TURF WARMING SYSTEM

Soil Air Technology, LLC will provide a turf warming system to Virginia Tech for Worsham Field at Lane Stadium in Blacksburg. The system will be used to heat and aerate the Bermuda grass, which is a warm season grass in Blacksburg’s cool season climate. Blowers will force air through the drainage system beneath the field, which was constructed in the spring and summer of 2002 using Green Tech ITM modules.

Soil Air Technology/877-784-5247
For information, circle 159 or see www.OneRS.net/212sp-159

TURF COVERS FOR BENCH AREAS

Sidelines torn up and muddy? Protect your turf along bench areas from being trampled into quagmires with TURF ARMOR (light green/gray blend) or TERRA-COVER (dark gray) bench tarps. Heat welded, one side smooth for strength and cleat-resistance. Running track covers also available.

Partac/Beam Clay/800-247-2326
For information, circle 162

ROUNDUP TOLERANT

Turf-Seed has introduced Aurora Gold, a Roundup-tolerant hard fescue ideal for creating weed-free areas and soil stabilization in numerous applications, including golf course roughs, vineyards, nurseries, tree plantations and roadsides. Aurora Gold is the result of natural breeding and selection conducted by Pure Seed Testing, an affiliate of Turf-Seed.

Studies at Rutgers University show that Aurora Gold tolerates up to 16 oz. of Roundup per acre, with less than 8 percent damage, even with repeated applications.

Turf-Seed/503-651-2130
For information, circle 158 or see www.OneRS.net/212sp-158

FASTER DRAINAGE INSTALLATION

Sand Channel Greens’ newest machines quickly install the company’s unique drainage systems. Sand Channel Drainage is appropriate for all types of sports fields, and can be installed during initial construction, as part of a major renovation, or as a stand-alone enhancement for existing fields. The systems provide the drainage benefits of sand-based construction at a fraction of the cost, and without creating complex maintenance requirements. See STMA booth #643

Sand Channel Drains/800-379-8873
For information, circle 158 or see www.OneRS.net/212sp-158
**BOTANICAL INSECTICIDE**

Azatrol EC insecticide from PBI/Gordon controls insects on shrubs, trees, and flowers. Its active ingredient, azadirachtin, acts in multiple ways to control insect pests and mites, including anti-feedant, growth regulation, anti-ovipositioning, and repellent action. Azatrol has a Caution signal word due to its extremely low toxicity to mammals. The product has received federal registration but is being marketed this year only in California, the Pacific Northwest, and Eastern Seaboard states from Maine to Virginia.

PBI/Gordon/800-821-7925
For information, circle 166 or see www.OnsRS.net/212sp-166

**HELMET_STENCIL_KIT**

Pioneer's durable football helmet stencils are convenient to use, lightweight enough for one person to manage comfortably, says the company, but heavy enough to lie flat on pavement or grass to assure clear line definition and minimum overspray. The high-quality plastic is flexible so it will not splinter or warp even when stencil is rolled up for storage.

Pioneer Manufacturing/800-877-1500
For information, circle 164 or see www.OnsRS.net/212sp-164

**SEAISLE 1 CERTIFIED SEASHORE PASPALUM**

This fine-bladed certified seashore paspalum is a good alternative to Tifway 419 and TifSport Bermuda in salt stressed environments. With the right management practices, you can irrigate Seaside 1 using a seawater blend, or even straight ocean water. It makes a fine turf for golf course fairways, tees and roughs. It is also a good choice for sports turf, home lawns and commercial landscaping.

TifSport/888-584-6598
For information, circle 161 or see www.OnsRS.net/212sp-161
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Stabilizer natural soil binder mixed with conditioners in front of home plate keeps more infield hits playable. This unique binder can improve any soil or crushed stone surface.

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Hunter Industries has available its new wireless Rain-Clik, an electronic weather sensor that can be installed without running electrical lines to the irrigation controller. The unit can be mounted on a wall or fence, is compatible with all standard 24-v controllers, and is available in a ready-to-install kit with transmitter and receiver. Transmitter has 300-ft. range; receiver attaches near the controller and has a built-in bypass switch.

Pacific Sod recently changed from soil-grown St. Augustine to all Garden Carpet production of the warm-season specialty grass. Garden Carpet is the company’s patented process using organic mulch as a growing medium for sod products rather growing the sod in native soil. Having Sunclipse St. Augustine available grown this way both speeds production and harvest time and makes laying the sod faster and cleaner than with soil grown varieties.

Dakota Peat and Blenders have been in the custom blending business for nearly 20 years and can handle any blending need. The 2250 blender is accurate and the company’s experienced operators have been involved in many NFL and MLB projects.

The new T2500 straight shaft trimmer is the first and only trimmer of its kind available in stores now.
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We currently have 26 affiliated Chapters and more are forming!

_Congratulations and Welcome to STMA's Three Newest Affiliated Chapters:_

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_The Pacific Northwest Sports Turf Managers Association_
_and_
_The Kentucky Sports Turf Managers Association_

Chapter contact and event information is available in this issue and on the website at [www.sportsturfmanager.com](http://www.sportsturfmanager.com).

Thanks to continuing contributions from our Chapter Sponsors, STMA has been able to send Executive Director, Steve Trusty, a member of our Board of Directors, or another distinguished STMA representative to at least one meeting for most of our Chapters. Sponsor funding also helps support Chapter Regional Conference Calls to continue the networking between Chapters throughout the year.

Also, thanks to our Chapter Sponsors, we are able to continue to offer the Chapter Officers Training & Idea Exchange Session (COTS) in conjunction with our Annual Conference & Exhibition. The next session will be held January 14, 2003, from 1:00-6:00 PM, just prior to the 14th Annual STMA Conference & Exhibition in San Antonio, Texas, January 15-19, 2003.

If you would like to start a Chapter in your area or would like information on any of our affiliated chapters, contact:

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or fax to:
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In the world of professional football, money talks. You might even say it’s the foundation for everything that happens on the field. Unless, that is, the field itself is deemed unfit for play, something that quickly affects the bottom line.

Last year, one NFL team learned a costly lesson when their network-broadcast game was cancelled amid furious controversy moments before kickoff. TV images captured the root of the problem when layers of tough artificial turf were peeled back, leaving fans, managers and players were livid. TV audiences aimed their remotes elsewhere, and advertisers wanted a refund. Total damage: an $8 million loss in revenue and some measure of embarrassment.

A sports turf professional recently said, "The field is the game’s foundation. If it’s unsafe, you place the entire franchise at risk. A $20 million QB can fall hard and spend the rest of the season in recovery. The condition of the field can be our worst nightmare or an answer to dreams."

There’s a trend afoot: Real grass. What gives real turf an advantage, and players the best surface going, lies hidden in the soil where roots receive gentle warmth from miles of pipe that circulate heated fluids.

Gillette’s Field

One of the newest and most advanced turf conditioning systems is now hard at work under the field at Foxboro’s new Gillette Stadium, home to this year’s Super Bowl champs, the New England Patriots. According to Dennis Brolin, the Patriot’s field superintendent, the application of technology to enhance turf performance has “finally come of age.”

The Patriots’ new radiant heating/turf warming system, manufactured by Springfield, MO-based Watts Radiant, uses 153,000 lineal feet, or 29 miles, of cross-linked polyethylene (PEX) pipes that feed warmth to the soil. The manufacturer has installed similar systems for other sports facilities, including Safeco Field and BankOne Ballpark.

Watts Radiant engineer Kolyn Marshall, who designed Gillette Stadium’s system, says that turf warming and turf conditioning systems are gaining broad and enthusiastic acceptance in the realm of professional sports especially turf sports, such as soccer and football. The reason is a growing need to protect a team’s investment, the players themselves.

According to CNN Sports Illustrated, at the end of the 2001 season there were over...
160 injuries reported in the NFL. Of these injuries 21 were ankle-related and 46 were knee-related. Almost half the injuries can be attributed to turf related conditions.

"New turf conditioning systems have evolved substantially in just the last year," says Brolin. "It's an evolutionary process, and Kolyn's on the grass-cutting edge. You might say he's the Charles Darwin of sports turf technology."

At just 25, Brolin was hired in 1996 as the protégé of Pierre Landry, one of the most respected sports turf professionals in the NFL. When Landry moved on, Brolin stepped in. Within months, the Patriots put him in charge of the 93,200 square-foot playing field Gillette Stadium project.

Unlike what many of us might have done at such an early age, Brolin moved deliberately to research the technology. He recalls many 18-hour days when his focus was entirely set on pounding down the learning curve. He visited experts, hit the books, spoke with manufacturers and installers, logged a thousand-some calls and took trips to turf-conditioned NFL fields in Baltimore, Cleveland, Green Bay and Cincinnati.

Says Brolin, "The turf professionals at each of the facilities I visited were incredibly gracious. They gave me more insight into the technology than I could have expected. Most importantly, I learned from them what went wrong with their systems, or where improvements were needed. Each had a different set of problems, which they shared with me, giving me a huge advantage in making preparations for our field." (See sidebar.)

Even with new developments in irrigation and soil management, the ability to grow turf is directly related to the condition and temperature of the root zone. Constant root zone temperatures help to accelerate turf growth, allowing for faster repair of damaged areas, and also help to maintain a more pliable soil condition, the perfect environment for roots to grow.

With a turf conditioning system in place, and doing its job, the result is a healthy grass playing surface that's better cushioned, causes fewer skin abrasions or deeper, more serious injuries, and plays well. It improves turf quality, extends the growing season because roots don't go dormant, and greatly reduces maintenance costs because the field is so much more durable. Typically, all sodding, seeding and patching are eliminated.

**Does it melt snow?**

A turf warming, or turf conditioning, system is similar to a snowmelt system, but there are key differences that separate them. "The main difference is what our goal is," says Marshall. "In a snowmelt system we are trying to melt snow at the surface. To do this we need a surface temperature greater than 32 degrees. In a turf sys-

**Typically the radiant system in the field is turned off a few days before game day, just the opposite of what you'd think.**

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Understanding how each of these layers is constructed is just the beginning. The next step is to determine where the radiant tubing is to be placed. This decision is influenced by layer construction and also by how the field is to be maintained.

Aeration is a key component. Different fields will require different aeration techniques, but one thing is the same: something must penetrate the field in the aeration process. The radiant tubing, and any irrigation equipment, needs to be deep enough not to be damaged or interfere with the aeration process. In most fields, the construction is such that the build up is uniform, creating a "domed" effect as one looks across the field. This method helps with water control and also allows for even depth of all components.

"To Brolin, the most critical part of the system's performance happens at the point where heat moves from the pipes to the root zone mix. Fluids in a pipe of up to 130° to 140° F would be very hard on grass roots, so this became a key interest of his. He learned that, if exposed to those temperatures, the roots would gradually die, root pathogens would proliferate and moisture would be pushed up to the surface where field-tenders least want it.

Zoning a radiant turf warming system plays a critical role. It's influenced by mechanical constraints, such as how the supply and return lines are accessed, field abuse (which areas need faster recovery) and solar exposure, based on knowing when certain areas of the playing field will be warmed by the sun. The shape of the stadium and the shadow it casts chiefly determines the amount of solar exposure each section of the field receives.

For the Patriots, a six-zone system was created with three zones on each side of the 50-yard line. Tubing runs parallel to the sidelines, from the end zones to the midfield and back. Four-inch manifolds were installed along each end zone for the 3/4-inch E-PEX to connect to.

"After seeing the system go in, and studying the plans, we recently were told by professionals with a large commercial construction firm that our tolerances were tighter and more demanding than those made of the firm when building high-rises," says Brolin. "I guess that didn't surprise me entirely.

"Nothing will ever replace grass," says Brolin. "But you've got to have the system in place to support it. Every detail has to fall in place. It all comes down to quality control, the right plan, the right installers, and the right materials manufactured to perfection."

John Vastyan is president of Common Ground, Uncommon Communications, Manheim, PA. He can be reached at 717-664-0535.