



**Quality of cut second to none.**

### **The New Reelmaster® 5010 Series**

The Reelmaster 5010 Series from Toro® delivers an exceptional quality of cut and aftercut appearance. Dual Precision Adjustment (DPA) cutting units make adjustments simple and more accurate. The cutting edges stay sharp two to three times longer, resulting in less maintenance. Optional accessories further enhance performance. An ergonomic operator station results in ease of use and provides improved operator comfort. The new Reelmaster 5010 Series is designed to keep you out of the shop and out on the athletic fields. Visit [www.toro.com](http://www.toro.com)

Fill in 110 on reader service form or visit <http://oners.hotims.com/14677-110>

**TORO®**

**Count on it.**

© 2004 Toro Company



AMAZING PRECISION FROM ANY ANGLE.



Pro Sport™

ROTORS | SPRAYS | NOZZLES | ELECTRIC VALVES | CONTROLLERS | PUMP START RELAYS

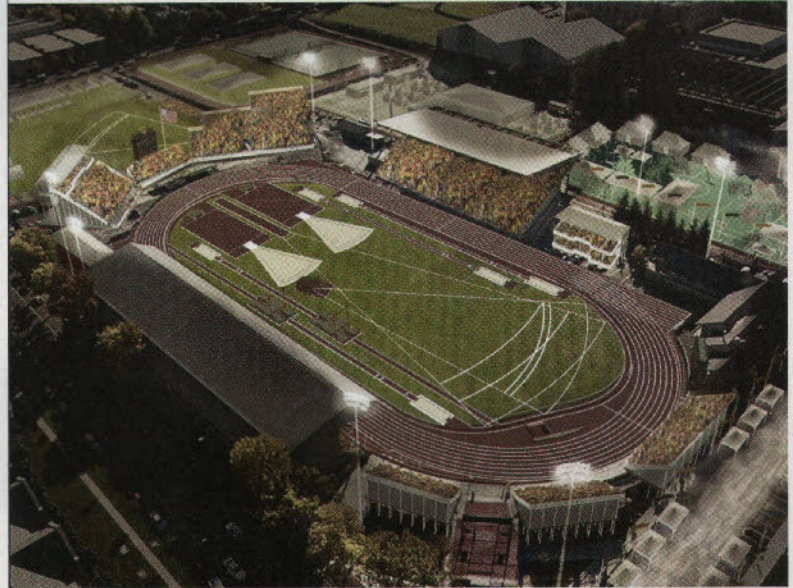
CORPORATE OFFICE

1640 Australian Avenue | Riviera Beach, Florida 33404

Phone: 561-844-1002 | 800-735-7246 | Fax: 561-842-9493 | [www.krain.com](http://www.krain.com)



Fill in 111 on reader service form or visit <http://oners.hotims.com/14677-111>



## FEATURES

### Field Science

**8** Developing a sound nutrient program

### Facilities & Operations

- 14** Philadelphia Eagles transition to bermudagrass
- 22** Renovating Hayward Field for 2008 USA Olympic Trials

### Tools & Equipment

**30** MLB turf managers share mowing tips

### Irrigation & Drainage

**36** Management practices to reduce runoff

### STMA Field of the Year

**39** Isotopes Park in Albuquerque, NM is the 2007 STMA Professional Baseball winner

## DEPARTMENTS

From the Sidelines . . . . .	<b>6</b>
STMA President's Message . . . . .	<b>7</b>
John Mascaro's Photo Quiz . . . . .	<b>25</b>
STMA In Action/SAFE Foundation . . . . .	<b>44</b>
STMA Chapter News . . . . .	<b>50</b>
Rebuilding Doc's Dugout. . . . .	<b>53</b>
Marketplace. . . . .	<b>51-53</b>
Advertisers' Index . . . . .	<b>52</b>
Reader Information Form (Green Mediator) . . . . .	<b>52</b>
Q&A. . . . .	<b>54</b>

On the cover: Head groundskeeper Jarad Alley and his assistant, Bryan Waller, and crew take care of both the University of New Mexico baseball program as well as the Triple A Isotopes of the Pacific Coast League. Here's Robert Andino making a play.

# 2653B

It earns its stripes every day.



Presenting the 2653B from John Deere. Leaving behind a precise cut has always been a trademark of our utility mowers. But our 2653B raises the bar on operator comfort and convenience. We moved the seat back and the steering wheel and console area forward for more room. All controls are located on the console for easy access. And sound levels have been greatly reduced as well. For more on the 2653B, call your local John Deere Golf distributor. Or visit us online at [www.johndeere.com](http://www.johndeere.com).

Fill in 112 on reader service form or visit <http://owners.hotims.com/14677-112>



JOHN DEERE

## Super Bowl lives up to hype



**ERIC SCHRODER**  
Editor

[eschroder@m2media360.com](mailto:eschroder@m2media360.com)

717-805-4197  
P.O. Box 280,  
Dauphin, PA 17018

**A**s I write it has been less than a week since the New York football Giants thwarted the New England Patriots' bid for an undefeated season in the Super Bowl XLII, an "instant classic" if there ever was one. Though I think a 4 PM EST kick-off would better accommodate all viewers and fans, we annually host the regulars on Super Sunday. No matter what time it starts, the game is never easy to follow anyway with 11 kids in the house.

But last Sunday because the game started at 6:30 and included a long halftime, after three quarters our guests had corralled their children, clicked on their car radios, and headed down the mountain toward home, leaving us to witness history as a family. After the entire hubbub, I enjoyed that last quarter in relative peace and quiet.

It was terrific to see the game's signature play live, Eli Manning eluding tackles to connect with David Tyree and his helmet. As long as there are highlight clips, that play will never be forgotten. Quite amazing that one family could have back-to-back winning QBs in Super Bowls!

Speaking of highlight clips, I bet I'm not the only one who checks out the condition of the turf during such ubiquitous highlights as Jim Brown mauling DBs during a rush, Brooks Robinson stealing another hit from the Big Red Machine, Dwight Clark's leap against the Cowboys, or Al Gionfriddo's catch in the left field corner at Yankee Stadium, where the video cuts to Joe DiMaggio uncharacteristically kicking the dirt near 2<sup>nd</sup> base.

Of course there was no 24/7 sports media in decades past so perhaps that's why I don't remember hearing much about "turf conditions" as a young fan. I liked playing in muddy conditions as a kid and like watching games in inclement weather. We spoiled fans today are accustomed to beautiful fields at all levels of play. "It's the same for both teams" always works for me as the ultimate equalizer when "field condition" is mentioned after a contest (usually by the loser).

Lots of past "important games" (isn't that an oxymoron?) have been won and lost on turf at which today's youth travel teams would scoff. Too bad many users of all ages don't realize how good they have it.

The Giants for sure should know how good they have it now, each of them \$67,000 wealthier after a memorable win in front of the second largest-ever U.S. television audience. A game played on a perfect field that was nurtured precisely outside and rolled inside for one famous day in Arizona.

760 Market Street, Suite 432  
San Francisco, CA 94102  
Phone 415-839-5060  
Fax 415-398-3511  
[www.greenmediaonline.com](http://www.greenmediaonline.com)

The Official Publication Of The Sports Turf  
Managers Association

**SportsTurf**  
MANAGERS ASSOCIATION

**PRESIDENT** Mike Andresen, CSFM  
**PAST PRESIDENT** Mike Trigg, CSFM  
**PRESIDENT ELECT** Abby McNeal, CSFM  
**VICE PRESIDENT COMMERCIAL** Dale Getz, CSFM, CSE  
**SECRETARY** Chris Calcaterra, M.Ed., CSFM, CPRP  
**TREASURER** Troy Smith, CSFM  
**STMA BOARD MEMBERS** Larry DiVito, Amy Fouty, CSFM,  
Jody Gill, Mike Goatley, PhD, David Pinsonneault, CSFM,  
Chad Price, 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@STMA.org](mailto:STMAinfo@STMA.org)  
[www.STMA.org](http://www.STMA.org)

### Editorial

**GROUP PUBLISHER** Douglas Hebbard  
**EDITOR** Eric Schroder  
**TECHNICAL EDITOR** Dr. Scott McElroy  
**ART DIRECTOR** Carol Clark  
**PRODUCTION MANAGER** Marjorie Williams  
**EDITORIAL DIRECTOR** Richard Brandes

### STMA Editorial

**Communications Committee**  
Dale Getz, CSFM, Scott McElroy, PhD  
Scott MacVicar, Kevin Meredith  
Brad Park, Rick Peruzzi, CSFM  
Larry Rhodes, CSFM, Doug Schattinger



SportsTurf (ISSN 1061-687X) (USPS 000-292) (Reg. U.S. Pat. & T.M. Off.) is published monthly by M2MEDIA360, a Bev-Al Communications 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 2007, SportsTurf. Material may not be reproduced or photocopied in any form without the written permission of the publisher.

Member of BPA Worldwide.

[www.greenmediaonline.com](http://www.greenmediaonline.com)

# Continuous improvement

I have a few final reflections from the STMA National Conference and Exhibition in Phoenix. The tone of the conference was very positive and energetic. I heard less complaining about jobs and sense that more people understand the value that they provide to their employer. This is a great approach to professionalism and this attitude will serve each of us well in the continuing drive for respect and recognition. The grumpy old groundskeeper persona doesn't work anymore. Fewer ball caps and blue jeans, more polo shirts and jackets sent the message that our attendees are serious professionals who came to advance our careers and the profession.

We've always had a willingness to work hard for what we want. In a world driven by instant gratification, sports turf managers understand that our profession values substance, patience, and opportunity. I've heard the generalities about the younger generation lacking in initiative and strong work ethic. The young people I met at our conference were extremely respectful to the profession and to those of us in it. The student contact at our conference is gratifying, and we're very fortunate to have a rich student membership.

Look back 20 years, and consider how sports turf managers were perceived. Very few, and normally only those at the professional level, were held in high esteem. Expectations were low and people were satisfied, as a general rule, with less than great fields. Our four Founders identified the problem and started us on a mission to change public perception of our jobs and our professionalism. Through the years this profession has gained much ground, and we're committed to raising the bar higher. Our very insightful leaders worked with few resources except a passion to push on and achieve a dream. STMA is continuing that same course, and we're dedicated to ensuring that this younger generation of sports turf managers has benefits that we didn't. If we don't follow through, we let down those who've come before us as well as those who follow.

My day job is fun, challenging, and rewarding. The same can be said for serving on STMA's Board of Directors. Working on behalf of the membership is an honor I take very seriously. It's gratifying to know each of us is making a difference where we work and within STMA. We've been given the opportunity to build upon a very special heritage. It's important at all levels to keep selling our professional image. Thank you for making STMA what it is today, and thank you for pushing it toward a vision of success that we'll be even more proud of in the future.

Spring is here or just around the corner. Good luck with the events and responsibilities you'll confront and manage successfully. Remember, you have a membership directory full of friends who are just a phone call away. If you know anyone who isn't a member of STMA, please tell them about us, and ask them to join. Make 2008 a special year!



**MIKE ANDRESEN**  
CSFM

[mandrese@iastate.edu](mailto:mandrese@iastate.edu)

### **M2MEDIA360**

**PRESIDENT/CEO**

Marion Minor

### **VP OF FINANCE AND OPERATIONS**

Gerald Winkel

### **VP OF CIRCULATION AND COLLATERAL SALES**

Joanne Juda-Prainito

### **PRODUCTION DIRECTOR**

Mary Jo Tomei

### **DIRECT MAIL LIST SALES**

**Cheryl Naughton** 770-995-4964

[cnaughton@m2media360.com](mailto:cnaughton@m2media360.com)

### **Reader Services**

#### **DIRECTOR OF READER SERVICE**

Joanne Juda-Prainito

[Readerservice@m2media360.com](mailto:Readerservice@m2media360.com)

### **SUBSCRIPTION SERVICES**

Phone 847-763-9565 Fax 847-763-9569

### **REPRINTS**

Cheryl Naughton 770-995-4964

[cnaughton@m2media360.com](mailto:cnaughton@m2media360.com)

### **Advertising Sales Representatives**

#### **East**

#### **J.F. Purcell**

135 E. 55th St., 5th floor

New York, NY 10022

212-588-9200, ext. 1329

[jpurcell@m2media360.com](mailto:jpurcell@m2media360.com)

#### **Midwest**

#### **Ann Cannon**

134 N. LaSalle St., Suite 1700

Chicago, IL 60602

312-236-4900, ext. 1105

[acannon@m2media360.com](mailto:acannon@m2media360.com)

#### **Detroit**

#### **Leslie Palmer**

16267 W. 14 Mile Rd., Suite 202

Beverly Hills, MI 48025

248-530-0300, ext. 1402

[lpalmer@m2media360.com](mailto:lpalmer@m2media360.com)

#### **West**

#### **Bruce Loria**

626 Wilshire Blvd., Suite 500

Los Angeles, CA 90017

213-624-0900, ext. 1226

[bloria@m2media360.com](mailto:bloria@m2media360.com)

### **Classified Advertising Sales**

#### **Glenne Belton**

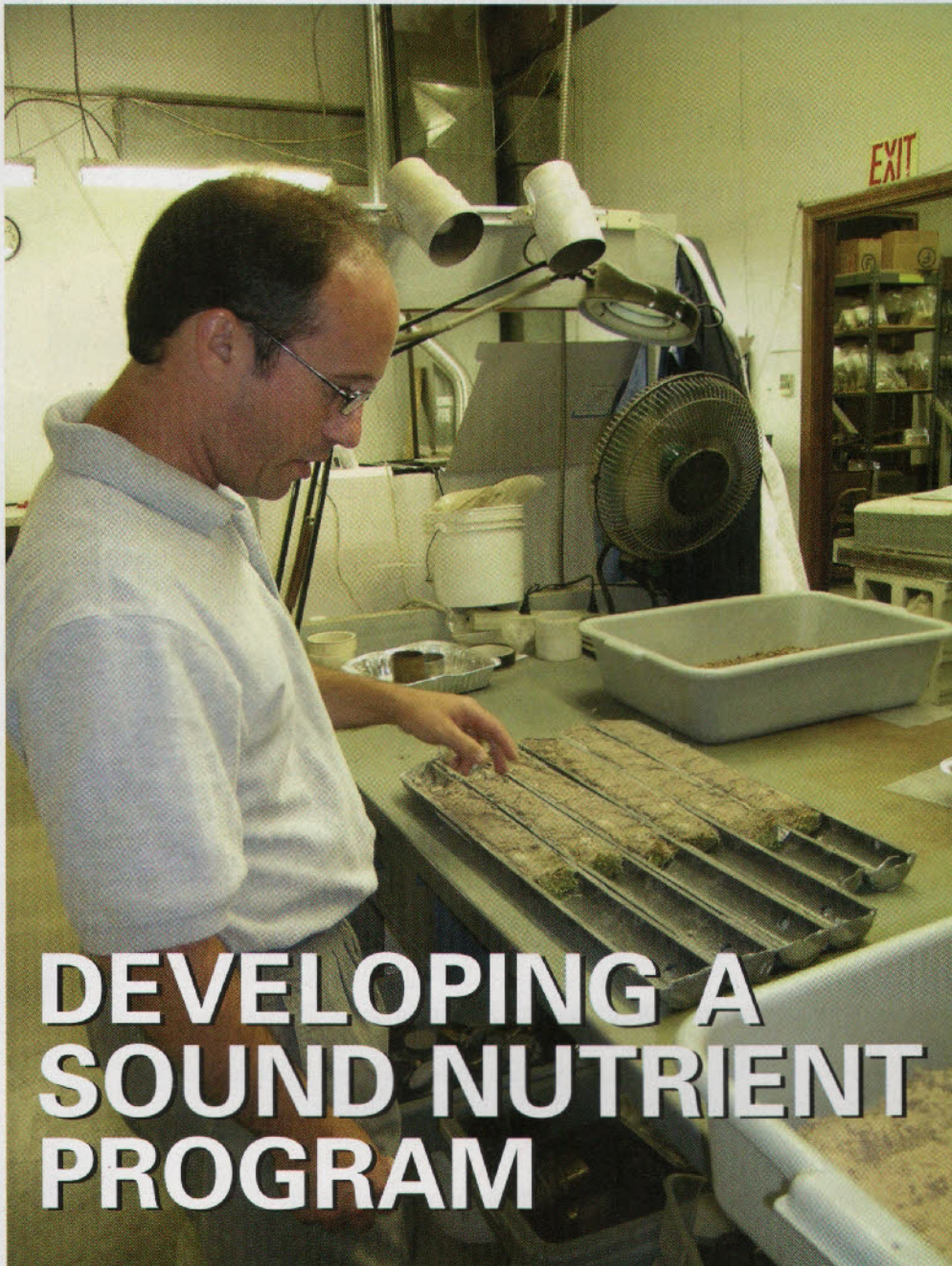
626 Wilshire Blvd., Suite 500

Los Angeles, CA 90017

213-624-0900, ext. 1226

[gbelton@m2media360.com](mailto:gbelton@m2media360.com)

**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 M2MEDIA360, Or Preference Over Similar Products Not Mentioned.



# DEVELOPING A SOUND NUTRIENT PROGRAM

By Gary Grigg

**O** When developing a nutrient program, turf professionals should test their soils on a regular basis, perhaps several times per year. Tissue testing may also be helpful and even required in some situations.

The goal is to build a program that supplies the required nutrients in balance. The

program should consist of necessary soil-applied fertilizers and foliar applications on a frequent and regular basis, as needed. These two types of fertilizer applications supplement each other. The results from soil and tissue testing will provide the application guidelines.

While building a program, remember the "Agronomic Law of the Minimum", which

states there are 13 essential elements other than carbon, hydrogen and oxygen. Each one has an optimum level required for encouraging maximum plant growth and development.

In other words, overall plant health will attain the level of the lowest optimum nutrient level present. This is the limiting factor. An analogy might be a chain with each nutrient representing a link. The chain is only as

# The Barenbrug Advantage



Rose Bowl, Pasadena, California



## Turf Blue™ Kentucky Bluegrass Blend

A unique blend of top rated Kentucky Bluegrass varieties that provide ultra-fast establishment, high wear tolerance and exceptional recoverability.



## Panterra Overseeding Ryegrass

High quality overseeding annual ryegrass that is economical and allows for easy transition. Excellent turf quality on golf courses, sports fields and can cut your overseeding costs dramatically.



## Turf Star® Perennial Ryegrass Blend

A blend of top rated turf-type perennial ryegrass varieties. High density, quick establishing and dark green.

Helping our customers be more successful is the foundation of the Barenbrug Advantage. We offer winning combinations of world class turf seed that reflect years of advanced research and dedication to a professional industry.

Being great in grass –  
*it's the Barenbrug Advantage.*

**800-547-4101**  
**BARENBRUG USA**

**[www.barusa.com](http://www.barusa.com) • [info@barusa.com](mailto:info@barusa.com)**

Fill in 113 on reader service form or visit <http://oners.hotims.com/14677-113>

 **BARENBRUG**  
Great in Grass®



strong as its weakest link. This law says no element may substitute for another. For example, using excess iron will not make up for a zinc deficiency.

Keep in mind that roots, at certain times and under certain conditions, are limited in their ability to take up nutrients. Among these are poor or excessive drainage conditions, soil temperature extremes, and/or chemical imbalances.

There are two types of soil-test data: exchangeable (traditional soil analysis) and extractable (soluble nutrient soil analysis):

## Exchangeable analysis

Turfgrass managers traditionally use an exchangeable soil analysis as a guide to determine total soil content and base saturation cation balance, pH, OM percentage, etc. Based on the test results, agronomists make recommendations for soil-applied fertilizers and/or amendments to promote optimum nutrient content and availability. Results depend on the "expert" source referenced and vary depending on soil type and plant varieties.

Grigg Brothers' recommended soil targets for base saturation are:

- Calcium, 65 to 75%, always higher than magnesium;
- Magnesium, 10 to 15%, always less than calcium but more than potassium;
- Potassium, 3 to 7%, always less than magnesium but more than sodium;
- Sodium, 0 to 2%, always less than potassium;
- Hydrogen, 0 to 10%; and
- Other nutrients include phosphorus (15 to 40 parts per million), sulfur (10 to 68 ppm), iron (15 to 90 ppm), manganese (5 to 30 ppm), zinc (1.5 to 10 ppm), copper (0.5 to 5 ppm) and boron (1 to 3 ppm).

## Extractable analysis

Another agronomic principle is that nutrients must be in solution in order to be available to the plant. Consequently, they enter plant roots primarily via mass flows of soil water. An extractable nutrient test addresses what nutrients are "water soluble" and consequently available to the plant from mass flow. But remember: Only a tissue test will confirm actual levels of absorbed nutrients.

An extractable soil analysis will disclose how well the soil is functioning. The results reveal microbial activity, nutrient solubility levels and potential detriments in the soil solution. Keep in mind that an extractable soil analysis does not ensure the proper nutrient ratio in the plant for photosynthesis and other metabolic functions. Ratios are important. Again, the extractable targets and ratios will vary depending on the plant variety and "expert" reference used.

Our extractable nutrient targets for turfgrass are:

- Calcium, greater than 10%;

- Magnesium, greater than 20%;
- Potassium, greater than 50%;
- Sodium, greater than 75%; and
- Sulfate, greater than 85%.

As for recommended extractable or soluble-base saturation, they are:

- Calcium, 55 to 60%;
- Magnesium 23 to 25%;
- Potassium, 14 to 15%; and
- Sodium, less than 10%.



And finally, soluble nutrient target ratios should be:

- Calcium/Sodium, 2.5 to 1;
- Calcium/Magnesium, 4 to 1;
- Calcium/Potassium, 2 to 1;
- Potassium/Sodium, 1.25-2 to 1;
- Potassium/Magnesium, 2 to 1;
- Potassium/Nitrogen, 1-2 to 1; and
- Nitrate/Ammonia, 1.5-5 to 1

## Irrigation water quality

The impact of irrigation water quality should be carefully considered when determining which fertilizers and amendments will best