and recommend renovation methods for the softball facility. Tests of the infield mix at the softball field showed a high percentage of silt. Dusty conditions on an infield can often be attributed to an infield mix that is high in silt and is not watered enough.

Many natural grass athletic complexes have in-ground, head-to-head irrigation systems. Instead of hand watering the field three to four times per day, consider installing a separate irrigation zone that waters the infield mix at a different time and rate than the turf areas. High-speed irrigation heads should be used in this type of application. Standard irrigation heads provide a slower, more thorough watering which is required for turf areas. The high-speed heads allow sports turf managers to initiate a quick irrigation cycle that will moisten the infield mix without saturating the skinned areas. The incorporation of a high pressure water hook-up near the infield is also advisable to aid in the lip removal process at the border of the infield surfaces and turf areas. Watering efficiently will save time and dollars.

Cover up and support high-use areas. Keep maintenance at a minimum by purchasing a cover. Watering and then covering the skinned areas of a field when the field is not in use will help the infield mix retain its moisture and thereby prevent it from drying up and becoming concrete-like. Once an infield mix is allowed to dry up, it requires a significant amount of man-hours and dollars to return it to a playable condition. Also consider installing clay bricks underneath the infield mix to fortify batters boxes and pitcher’s mounds.

Think about the following: What is the first thing a batter does when he/she steps into the batter’s box? What is the first thing a pitcher does when he/she takes the mound? They dig themselves a firm foothold. Clay bricks are installed approximately 2 inches underneath the top layer of infield mix and prevent deep ruts that will require repair after every game or practice.

Test the infield mix. Infield mix tests are an essential component in the renovation and maintenance of skinned athletic surfaces. Consider the constantly evolving nature of the natural grass portions of softball (and baseball) fields. Soil tests should be conducted a few times a year to analyze the chemical and physical properties of the turf’s rootzone. Much like natural grass, the composition of infield mixes evolves over time and should be tested annually. Annual maintenance of skinned infield areas typically requires the addition of amendments such as calcined clay.

Play on the infield, water and wind born erosion, and amendments will change the properties of the infield mix. Annual tests help determine what the skinned areas need to keep their composition in synch with the properties of the original design mix.

Improve drainage. Under perfect conditions, skinned infields with quality infield mixes are exceptional playing surfaces. Unfortunately, perfect conditions

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cannot be guaranteed over the course of a softball season. Poor surface drainage is usually the primary reason why a skinned infield area fails. Internal drainage is poor even in the best-designed infield mixes. Considering subsurface drainage has little or no effect under skinned infield surfaces, facilities are better suited spending money and time during design and construction to maintain positive surface drainage away from the infield.

When possible, design swales to intercept water from surrounding areas before it has a chance to cross the infield mix or any of the playing surfaces. Insufficient drainage will only create additional maintenance headaches for athletic and facility departments. If an infield does not drain properly, the condition of the field will deteriorate immediately when used during or shortly after inclement weather. Use of drying agents can help to keep a field playable during a light rain but proper design, intricate grading of the infield during construction and regular maintenance is the best way to ensure your field will be suitable for play in a short period of time after inclement weather.

**Make the grade.** How the infield is graded (the way the ball rolls) significantly affects the playability of the field and thus the potential safety of the athletes. The NCAA provides recommendations and guidelines on how fields should be graded well as instill a sense of pride in the facility.

Softball fields are dynamic facilities that will always require the attention of a skillful and creative maintenance staff. For programs working with limited funds, good design decisions can improve playing conditions and reduce the chances for serious renovations in the near future.

Patrick Maguire is the president and Mark Novak is a project manager of Geller Sport, a division of Geller DeVellis Inc., a Boston-based landscape

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Preventing winterkill with data loggers

Over the past few winters, turf in the northeast United States have been subjected to some of the most extreme weather conditions seen in decades. Steve Thys, superintendent of the Worcester Country Club in Massachusetts, says that two winters ago, he did a routine check of one of his greens after snowfall on an already covered ground. According to Thys, “Everything looked as lush green as it had in November because it had not hardened off by the time the first snowfall fell.” Just a little over a week later, he checked the green again, only to find winterkill.

“Something happened during those ten days, but it was impossible for us to pinpoint any specific weather occurrence,” Thys says. “Nevertheless, we had a big problem on our hands, and it was a race against time to get the damage repaired since our members flock to the course the minute the snow melts.”

Thys’ story is so common in the Northeast that he and other superintendents are beginning to monitor greens in the off-seasons with battery-powered data loggers.

Data loggers are compact instruments that incorporate built-in micro processing, high-accuracy temperature sensing, and battery power in an enclosure designed for long-term deployment outdoors. Loggers can be placed under turf covers during the winter months, where they will collect temperature data at user-defined intervals (e.g., every 10 minutes) and store it digitally into logger memory.

Data loggers are perhaps one of the simplest and most straightforward of PC-based technologies. Using them involves four basic steps: logger set-up, deployment, data retrieval, and analysis.

Setting up a logger is typically done by connecting the device to a PC and using accompanying logger software to make a number of point-and-click selections. These include how often the logger should take a turf temperature measurement, and the specific date and time the logger should start recording.

Deployment involves determining optimal placement of the logger on the green and physically installing the logger under its covering. Data retrieval can be accomplished manually, where the turf manager offloads the collected data onto a PC, laptop or data shuttle, or, in certain cases, automatically, where the logger transmits the data to a PC via wireless communications.

Analysis of the data is typically performed using the accompanying data logger software to translate the data into time/date-stamped graphs that show spikes and drops in turf canopy temperature over the given data collection period.

Peter Hasak, superintendent of Tedesco Country Club in Marblehead, MA, has been experimenting with data loggers and various types of greens covers to understand the differential temperatures above and below the cover surfaces and to correlate that data with potential damage to the greens.

“While we’ve typically been using translucent covers that let a lot of sunlight in, we are looking at making the change to solid white covers in some areas,” he says. “The idea of bringing solid white covers into this part of New England is relatively new, but it’s an idea worth considering in certain situations.”

This article was supplied by Onset Computer Corp., www.onsetcomp.com.
TURFACE PRO LEAGUE

TURFACE Pro League from Profile Products is designed to increase safety, playability and drainage for baseball and softball infields at any level. Manufactured with smaller, uniform particles, Pro League is the only patented calcined clay infield soil conditioner on the market. Pro League conditions infield soils for exceptional sliding and fielding surfaces.

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Pioneer Manufacturing/800-877-1500
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Precision Labs/800-323-6280
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Mar Mix is a natural product that is screened, red in color, percolates water; sand/silt/clay blend makes for an excellent choice of infield materials. Processed by Southern Athletic Fields and used on professional fields, colleges and universities, high schools and parks and recreation departments. Photo is the Hoover Met Stadium, Hoover, AL, and site of the SEC Baseball Tournament.

Southern Athletic Fields/800-837-8062
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SAFE Scholarships Awarded to 13 Students

The Foundation for Safer Athletic Field Environments has awarded scholarships to 13 students who are pursuing a degree that will prepare them to become sports field managers. The Toro Company Foundation funds a major portion of the scholarship program. Students who are in two-year, four-year and graduate programs are eligible to submit an application.

To submit, students must fill out a comprehensive application form and information sheet, write a biographical essay, submit recommendations from an employer and faculty advisor, and provide a copy of their most recent transcript. Students are judged on their academic preparation, experience in sports turf management, their professional goals as well as their potential to make a future impact in the industry.

Winners this year include:

(2-year program)
Julio Cesar Carbajal, Mt. San Antonio College, who received the prestigious Fred Grau award named in honor of the first extension specialist in the U.S.;

Daniel Blank, Anoka-Hennepin Technical College; and Justin Hoffman; Southeast Technical Institute.

(4-year program)
Nathan Salmore, University of Massachusetts Amherst, who received the Watson scholarship, named in the honor of Dr. James Watson, a pioneer in the turf industry; Justin Scott, University of Missouri; Shawn Mahonski, Pennsylvania State University; Kyle Slaton, Pennsylvania State University; Aaron Fineberg, Pennsylvania State University; Andrew Bartley, Pennsylvania State University; Timothy Allen Burns, University of Massachusetts Amherst; and Kristen Althouse, Pennsylvania State University.

(Graduate program)
Joshua McPherson, Virginia Polytechnic Institute and State University, who also received a Watson scholarship; and Matthew Neils Anderson, Michigan State University.

Along with the scholarship, winners received a paid conference registration.
to the Annual STMA Conference and Exhibition and either air travel or lodging costs up to $500. Winners were recognized at the STMA Awards Banquet last month in Phoenix.

A special thanks goes out to the SAFE Contributors who made this program possible, especially The Toro Company Foundation.

SAFE thanks its 2004 Contributors

Thanks to all who contributed to the Foundation for Safer Athletic Field Environments (SAFE), STMA's charitable corporation, in 2004. Your generous contributions funded the awarding of more than $11,000 in scholarships to 13 bright turf students. In addition to the scholarships, SAFE contributions helped these students attend the STMA 2005 Annual Conference by paying for their registration and up to $500 of hotel and travel expenses.

SAFE contributions will also be used during 2005 to award scholarships and to launch a fundraising exploration campaign to assess the charitable giving market for sports turf research.

SAFE's mission is to support sports field-specific research, educational programs, and environmental concerns to promote user safety. SAFE believes that science is the key to benefit sports fields in the areas of playability, user safety, and the environment. The results of SAFE's support will assist athletes at all levels with safer playing fields.

There are several ways to contribute to SAFE. Participate in the annual Jacobsen/SAFE Golf Tournament at the Conference; provide or purchase an item at the SAFE auction and raffle at the annual conference; include your monetary donation with your annual dues payment; mail a check made out to SAFE to STMA Headquarters at 805 New Hampshire, Ste. E, Lawrence, KS 66044; or call 800-323-3875 and staff can process a credit card donation.

The SAFE Board of Directors includes Mike Schiller, CSFM, Chairman; Boyd Montgomery, CSFM, Vice-Chair; George Trivett, CSFM, Secretary; Bob Curry, Treasurer; Dale Getz, CSFM; Greg Petry; Mark Schmidt, Ph.D.; Lance Tibbetts, CSFM; Joe Zvanut; and Kim Heck, SAFE Executive Director.

(Continued on page 41)
The WINDS mini Grounds Plane simplifies infield maintenance. Scarify, level/grade, and broom finish all in one operation, or do any of those tasks individually as needed. The unit is available in three models, all equipped with mechanical positioner, leveling blades, finishing broom, ripper with positioner, custom-built tillage, pull type, available with electric or hydraulic lift.

DIAMOND MASTER
Banermer's groomer machine has five grooming tools: ripper blade, rake, leveler, roller, and finishing brush. Options include extension wing brush kit, hydraulic tractor to link, 50-gal. water tank with spray nozzle, long tine "fluffing" rake, and a new highway transport kit.

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Partac/Beam Clay supplies drag mats in various sizes that can be pulled manually or by machine to level and smooth infiels; flexible drag mats up to 12 ft. wide for working top-dressing into turf; and cocoa mats for that fine "5th inning touch-up" finish.

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