impacts on the surround environment. This article will highlight some of the warm and cool season turfgrass species and cultivars available for sports turf management, the cultivation practices necessary to sustain these grasses at a competitive level, and finally proper pest monitoring, detection and control methods.

SPECIES AND CULTIVAR SELECTION

Field managers in the cool season zone typically use Kentucky bluegrass because of its rhizomatous growth habit, which stabilizes the soil and allows for vegetative recovery after traffic. National Turfgrass Evaluation Program (NTEP) research conducted from 2006 to 2010 determined that 'Bewitched', 'Avid', 'Diva', 'Everest', and 'Nuchicago' provide improved wear tolerance. Results also determined that 'Belissimo', 'Empire' and 'Mystere' provided improved dollar spot tolerance, while 'Hampton', 'Juliet', 'Madison' and 'STR 2485' produced increased resistance to rust.

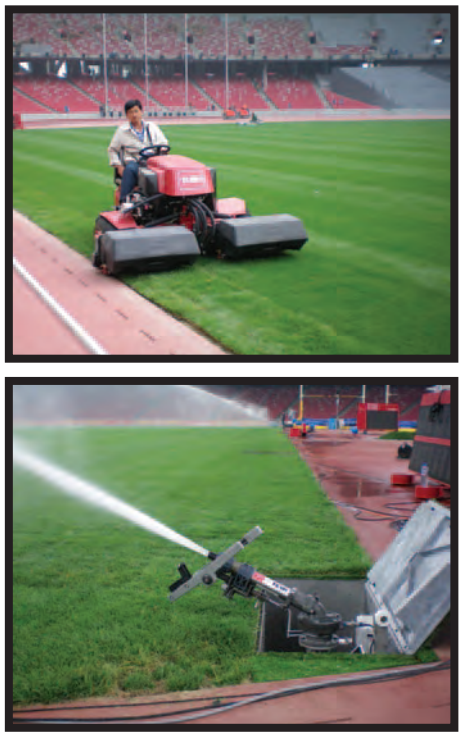
Field managers in the warm season and transition zone will likely use hybrid bermudagrass, which is known for its aggressive stoloniferous and rhizomatous growth habit when temperatures reach and exceed 80° F (Image 1). Some tried and true bermudagrass hybrids include 'Tifway,' the industry standard and oldest hybrid bermudagrass, 'TifSport,' known for its spring green-up, resistance to mole crickets and improved cold tolerance, 'Celebration,' an aggressive hybrid with improved wear tolerance, and 'Patriot,' which has excellent cold tolerance and improved resistance to spring dead spot. Some recently released hybrids include 'NorthBridge' and 'TifGrand' bermudagrass. NorthBridge was selected for its exceptional cold tolerance and excellent establishment rates. TifGrand provides improved fall color retention and relatively low nitrogen requirements.



>> **IMAGE 1:** Abraham Baldwin Agricultural College baseball field, Tifton, GA. Photo courtesy of Jeff Kilgore.

MOWING

Increasing your mowing height and frequency are important aspects when designing a well integrated pest management program. Increasing your mowing height will minimize the encroachment of invasive weeds such as crabgrass, dandelion and white clover. Increasing mowing heights will also increase rooting depth and, subsequently, increase turfgrass tolerance to stresses such as drought, insects and pathogens. Field managers should increase their mowing heights during the summer months, when the potential for heat stress is high and field use is minimal, and then gradually decrease the height prior to the fall sports season. Some general seasonal mowing height recommendations for Kentucky bluegrass are 3 inches during the summer, gradually reduced to 1.5 inches before the start of the athletic season (Image 2). Hybrid bermudagrass on the



>> **IMAGE 2:** Mowing (top) and irrigating (bottom) Kentucky bluegrass before the start of the 2008 Olympic Games in Beijing, China. Photos courtesy of Alec Kowalewski.

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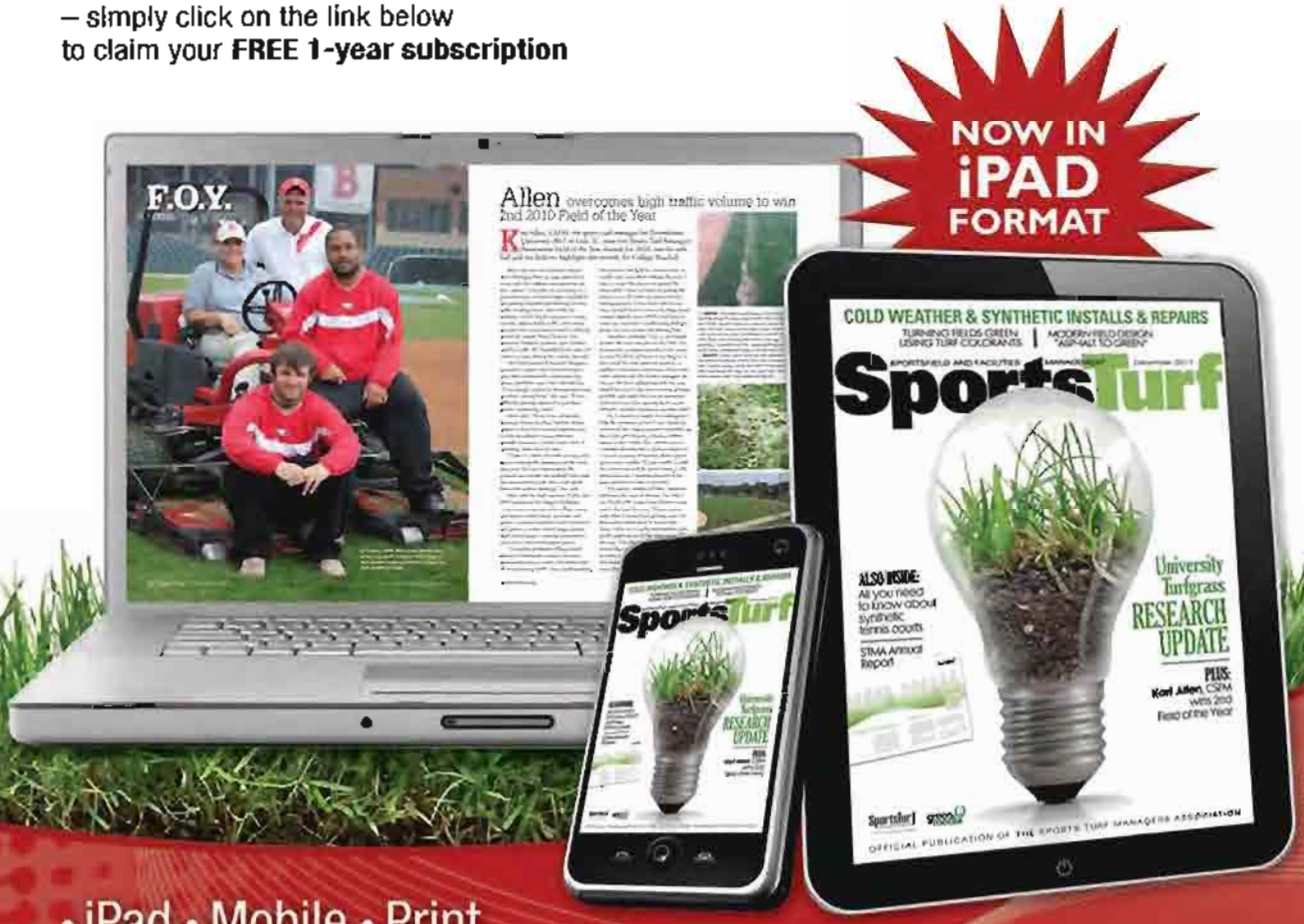

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other hand is often maintained at heights as low as 0.5 inches on athletic fields.

Increased mowing frequencies have also been shown to improve turfgrass health and vigor. For instance, simply increasing mowing frequency from once to twice per week has been shown to improve cover, surface strength and wear tolerance, all import factors when trying to provide a high quality playing surface that is resistant to weed encroachment.

FERTILIZATION

When developing a fertilization plan for athletic fields, consider the environmental conditions in which your turfgrass thrives. Fertilize Kentucky bluegrass at increased rates (1.0-1.5 lbs N/1,000 ft^2/month) in the spring and autumn, and decreased rates (0.5-1.0 lbs N/1,000 ft^2/month) throughout the summer, totaling 3-5 lbs N/1,000 ft^2/year. Bermudagrass, because it is a warm season turf, will require relatively high application rates (1.0-1.5 lbs N/1,000 ft^2/month) during the summer and relatively light application rates (0.5-1.0 lbs N/1,000 ft^2/month) in the spring and fall, totaling 5-6 lbs N/1,000 ft^2/year.

Weeds that indicate nutrient deficiencies include white clover and common dandelion. Dollar spot and rust thrive in nitrogen deficient turfgrass, therefore, a light application of a quick release fertilizer high in nitrogen, such as urea (46-0-0) or ammonium nitrate (34-0-0), is often prescribed. However, brown patch and *Pythium* blight thrive when high nitrogen levels are combined with poor drainage, humidity and heat stress. A fertilizer application during these circumstances would only increase disease severity.

It is advantageous to select complete fertilizers containing relatively high concentrations of nitrogen (N), low concentrations of phosphors (P) and moderate levels of potassium (K), a ratio of approximately 4N-1P-2K. Apply controlled release fertilizers in the summer months when microbial activity and the potential for fertilizer burn is high and apply quick release fertilizers high in nitrogen (applied at a maximum of 0.5 lbs N/1,000 ft^2/application) in the spring and/or fall when rapid turfgrass recovery is required between sporting events.

IRRIGATION

Environmental conditions and turfgrass species are often intertwined factors when making irrigation adjustments throughout the seasons. Cool season turfgrass will likely require more frequent irrigation during periods of drought stress when root necrosis occurs (Image 2). It is important to note that diseases like *Pythium* blight and brown patch thrive in poorly drained, over-irrigated soils, while dollar spot thrives on turfgrass with prolonged periods of leaf wetness. Moss and algae are often signs of over-irrigation and applications should be reduced when present. Annual bluegrass is often a result of over-irrigation, particularly when coupled with over-fertilization.

On the other hand, because warm season grasses, like bermudagrass, tolerate relatively high atmospheric temperatures and produce extremely deep rooting, less frequent irrigation can be tolerated. Deep and infrequent irrigation will promote deeper rooting, particularly when the surface is allowed to dry between irrigation. Allowing the surface to dry between irrigation events will decrease the potential of disease associated with over-irrigation and prolonged period of leaf wetness, but also increases the potential for development of drought stress. Therefore, managers using the deep and infrequent irrigation regime should regularly monitor for drought stress and localized dry spot.

CULTIVATION

Turfgrass root growth can be maximized and soil organic matter can be minimized with soil cultivation. Soil compaction causes reduced root growth, poor drainage and, ultimately, increases susceptibility to disease and weed encroachment. Weeds associated with compacted soils include knotweed and goosegrass.

Excessive organic matter accumulation can cause decreased drainage and rooting, and increased disease activity. The vast majority of infectious turfgrass pathogens can survive on organic matter when the turfgrass is healthy, which increases the potential for infection during periods of adverse environmental conditions. Cultivation practices that reduce organic matter accumula-

Table 1: Herbicides and their intended strategy of use for management of annual broadleaf and grassy weeds in cool season and warm season turfgrass, table developed by Aaron Hathaway.

	Cool season turf	Warm season turf	Strategy
Annual broadleaves	carfentrazone (burndown), isoxaben (preemergence)	carfentrazone (burndown)	Control before they produce and disseminate seed
Annual grasses	quinclorac for crabgrass, fenoxyprop for goosegrass (postemergence)	quinclorac (postemergence); numerous products (preemergence)	Apply postemergence early in growth stage if possible
Annual bluegrass	ethofumesate, bispyribac sodium, mesotrione (postemergence)	pronamide, (preemergence); trifloxysulfuron-sodium, foramsulfuron (postemergence)	Be prepared for turfgrass and annual bluegrass injury
	paclobutrazol, flurprimidol (plant growth regulators)		**Caution:** apply only when warm season turfs are growing vigorously; do not apply 6-8 weeks prior to or during field use as it will halt growth