Continuing Education for busy Sports Turf Professionals October 14-16, 2005 in Louisville, Kentucky at the Expo

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Friday, October 14, 2005 - Landscape 1 Track

❑ Session LC01 - 8:00 to 10:00 - *Synthetic Infill vs. Natural Turf*
Accreditation Applied For: ASLA, CCA, GCSAA, STMA
A.J. Powell, Ph.D., University of Kentucky; George Neagle, Synlawn

❑ Session LC02 - 10:30 to12:30 - *Drainage Issues in the Landscape*
Accreditation Applied For: ASLA, CCA, GCSAA, IA, ISA, STMA
Barry Kew, University of Kentucky; Phil Hilliker, EMCH Bros.

❑ Session LC03 - 1:30 to 3:30 - *Hemlock Wooley Adelgids*
Accreditation Applied For: CCA, DPR, GCSAA, ISA
Terry Tattar, Ph.D., University of Mass.; James Cortese, Cortese Tree Specialists

Friday, October 14, 2005 - Golf Track

❑ Session LC04 - 8:00 to 10:00 - *It's All About the Turf*
Accreditation Applied For: ASLA, CCA, GCSAA, STMA
Erik Ervin, Ph.D., Virginia Tech; Michael Vanatta, Environmental Turf

❑ Session LC05 - 10:30 to 12:30 - *Management Skills for Golf Courses*
Accreditation Applied For: GCSAA
William Baker, Rep. UCR Ext.; Andrea Bakalyar, Wee Course at Williams Creek

❑ Session LC06 - 1:30 to 3:30 - *Golf Course Preparation*
Accreditation Applied For: CCA, DPR, GCSAA, STMA
William Baker, Rep. UCR Ext.; Andrea Bakalyar, Wee Course at Williams Creek

Saturday, October 15, 2005 - Arboriculture Track

❑ Session LC07 - 8:00 to 10:00 - *Micro-Injection Solutions*
Accreditation Applied For: CCA, DPR, GCSAA, ISA
Terry Tattar, Ph.D., University of Mass.; James Cortese, Cortese Tree Specialists

❑ Session LC08 - 10:30 to12:30 - *Tree Decay: Structural Issues*
Accreditation Applied For: CCA, DPR, GCSAA, ISA
William Baker, Rep. UCR Ext.; Susan Sims, Sims Tree Learning Center

❑ Session LC09 - 1:30 to 3:30 - *Soil Issues That Impact Tree Health*
Accreditation Applied For: CCA, DPR, GCSAA, ISA
Susan Sims, Sims Tree Learning Center; Paul Sachs, North County Organics

Saturday, October 15, 2005 - Sports Turf Track Sponsored by STMA

❑ Session LC10 - 8:00 to 10:00 - *Managing Healthy Sports Fields*
Accreditation Applied For: CCA, DPR, GCSAA, STMA
Tom Samples, Ph.D., University of Tenn.; Paul Sachs, North County Organics

❑ Session LC11 - 10:30 to12:30 - *Efficient Irrigation Management*
Accreditation Applied For: CCA, GCSAA, IA, STMA
Dave Minner, Ph.D., Iowa State University; Lynda Wightman, Hunter Industries

❑ Session LC12 - 1:30 to 3:30 - *Developing an Aerification Program*
Accreditation Applied For: CCA, GCSAA, IA, STMA
Trent Hale, Ph.D., Clemson University; Dale Getz, The Toro Company

Sunday, October 16, 2005 - Landscape 2 Track

❑ Session LC13 - 8:00 to 10:00 - *Sustainable Landscapes: HortiGenomics*
Accreditation Applied For: CCA, DPR, GCSAA, ISA, STMA
Susan Sims, Sims Tree Learning Center; Dr. Bruce Williams, Agronomy and Horticulture Services LLC; Ron Whitehurst, Rincon-Vitova Insectaries

❑ Session LC14 - 10:30 to12:30 - *Warm Season Turf for the Landscape*
Accreditation Applied For: ASLA, CCA, GCSAA, STMA
Trent Hale, Ph.D., Clemson University; Michael Vanatta, Environmental Turf

❑ Session LC15 - 1:30 to 3:30 - *Laws and Regs for Chemical Application*
Accreditation Applied For: CCA, DPR , GCSAA, ISA, STMA
Ken Franks, Kentucky Dept. of Ag.; Jerry Seabolt, Tennessee Dept of Ag.

Sunday, October 16, 2005 - Park and Recreation Track

❑ Session LC16 - 8:00 to 10:00 - *Turf Options for Park & Recreation Mgmt.*
Accreditation Applied For: ASLA, CCA, GCSAA, STMA
Tom Samples, Ph.D., University of Tenn.; Michael Vanatta, Environmental Turf

❑ Session LC17 - 10:30 to12:30 - *Saving Water with Irrigation Efficiency*
Accreditation Applied For: ASLA, CCA, GCSAA, IA, STMA
Bernd Leinauer, Ph.D., New Mexico State University; Andy Moore, Aquatrols

❑ Session LC18 - 1:30 to 3:30 - *Managing Pest Outbreaks in Trees*
Accreditation Applied For: CCA, DPR, GCSAA, ISA
Ron Whitehurst, Rincon-Vitova Insectaries; Joe Doccola, Arbor Jet

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Evaluating baseball field surface quality

BY **JIM BROSNAN AND DR. ANDY MCNITT**

Baseball is our national pastime. From Legion ball to the major leagues, interest in baseball remains strong. It seems that every town in America has a baseball diamond, and these diamonds require maintenance. Someone mows these fields, drags the skinned areas, and puts down chalk lines. In professional baseball, the techniques used by the field manager can impact the game itself.

The industry recognizes that baseball field management (specifically skinned infield management) is more of an art form than a science. Practices have been handed down from one field manager to the next, with what constitutes a quality field in the eye of the beholder.

As scientists, we would like to quantify how various management practices affect playability in the hopes that this knowledge would benefit players, coaches, and field managers. Understanding the effects of things such as **(continued on page 16)**

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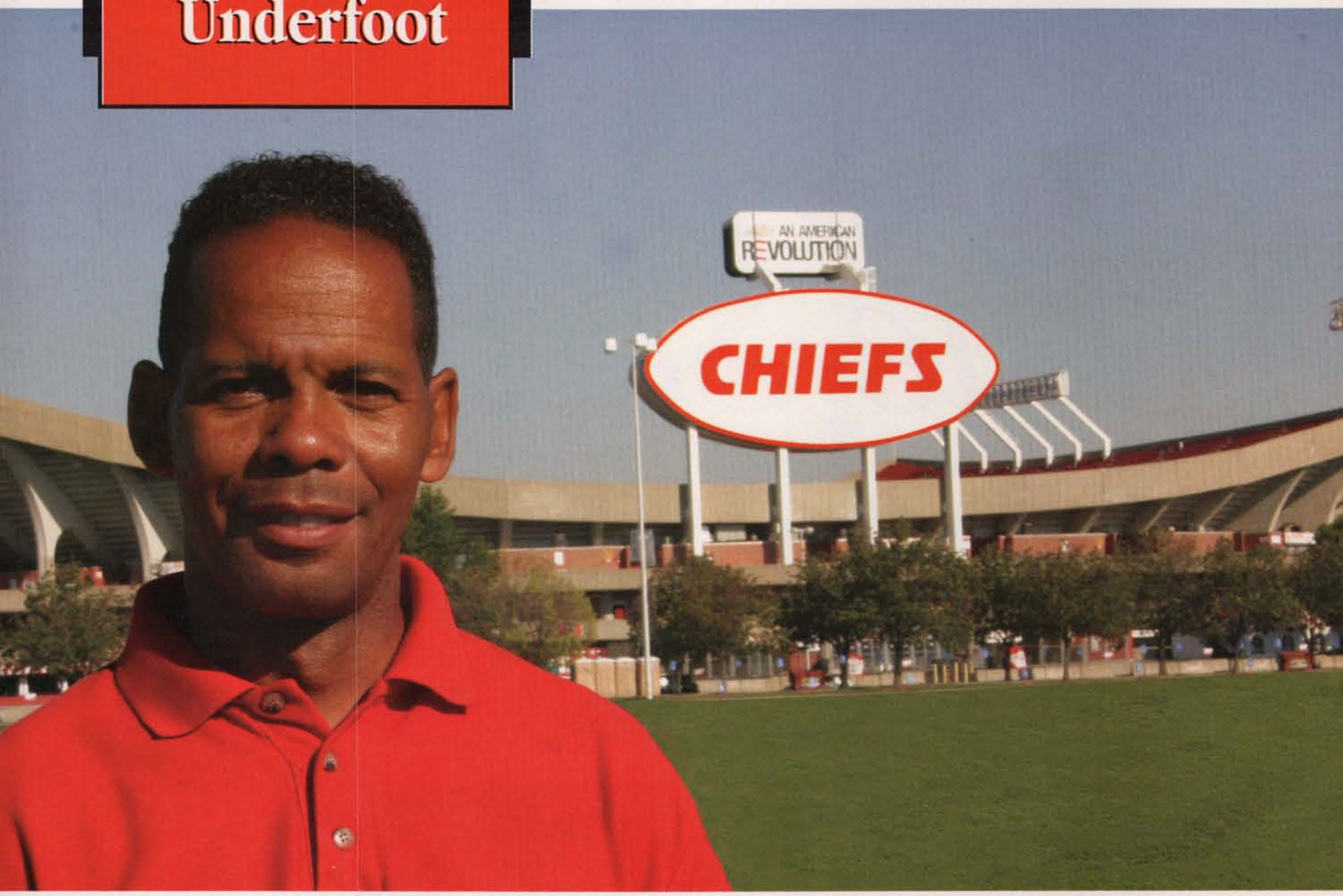

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SEED RESEARCH
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(continued from page 10) seem very high compared to the normal broadcast seeding rates for grass establishment on bare ground. With divot mix it is important to remember that seed is mixed throughout a volume of sand and then the mixture is placed at various depths into divots. Seed visible on the surface dries out and seldom establishes while seed below a certain depth (1/4-inch for perennial rye and tall fescue, and 1/8-inch for Kentucky bluegrass) is shaded and does not continue to develop.

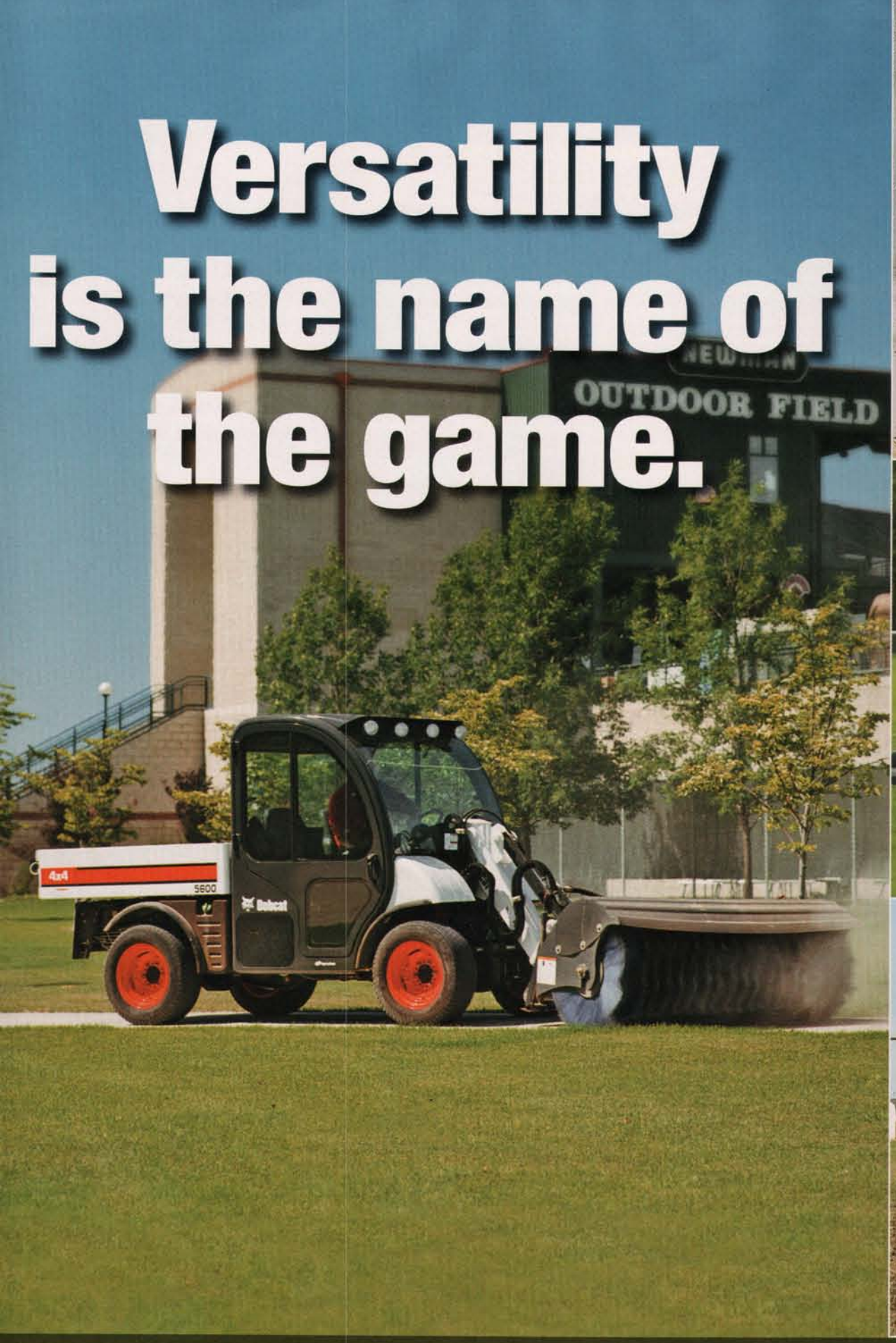
For each home game we mix about eight 5-gallon buckets of sand with 15 pounds of perennial ryegrass or 10 pounds of Kentucky bluegrass seed. After filling divots we feel that we are getting about 100 seedlings/square inch. At this rate the divots fill quickly without a negative effect from seedling over crowding. Some seedlings get trampled and die but those that survive create biomass and a mature turf for the beginning of next year as opposed to bare spots with exposed and compacted soil.

We start the season in September using Kentucky bluegrass since it establishes well during September but may not fill divots when seeded in October. After the beginning of October we switch to perennial ryegrass because it establishes until the end of October and even into early November. Pregerminated Kentucky bluegrass divot mix seeded in early September will have nearly 90% of the divot covered with "green fuzz" in 7 days. Perennial ryegrass fills the divots about twice as fast as the Kentucky bluegrass. Pregermination fills the divots twice as fast as seeding without pregermination. One advantage of the pregerminated divot mix over non-germinated seed is that the pregerminated seed does not require excessive water to get the seeds started. They are already growing and it only takes a little more frequent watering to make the seedlings develop.

For downloads, see http://turfgrass.hort.iastate.edu/extension/preseed.pdf. ST

Mike Andresen, CSFM, is athletic turf manager for Iowa State, and Dr. Minner is a professor and extension turfgrass specialist in Ames.

Versatility is the name of the game.



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(continued from page 12) soil conditioners and irrigation regimes would benefit the industry as a whole.

This past summer Jim traveled the country to conduct a survey of baseball field playing surfaces through the Turfgrass Research Project at Penn State. Characteristics of skinned surfaces, as well as natural and infilled synthetic turf surfaces, were catalogued at all levels of play ranging from little league, through the NCAA, and Major League Baseball. While we are still in the early stages of research, we have observed some interesting trends.

First, skinned surfaces are exceptionally hard. Frequently, these surfaces produced Gmax (hardness) values that were so high that resurfacing would be required in sports such as soccer or football. This may contribute to the wear and tear type injuries that are commonly reported by baseball trainers. We need to explore this issue further. Water applications will certainly soften these areas, but little is known about appropriate quantities. For example, do we need 10 gallons of water per 1000 square feet to soften the skinned areas by 10%, or do we need 15 gallons? Of course it will depend on your infield mix. Further research is being conducted at Penn State to try to answer these questions. Stay tuned.

Surprisingly, the moisture content of the infield mixes evaluated had very little effect on ball response after impact. The ball response was measured with a new device affectionately named PennBounce. PennBounce consists of an air cannon that propels baseballs, at various angles, towards the playing surface at speeds up to 150 mph. Infrared speed gates are used to measure ball speed before and after impact with the ground. On skinned infields, observations indicate that the subbase layer (the layer below the soil loosened by grooming equipment) plays an important role in ball reaction. Standard pre-game water applications do very little to soften this compacted base. Increasing the depth of loose material above the base will certainly slow down ball response, but may prohibitively reduce an athlete's traction. Researchers at Penn State are currently measuring changes in ball response, surface hardness, and traction that result from loosening infield mixes to varying depths. In the near future, we hope to equip athletes with devices that measure the amount of force that is exerted on the lower body as they perform on these various surfaces.

Surface characteristics across the diamond varied. Surface hardness was lowest at second base, with hardness increasing at third base and peaking at first base. This is likely due to the nature of the respective positions. First and third basemen tend to be more stationary than middle infielders during play. Also, players reach first base more than any other base on the diamond. This traffic may compact the soil to a greater degree, thus generating higher Gmax (hardness) values.

Baseballs approaching skinned surfaces at a 25-degree angle lost 43% of their initial velocity on the first bounce. For example, a ball leaving the bat at 100 mph

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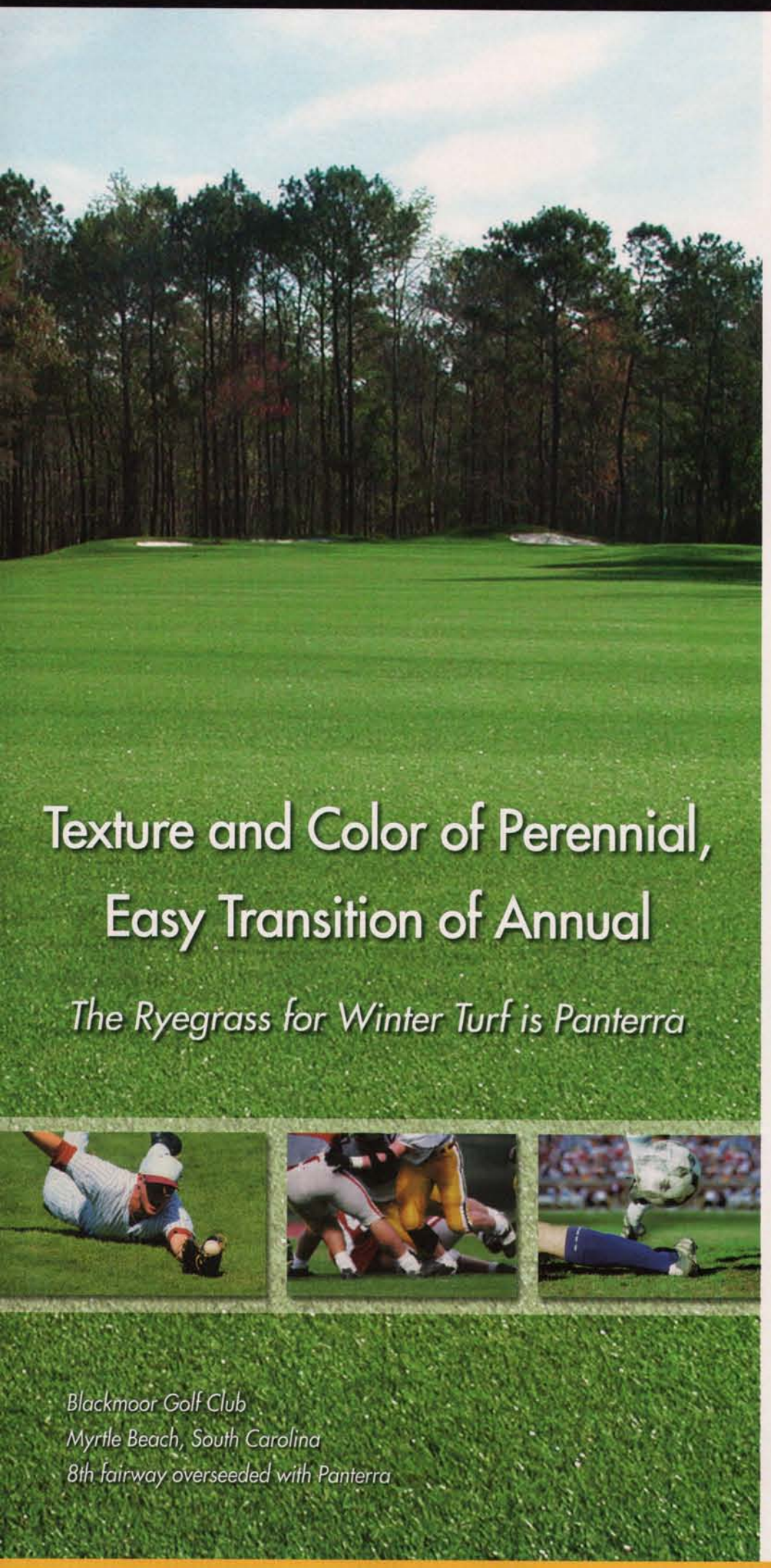

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will strike the skinned area in front of the shortstop at roughly 88 mph (baseballs lose velocity at a rate of 1 mph for every seven feet of travel), and after the first hop it will approach the shortstop at roughly 50 mph. The skinned areas of the fields observed were quite a bit faster than both the natural and synthetic turf areas. Small differences were found when comparing infill systems to natural turfgrass. Balls striking those surfaces lost 48% and 53% of their speed after the first bounce, respectively. A ball moving 5% slower allows the player to travel approximately a foot further in the approach, which could be the difference between the ball hitting the center of the glove or screaming through the hole into the outfield.

Ball response on infilled synthetic turf surfaces was affected by surface hardness and infill depth, with softer, deeper surfaces having a slower ball speed after impact. Infilled synthetic turf surfaces exhibited a strikingly consistent bounce across the playing surface. Regardless of whether the ball struck in front of home plate, on the third base line, or down the left field power alley, the ball response was the same. This phenomenon was only true of fields greater than one year of age. Infilled synthetic turf fields younger than one year of age showed differences in ball response across the playing surface. Likely, the rubber and sand particles that comprise the infill need time to settle into place and firm up in order to produce this level of consistency. Outfield areas of infilled synthetic turf surfaces had higher Gmax (hardness) values than infields.

There were no surprises with natural turfgrass playing surfaces. As expected, surface hardness, moisture content, and thatch were all key factors in gauging ball speed after impact. Differences in surface hardness and moisture content varied with field positions. Centerfield was slightly softer than left and rightfield. Similar to what was observed with first and second basemen on the skinned areas, centerfielders tend be on the move more during play than left and right fielders. This likely reduces compaction enough to alter surface hardness. Outfields had higher moisture contents than infields. This makes sense, as outfields are left exposed to rain showers while the infield grass is tarped. Further research is being conducted to explore how cultural practices such as mowing height and verticutting, as well as irrigation affect ball response on natural turfgrass.

This survey of playing surfaces at all levels of competition has given us some idea of the range of surface conditions that currently exist. The next step at Penn State is to create field plots that mimic these surface conditions, and determine the degree to which we can manipulate those conditions with management practices. We plan to conduct a series of baseball related research projects at Penn State in the hopes of contributing to the playability and safety of the fields that host our national pastime. **ST**

Jim Brosnan is a doctoral candidate in the Department of Crop and Soil Sciences at Penn State. Andy McNitt is assistant professor of soil science in University Park.

Same ~~job~~ day, different ~~day~~ job.

Cures for the "high traffic, low budget" blues

BY **DOUGLAS FIELDING**

When I read articles about the difficulties expressed by people maintaining fields that have 70 games a year or people stressing over 1/4"-inch of sand topdressing every two weeks I just shake my head. Most of the fields our group, Association of Sports Field Users (ASFU), maintains handle 470-750 practices and games per year, mostly for soccer, lacrosse, and rugby.

We are generally brought in to deal with fields around San Francisco Bay after user groups have given up on getting local authorities or school districts to cut the grass more than once every 2 weeks or turn on the sprinklers occasionally. By the time we see a field it is not uncommon that someone had been injured due to its condition.

Once I was talking with a parks director and six of her maintenance staff. The subject was fertilizer and she turned to her crew chief and asked, "What type of fertilizer do we use?" And he responded in all seriousness, "Oh we don't use fertilizer, it makes the grass grow."

The primary maintenance issue in the public sector is a lack of budget and overuse, coupled with the belief that it is impossible to have any impact on field use. But it doesn't have to be this way.

Grass isn't a policy it's a plant. We can bring a dirt patch field back to playing condition in 10 weeks if there is NO traffic. User groups and politicians have to accept a 10-week maintenance shutdown (or restricted use as outlined below) during a growing season (winter doesn't count) if they want decent fields. If they aren't willing to do this then they shouldn't complain about the quality of the fields.

Our organization is a non-profit coalition of sports field users, everything from youth soccer to women's rugby. We represent more than 17,000 players. We believe when you actually explain the maintenance reality to field user groups a majority will choose less playing time on better-maintained fields rather than more playing time on poorly maintained fields.

Field maintenance in a public sector environment requires speed and attention to detail. The minute the users' season ends, start your 10-week shutdown. If you wait, you lose time from your "growing season" and are headed toward failure. If you can't produce a decent field, why should the field users support your work?

Speed, speed, speed. Seven days before the season is over (end of November in the fall and mid June for spring) we slit seed the fields with perennial rye. We use perennial rye because it moves quickest from seed to top growth. We can't afford the luxury of grasses like Kentucky Blue, which take more time to establish. We don't care that the players are cleating up our newly seeded field because we don't yet have germination.

The day after the season is over we put about 30 yards of organic topdressing on every field, working morning to night. As soon as this is done, we put about 400 pounds of a high phosphorus (e.g. 18-24-12) product down to give the roots of the seedlings some help. Then we aerate every field. On our most heavily trafficked fields, we have seeded, topdressed, filled depressions, fertilized and aerated them within 3 days of season's end. And thanks to the early jump on slit seeding we are getting germination as the aerator is being taken off the field.

Once our maintenance is done all our fields have "Field Closed" signs on highway construction barriers in the middle of the field. Some local governments consider playing on a closed field to be destruction of public property with fines for abusing organizations and players. A few fines here and there and I can honestly say that playing on a closed field is not a major problem. But we also regularly patrol the fields to kick off the occasional transgressor. If it rained the night before but it's a sunny day, look for them.

Next we start working on problem areas. Almost every field we deal with relies on sheet drainage and the few sand based fields we work on have had so many maintenance people with so many different ideas over the years that the fields themselves are now really soil-based fields with a sand subgrade.

We locate problem areas by running the sprinkler system and checking all heads to check rotation and throw. Water ponds in depressed areas. We use field paint to circle the mini pond or the dry spot. We then put a flag in the center of the area with an analysis of the problem, i.e., "sprinkler riser too low" or "area about 1" below grade."

If we have problems we can't fix or see something we don't know about, we call Ali Harivandi, our local turfgrass specialist with the University of California Cooperative Extension. Ali has a network of people with specific expertise, for example a rep from the local water district, who does free evaluation of irrigation systems. Helpful people like these most likely exist in your community.

About 7 days after the season is over, we have completed both our general and our spot specific maintenance. Then we water once during the evening and then midday to keep the seeds and seedlings moist. Over the next four weeks we will stop by the field almost every day, adjusting and fine-tuning the water. After four weeks the grass is up and can take a little watering abuse.

During the summer shutdown we allow our grass