HOME TEAM ADVANTAGE

B-BP-4 BALLPARK-4 GROOMER

B-DM-6 DIAMOND MASTER®

When the safety of your players comes first, look to Bannerman, the leading Groomer manufacturer for over 24 years, to shape, level, and care for your baseball diamonds, warning tracks, and walking/bike trails. The B-BP-4 Ballpark-4® (shown) and the B-BP-6 Ballpark-6®, B-DM-6 Diamond Master® (shown) models have five standard tools, including: Ripper Blade, Rake, Leveler, Roller, and Brush. Accessories available include: Wing Brush Kit, Top Link Kit, 50-gallon Water Tank Kit with spray nozzle, and NEW Highway Transport Kit. Restore your diamond's luster in 20 minutes or less with one of the industry's leading groomers.

New to the Bannerman family of groomers is the B-MG-6 Master Groomer. This brush unit is the "Quick and Slick" answer to working in light to heavy topdressing and other turf building materials down to the base of the grasses, that you've only dreamed of, until now. For use on greens, tees, fairways, and all types of sportsturf surfaces both synthetic and natural.

B-MG-6 MASTER GROOMER

BaNNerman

THE HOME OF SPORTSTURF MAGIC

41 Kelfield Street, Rexdale,
Ontario, Canada M9W 5A3
CANADA 1-800-325-4871
USA 1-800-665-2696
www.sportsturfmagic.com

Circle **130** on card or www.oners.ims.ca/5067-130

NEW PRODUCTS. MORE CHOICES.
BETTER SOLUTIONS.

PROPLUS™
Residential & Light Commercial Applications
Spacing: 28' to 44' / 8.5 to 13.5 m

SUPERPRO™
Residential & Light Commercial Applications
Spacing: 28' to 49' / 8.5 to 15 m
Shut-Off Flow Right at the Head

PROSPORT™
Sports Turf & Commercial Applications
Spacing: 40' to 75' / 12 to 23 m
Triple Nozzle Configuration

MINIPRO™
Residential & Light Commercial Applications
Spacing: 17' to 28' / 5 to 9 m

SPRAYS
Residential & Light Commercial Applications
3", 4", 6", 12" and Narrow Profile Models

PROCOM™
Commercial Applications
Spacing: 28' to 46' / 8.5 to 14 m
Shut-Off Flow Right at the Head

ELECTRIC VALVES
Residential & Light Commercial Applications

RPS™ 616 CONTROLLER
6, 9 ,12 & 16 Station Models for All of Your Needs

With K-RAIN you have all the tools. Our full line of professional irrigation products gives you a single source of everything you'll ever need. ***From start to finish your covered!*** Concentrate on making the most of your business. Leave the rest to us.

Make the smart choice – K-RAIN.

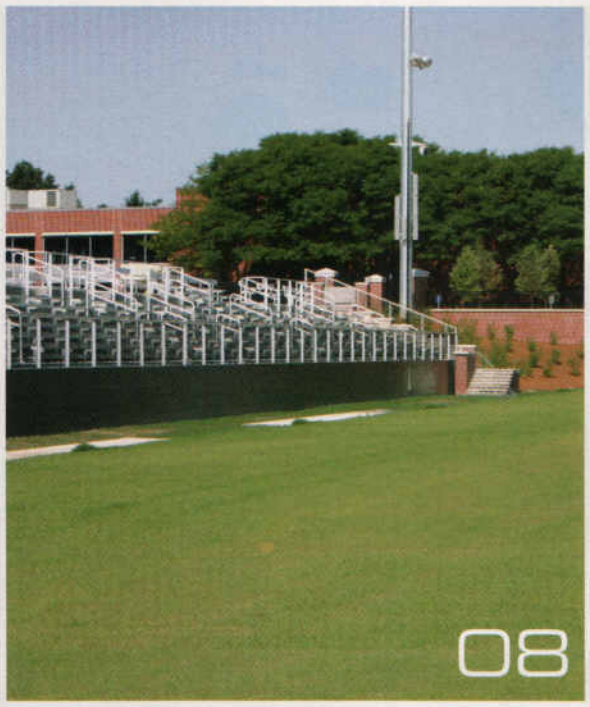
CORPORATE OFFICE
1640 Australian Avenue, Riviera Beach, FL 33404 - USA
(1-561) 844 1002 | Fax: **(1-561) 842 9493** | Web: **www.krain.com** | Email: **krain@krain.com**

Circle **131** on card or www.oners.ims.ca/5067-131

K RAIN®
IRRIGATION SOLUTIONS WORLDWIDE™

in this issue

DEC.05
VOLUME 21 / NUMBER 12



cover story

features

departments

ON THE COVER: Beating the heat at Isotopes Park, home of Field of the Year winner for College Baseball in Albuquerque, NM.

SPORTSTURF (ISSN 1061-687X) (USPS 000-292) (Reg. U.S. Pat. & T.M. Off.) is published monthly by Bev-Al Communications a m2media360 company at 833 W. Jackson, 7th Floor, Chicago, IL 60607. **POSTMASTER:** Send address changes to Sportsturf, P.O. Box 2120, Skokie IL 60076-7820. For subscription information and requests, call Subscription Services at (847) 763-9565. Subscription rates: 1 year, $40 US & Poss.; 2 years, $65 US & Poss.; 1 year, $65 Canada/Foreign Surface, 1 year, $130 Airmail. All subscriptions are payable in advance in US funds. Send payments to Sportsturf, P.O. Box 2120, Skokie, IL 60076-7820. Phone: (847) 763-9565. Fax: (847) 763-9569. Single copies or back issues, $6 eachUS/Canada; $9 Foreign. Periodicals postage paid at Chicago, IL, and other mailing offices.

GreensGroomer® WorldWide, Inc.

Synthetic Turf Groomer with GreensSlicer® Spring Tine Rake.

Fast, Efficient Grooming of all filled synthetic sports fields!

Synthetic Super Duty Blue Brushes
Resist wear and will not deteriorate from moisture.

GreensSlicer Spring Tine Rake
3 rows of 28 tines.

FEATURES and BENEFITS

- **Synthetic Sports Turf Groomer works with all fill material currently used, in both wet and dry conditions.**
- **Patented brush design lifts turf fibers leaving them in a plush, upright position. Brushes move fill to low spots or depressions left after play.**
- **Synthetic Super Duty Blue Brushes retain their original shape, resist wear, and will not rot.**
- **GreensSlicer Spring Tine Rake consists of 3 rows of 28 tines spaced 7/8 inch apart for thorough coverage.**
- **Each row of tines may be adjusted to the desired level of aggressiveness.**
- **The GreensSlicer combs through the fill material, relieving compaction and assuring a soft, level playing surface.**

Call for additional information on our line of Synthetic Turf, Natural Turf, and Clay surface Groomers

888-298-8852 Fax 317-298-8852

www.greensgroomer.com

GreensGroomer WorldWide, Inc., Indianapolis, IN

U.S. Patents 5833013, 6655469. Other Patents Pending.

GCSAA Affiliate Member

NGF National Golf Foundation

SportsTurf Managers Association
Experts on the Field, Partners in the Game.

Drought means new sod

Many turf managers across the country faced drought or post-drought conditions this football season. We talked to one of them, Ted Thorn, director of grounds for the athletic department at the University of Iowa:

Thorn reports that he replaced the 8 or 9-year old field at Kinnick Stadium early this fall after the Hawkeyes had played two games on it. "We had 54 days last summer with 90+ degree temperatures, and that direct heat raised the soil temperatures enough that we just didn't have any roots," he told ST. "We probably could have survived without the new sod and not affected the outcome of any games, but we were not happy with it.

"Right now it's not as cosmetically pleasing as it will become but it plays great."

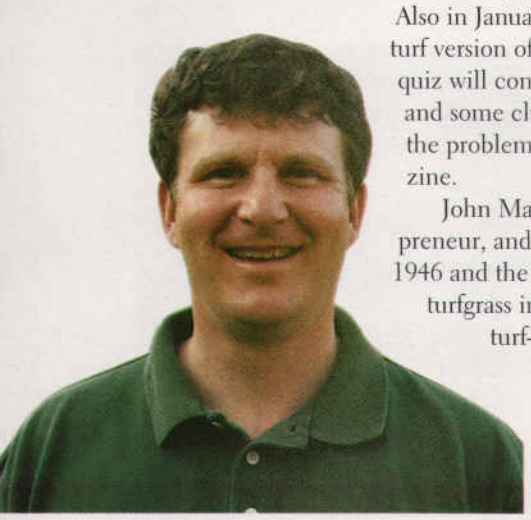
Cygnet Turf from northeast Ohio, fresh from a visit to Chicago's Soldier Field, came into Iowa City and stripped, re-graded, and put down thick-cut, sand sod. "We took out 4 1/2 inches of biomass," says Thorn. "We started on a Sunday, and began putting down the sod that Thursday, and finished on Wednesday. We could have been done sooner but had some truck transportation issues."

Kinnick Stadium is undergoing some renovations, but the pieces that affect the field had been done with the old turf still in place, Thorn says. Cost of the project was a bit less than $150K.

By the way, the NCAA ruled in mid-October that Iowa would not have to paint over their pink visitor's locker room as part of the renovation.

New look next month

Beginning with the January 2006 issue, we will be sending you a redesigned and resized *Sports Turf* magazine. In an effort to better serve our more than 25,000 readers, each month we'll cover relevant topics under the headings of Field Science, Facilities & Operations, Irrigation/Drainage, and Tools & Equipment. The excellent "Q&A" column by Dr. Dave Minner and Dr. Grady Miller will continue inside the back cover, and we'll also keep you up to date on Sports Turf Manager Association activities, including Field of the Year winner coverage.



Also in January we'll introduce "John Mascaro's Photo Quiz." A sports turf version of the popular column in *Golf Course Management*, the quiz will contain a photo of a problem that can occur on athletic field and some clues that will allow you to try to figure out what caused the problem. The answer will appear on another page in the magazine.

John Mascaro continues his father's legacy as an inventor, entrepreneur, and educator. The late Tom Mascaro invented the Aerifier in 1946 and the Verti-Cut in 1955 as well as many other products for the turfgrass industry. He traveled extensively and took at least 100,000 turf-related photos. For 21 years, beginning in 1961, Tom used his slide collection to write a monthly column for *GCM* and its predecessors.

Look for information in January on how you can submit photos for future installments of "John Mascaro's Photo Quiz."

ERIC SCHRODER, EDITOR

Comments always welcome.
Call Eric at **717-805-4197**,
email **eschroder@aip.com**,
or write P.O. Box 280, Dauphin, PA 17018.

SPORTSTURF®

833 W. Jackson, 7th Floor, Chicago, IL 60607
PHONE **312-846-4600** FAX **312-846-4638**
WEBSITE **http://www.greenmediaonline.com**

THE OFFICIAL PUBLICATION OF THE SPORTS TURF MANAGERS ASSOCIATION

PRESIDENT **MIKE TRIGG, CSFM**
PAST PRESIDENT **BOB CAMPBELL, CSFM**
PRESIDENT ELECT **MIKE ANDRESEN, CSFM**
COMMERCIAL V.P. **VICTORIA WALLACE**
SECRETARY **ABBY MCNEAL, CSFM**
TREASURER **CHRIS CALCATERRA, CSFM**
STMA BOARD MEMBERS **TRA DUBOIS, DARIAN DAILY, DR. DAVE MINNER, LANCE TIBBETTS, GEORGE C. TRIVETT, CSFM, JAY WARNICK, CSFM**
CHIEF EXECUTIVE OFFICER **KIM HECK**

STMA OFFICE
805 NEW HAMPSHIRE SUITE E
LAWRENCE, KS 66044
PHONE **800-323-3875** FAX **800-366-0391**
EMAIL **stmainfo@sportsturfmanager.com**
WEBSITE **www.sportsturfmanager.org**

INTEGRATED CONTENT TEAM
GROUP PUBLISHER **STEVE BRACKETT**
EDITOR **ERIC SCHRODER**

STMA EDITORIAL COMMUNICATIONS COMMITTEE
MIKE ANDRESEN, CSFM, IOWA STATE
CHRIS CALCATERRA, CSFM, PEORIA, AZ
JEFF FOWLER, PENN STATE EXTENSION
DR. DAVE MINNER, IOWA STATE
BOYD MONTGOMERY, CSFM, SYLVANIA, OH
PAM SHERRATT, OHIO STATE EXTENSION

PRODUCTION TEAM
ART DIRECTOR **MAGGIE CIVIK**

M2MEDIA360
PRESIDENT/CEO **MARION MINOR**
DIRECTOR OF FINANCE **GERALD WINKEL**
CORPORATE DIRECTOR OF CIRCULATION **JOANNE JUDA-PRAINITO**
PRODUCTION COORDINATOR **MARY JO TOMEI**

DIRECT MAIL LIST SALES
CHERYL NAUGHTON **770-995-4964** cnaughton@aip.com

READER SERVICE SERVICES
CORPORATE DIRECTOR OF CIRCULATION AND DIRECTOR OF READER SERVICE
JOANNE JUDA-PRAINITO readerservice@aip.com

SUBSCRIPTION SERVICES
PHONE **847-763-9565** FAX **847-763-9569**

REPRINTS
CLAUDIA STACHOWIAK **866-879-9144 x121**

PUBLISHER'S NOTICE: We assume no responsibility for the validity of claims in connection with items appearing in Sportsturf. Reader Service Numbers are given to facilitate further inquiry. Commercial product names are used for the convenience of the reader. Mention of a commercial product does not imply endorsement by Sportsturf or Bev-Al Communications, or preference over similar products not mentioned.

ADVERTISING SALES REPRESENTATIVES

MIDWEST
IA, IL, KS, MN, MO, NE, ND, SD, WI
Colleen Murphy
1326 N. Illinois Avenue
Arlington Heights, IL 60004
847-259-2835, 847-259-2836 fax
cmmurphy88@comcast.net

WEST
AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY, ALBERTA, BRITISH COLUMBIA, MANITOBA, SASKATCHEWAN
John Bolduc
P.O. Box 12357
Orange, CA 92859
714-538-4730, 714-538-4785 fax
jbolduc@mail.aip.com

SOUTHEAST
AL, AR, FL, GA, KY, LA, MD, MD, NC, OK, SC, TN, TX, VA, WV
Deanna Morgan
2095 Exeter Road, #80-336
Germantown, TN 38138
901-759-1241, 901-624-0333 fax
dmorgan@mail.aip.com

EAST
CT, DC, DE, IN, MA, ME, MI, NH, NJ, NY, OH, PA, RI, VT, ONTARIO, NEW BRUNSWICK, NOVA SCOTIA, QUEBEC, EUROPE
Paul Garris
35 Greenbriar
Aurora, OH 44202
330-562-2512, 330-562-3512 fax
pgarris@mail.aip.com

CLASSIFIED SALES
Tonya Przybylski
630-679-2061, 630-679-2062 fax
tpriz@aip.com

m2media360
833 W. Jackson, 7th Floor
Chicago IL 60607
(312) 846-4600

Join us for the Education and Celebration of our 25th Anniversary

I hope 2005 has been a productive year for you. It was a very busy year for STMA, but one that has resulted in solid progress and set the stage for our continued advancement.

The Board of Directors held its Fall Board Meeting in mid-October for discussion and approval of many items such as the 2006 Budget, Certification Committee Recommendations, Strategic Plan Review, and Future Conference Sites. STMA has now developed a 4-year, East-to-West rotation pattern to make the annual conference and exhibition easily accessible to its members.

But more importantly, we had the opportunity to see, first hand, the Disney conference and convention facilities. Let me tell you, I am excited. The 17th Annual Conference and Exhibition in Orlando is shaping up to be the best yet, especially in the area of education. Disney's Coronado Springs Resort will provide first class accommodations as well as excellent dining and guest services. Plus, the resort is conveniently connected to all of Walt Disney World Resort attractions by complimentary shuttle bus service.

The convention facilities will provide spacious meeting and ballroom facilities for outstanding educational sessions and events. The new Veracruz Exhibit Hall provides more than 86,000 square feet of exhibit space. David Rosenberg and Andrea Dillinger from M & E, the STMA Conference and Exhibition team, report that there are 141 exhibitors registered to date, representing 315 booths. The Trade Show and Reception with Exhibitors is a venue at which you will meet dozens of new business contacts. A little planning will help to make the trade show experience a productive and rewarding investment of your time.

But, the dynamic and diverse educational sessions and trade show are only the tip of the iceberg. Where else can you network with literally hundreds of your peers from across the country, sharing problems, but more importantly solutions. I believe that by sharing your knowledge and experiences you will realize even greater opportunities.

This year's STMA Annual Conference is also about celebrating our 25th Anniversary.

In a profession that is too often taken for granted, the Conference is our opportunity to celebrate the passion for what we do. The energy and enthusiasm at the conference is contagious and I leave each year with a feeling of renewal. This passion for sports turf management is recognized at the Awards Banquet. I truly enjoy the recognition of our Founders Award recipients and Field of the Year winners that represent the best in our profession.

I have no doubt that you will have a wonderful learning experience coupled with enjoyable leisure time while in Florida that will result in an event to be remembered by all.

No conference could become as successful as ours without the remarkable contributions made by many volunteers. Building a conference requires significant collaboration and time. Please know I am proud and very appreciative of the work being done by members of our association and the tireless efforts of our Board of Directors, CEO, and staff in preparation of this conference.

I look forward to seeing you next month in Orlando!

Mike Trigg

MIKE TRIGG, CSFM

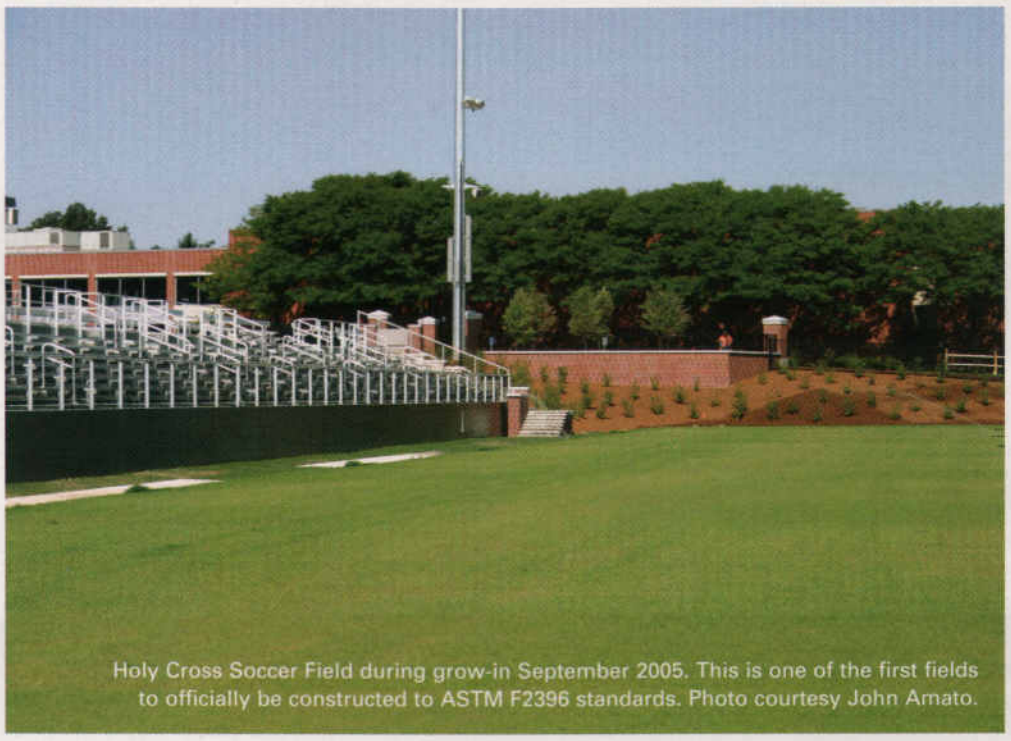
mtrigg@waukeganparks.org

New ASTM standards for sand-based fields

BY **MICHAEL DEPEW**

ASTM International has recently published a new standard for the design and construction of high performance, sand-based natural turf sports fields. This new standard is available through ASTM (see www.astm.org) as ASTM F2396 "Standard Guide for Construction of High Performance Sand-Based Rootzones for Sports Fields."

Recent trends in sports field construction have led to a proliferation in the new generation of "infilled" synthetic turf sports fields. These installations entail the use of a carpet system in which the carpeting is filled with materials ranging from sand to rubber, a sand/rubber combination, or other resilient fill materials. Occasionally, some of these systems may also have an underlying shock pad. Long carpet fibers extend from the backing layer through and above the infilled materials. The carpet fibers serve to hold the infill material in place and to provide a "turf" cover. These types of systems are an improvement over the old type of synthetic turf installations where a turf-type carpet would have been installed with a pad over a hard surface (often concrete or asphalt). The use of infill materials increases the resiliency and shock attenuation characteristics of synthetic turf systems.



Holy Cross Soccer Field during grow-in September 2005. This is one of the first fields to officially be constructed to ASTM F2396 standards. Photo courtesy John Amato.

The improvement in synthetic turf systems has provided new incentives for installation of these systems. While certain sites or situations warrant the use of synthetic turf systems, aggressive sales efforts have resulted in these costly systems being installed in locations and situations where they may not be warranted. Indoor fields and intensively used practice facilities are venues in which synthetic turf systems may be practical. Many stadiums and game field facilities where use is less intensive may not justify installing a synthetic system.

While the economic and playability issues of synthetic vs. natural turf systems may be debated, few would debate the need to improve on the design and construction standards for natural turf sports field installations. In order to meet the demands of the industry to produce better high-performance, natural turf sports field installations, ASTM subcommittee F08.64 (for Natural Playing Surfaces) with the support of the STMA began the process to develop this new standard.

ASTM F2396 is a standard that was developed over a 4-year process. The STMA Technical Standards Committee first drafted the standard and industry representatives including landscape architects, engineers, agronomists, university researchers, contractors, and sports field managers reviewed it. After the development process within the STMA it was then presented within ASTM International for balloting and approval via a consensus process. This new standard was approved and set for publication in December 2004.

The ASTM F2396 standard is unlike other rootzone design specifications. Other construction standards used for sports field design include methods for putting green construction (USGA, 1993; University of California, 1990) and various state extension publications (California, 1974; Florida, 1999; Minnesota, 1987; Pennsylvania, 1983; Washington, 1983). [See ASTM F2396 for a full reference to these publications.]

These standards each have a proposed specification for construction. ASTM F2396 on the other hand has various options for design and construction and presents the critical design elements that should be employed when using each of the various design options. For example, ASTM F2396 specification fields could have a gravel drainage layer or be constructed without; may be a sand-peat blend or a sand-soil blend or a sand-soil-organic blend; or may vary in profile depth from 8 inches to 16+ inches.

Other critical design elements within ASTM F2396 include: drainage system design; profile depth design considerations; sand types and particle sizes; soil amendment considerations; organic amendment considerations; quality control program considerations; calibration and blending programs; blended rootzone stockpiling and transportation considerations; grading requirements and tolerances, irrigation installation and design efficiency tolerances; installation procedures and steps; final field preparations and finish grading; turf establishment methods including sod-soil compatibility specifications and sod/seed quality considerations; and recommended rootzone performance criteria which includes physical, chemical, and mechanical performance specifications.

The ASTM F2396 guidelines are developed with the intent that they are to be used by industry professionals with the technical background to understand the design elements at issue in sand-based sports field development. It is not a "cookbook" design specification that can be "cut and pasted" to form a construction specification. Rather this standard gives a set of guidelines to be used when considering field design and the local materials available for construction. For example, Table 3 of the standard guideline has organic amendment characteristics with a rating scale that includes "preferred," "acceptable," "marginal," and "unaccept-

The New Infield Pro®

This Changes Everything

Introducing the revolutionary Toro® Infield Pro. With its patent-pending Quick Attach System (QAS), operators can switch out most of the 17 front, rear and mid-mount attachments in seconds. Realize the true potential of your equipment with the right tool for the job. The new Infield Pro with QAS, this changes everything.

www.Toro.com/InfieldPro

Circle **134** on card or www.oners.ims.ca/5067-134

TORO. **Count on it.**

able." Likewise Table 4 of the standard guideline includes the same rating scale for sod compatibility for sod-soil criteria such as the sod-soil to rootzone particle size differences (D50 ratio), silt and clay content, silt to clay ratio, and gravel content. (Sod-soil is the soil that is cut with and accompanies the sod.)

Using the standard

At least three installations have been constructed this year using this new ASTM F2396 standard: the soccer stadium at Holy Cross University in Worchester, MA; a multi-use sports field at Monte Vista Park in Rancho Santa Margarita, CA; and the turf course at Hollywood Park racetrack, Inglewood, CA.

While a new standard, these same guidelines have been employed by the author in the past for the design and construction of several good performing fields ranging from two and one half to seven years old, including: the turf track at Tampa Bay Downs, Oldham, FL; the sports fields at the Home Depot Center in Carson, CA; Fillipello Park multi-use field, Watertown, MA; and Raley Field (AAA), Sacramento, CA.

The proper use of ASTM F2396 as a standard guideline for developing high performance sand-based sports fields can dramatically improve the quality of sports field installations. Other ASTM standards can be used in conjunction with F2396 for design of warning tracks, skinned infields/mounds, and for maintenance and testing considerations (see sidebar). Other standards under ASTM development or consideration for development include a construction QC standard, putting green construction standard, cricket wicket construction standard, and sand-based field maintenance standards.

Proper construction and maintenance techniques are needed to improve the quality of high performance, natural turf installations and provide a high performance alternative to synthetic turf installations. Natural turf fields with performance conditions that are highly variable depending upon field location or that have loose footing, thin (or no) turf cover, muddy conditions, or poor drainage only strengthen the marketing arguments of the synthetic turf industry. ASTM F2396 is one tool in the arsenal for developing high quality, natural turf fields in this competitive environment. **ST**

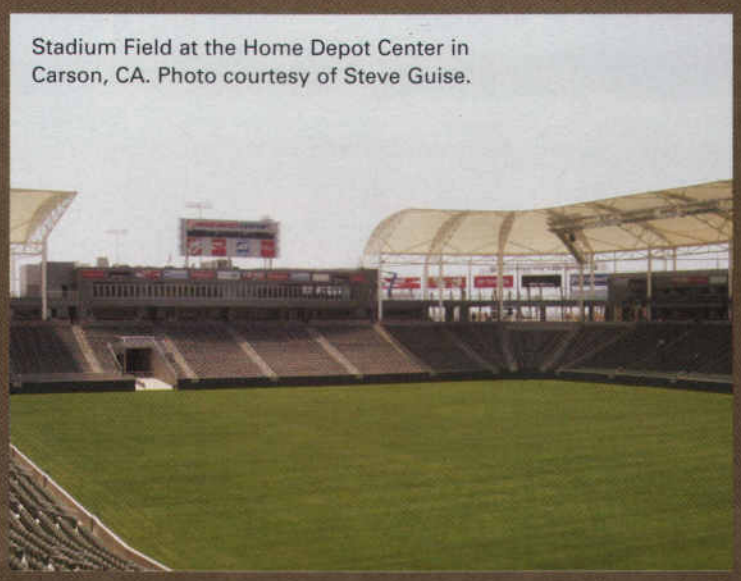
Michael DePew is a consulting sports turf agronomist, chairman of the STMA Technical Standards subcommittee, and ASTM technical contact for the F2396 standard. He can be reached at proturf@hotmail.com.

Sports Turf and Playing Field Related ASTM Standards, September 2005

Developed by Subcommittee: F08.64
F1632-03 Standard Test Method for Particle Size Analysis and Sand Shape Grading of Golf Course Putting Green and Sports Field Rootzone Mixes
F1647-02a Standard Test Methods for Organic Matter Content of Putting Green and Sports Turf Root Zone Mixes
F1702-96 (2002) e1 Standard Test Method for Measuring Shock-Attenuation Characteristics of Natural Playing Surface Systems Using Lightweight Portable Apparatus
F1815-97 Standard Test Method for Saturated Hydraulic Conductivity, Water Retention, Porosity, Particle Density, and Bulk Density of Putting Green and Sports Turf Root Zones
F2060-00 Standard Guide for Maintaining Cool Season Turfgrasses on Athletic Fields
F2107-01e1 Standard Guide for Construction and Maintenance of Skinned Areas on Sports Fields
F2269-03 Standard Guide for Maintaining Warm Season Turfgrasses on Athletic Fields
F2270-04 Standard Guide for Construction and Maintenance of Warning Track Areas on Sports Fields
F2396-04 Standard Guide for Construction of High Performance Sand-Based Rootzones for Sports Fields

Under Development by Subcommittee: F08.64
WK490 Guide for Quality Control Procedures during Construction of Natural Playing Surfaces

Developed by Subcommittee: F08.65
F1551-03 Standard Test Methods for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials
F1015-03 Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces
F1936-98 Standard Specification for Shock-Absorbing Properties of North American Football Field Playing Systems as Measured in the Field


Stadium Field at the Home Depot Center in Carson, CA. Photo courtesy of Steve Guise.

Developed by Subcommittee: F08.52
F355-01 Standard Test Method for Shock-Absorbing Properties of Playing Surface Systems and Materials
F1543-96 (2002) e1 Standard Specification for Shock Attenuation Properties of Fencing Surfaces
F2117-01 Standard Test Method for Vertical Rebound Characteristics of Sports Surface/Ball Systems; Acoustical Measurement

Under Development by Subcommittee: F08.80
WK4979 Standard Terminology Relating to Impact Testing for Sports and Sports Surfaces
WK Standard Guide for Quality Control Related to Impact Testing of Sports Surfaces
WK Standard Terminology Relating to Soils, Aggregates and Earthy Materials for Sports and Sport Surfaces

Other Committee/Subcommittee Standards related to sports fields:
F1953-99 (2003) Standard Guide for Construction and Maintenance of Grass Tennis Courts
F1938-98 (2004) Guide for Safer Use of Movable Soccer Goals
F2056-00 Standard Safety and Performance Specification for Soccer Goals
F2000-00a Standard Guide for Fences for Ballfields and Other Sports Facilities
F969-01 Standard Practice for Construction of Chain-Link Tennis Court Fence
STP 1313 Safety in Baseball/Softball (1997)

The physics of baseball/softball equipment; the latest advances in protective equipment; innovative baseball/softball field design; Improved operations and maintenance systems; Spectator safety management; the causes of baseball/softball injuries.
STP 1305 Safety in American Football (1997) Analyzing Risks; Assessment; Science; Management: Facilities, Surfaces and Systems
STP 1073 Natural and Artificial Playing Fields: Characteristics and Safety Features (1990)
Playing field standards; surface traction; testing and correlation to actual field experience; state-of-the-art natural and artificial surfaces

Under Development by Other Subcommittees:
WK4498 Standard Guide for Fences/Barriers for public and commercial soccer, field hockey and related facilities