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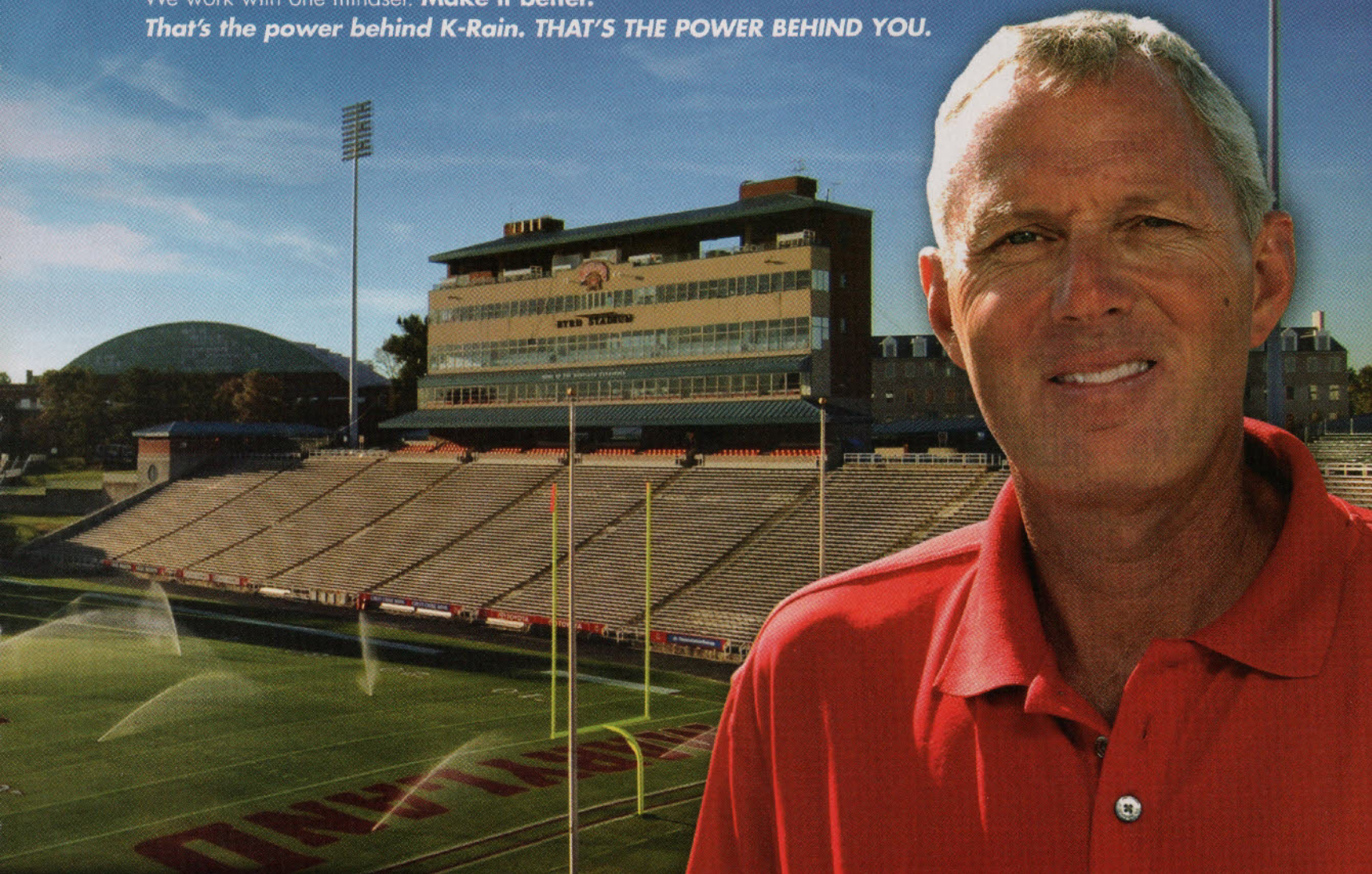
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UNIVERSITY OF MARYLAND, DIRECTOR OF ATHLETIC TURF

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On the cover: Surprise Recreation Campus, Surprise, AZ won the STMA Pro Complex of the Year for the 2nd consecutive year. Here Texas Ranger David Dellucci tracks down a flyball; he's since been traded to Philadelphia.

*I designed this field from top to bottom,
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From the Sidelines

Supporting the sportsturf profession



ERIC SCHRODER
Editor

eschroder@
m2media360.com
717-805-4197
P.O. Box 280,
Dauphin, PA 17018

Unique" means "one of a kind" or "having no like or equal." This magazine is unique.

No other publication directly supports the Sports Turf Managers Association. When you buy a product or service from a company that advertises in this magazine, you are indirectly helping to strengthen the STMA. Through the contract M2MEDIA360, this magazine's parent company, has with STMA, a certain percentage of our advertising revenues flow to the association's coffers. There is no other magazine that has this relationship with STMA.

In turn, the association has increasingly in the past 2 years undertaken projects that are raising the sports turf profession's profile and prestige around the country. While this increased attention can be stressful at times, e.g., your under-6 soccer parents are asking why the kids' field isn't as green as the ones on TV, it also is leading to more awareness of what you do and its importance as part of the games. And that (hopefully!) will lead to higher salaries for sports turf professionals.

Everyone involved in producing this magazine, including the STMA members that serve on our Editorial Subcommittee, are dedicated to providing you an interesting, easy-to-read magazine each month. If there's a topic you would like to see us address, please let another subcommittee member or me know. The staff of *SportsTurf* is proud to be the official publication of the STMA. This is your magazine as much as it is ours, and the better our magazine is, the better the sports turf profession will be.

I would like to call special attention to the content on pages 40 and 41 in this issue, "Lawn sweepers find a new home on sports turf" in our "Tools & Equipment" section. These pages are sponsored by a company, Parker Minuteman, which has manufactured a "lawn sweeper" product for nearly 100 years. The company, working with our sales staff and Lands Conference, an online continuing education firm specializing in the "green" industry, has produced what we are calling a "webinar." This webinar program enables you to see and hear an online product demonstration of this Parker Minuteman lawn sweeper, in action at a professional stadium.

We think this will be the first in a series of webinars featuring all kinds of products. Please check it out and let me know what you think. If these webinars catch on the way we think they will, they will be just one more way we are helping our sports turf manager readers do a better job, and assisting the STMA in reaching their goals as well.

SportsTurf

760 Market Street, Suite 432
San Francisco, CA 94102
Phone 415-839-5060
Fax 415-398-3511
www.greenmediaonline.com

The Official Publication Of The Sports Turf
Managers Association

SportsTurf
MANAGERS ASSOCIATION

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STMA Office

805 New Hampshire Suite E
Lawrence, Ks 66044
Phone 800-323-3875 Fax 800-366-0391
Email stmainfo@sportsturfmanager.com
www.sportsturfmanager.org

Editorial

GROUP PUBLISHER Steve Brackett
EDITOR Eric Schroder
ART DIRECTOR Mira Coburn

STMA Editorial

Communications Committee

Mike Andresen, CSFM, Iowa State
Chris Calcaterra, CSFM, Peoria, Az
Tra DuBois
Jeff Fowler, Penn State Extension
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SportsTurf (ISSN 1061-687X) (USPS 000-292) (Reg. U.S. Pat. & T.M. Off.) is published monthly by M2MEDIA360, a Bev-Al Communications, Inc. company at 760 Market Street, Suite 432, San Francisco, CA 94102. **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 each US/Canada; \$9 Foreign. Periodicals postage paid at San Francisco, CA and additional mailing offices. COPYRIGHT 2006, SportsTurf. Material may not be reproduced or photocopied in any form without the written permission of the publisher.

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DIRECTOR OF FINANCE Gerald Winkel
CORPORATE DIRECTOR OF CIRCULATION
Joanne Juda-Prainito
PRODUCTION DIRECTOR Mary Jo Tomei
DIRECT MAIL LIST SALES
Cheryl Naughton 770-995-4964
cnaughton@m2media360.com

Reader Service Services
DIRECTOR OF READER SERVICE
Joanne Juda-Prainito
Readerservice@m2media360.com

SUBSCRIPTION SERVICES
Phone 847-763-9565 Fax 847-763-9569

REPRINTS
Cheryl Naughton, 770-995-4964,
cnaughton@m2media360.com

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
Po. Box 12357
Orange, Ca 92859
714-538-4730, 714-538-4785 Fax
jbolduc@m2media360.com

SOUTHEAST

Al, Ar, Fl, Ga, Ky, La, Md, Va,
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@m2media360.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@m2media360.com

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MIKE TRIGG
CSFM

mtrigg@
waukeganparks.org

When I think about the reasons that sports turf managers join STMA, the three standouts are networking, education, and information. One important resource supports all three – our official publication, *SportsTurf* magazine.

STMA is very pleased to offer *SportsTurf* free to our membership. As you know, the magazine has undergone some major changes in the past 6 months in response to your recommendations. These changes continue to make our publication more relevant to the industry, bring you new technology, showcase the best practices of your peers, and offer timely information to help you in your daily management of sports fields.

SportsTurf is also a tremendous on-line resource. Have you ever remembered reading an article a year or two ago, but cannot remember which issue of *SportsTurf* it appeared in? Now, you can easily access that article through the *SportsTurf* archive. Just click on the magazine cover on our home page, www.sportsturfmanager.org and then on Green Media On-Line's "Search our Archives" button. You just type in keywords and all the pertinent *SportsTurf* articles are pulled into a list for you. For those of you who prefer on-line reading, you can also read *SportsTurf* on line. Again, just click on our cover on our website.

In addition to providing important information through articles, *SportsTurf* also helps sports turf managers with continuing education by posting an On-Line Education section in each issue. This benefit will help our members stay current and provides an easy way to earn CEUs.

We appreciate our advertisers who use *SportsTurf* for direct access to the association's membership. STMA recognizes the value that its advertisers provide to the association and to its members. All advertising helps to support the services that STMA provides to its membership.

STMA continues to rely on an Editorial Committee to bring forward article ideas, recommend authors, review technical information, and act as a sounding board for the magazine's editorial staff. For 2006, I have appointed Mike Andresen, CSFM, as Chair of this committee. Members of the committee include Chris Calcaterra, CSFM, Tra DuBois, Jeff Fowler, Tom Gmelch, Carl Larson, David Minner, Ph.D., Boyd Montgomery, CSFM, Eric Schroder and Jay Warnick, CSFM. If you have suggestions or comments, please contact any member of the committee.

STMA is dedicated to bringing you the top industry publication each month. If you have suggestions or a great story to tell, please contact our editor, Eric Schroder. Great job, Eric, and thanks to you and your team for *SportsTurf*!

Mike Trigg

Why measuring **FIELD HARDNESS** matters

By Dr. Charles F. Mancino, Dr. Charles H. Darrah, Deborah D. Holdren, and Pamela J. Sherratt



Figure 1A and 1B. Impact tester used for synthetic turf testing (A) and for natural turf and soil testing (B).

A collision between a player and the playing surface is inevitable in almost every sport. If the field's ability to absorb shock energy is low, then the player's body has to absorb more. That's why we test fields for surface hardness.

Hardness measurements help you to identify any foreseeable risk that might affect your players, and lets you determine if you need to take action to reduce those risks. Actions for synthetic turf surfaces are still being defined, but synthetic turf managers are using management

practices ranging from the brushing and grooming of these surfaces to the partial or complete replacement of these fields.

Natural field hardness is reduced through maintaining a healthy turf stand and thatch layer, adequate soil moisture, and aggressive core cultivation programs. Eventually either type of playing surface will need to be replaced.

Testing also allows you to track changes in hardness over time and, for synthetic turf systems, to insure that the field is functioning as promised in the manufacturer's warranty. Manufacturers are providing

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IF THE PLAYING SURFACE IS VERY COMPRESSIBLE THEN THE PLAYER MAY ACTUALLY STRIKE THE BASE (CRUSHED STONE, ASPHALT OR CONCRETE) DURING THE IMPACT.

Table 1. Examples of Some Typical Gmax values
(based on ASTM F-355, Proc. A).

Gymnastics mat	30 to 60
Infill synthetic system with 100% rubber and shock pad	80 to 100
Infill synthetic system with 100% rubber and no shock pad	90 to 125
Uncompacted, pristine natural turf athletic field	100 to 130
Traditional carpeted synthetic field with pad on asphalt	100 to 150
Infill synthetic system with 75 %: 25 % rubber: sand	105 to 145
Infill synthetic system with 50 %: 50 % rubber: sand	120 to 160
Infill synthetic system with 25 %: 75 % rubber: sand	160 to 185
Infill synthetic system with 100 % sand	160 to 185
Carpeting and padding over wood	200 to 300
Football helmet may fail impact energy management	>300
High density rubber floor mat on concrete floor	300 to 400
Compacted or frozen natural turf	400 to 500
Concrete floor	> 1000

limited warranties on field hardness for as long as 8 years. It is important to test a field shortly after completion, preferably within 30 days, to get baseline hardness values, then perform annual or bi-annual testing to monitor changes.

Annual field hardness testing and documentation is also crucial in the event of a player injury. All parties involved in the construction and maintenance of the field could be held liable for the injury. Being able to provide written documentation of your hardness monitoring and maintenance programs will show your efforts in reducing any foreseeable risk to the players. This is especially important now that standard procedures have been adopted for monitoring the hardness of synthetic and natural turf playing fields. A maximum hardness threshold value has been adopted for synthetic fields.

What affects hardness?

The hardness of the playing surface is dependent on many things. In synthetic turf systems it is dependent upon the type of carpet and infill, the presence or absence of a shock pad below the carpet, and the type of base the carpet is laid on. Carpet fiber height and density affect shock absorbency to a certain extent, but the amount and type of infill material is more critical.

Infill materials are composed of either crumb rubber or a crumb rubber: sand combination and shock absorbency goes up as the amount of crumb rubber in the infill mix goes up. Placing a rubber shock pad between the carpet backing and the base material can greatly increase the shock absorbency of the system. These rubber pads come in various thicknesses with a 10-mm thickness being common. A good shock pad can even allow for more sand in the infill mix without a reduction in shock absorbency. This sand can make for a firmer and faster playing surface, which many athletes prefer.