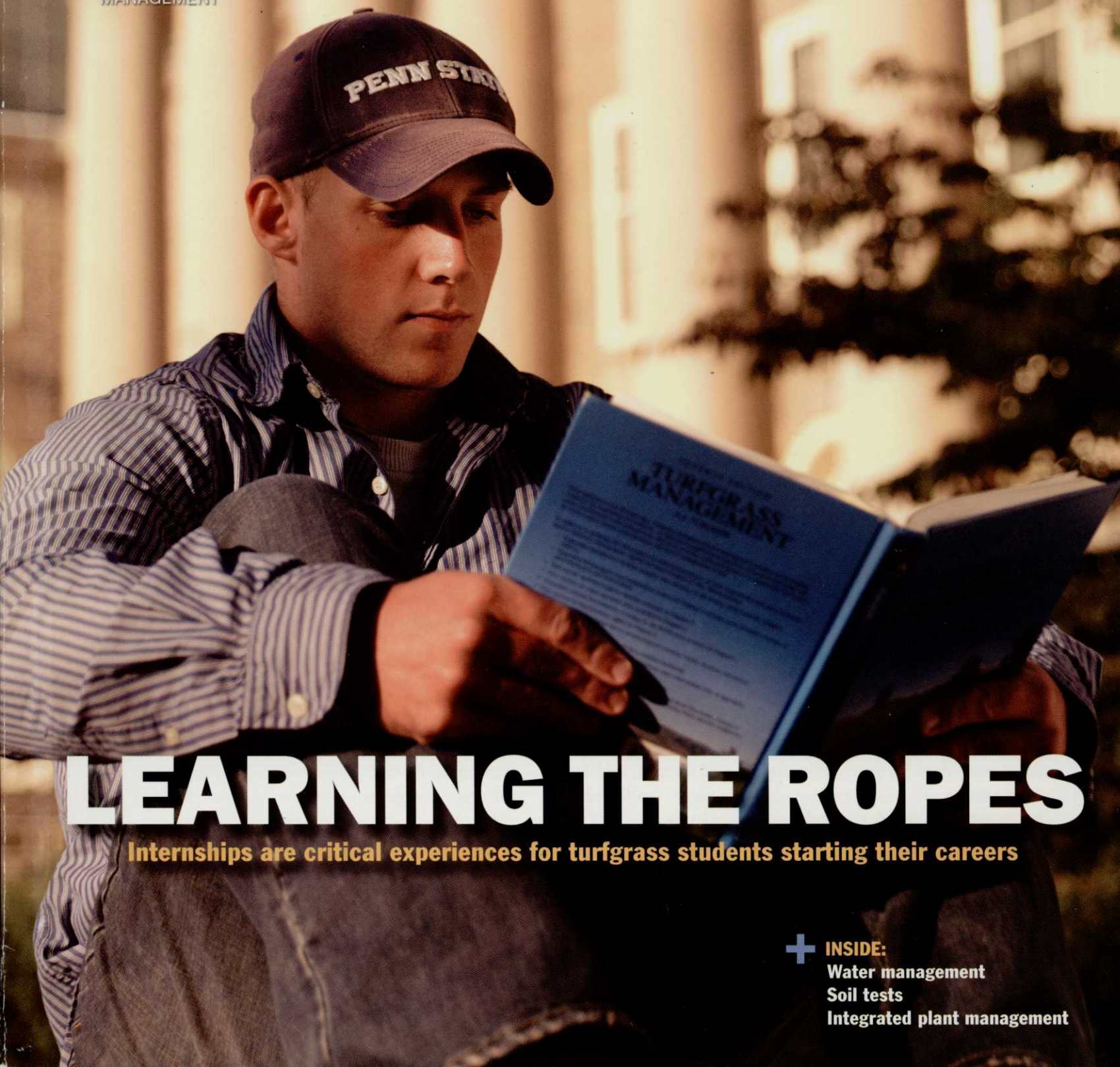


NOVEMBER 2007
www.golfcourseindustry.com

GOLF COURSE[®] INDUSTRY

SERVING THE
BUSINESS
OF GOLF COURSE
MANAGEMENT



LEARNING THE ROPES

Internships are critical experiences for turfgrass students starting their careers

+ **INSIDE:**
Water management
Soil tests
Integrated plant management



New Divot

Divot 10 Days Later

Why is Pennncross the Most Widely Used Bentgrass in the World?



**#1 Trusted Variety
for Over 50 Years**

- After more than 50 years, Pennncross is still the most widely used bentgrass, recognized by superintendents worldwide for its superior standards and unmatched traits
- The aggressive stoloniferous growth of Pennncross fills in divots on tees and landing areas quickly, maintaining a beautiful, functional playing surface
- Its strength and disease resistance are legendary, with outstanding Dollar Spot resistance and the ability to perform consistently in heat, cold or drought
- Pennncross offers an excellent playing surface for tees, fairways and greens when maintained properly
- Pennncross creeping bentgrass should be a dominant part of every fairway blend

PO BOX 250 Hubbard, OR 97032 USA
800-547-0255 • FAX: 503-651-2351
bentinfo@tee-2-green.com

TEE 2 GREEN
We've Got History

FOLIO:
EDDIE
AWARD

GOLD WINNER

GOLF COURSE
INDUSTRY

FEATURES

Superintendent profile

28 MATCHMAKER EXTRAORDINAIRE

Jerry Faubel, former GCSAA president and Bruce Williams' partner in Executive Golf Search, discusses the state of the job market for superintendents.

Career management

LEARNING THE ROPES

Internships are critical experiences for turfgrass students beginning their careers.

Cover photo: Michael Black, Black Sun

Irrigation management

40 WATER PRESSURE

Many superintendents face challenges when dealing with restrictions and cost.



Turfgrass management

44 DIGGING IN THE DIRT

Knowing your soil's physical condition is the key to plant health.

Turfgrass management

50 FINE-TUNING TURF

Superintendents adjust integrated plant management programs to improve conditions.

Industry resources

56 RELIABLE RESOURCES

Chemical manufacturers support superintendents and the industry in various ways.

Course renovation

60 WHAT LIES BENEATH

A subsurface air and drainage system and a ceramic soil mix improve greens at a Chicagoland club.

Golfer relations

64 MYTH BUSTED

A New England superintendent tests flagsticks to see how they react when golf balls hit them.

Product features

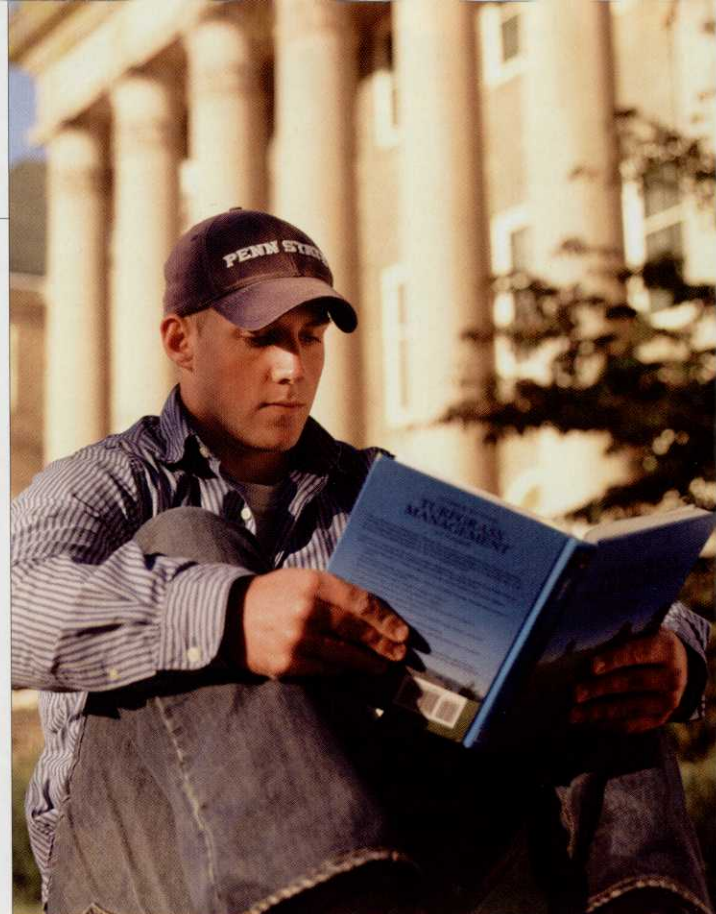
76 PLAYING ROUGH AT OAKMONT

Superintendent leaves nothing to chance, even outside the fairways.

78 MAKING AMENDS

Illinois superintendent uses natural resources as soil amendments.

32



50



40

GOLF COURSE INDUSTRY (ISSN 1054-0644) is published in January, February, March, April, May, July, August, September, October and November. Copyright 2007 GIE Media Inc., 4020 Kinross Lakes Parkway, #201, Richfield, OH 44286. All rights reserved. No part of this publication may be reproduced or transmitted by any means without permission from the publisher. One-year subscription rate, \$33 in the United States, \$42 in Canada and Mexico, and \$88 in other foreign countries. One year foreign airmail rate: \$102. Two year subscription rate: \$65. Subscriptions and classified advertising should be addressed to the Richfield office. Periodicals postage paid at Cleveland, Ohio, and additional mailing offices. Postmaster: Send address changes to GOLF COURSE INDUSTRY 4020 Kinross Lakes Parkway, #201, Richfield, OH 44286.

gie
media
incorporated



Matt Shaffer
Director of Golf Course Operations
Merion Golf Club, Ardmore, PA

"Here at Merion Golf Club, our members are passionate about golf and the condition of our course, so we have an active Poa annua management program. We rely on Cutless 50W because it is highly effective in reducing Poa annua infestations in bentgrass fairways. My experience with Cutless 50W is that it is less disruptive on the bentgrass, while being highly effective in reducing Poa annua populations. In addition to bentgrass conversion, Cutless 50W also provides labor savings by reducing our mowing requirement."

CUTLESS IS THE POA CONSTRICTOR.

Poa annua invades bentgrass fairways and greens often out-competing bentgrass and other desirable grasses, eventually becoming the dominant turf species. Cutless 50W turf growth regulator can help you fight this encroachment, and shift the competitive advantage back to your desirable turfgrass. Unlike some plant growth regulators, Cutless 50W constricts the *Poa annua* but is gentle on desirable grasses such as bentgrass, allowing the bentgrass to grow and establish in the constricted *Poa annua* colonies. So free your bentgrass and squeeze the *Poa annua* out of your fairways and greens. Use Cutless 50W, the Poa Constrictor!

For more information about Cutless 50W turf growth regulator, call 1-800-419-7779 or visit our web site at www.sepro.com.



SePRO Corporation Carmel, IN 46032

*Trademark of SePRO Corporation. Always read and follow label directions. ©Copyright 2007 SePRO Corporation.

www.golfcourseindustry.com/readerservice - #11

Cutless* 50W
Turf Growth Regulator





DEPARTMENTS

- 6 **Editorial**
Build a brand
- 8 **Calendar of events**
- 10 **News analysis**
Green Start Academy,
European pesticide
regulations and expanding
a portfolio
- 26 **At the turn**
- 81 **Travels with Terry**
Equipment ideas
- 82 **Classifieds**
- 83 **Ad index**

COLUMNISTS

- 18 **Marketing your course**
Jack Brennan: Be prepared for next year
- 20 **Design concepts**
Jeffrey D. Brauer: What 'architect'
means
- 22 **Advancing the game**
Jim McLoughlin: The Peter Principle
- 24 **Human resources**
Robert A. Milligan, Ph.D.: Are you a
chief executive?
- 80 **Tournament insider**
Tim Moraghan: Taking the correct steps
- 84 **Parting shots**
Pat Jones: Cut and paste

28

RESEARCH

- 72 **IN THE ZONE**
A look at the diversity of rhizosphere
bacteria in USGA putting greens.

60



VISIT US ONLINE – www.golfcourseindustry.com

LET'S MAKE A DEAL

CNL Income Properties intends to acquire 28 U.S. golf course properties from affiliates of American Golf Corp. The purchase is part of a combined transaction with Evergreen Alliance Golf Limited and American Golf in which EAGLE is purchasing 14 additional courses from American Golf.

HEAVY TRAFFIC TIPS

Find out how the staff at Rancho Park Golf Club in Los Angeles keeps the course playable and alleviates the stress that comes with more than 100,000 yearly rounds.

ONLINE POLL: GROW-IN EXPERIENCE

As a golf course superintendent, do you wish to have more grow-in experience? Visit the GCI home page to vote in this online poll.

DIGITAL LIBRARY

You can view last year's digital issues of *Golf Course Industry* any time you want on DVD. The digital library contains all the 2006 issues on one disc. The DVD is available at the online bookstore – www.golfcourseindustry.com/store.

EDITORIAL MISSION STATEMENT:

Golf Course Industry reports on and analyzes the business of maintaining golf courses, as well as the broader business of golf course management. This includes three main areas: agronomy, business management and career development as it relates to golf course superintendents and those managers responsible for maintaining a golf course as an important asset. *Golf Course Industry* shows superintendents what's possible, helps them understand why it's important and tells them how to take the next step.





John Walsh
Editor

BUILD A BRAND

During my travels the past couple years, I've heard several speakers talk about branding and the importance a brand has in the success of a business. They've lectured about brand development and how it helps manufacturers, distributors and even magazines like this one. Building a brand helps identify the value of a business, and if a brand is well known, it's supposed to make selling for that business much easier. That, in turn, makes the business more profitable – the obvious goal of all businesses.

A brand helps enhance marketing positions, allows companies to set premium pricing, builds market loyalty and differentiates a business from its competitors. A brand has value, and sometimes part of that value is intangible. Marketing professionals say small companies, even a single golf facility, can build a brand. A brand not only includes the product you offer (e.g., the best-conditioned golf course for your dollar), but services as well. And every person who works at a golf facility is part of those product and service components of a brand. In golf, your brand is an experience because the only thing a golfer can take with him when he leaves the course are items from the pro shop, but that's not the main reason why golfers come to your facility to begin with. It's not the main reason for the business. The course is.

The keys to building your brand are: having a committed focus, recognizing your core competencies and values, consistently delivering your product and services, and providing an atmosphere for pleasant golf experiences. Ultimately, the brand helps your customers build confidence in your business because they know what to expect.

As a golf course superintendent, being in contact with the golfers at your course daily is part of building your facility's brand. Explaining to golfers why course conditions are they way they are and finding out what they prefer improves their experience. If your greens are being aerated, do you let golfers know? Do you explain why they're being aerated? Aside from course conditioning, which is the most common way for you to help differentiate your course from others, do you help build your facility's brand and improve golfers' experiences by recommending various types of services to offer customers (babysitting, shoe cleaning and car washes are examples)? Even if you can't actually implement those services because you're busy maintaining the golf course, see to it your ideas to better the facility are presented.

Brands such as Apple, McDonald's, Coca-Cola and Mercedes are some of the most recognized brands in the world. Golf facility examples include Augusta, Pinehurst, Bandon Dunes and Pebble Beach. Analyze those facilities' operations to see if there's something you can glean from them to adapt to your operation and market. Keep in mind you don't have to be known nationally to have a well-respected, strong brand. However, you might end up building your brand to the point where it is known nationally.

Does your golf facility have a brand identity in your local or regional market? If so, can it be strengthened? What are you doing to help build your facility's brand? Are other managers, such as the golf pro and general manager, doing their part? Are you all on the same page regarding the need to build brand awareness to better your business? If not, maybe it's time to sit down and define your brand and execute a plan to develop it. By doing so, your facility might not suffer as much during difficult economic times and might outperform competitors during healthy times. A strong, well-defined brand betters business. So be aggressive and innovative and help define or improve your facility's brand. You'll be better off for it. **GCI**

John Walsh

We would like to hear from you. Please post any comments you have about this column on our message board, which is at www.golfcourseindustry.com/messageboard.



GOLF COURSE INDUSTRY

Serving the Business of Golf Course Management

Vol. 19 No. 10

EDITORIAL

GIE Media, Inc.
4020 Kinross Lakes Pkwy, 2nd floor
Richfield, OH 44286
Phone: (800) 456-0707
Fax: (330) 659-0824

Cindy Code

Editorial director
Phone: 330-523-5331
ccode@gie.net

John Walsh

Editor
Phone: 330-523-5361
jwalsh@gie.net

Heather Wood

Web editor
Phone: 330-523-5348
hwood@gie.net

CONTRIBUTING WRITERS

Terry Buchen, CGCS, MG
terrybuchen@earthlink.net

Pat Jones

psjhawk@cox.net

Kevin Ross, CGCS

kjross@vail.net

David Wolff

dgwolff@charter.net

EDITORIAL ADVISORY BOARD

Terry Buchen, CGCS, MG
Golf Agronomy International

Raymond Davies, CGCS
CourseCo

Kevin Downing, CGCS
BallenIsles Country Club

Tim Hiers, CGCS
The Old Collier Golf Club

Laurence Hirsh
Golf Property Analysts

Ted Horton, CGCS
Ted Horton Consulting

Michael Hurdzan, Ph.D.
Hurdzan/Fry Golf Course Design

Pat Jones
Flagstick LLC

Jim McLoughlin
TMG Golf

Kevin Ross, CGCS
Country Club of the Rockies

Matt Rostal
Interlachen Country Club

Golf Course Industry is published 10 times per year by GIE Media, Inc., which also publishes: *Lawn & Landscape*, *Commercial Dealer*, *Interior Landscape Business*, *Snow Magazine*, *Pest Control Technology* and *Recycling Today* magazines. GIE Media is a leader in custom publishing, book publishing, database marketing, conferences and special events.



Emerald Isle Solutions™



SURF & TURF

Experience rich, greener turf when it feasts on SeaBlend®

Just as seafood is a superior source of protein for you, marine sources of protein are superior forms of nitrogen for your turf. SeaBlend is the perfect combination of high quality organic and synthetic ingredients, so it produces rich, superior color and quality in all seasons.

When fertilizing in the autumn, you want the right blend of organic and synthetic sources to build carbohydrate reserves and give you a very dependable release curve. Dependable, measured release of nutrients avoids surges of growth, and it provides surface quality throughout the autumn to keep up with the demands of play. For best results, apply 1/2 pound of N (4 lbs of SeaBlend) per 1,000 sf by mid-September and again in mid-late October.

SeaBlend produces great color, and it builds soil and stimulates microbial activity. Unlike most organics, SeaBlend won't gum up your rollers, and with a homogeneous greens-grade particle, it's perfect for closely mowed bents and bermudass, including the newer, denser varieties. SeaBlend contains no manures, bone meals or biosolids.

Feed your turf SeaBlend, and see the color difference that complete, superior nutrition can make.

COMPLETE NUTRITION

NATURAL/ORGANIC

Crab Meal
Lobster Meal
Marine Shells
Fish Meal
Kelp Extract
Epsom Salt
Blood Meal
Poultry Meal
Alfalfa Meal
Rock Phosphate



SYNTHETIC

Sulfate of Potash
Ferrous Sulfate
Urea
Methylene Urea
Monoammonium Phosphate

SeaBlend®

See your Milliken Emerald Isle Representative to determine the best complete True Foliar® Nutrition program for you. Ask for your copy of *Keeping it Green*.™



800-845-8502

www.millikenturf.com

© 2007 Milliken & Company. All rights reserved.

www.golfcourseindustry.com/readerservice - #12

Dec. 4 - 6

NEW JERSEY GREEN EXPO TURF AND LANDSCAPE CONFERENCE

Taj Mahal
Atlantic City, N.J.
Call 973-812-6467, or visit
www.njturfgrass.org.

Dec. 4 - 6

OHIO TURFGRASS CONFERENCE & SHOW

Greater Columbus (Ohio) Convention Center
Call 888-683-3445, or visit
www.ohioturfgrass.org.

Dec. 4 - 6

ROCKY MOUNTAIN REGIONAL TURFGRASS ASSOCIATION

Holiday Inn - Denver International Airport
Call 303-770-2220, or visit www.rmmta.org.

Dec. 9 - 11

28TH INTERNATIONAL IRRIGATION SHOW

San Diego Convention Center
Call 703-536-7080, or visit
www.irrigation.org.

Dec. 18 - 19

HEARTLAND GREEN INDUSTRY EXPO

Overland Park (Kan.) Convention Center
Call 816-561-5323, or visit www.hagcsa.org.

Jan. 7 - 9, 2008

GREAT LAKES TRADE EXPOSITION (MICHIGAN TURFGRASS CONFERENCE)

Devos Center
Grand Rapids, Mich.
Call 517-321-1660, or visit
www.michiganturfgrass.org.

Jan. 8 - 10, 2008

EASTERN PENNSYLVANIA TURF CONFERENCE AND TRADE SHOW

Valley Forge Convention Center
King of Prussia, Pa.
Call 877-326-5996, or visit www.paturf.org.

Jan. 14 - 17, 2008

VIRGINIA TURFGRASS COUNCIL'S TURFGRASS CONFERENCE

Fredericksburg Expo and Convention Center
Call 757-464-1004, or visit www.vaturf.org.

Jan. 21-23, 2008

IOWA TURFGRASS CONFERENCE & TRADE SHOW

Iowa State Center
Ames, Iowa
Call 515-232-8222, or visit
www.iowaturfgrass.org.

Jan. 23-25, 2008

GEORGIA GREEN INDUSTRY ASSOCIATION WINTERGREEN EXPO AND WINTERSCHOOL CONFERENCE

Classic Center
Athens, Ga.
Call 706-632-0100, or visit www.ggia.org.

Jan. 31 - Feb. 2, 2008

GOLF INDUSTRY SHOW

Orange County Convention Center
Orlando, Fla.
Call 800-472-7878, or visit
www.golfindustryshow.com.

Feb. 4 - 8, 2008

TURFGRASS PRODUCERS INTERNATIONAL'S MIDWINTER CONFERENCE

Caribe Royale Hotel
Orlando, Fla.
Call 847-649-5555, or visit
www.turfgrassod.org.

Feb. 25 - 28, 2008

WESTERN PENNSYLVANIA TURF CONFERENCE AND TRADE SHOW

Monroeville (Pa.) Expo Mart
Call 877-326-5996, or visit www.paturf.org.

Feb. 29 - March 4, 2008

CANADIAN GOLF SUPERINTENDENTS ASSOCIATION'S 59TH ANNUAL INTERNATIONAL TURFGRASS CONFERENCE AND TRADE SHOW

Telus Convention Centre
Calgary, Alberta
Call 905-602-8873, or visit
www.golfsupers.com.

GOLF COURSE INDUSTRY

Serving the Business of Golf Course Management

SALES

GIE Media, Inc.
4020 Kinross Lakes Parkway, 2nd Floor
Richfield, OH 44286
Phone: 800-456-0707
Fax: 330-659-0823

Kevin Gilbride

Publisher
Phone: 330-523-5368

Amee Robbins

Account manager, West Coast
Phone: 310-546-6060

Dave Szy

Account manager, Northeast
Phone: 330-523-5338

Russell Warner

Account manager, Southeast
Phone: 330-523-5385

Bonnie Velikonya

Classified sales
Phone: 330-523-5322

Marie Spencer

Marketing manager
Phone: 330-523-5374

Debbie Kean

Manager, books
Phone: 330-523-5341

Maria Miller

Conferences manager
Phone: 330-523-5373

GRAPHICS / PRODUCTION

Mark Rook, Creative director
Andrea Vagas, Managing art director
Helen Duerr, Production director
Samantha Gilbride, Production coordinator

CORPORATE STAFF

Richard Foster, Chairman and c.e.o.
Chris Foster, President and c.o.o.
Dan Moreland, Executive vice president
Jami Childs, Director, business resources and IT
Kelly Roop, Manager, accounting department

Golf Course Industry is a member of:
Golf Course Superintendents Association of America
Charter Member National Golf Foundation
Golf Course Builders Association of America
The Irrigation Association
Responsible Industry for a Sound Environment

Copyright 2007 by GIE Media, Inc. All rights reserved and reproduction, in whole or in part, without written permission from the publisher is expressly prohibited.

Contact **Heather Wood**, Web editor, at hwood@gie.net, to submit event information for the magazine or Web site.



Don't let your cooler be a water hazard.

Ice Cover does not float—clipped to the pump housing for easier filling.

Two Check Valves inside the cartridge eliminate dripping—regardless of handle position.

Reinforced Handle Design is virtually unbreakable—tested for over 300,000 cycles to withstand over 450 pounds of force.

The Standard Golf Water Purification System delivers safe, pure drinking water anywhere on your course.

The only water hazards your players should encounter are the ones that are supposed to be there. Standard Golf's Water Purification System purifies water right at the point of use, eliminating opportunities for microbiological

contamination. And an improved pump and handle mean a stronger, failure-resistant system. To learn more, contact your Standard Golf Distributor or call 1-866-743-9773 to talk to a factory representative.

For toll-free express service, call **1-866-SG-EXPRESS** (1-866-743-9773)

**STANDARD
GOLF** COMPANY
We've Got It All.

Veteran superintendents such as Bruce Williams, CGCS, offer guidance and career advice to assistants. Photo: John Deere



Getting a head start

The road to becoming a superintendent these days usually involves much more than obtaining a degree and typing a resume. Assistant superintendents are looking to differentiate themselves from their peers, and that's where Green Start Academy comes in. The program, hosted by John Deere Golf & Turf and Bayer Environmental Science, was held recently in Clayton and Fuquay-Varina, N.C., for the second year and brought veterans to those who are still green in the industry.

Participant Adam Warring, assistant superintendent at The Links at Bodega Harbour in California, was looking for such an advantage. He was recommended by his superintendent, Brian Morris, and wrote an essay to gain acceptance into the program. Warring was one of about 80 attendees participating in the two-day program, which was

jam-packed with activities and information, he says.

The itinerary included a virtual tour of the Bayer research facility in Clayton, a tour of the John Deere Turf Care facility in Fuquay-Varina and sessions with professionals from the industry, including representatives from Bayer, John Deere, North Carolina State University, the USGA, the GCSAA and superintendents.

"It teaches assistant superintendents the new things going on in the industry," says Matt Armbrister marketing manager at John Deere's golf segment and one of the lead organizers of the program. "It's very dynamic; things are changing all the time. If they can learn more, they can manage their staff and resources better. They can learn a lot from meeting and talking to other people who are in the same boat."

The content of the program will be tweaked a little each year to keep the information relevant, Armbrister says. One of the sessions focused on water management, which is becoming more of an issue as that resource becomes more scarce. Throughout the program, none of the content was geared specifically to John Deere or Bayer products, Armbrister says.

The most valuable part of the program for Brett Ziegler, assistant superintendent at Knollwood Club in Lake Forest, Ill., was the opportunity to network and learn from industry veterans such as Bruce Williams, CGCS, of the Los Angeles Country Club and Bob Farren,

CGCS, of Pinehurst Resort in North Carolina.

While Warring says this type of program can help give assistant superintendents a competitive edge, he's frustrated by the seemingly impossible task of breaking into the superintendent realm.

"The information was good, but if anything, I would have liked to have gotten more advice as far as an assistant superintendent trying to move up to a superintendent position," he says.

Warring has searched for open superintendent positions but doesn't find it to be promising. "Typically, on 95 percent of the job postings for superintendents, line one says you must have previous superintendent experience," he says. "What the hell are you supposed to do?"

Ziegler, 24, concedes that it seems to be more difficult to become a superintendent than it used to be, but says it's attainable. His goal is to become a superintendent in the next five years. Programs like the Green Start Academy can help his chances, he says.

"I'm not going to say that if you went to this you're ready to become a superintendent, but at least it opened my eyes a little bit as far as the things I need to do to take that next step," Ziegler says.

The program will proceed next year based on survey responses from this year's participants, Armbrister says. — Heather Wood



A classroom setting allows assistant superintendents to discuss matters openly and to receive feedback from others. Photo: John Deere



Europeans consider pesticide regulations

Golf course superintendents in the U.S. soon might find their European counterparts have fewer maintenance tools in their arsenal for tending turf. This leaves some wondering if the proposed regulations could be headed across the ocean.

The European Union is considering legislation (Proposals for a Directive on the Sustainable Use of Pesticides) that would ban the use of plant protection products, or pesticides, in urban areas. The products could be considered a health risk.

"Parliament and the commission decided that placing pesticides on the market and



disposing of unused pesticides is well regulated, but they don't feel the actual use of registered products is adequately regulated," says Pat Kwiatkowski, Ph.D., head of global regulatory affairs for Bayer Environmental Science in Lyon, France. "This is the main purpose of the Framework Directive on the Sustainable Use of Pesticides."

The framework directive being considered proposes to halt pesticide use in areas including public parks, sports grounds and playgrounds, but it doesn't specifically mention golf courses, which probably are a gray area.

Pitchcare, a British magazine for greenkeepers, has been reporting the issue and expressed concern about the effect it could have on the care of public areas including golf courses.

"The issue goes way beyond the availability of tools to effectively

manage the superb golf courses and sports pitches the U.K. is famous for the world over," writes Paul Cawood in a recent commentary. "It affects how weeds will be controlled in the streets. It affects how vegetation will be controlled in areas where safety is a critical issue, such as the highways and railways and other industrial areas depending on how 'public and amenity area' is defined."

If the directive becomes law, the only legal alternative left for greenkeepers will be hand weeding, which is too costly and labor-intensive, Cawood says.

Austen Sutton, global business support manager, turf and ornamentals for Syngenta, recently spoke at a Responsible Industry for a Sound Environment meeting in New Orleans and highlighted the implications of the proposed pesticide restrictions within the directive. He detailed the potential consequences the ban might have on the turf and amenity industry and its customers, who could lose the option to apply pesticides as part of their management programs. Pesticide companies that have a presence in Europe are closely watching the proposed European Union directive, which might be approved during the next two years, and are working with advocacy groups in EU member states to remain informed about any introduction of new legislation, Sutton says.

"Syngenta is fully behind the industry activity and following the formal lobbying process," he says.

The industry lobbying is

Health insurance for your turf



golfLinx 
Innovative turf water management

GolfLinx is the world's most advanced water management solution which uses **AquaSpy** multi-sensor probes to keep your turf at optimum health.

Your irrigation water demand is closely monitored with real time data via your PC or PDA. **AquaSpy** multi-sensor probes provide an 'x-ray view' of the subsurface soil moisture content on your golf course. **GolfLinx** provides you with the information to respond to the irrigation needs of your greens, fairways and tee-boxes.

Developed by soil moisture technology experts with 10 years experience, the **GolfLinx** water management solution will quickly become an invaluable source of superior irrigation intelligence for you, the Golf Course Superintendent.

GolfLinx – your turf is worth it.

www.golflinx.net

1.866.247.4546

After looking at our line of irrigation products,
the PGA TOUR didn't raise any red flags.

Only this one.



EXCLUSIVE
GOLF
IRRIGATION
SUPPLIER

JOHN DEERE GOLF & TURF
ONE SOURCE



With the 23 Tournament Player properties they own and operate, the PGA TOUR naturally wants their courses to be in the best condition possible. And after using John Deere maintenance equipment for ten years, they were ready to take a look at what John Deere Golf Irrigation could do for them. Suffice to say, they were pleased with what they saw. Innovative, state of the art controllers, rotors, and accessories combined with legendary John Deere quality and service. To see what John Deere Golf Irrigation can do for your course, call your local John Deere distributor or 1-800-537-8233 today.



focused on avoiding a complete restriction of pesticides use in public places and amending a number of other components of the proposed directive, Sutton says.

The ECPA, the European pesticide industry

association based in Brussels, has been lobbying with members of the European parliament about the legislation during the past months.

Yet the European and U.S. regulatory

processes are different.

"In the U.S., decisions are based on risk assessment, which means comparing exposure to the toxicity of the product; it's a decision of safety based on a quantified method," Kwiatkowski says. "There's also a recognition and assessment of risk vs. benefit for a product. This aspect has gone away to a great extent in Europe in the past few years."

While the U.S. Environmental Protection Agency communicates regularly with its EU counterparts, the two bodies understand the differences between the regulation processes, Kwiatkowski says. She doesn't foresee the EPA looking at the EU's pesticide directive and following suit in the U.S. She bases this opinion on an EU water directive with respect to the risk of pesticides seeping into drinking water. That directive hasn't been considered in the U.S., and the EPA has no inclination to do so, she says.

Still, some fear antipesticide advocates in the U.S. will see the European directive as a viable option for the U.S.

"We have preemption at the state level here that would protect us to some degree, but the activist community has an agenda to overturn state and federal preemption," says Allen James, executive director of RISE.

Even if European restrictions aren't the impetus for U.S. regulations, bans and other rules have been put into place, and advocates will continue to push for further restrictions. U.S. pesticide users can help the cause by becoming more active in trade organizations and at the grassroots level, James says.

"Each company or golf course superintendent needs to take it upon himself to get involved," James says. "He shouldn't limit the focus just to his own segment. Harm to the lawn care industry, restrictions on road-care protection or failure to use pesticides properly on utility rights of way ultimately have adverse effects on golf courses because one area leads to another area being restricted."

An EU vote on the directive was expected Oct. 22. Kwiatkowski expects that sometime in the next three to six months there will be a finalized version, which will be publicized with a timeline for member states to follow.

"Now is the time for concerned industry advocates to express their concerns," she says.

— HW

SANDSTOR™
*The Only Solution
 FOR STORING
 Top DRESSING SAND*

MERIDIAN
 MANUFACTURING GROUP
WWW.MERIDIANMFG.COM

800-437-2334

Catching a shark

Real-estate giant The St. Joe Co. recently sunk its teeth further into the golf industry. Shark's Tooth Golf Club in Lake Powell, Fla., is the newest course in the company's portfolio, joining Camp Creek, SouthWood, Victoria Hills Golf Clubs and St. John's Golf and Country Club and the Origins Course at WaterSound. As the club's staff becomes acquainted with its new owner, the benefits of being a part of a larger network become apparent.

The 18-hole, Greg Norman-designed course, which overlooks

Lake Powell, is an Audubon Cooperative Sanctuary Silver Signature Course that features more than 35 feet of natural elevation change and is home to 300-year-old live oak trees and a variety of wildlife and marine life.

"It has a very natural feel," says John Johnson, who has been general manager since the course opened in 2002. "It was designed with the player in mind and is enjoyable for players of all abilities."

The \$30-million deal was completed in August. While golfers won't notice much



change on the course as a result of the acquisition, the change of ownership offers the course a stronger network of support, Johnson says.

"We went from being a small club with ownership at a local level to part of a much bigger company with unlimited but greater resources," he says.

Shark's Tooth Golf Club in Lake Powell, Fla., is the newest golf property in The St. Joe Co.'s portfolio. Photo: Shark's Tooth Golf Club



BEFORE



AFTER

SAND STORM "TURN BACK THE SANDS OF TIME"

Are your bunkers suffering from the adverse effects of time? Are rocks, silts, and clays beginning to build up causing your bunkers to look, function, and play like concrete?

Courses all over the world rely on the Sand Storm by ZScreen LLC. for all their bunker maintenance needs. The Sand Storm cleans and "recycles" your sand right in the bunker, utilizing a 12 volt vibratory motor, saving you time and money. Say good-bye to the short term repair method of "removing and replacing" your bunker sand, and say hello to a more cost effective, long term solution.

 **ZScreen** LLC.
U.S. Patent # 6,439,393 and Patent # 6,863,182
(623)581-0307 • www.zscreen.com

Shark's Tooth Golf Club intends to benefit from the marketing efforts of its new operator.



"There's a great information systems department, human resources department, strong accounting and a lot of energy focused on taking care of the membership of the club."

There are 260 members at Shark's Tooth. Besides members and their guests, guests of WaterColor and WaterSound luxury vacation rentals, including the WaterColor Inn & Resort, have access to the course. The 28-site Wild Heron housing community surrounds the course. The club offers different levels of membership, including full golf, corporate and social memberships.

Members, as well as course operators, can benefit from the St.

Joe arrangement, Johnson says. The courses have experimented with offering deals for golfing at more than one of the company's courses, says Will Hopkins, general manager of Camp Creek Golf Club in Watersound, Fla. Camp Creek is about 15 minutes from Shark's Tooth, so it would be feasible for golfers to go from one St. Joe course to another.

Beth Murphy, general manager of SouthWood Golf Club in Tallahassee, also sees the value of collaboration.

"We work within a broader goal than being simply bottom-line driven," Murphy says. "We're certainly here to run a business as practically and reasonably as we can, but we consider the

impact on the community and the overall goals. It's a diverse group of resources that we have to pull from."

Although SouthWood isn't a quick drive from the other St. Joe courses, it still benefits from being under the St. Joe umbrella with other courses, Murphy says. The company's marketing efforts serve SouthWood.

"Combining has been a win-win for us to do things jointly," she says. "The PR has helped us get recognition in publications, with our ratings and with getting golf tournaments out here."

Hopkins wouldn't be surprised

if St. Joe eventually buys more golf courses.

"The real estate market needs to catch up right now," he says, adding that even if the housing market is declining, the course will still benefit from the vacation traffic from WaterColor, which seems to be stable.

Johnson says his course should be able to benefit from the same traffic because of his new affiliation.

"Shark's Tooth was always maintained with a high standard, so we're excited that St. Joe will be able to continue with standard we've already established." – HW



Flexible



Structuring Cash Flow Solutions For All Your Needs

We are committed to offering comprehensive management solutions, backed by levels of service that exceed expectations again and again. Our innovative approach to the golf and turf industry allows you to package equipment with multiple lease types and terms – regardless of the manufacturer.

Wells Fargo Financial Leasing, Inc.

You customize your fleet, we customize your lease.

Golf & Turf Division

877.226.1466

www.golfcourseindustry.com/readerservice - #18



TurfBREEZE

Permanent & Portable
Moisture Removal & Aeration

Hydronics

Control & Monitoring Packages

Durable, Dependable
Turf Fans

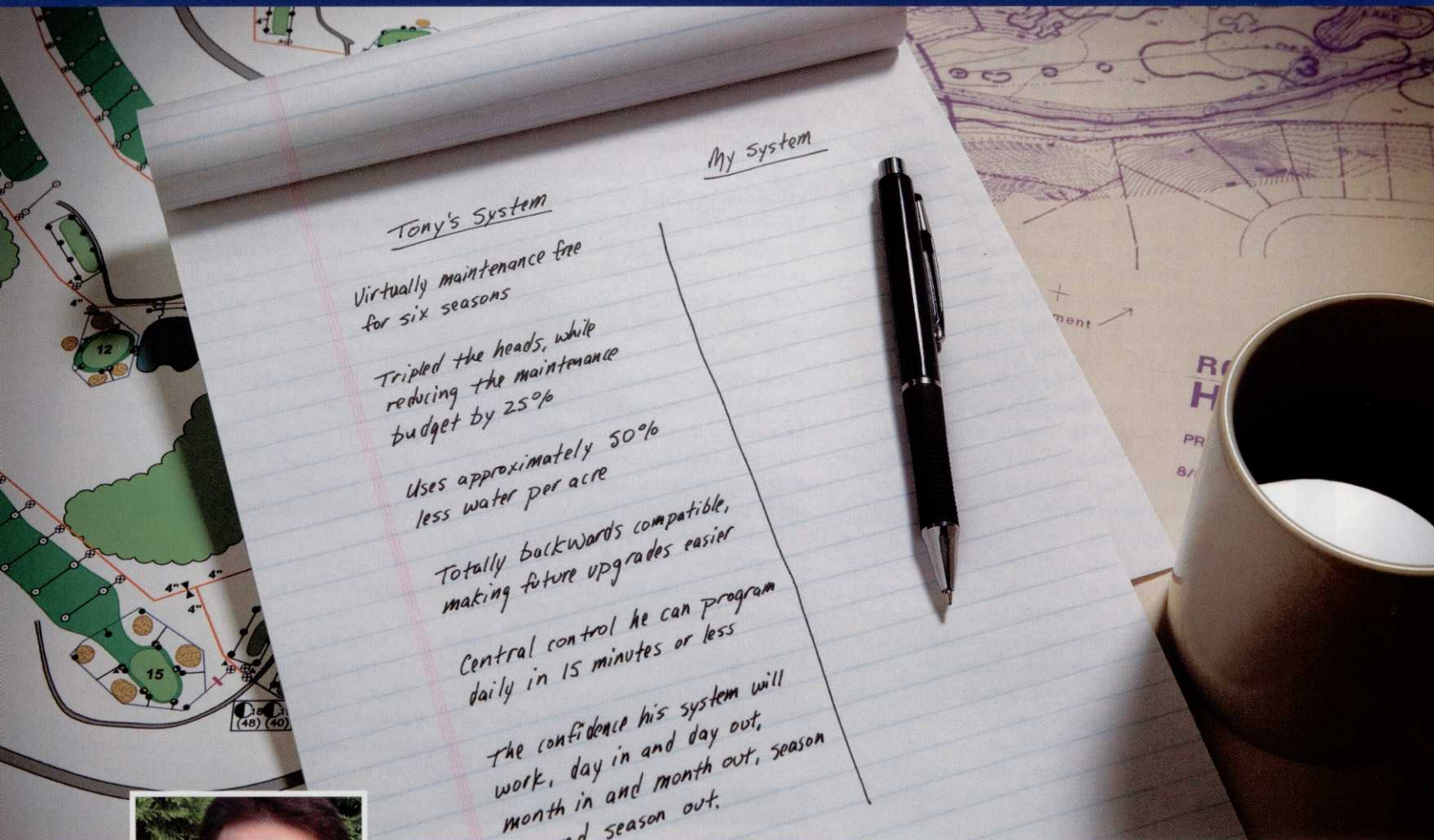
www.subairsystems.com

www.turfbreeze.com

866.641.6663

www.golfcourseindustry.com/readerservice - #19

Doing your homework still pays off.



Tony's System

Virtually maintenance free
for six seasons

Tripled the heads, while
reducing the maintenance
budget by 25%

Uses approximately 50%
less water per acre

Totally backwards compatible,
making future upgrades easier

Central control he can program
daily in 15 minutes or less

The confidence his system will
work, day in and day out,
month in and month out, season
in and season out.



Tony Girardi, Certified Golf
Course Superintendent (CGCS),
Rockrimmon Country Club,
Stamford, CT

There is a difference in irrigation systems — just ask Tony Girardi, CGCS.

In 2001, Tony began a complete course renovation. After experience with two previous installations with competitive systems, he decided to look at Rain Bird to find out the difference for himself. "I started doing a lot of homework, and realized the tremendous benefits of Rain Bird, like the ease of central control and a satellite irrigation system that's fully backwards compatible. We're now in our sixth season, with no major breakdowns, and I've cut my irrigation maintenance budget by 25 percent. With Rain Bird I run virtually maintenance-free season after season, I just don't have to worry about it."

If your system doesn't stack up to Tony's, call 1-800-RAINBIRD or visit www.rainbird.com/golf.

RAIN BIRD®

www.golfcourseindustry.com/readerservice - #20



Jack Brennan founded Paladin Golf Marketing in Plant City, Fla., to assist golf course owners and managers with successful marketing. He can be reached at jackbrennan@tampabay.rr.com.

BE PREPARED FOR NEXT YEAR

“If you don't know where you're going, then any road will take you there.”

I don't remember the author of this quote, but it's a fitting beginning for a column attempting to define golf course marketing.

There's a misunderstanding that marketing is merely advertising. I receive inquiries from prospective clients explaining they need marketing help for their golf courses. In response, the first questions I want answered are: How much do you know about your market? How much do you know about your competition? Are you positioned properly based on the quality of the facility versus your pricing?

Surprisingly, while my clients try answering these questions, they often interrupt themselves to let me know the answers to them are unimportant. What they really want to know is what advertising they should be implementing, or to let me know they've tried everything and nothing works.

Advertising is a part of marketing, but marketing isn't advertising. Marketing is conducting research necessary to offer a product to an audience who likely will respond favorably.

Marketing includes all those research activities – competitor analysis, positioning, demographic growth analysis, economic growth analysis, consumer and facility demand analysis, supply versus demand, market growth/decline of supply, per capita play rates, play rates by type of golf facility, golfer participation, frequency of play per golfer, market age and household income analysis – that contribute to the development, pricing, communication and promotion of your golf course. Promotion is the marketing element, which includes advertising, used to communicate your course's message and offerings to prospective customers. Promotion also influences those potential golfers to play your course repeatedly.

Marketing also includes planning ahead. You can't determine where you need to be if you don't know where you are. The best

advice I can give at this time of the year: Be prepared for next year.

Every one of my client's is unique because they exist in a different marketplace. The basic research is the same, but you have to apply the interpretations of the research to the marketplace. For example, if I was working in Scottsdale, Ariz., a section of my marketing plan would focus on partnerships with hotels, motels and timeshares to reach potential customers. However, this relatively large portion of potential business and section of the marketing plan for a client in Scottsdale is worthless in rural Kentucky where my last client had no lodging facilities within 35 miles of the course.

If you've never written a marketing plan for your golf course, follow these five simple steps, and you'll have the beginnings of a dynamic marketing plan.

Step 1. Write down all business segments of play that you've been able to capture at your course this year. Include the number of rounds and revenue generated from each segment. (See table below.)

Example	Number	Revenue
Membership rounds	10,000	\$470,000
Outside play	14,000	\$714,000
Tournaments	3,000	\$156,000
Outings	2,000	\$104,000
League play	2,000	\$58,000

Step 2. Write down all the potential business segments of play that exist in your market that you can conceive: membership (full, single, social, etc.), outside play (weekday, weekend), tournaments/outings (social, charity, corporate, mini tours, pro events, etc.), league play, hotel play (transient, packages), special seniors, juniors (clinics, camps), etc.

If you can identify that the segment of play exists in your market place, write it down. Even if, for 2008, you know you

won't get that segment of play, write it down. Then find out how the club with that play is faring with that segment of business. For example, a segment of play that few clubs would have is a PGA Tour or Champions Tour event. But if that play exists in your market, call the pro, manager or owner and ask them how that play contributes to the success of their business. In this example, it might be that the event costs them money, and management offsets that cost with sales in a development. Now you know.

Try the same thing with all the segments of play until you know your golf market thoroughly. And, by doing this, you'll know your competition better, too.

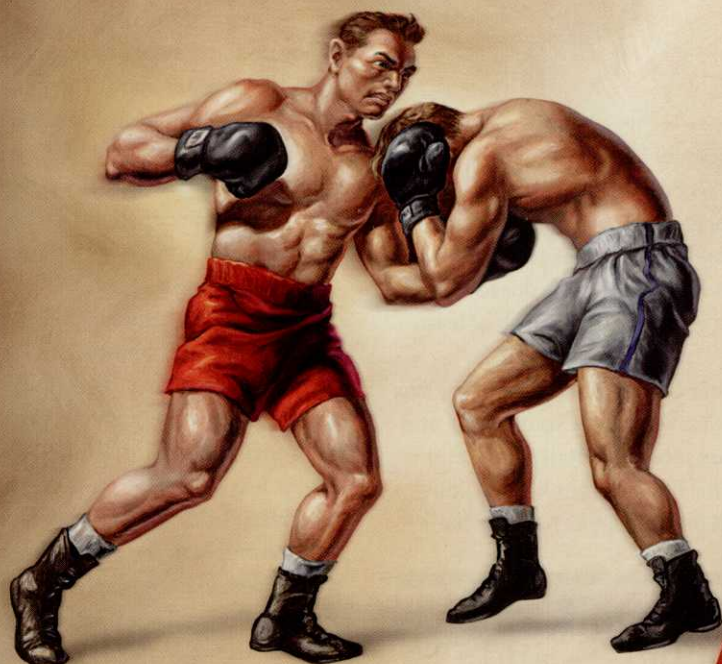
Step 3. Focus on the play segments that currently demand play at your course. Then focus on the play that you're not getting, or not getting enough of, based on your competitors. Then conceive of promotional ways to better invite or solicit that segment of opportunity play.

Step 4. Create a promotional budget that you can justify for every segment of business you intend to capture. Don't think of the traditional forms of advertising such as newspaper, radio, magazines and TV only. For example, consider tournaments and outings. It might be as simple as recognizing you host a fair amount of charitable outings but not as much as your competition, and you realize none of the staff has ever solicited this business directly by phoning them. I almost guarantee your chamber of commerce has a listing of charitable organizations that you can get or buy. Most likely, you did business with one of them when they called you. Pick up the phone and call them before they call your competition.

Step 5. Repeat Step 4 over and over again.

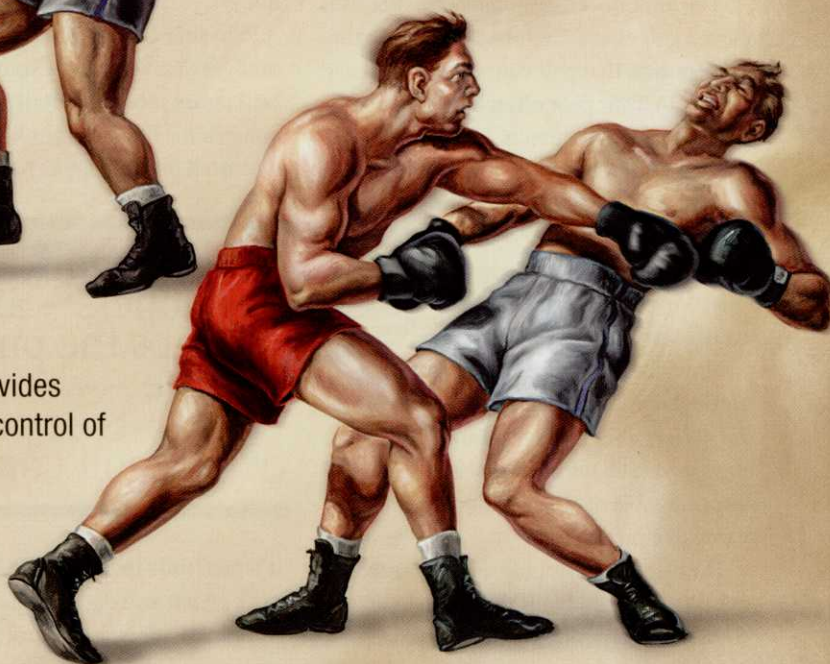
The perfect time for all your research and marketing reorganization is Thanksgiving through January 1 no matter where you're located. No one is in a buying mood, it's during the holidays, and the next year seems a long way off. Prepare then, and you'll be able to book more business between January 2 and Easter, which is prime selling season for all golf courses. **GCI**

INTRODUCING ALOFT™ THE ONE-TWO PUNCH™



One – Bifenthrin provides quick knockdown of early-season adults and surface-feeders

Two – Clothianidin provides long-lasting systemic control of all white grubs



Knock out bugs with new ALOFT™ Insecticide. Nothing provides better, faster or longer control of white grubs, early-season adults (like annual bluegrass weevil, black turfgrass ataeinus, billbugs and chinch bugs) and surface-feeders, including armyworms, cutworms and sod webworms. To learn more about the one-two punch of ALOFT, call 1-800-761-9397 or visit www.arystalifescience.us/aloft.

PERFORMANCE POWERED BY
CLOTHIANIDIN

Aloft™
Insecticide

Always read and follow label directions. ALOFT, the ALOFT logo and "The One-Two Punch" slogan are trademarks of Arysta LifeScience North America Corporation. The Arysta LifeScience logo is a registered trademark of Arysta LifeScience Corporation. © 2007 Arysta LifeScience North America Corporation. ALO-031



Arysta LifeScience

Harmony In Growth



Jeffrey D. Brauer is a licensed golf course architect and president of GolfScapes, a golf course design firm in Arlington, Texas. Brauer, a past president of the American Society of Golf Course Architects, can be reached at jeff@jeffreymbrauer.com.

WHAT 'ARCHITECT' MEANS

As a long-time golf course architect and past president of the American Society of Golf Course Architects, I cringe when people overlook and understate the value of qualified golf course architects.

The announcement that Tiger Woods is now a golf course architect highlights the false notion that golf course design is easy. Top PGA Tour pros often have claimed to be golf course architects, and always will, as long as developers believe their names add marketing value. But are they really golf course architects? The concept of the Tour pro as golf course architect begs questions that rarely have been answered satisfactorily.

How does playing courses in events throughout the world apply to designing for golfers who play for leisure? Is Tiger's perspective about how to play a hole the least valuable of all, given he plays the game like no one else?

How does envisioning a high, butter-cut 6-iron spinning off the back slope translate to envisioning turning a deeply wooded or rocky area into a golf hole?

How does the idea of copying great holes they've seen work given different slopes, soils, grasses and vegetation – not to mention different owner pro formas, the addition of surrounding housing, environmental constraints, etc.?

Simply put, the technical and artistic visual skills of a golf course architect aren't the same skills needed for competitive golf. It's a full-time job and requires years of study and experience. And yet, golf developers – and perhaps the public at large – want to believe Tour pros design golf courses. In fact, only a few – Jack Nicklaus and fellow ASGCA member Mark McCumber – are among the exceptions who are very involved in design.

Take note of Nicklaus' comments during a recent President's Cup news conference. As the player who has made the most successful transition from player to architecture, he said he doesn't think Tiger is a golf course architect, at least not yet.

"I'm sure he has great ideas," Nicklaus said. "He's a very smart young man, and he'll figure it out. But it depends, at this point in his life, whether he'll be doing it himself or lending his name or both."

And yet, golf developers – and perhaps the public at large – want to believe Tour pros design golf courses.

It'll take time to figure out. He certainly can't go out and do a design himself. He wouldn't understand that. He wouldn't understand all the things that happen with it. It takes time to learn that. Can he make an input? Absolutely, he can make an input, and he'll grow."

In that news conference, Jack said:

- He felt like a consultant for about 10 years;
- Many of his early designs require renovation now;
- It took a while to stop designing for his game and to focus on designing for average golfers;
- He has worked with more than 20 ASGCA members to learn the craft.

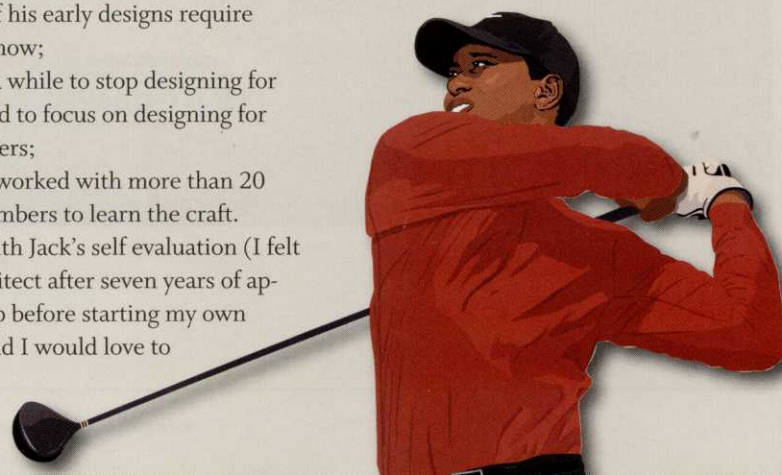
I agree with Jack's self evaluation (I felt like an architect after seven years of apprenticeship before starting my own business, and I would love to

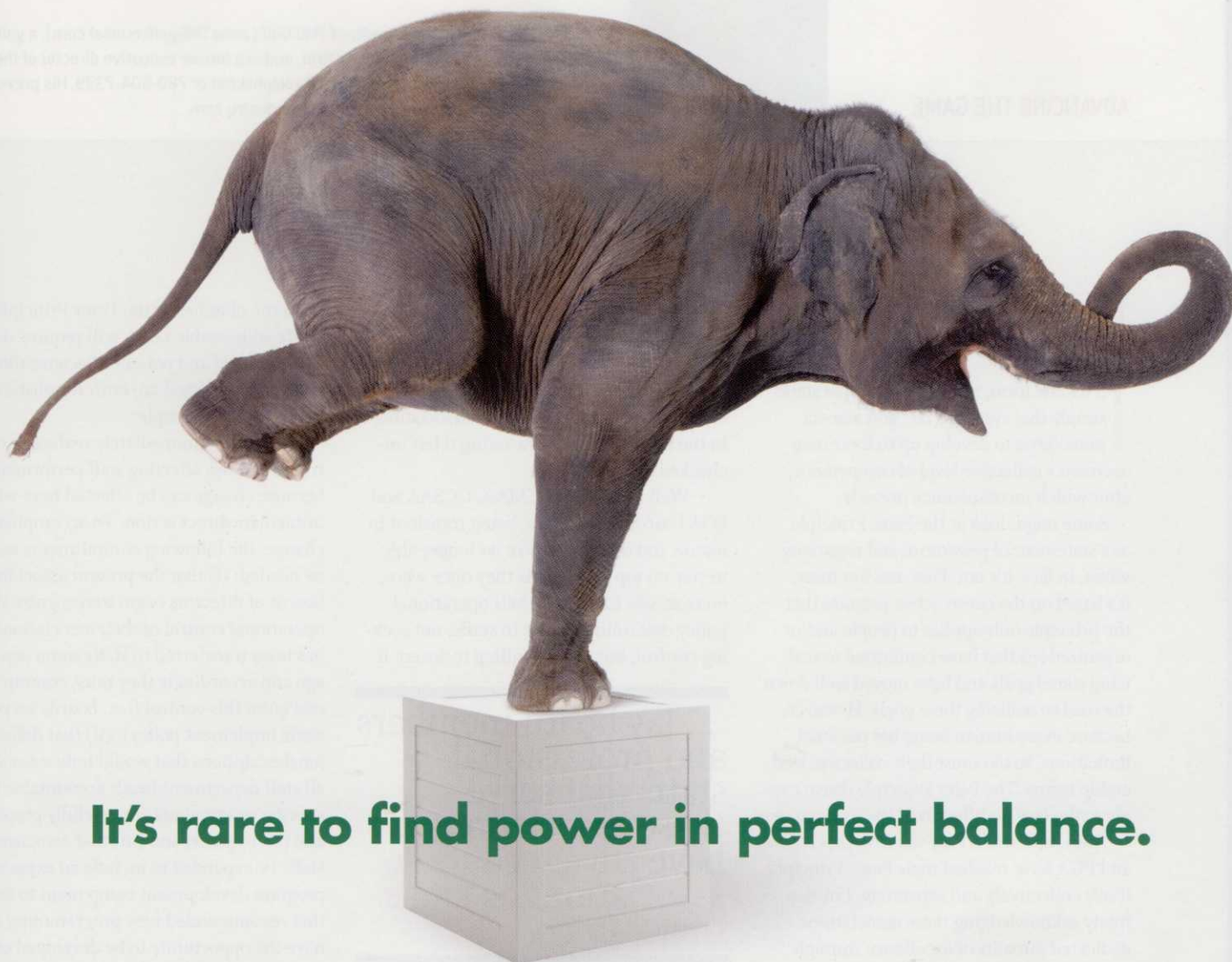
renovate some early designs.) I also agree with his opinions about Tiger's career path. In the beginning, Tiger most likely will be lending his name to his design projects more than actually designing them. The time demands of trying to win 18 majors don't mesh with those of trying to design 18 holes.

I hope Tiger eventually follows Jack's path of being an apprentice in his own design company that's been built with talented golf course architects, providing he gives them due credit. While Tiger might always leave much of the difficult work to his staff, if he devotes considerable time to it, he will earn the golf course architect title someday. I hope he ignores the examples of other Tour pros, most of whom are best known in the design world for:

- Attaching their name to several golf course architecture firms – sometimes simultaneously, meaning quality might vary.
- Not knowing their staff. At a recent interview, a famous pro asked his agent, "What's the name of the guy who works with us?"
- Not being able to find the first tee at grand opening.

The above examples hint at how much involvement those pros have in their "signature" projects. Based on what I know about him, Tiger will beat them in architecture as soundly as he beats them in golf. He probably deserves it – and I know they do. **GC**





It's rare to find power in perfect balance.

New Quincept's™ innovative formula controls crabgrass and other tough grasses, as well as over 200 broadleaf weeds.



Quincept™ and broadleaf weeds. With an ideal ratio of active ingredients, Quincept delivers more than enough power and flexibility to deal with virtually any situation. Plus it's available in the convenient 64-oz. squeeze and measure jug, as well as the "no-glug" 2 1/2 gallon size. So whether it's early-season broadleaf control or late-season crabgrass clean-up, trust Quincept to pack the punch you need to get great results.

800-345-3330 www.turf.us.nufarm.com

™ Quincept and The Formulation Innovators are trademarks of Nufarm Americas Inc. Always read and follow complete label instructions.

Value with a difference.





Jim McLoughlin is the founder of TMG Golf (www.TMGgolfcounsel.com), a golf course development and consulting firm, and is a former executive director of the GCSAA. He can be reached at golfguide@adelphia.net or 760-804-7339. His previous columns can be found on www.golfcourseindustry.com.

THE PETER PRINCIPLE

In its raw form, the Peter Principle states simply that systems (i.e., golf associations) tend to develop up to their management's collective level of competence, after which incompetence prevails.

Some might look at the Peter Principle as a statement of pessimism and negativity when, in fact, it's not. First and foremost, it's based on the constructive premise that the principle only applies to people and/or organizations that have committed to realizing stated goals and have moved well down the road to realizing these goals. However, because every human being has personal limitations, so too must their collective leadership teams. The Peter Principle doesn't apply to the lazy, indifferent or the inadequate.

Therefore, when I say the CMAA, GCSAA and PGA have reached their Peter Principle levels collectively and separately, I'm also freely acknowledging these associations' dedicated pursuits of excellence through their developing years to the near present time. However, life is life, and the lay board members and professional staffs that serve these associations, as presently constituted, have advanced these associations as far as they can go. It's one thing to manage an association during its formative years when there were fewer members, only a few million dollars of revenue and modest educational responsibilities, but it's quite another to manage an association once it matures with performance objectives of more than 25 million members, \$25 million of annual revenues, highly sophisticated educational requirements and a responsibility to elevate a profession.

The insidious characteristic of the Peter Principle is that it approaches stealthy and delivers its knockout blow without anyone being the wiser. Consequently, board and staff members continue on their ways believing they're still managing their associations on level playing fields, when in fact the landscape has changed dramatically – to the point where these associations inexplicably have stagnated without anyone

knowing it. The impact the Peter Principle will continue to have on these associations in the future will be devastating if left unchecked because:

- Well intentioned CMAA, GCSAA and PGA boards of directors, being transient in nature and sensing they're no longer able to stay on top of issues as they once were, increasingly surrender their operational policy determining roles to staffs, not seeking control, but always willing to accept it.

... lay board members and professional staffs that serve these associations ... have advanced these associations as far as they can go.

- Furthermore, once staffs assume control of operations (not necessarily all policy matters), the associations' future development potential quickly becomes limited to their staffs' ability to generate new programming. However, because staff members aren't hired for this purpose and therefore lack the necessary vision and skills, new program development and the future growth of these member-based associations become terminally limited.

Extensive talks with CMAA, GCSAA and PGA veteran core members confirm these two premises and provide further the insight that core association members are quite displeased: (i) that the board members they elect to do a job turn this responsibility over so easily to staff members that don't have the prerequisite experience to develop the cutting-edge programming that members require to advance careers and their professions; and (ii) that these staffs aren't being held accountable for their actions by the association boards or general memberships.

Freeing the CMAA, GCSAA and PGA

from the clutches of the Peter Principle, while addressable tasks, will require vision, commitment and patience because the goals to be realized are both simplistic and complex. For example:

- The more immediately realizable objectives are those affecting staff performance because change can be effected here with immediate direct action. To accomplish this change, the following commitments would be needed: (i) that the present association boards of directors begin to recognize that operational control of their associations has been transferred to staffs some years ago and accordingly they must commit to reacquire this control (i.e., boards set policy, staffs implement policy); (ii) that definitive job descriptions that would hold c.e.o.s and all staff department heads accountable for specific assignments are carefully prepared and put in place; and (iii) that association staffs be expanded to include an experienced program development component to insure that recommended new programming will have the opportunity to be developed on merit and flow through to the memberships.

- The more difficult, time-consuming challenges to address are those directly affecting board performance because it's always more difficult to effect change at the top of the organizational chain. Basically, until these association boards understand the need to bring private sector expertise to their policy-making forums, their associations will continue simply treading water.

Two high-profile examples where private sector expertise is helping to guide golf organizations to sustained success are The First Tee and the USGA. These two golf organizations succeed because individuals with proven, private-sector experience have been integrated into their leadership teams. (See my September 2005 column.)

If present club managers, golf course superintendents and golf professionals want to leave vibrant growing membership associations their children and grandchildren will respect – and some will consider establishing careers within – the lessons of the Peter Principle must be learned hard and fast now. **GCI**

ADVANCED AMINO ACID TECHNOLOGY



- Backed by University Research
- Contains 18 Biologically Active L-Amino Acids
- True Foliar Absorption
- Enhances Efficacy of Nutrients and Chemicals
- Provides Maximum Protection from Stress
- Produced at a Pharmaceutical Facility—ISO 9001 & 14001 Certified
- Environmentally Safe



Beechtree Golf Club, Aberdeen, Maryland – Hole #2, Par 3



1-800-925-5187 macro-sorb.com





Robert A. Milligan, Ph.D., is professor emeritus from Cornell University and senior consultant with Madison, Wis.-based Dairy Strategies. He can be reached at 651-647-0495 or rmilligan@trsmith.com.

ARE YOU A CHIEF EXECUTIVE?

Have you ever said, “I wish I were the c.e.o. of Jacobsen, John Deere, Toro or Syngenta?” Or when shopping, have you ever said, “I wish I were c.e.o. of Wal-Mart, Microsoft, Best Buy or Exxon-Mobil?” Although your position as golf course superintendent (or similar title) might seem far removed from the c.e.o. of one of these companies, you actually have responsibilities in common. These commonalities are crucial as you lead your maintenance staff and as you participate in the management of the facility at which you work.

Look at the chief executive roles in a small business or organization. Although golf courses have interesting and varied leadership structures, chief executive roles always are crucial for a maintenance staff and facility. As I’ve worked with golf courses, farms and other small businesses, I’ve grouped the chief executive roles into three categories:

- Focus on leadership. Set direction and establish the business culture.
- Strategic direction and implementation. A greater focus on external forces and changes.
- Assemble, engage and develop a winning work force.

A golf course superintendent should be concerned about chief executive roles because these roles are the greatest challenge and the biggest opportunities for leaders of small businesses, including golf courses. During the past several decades, the challenge for golf course superintendents, and owners and managers of small businesses, has been being a manager as well as a worker. Excelling at the chief executive role is a challenge as well. These roles are crucial regardless of the size of the business because of three factors:

1. The degree of business competitiveness – overlooking one business opportunity or threat can mean the demise of a business or facility. This is especially true

for golf facilities as the industry transitions from a growth industry, where there was some truth to “if you build it they will come,” to a mature industry, where opportunities still abound amid stiffer competition.

2. The complexity and diversity of attributes sought by the customers of the golf facility. Facilities increasingly will specialize to meet specific attributes (needs and wants) of members and customers.

3. As amazing as change has been recently – especially regarding information and communication technology – many experts and futurists predict the rate of

experienced the fun culture of Disney World or Disneyland while attending the Golf Industry Show. Southwest Airlines is about enjoying your travel. In your local community, what businesses or organizations come to mind when you think about a distinct identity? What’s their identity? What’s the culture of the golf facility at which you work?

My son and I recently played a course that we returned to because of its uniqueness and culture. The course was typical and wasn’t distinct except for a 575-yard hole. Just when you thought you had conquered it, there was a dogleg and a pond right in front of the green. The TPC at Sawgrass is defined by its island hole. Other facilities’ cultures come from specific events; a characteristic of their founder;

Although golf courses have ... varied leadership structures, chief executive roles always are crucial for a maintenance staff and facility.

change will continue to increase. It will challenge every organization to avoid being blindsided by the change. (Blindsided means being adversely impacted because a competitor recognized and/or responded more quickly to change.) For example, Montgomery Ward, K-Mart, Sears and JC Penney were blindsided by Wal-Mart, and Polaroid was blindsided by digital photography. Each of these companies is out of business or downsized significantly.

Returning to the three categories of chief executive roles, focus on a key component of the first one – establishing the business culture or the culture of your maintenance staff. Business or organizational culture is about being distinct and having a clear identity. Think about national companies with a culture. Starbucks sells coffee, but the culture is one designed to allow you to linger. Many of you have

or a renowned golfer, superintendent, golf pro or landmark. Furthermore, there’s a culture associated with your maintenance staff. What is it?

Spend time this winter thinking and talking about your chief executive roles as you lead your maintenance staff. Think about your chief executive roles with your golf facility. You’ll have to work with others – the golf professional, club manager, committees, owners, etc. – but your future, the future of your maintenance staff and the future of the facility at which you work will benefit from your chief executive leadership, ideas and insights. **GCI**

For additional insights about the role of chief executive, the author will be leading complimentary Webinars. Visit www.aLearningEdge.com/Webinar to enroll and for a list of dates.

It's Not Slow Release. It's Better.

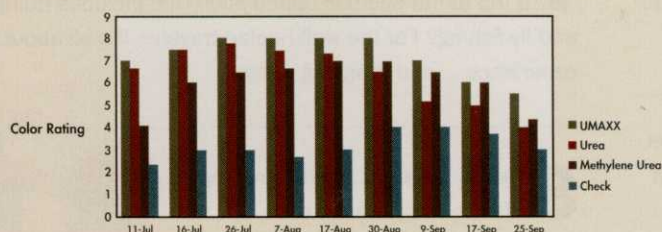
The family of *StabilizedNitrogen™* Technology (SNT) products include UMAXX®, UFLEXX™ and HYDREXX®, which allows you to get the most from your nitrogen. Research shows that at least 30 percent of the nitrogen from urea can be lost to volatilization within days of fertilizer application, and even more nitrogen can be lost in the soil due to leaching and denitrification. With the *StabilizedNitrogen* Technology (SNT) in UMAXX, UFLEXX and HYDREXX, your nitrogen is held in the soil longer in a usable form for plant uptake, and minimized loss to the environment.

Greener, Faster, Longer™

UMAXX produces a long-lasting, emerald green color without excess growth for up to 16 weeks. You'll need fewer applications with UMAXX, and you'll get consistent response throughout the entire period. UFLEXX provides quick and consistent turf quality and emerald green color for six to eight weeks. This product is designed to fit more frequent fertilizer schedules, especially those programs intended for mid-length response. HYDREXX Professional Nitrogen Stabilizer is a fertilizer additive that allows you to manage nitrogen for your specific conditions and needs. With HYDREXX, you control the rate and the length of performance.

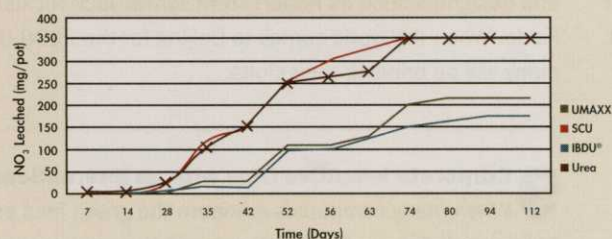
Unlike most slow- and controlled-release products, the performance of UMAXX, UFLEXX and HYDREXX is not affected by soil temperature or unpredictable rainfall, so you can use it at any time and still be sure of consistent results. Compared to other similar urea-base products, UMAXX, UFLEXX and HYDREXX deliver more nitrogen per unit at a lower price. You'll see the results in your turf, as well as in your budget.

Color Performance



Ohio State University – Kentucky Bluegrass Trials

Effect of N Source on Quantity of NO₃ Leached in 112 Days



University of Florida – Nitrate Leaching Study

The *StabilizedNitrogen* Cycle

StabilizedNitrogen Technology (SNT) takes control of the nitrogen cycle and inhibits the loss of nitrogen by delaying volatilization and slowing nitrification. Working above the soil, *StabilizedNitrogen* Technology (SNT) inhibits the enzyme that converts urea nitrogen into volatile ammonia. In the soil, it blocks the enzyme that converts ammonium into nitrite that is lost through leaching and denitrification. By effectively acting on only these enzymes, *StabilizedNitrogen* Technology (SNT) is proven to maintain the healthy soil microflora.



*Stabilized
Nitrogen
Technology*

UFLEXX
STABILIZEDNITROGEN FERTILIZER

UMAXX
STABILIZEDNITROGEN FERTILIZER

HYDREXX
PROFESSIONAL NITROGEN STABILIZER

AGROTAIN International, LLC

One Angelica Street
St. Louis, Missouri 63147
(888) 547-4140 or (888) 425-8732
www.stabilizednitrogen.com

{TRENDS}

Trends that will shape golf and lifestyle travel in 2008

Gordon Dalglish, president of PerryGolf, a golf and lifestyle travel firm, doesn't have a crystal ball, but his experience in the travel industry and knowledge of what motivates golfers to take trips is the basis for the following trends.

1 Couples traveling together for golf and more. Wives and girlfriends who once stayed home or took their own trips while the guys traveled for golf are part of the action now. They're enjoying golf and off-course attractions.

2 Eco-awareness. Trips that demonstrate an environmental sensitivity are increasing. According to research from the Green Hotel Association, a trade organization that promotes ecological consciousness, 43 million U.S. travelers say they're concerned about the environment.

3 Private jet travel. With prices to charter one's own plane as little as \$2,200 an hour for three to five people, private jet travel is within reach of more travelers. Golfers will take advantage of this expedited route to the first tee much more in the U.S. than internationally. But for those whose travel priorities are convenience, comfort and time, two days in the office as opposed to standing in airport security is an attractive trade-off.

4 High-tech and high-touch service. The Internet continues to be the first stop for trip planning and estimating costs for many, although some travelers prefer to talk to people to plan trips. The efficiency of providing quotes and itineraries online has enabled travel companies to reduce staff and allowed travel specialists to work from their homes. However, most travel firms will never go completely high tech because it's still a relationship business.

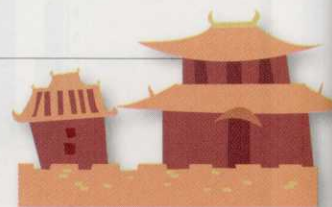
5 The new buddies trips. According to a recent survey conducted by American Express travel agents, women are traveling together more and are indulging in more active and luxurious vacations. Will the trend outpace the "mancation" – guys traveling together without their wives or girlfriends for adventure-based pursuits – an \$11-billion segment of the travel industry, according to Travel & Leisure? The race is on.

6 Wales. It's the British Isles destination most golfers still don't know about. With the 2010 Ryder Cup matches coming to Celtic Manor, there's still time to beat the crowd to that luxurious resort as well as Royal Porthcawl, Tenby, and Pyle and Kenfig.

7 Experiences. Sure you can play Carnoustie, but what about a trip to the Scottish countryside that includes riding, shooting and fly fishing? For the well-heeled traveler, it's all about the total experience ... and bragging rights.

8 China. Travelers are discovering a fascinating country and culture that includes golf from some of the game's top architects. A slowdown of domestic golf construction has been a boon for China and designers such as Robert Trent Jones, Jack Nicklaus and Nick Faldo. When the world comes to Beijing for the 2008 Olympics, many will be bringing their clubs.

9 Corporate incentive trips with an international flair. When many companies compare the green fees and cost of accommodations at Pebble Beach and Kiawah Island with those of Scotland or Ireland, they decide to boost their sales incentives and go for the Old Course, Ballybunion or Gleneagles.



Golf Course Industry
Continues Its

Editorial Excellence

With Its Latest
Achievement —
Its Third Consecutive
National Folio Award



Matchmaker

Extraordinaire

Retired
superintendent
Jerry Faubel
helps place
superintendents
in the right jobs

It's early November, and Jerry Faubel is spending his days hunting. On most frosty fall mornings, he's after ducks in the wetlands around his Saginaw, Mich., home. But, by afternoon, he's drawing a bead on a different species: people. More specifically, he's hunting for the right people for the right jobs in the golf industry.

Faubel and his business partner, Bruce Williams, CGCS, run Executive Golf Search, arguably the highest-profile placement group in the business. They're the go-to guys for many golf facilities looking for the perfect superintendent, general manager or club professional. In short, the road to some of the best jobs in the industry leads through their firm.

At 66, Faubel and his wife Sally finally are relaxing a bit, but he's no less interested in ensuring a bright future for the industry than he was when he served as GCSAA's president in 1990-1991.

Faubel grew up as a central Illinois farmboy who went off to Iowa State to study agricultural operations. He quickly realized, unlike many Cyclone classmates, he didn't have a big commercial farm to go back to. He also accidentally ended up working on a golf course as a night waterman one summer. He liked it and switched to turf agronomy at ISU. He worked on and off at several small facilities in Wisconsin for almost five years

while trying to finish school. Eventually, he earned his degree in 1969 and sent a resume to Saginaw Country Club. He got the job and stayed for the next 34 years before retiring four years ago.

During four decades at Saginaw, he kept a sharp eye on the quality of the course conditions but never hesitated to volunteer his extra time to the profession. In addition to working through the chairs on the GCSAA board and serving as president, he's served on the USGA Green Section Committee, USGA Research Committee, Michigan Turfgrass Foundation and Mid-Michigan Turfgrass Foundation boards and Michigan Golf Foundation board. Along the way, he collected important hardware including distinguished service awards from the GCSAA and the Golf Association of Michigan.

Oh, by the way, he and Sally raised a daughter, Sarah, who's now a Wellesley/Harvard-educated doctor doing cutting-edge kidney research at the University of Colorado Medical Center.

Not a bad life by anyone's yardstick, but Faubel wasn't done professionally. Along with a few other industry legends, he set out to fill a void in the placement market and create a new way for superintendents and others to matched up with the right facilities. Now, after 40 years in the business, he spends his time as a matchmaker extraordinaire for the best jobs in golf.

HOW'D YOU GET STARTED IN THE PLACEMENT BUSINESS?

I was always very active at Michigan State and in the industry trying to encourage education. Kenyon Payne, Ph.D., (the longtime head of the two-year MSU turf program) and I became good friends. At the same time, I was involved in fundraising for the GCSAA and got to know Robert Trent Jones. Trent was a tremendous individual who was concerned about education, so he made a large contribution to the GCSAA scholarship fund. He understood that if he didn't have quality superintendents, his work would go for naught. So, when I was president of the GCSAA in 1991, I met with Trent and Ken Payne, and they approached me with the idea of joining forces on a placement business. Trent came up with the name – Executive Golf Search.

As it turned out, Trent was too busy designing the Alabama golf trail to get directly involved, so Ken and I took the ball and ran with it. We started placing superintendents. Bruce Williams came along in a few years and became a critical member of the team.

HOW DID YOU BUILD THE BUSINESS?

It just took off. We never did much advertising. It's all been word of mouth. Our goal is to bring stability to the workplace for superintendents. It's not for personal gain. The idea is to match highly

BY PAT JONES

Jerry Faubel helps bring stability to the workplace through job placements. Photo by Dwight Cendrowski


qualified superintendents with high-quality golf courses. The average superintendent only stays in a position about seven years, then moves on. The major decision of a hiring committee is to identify the person who's going to fit best in its organization. We identify good candidates, but we try to identify the best qualified person who will fit. We've had tremendous success in terms of people staying in positions for long periods of time. Probably 80 percent of our placements are still in the positions we identified for them.

We don't take money out of the corporation. We donate funds back to the GCSAA and universities. Plus, we also help support the Kenyon T. Payne Award at Michigan State through funding travel expenses to the GCSAA conference.

HOW HAVE CANDIDATES FOR POSITIONS CHANGED THROUGHOUT THE YEARS?

I see more highly qualified individuals as a whole. First, the educational process through the universities is better. The GCSAA's educational efforts are light years ahead of where it used to be. The focus on different disciplines – particularly business topics – has helped superintendents be much better managers. It's like night and day. Plus, with the popularity of golf, we've had people come in who might have never considered a career as a superintendent before.





The Aerating Fountain from Otterbine

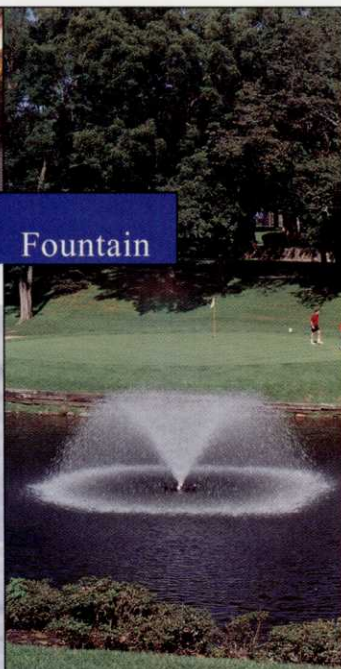

AT OTTERBINE, we know that water quality is equally as important as aesthetics. That is why our Aerating Fountains are tested at the University of Minnesota and have been proven to create excellent circulation and oxygen transfer.

Otterbine aeration systems effectively induce oxygen into the water column promoting natural aerobic digestion of excessive waste, run-off and algae that can consume your water features.

Effective circulation is key in reducing algae and the beauty of an Otterbine spray pattern speaks for itself!

OTTERBINE AERATORS:

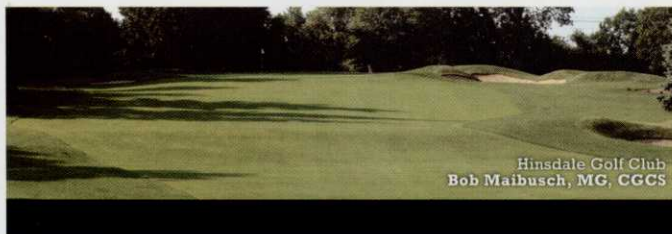
- Virtually Eliminate Algae and Odors
- Are Ideal for Irrigation Ponds
- Stand up to Brackish and Effluent Conditions
- Offer the Strongest Warranty in the Industry

**800-AER8TER
610-965-6018
www.otterbine.com**

www.golfcourseindustry.com/readerservice - #25

TEE 2 GREEN "Interseeding works for us"



Hinsdale Golf Club
Bob Maibusch, MG, CGCS

These notable superintendents from around the country are interseeding with Tee-2-Green bentgrasses to improve the playability of their greens, tees, and fairways.

Mark Kuhns, CGCS Baltusrol Golf Club	Dave Phipps, CGCS Stone Creek Golf Club
Sean McCue Country Club at Castle Pines	Kevin Ross, CGCS Country Club of the Rockies

TEE 2 GREEN

WE'VE GOT HISTORY

To see and hear their insights, tips, and techniques for successful interseeding visit www.tee-2-green.com/vidlib.html to see the video

PO BOX 250 Hubbard, OR 97032 USA • 800-547-0255 • FAX 503-651-2351

www.golfcourseindustry.com/readerservice - #26

SUPERINTENDENT PROFILE

We have a more diverse group to choose from. Golf has changed and we've had to change with it.

WHAT'S THE MOST COMMON MISTAKE OF THOSE WHO'VE LOST JOBS?

The ability to communicate is probably one of the biggest problems. The successful superintendent has to have excellent communication skills. Also, they can't start to think of it as "my" golf course. It's the owner's course, whether a country club or a public facility. Most of all, they have to make decisions based on fact, not emotions or politics. They can't get caught up in the political aspects of the job and be stubborn. Politics have done in more superintendents than anything else. They make bad decisions based on emotion and the politics catch up with them.

WHY IS THAT?

Superintendents tend to take everything too personally because they care so passionately about what they do. It's one of the beautiful things about our jobs but it's also one of the most dangerous. You're dealing with business people and you have to be able to back up your decisions with facts. It's really important – when you're dealing in a science – to have scientific information to back you up.

One thing that (being on the board of) the GCSAA taught me is the systematic approach to making decisions. It's tremendous at gathering information and making decisions based on facts, not intuition. It's done professionally. It has brought professionalism to the industry. The money a club pays for the dues is well spent.

Whatever your reasons, you have to build your case before you do something. Let's say a neighbor is hypersensitive to an application practice. They call to complain, and you respond by saying that

you're acting legally. Legally, they should go to their doctor and get on the notification list. Buy, why not instead of getting into a fight, you simply call them in advance. Don't create problems that will cause the club pain. Or, you know a piece of equipment is at the end of its useful life. You usually know that a year or two before so you should build the case for the replacement in advance. There should be no surprises. Boards and owners want to know what's happening. If you keep them informed, they're happy. People don't like being in the dark.

DESCRIBE THE TYPICAL SEARCH PROCESS FOR A HIGH-END SUPERINTENDENT POSITION. WHAT CAN A CANDIDATE EXPECT?

We work for the employer. We try to have as big a pool of candidates as possible in our database. We send a form (to candidates) to help them organize themselves. It's psychologically damaging when you lose a job. We feel sorry for them, but they have to get themselves in order. They need to identify their specialties and areas of expertise.

One good example is that you have two types of expertise among superintendents: construction and maintenance. They're two very different disciplines. The form we send them helps them identify their strengths and weaknesses: They have to consider what they're good at and what they need to work on.

Above all, we abide by the GCSAA's code of ethics. It's extremely important. After we have their information, we'll try to identify their weak points and suggest options to improve them. Finding a job has to be a full-time job. Start thinking about seminars, community college programs – whatever it takes to improve your shortcomings. It's a combination of self-analysis and career counseling. We don't charge

candidates anything for that. Again, it's our philosophy to make the industry better by helping clubs and superintendents fit together.

HOW DO YOU WORK WITH A CLUB?

We go to the facility, define the job with the employer and help determine the strengths the position will require. Once they've agreed, we find people that fit. We set up the interviews, and we offer to be there and supply questions for the interviewers, go through the process and they pick the person. We don't negotiate salaries – that's between the superintendent and employer.

DO YOU CHARGE A PERCENTAGE OF THE FIRST-YEAR SALARY FOR FINDING CANDIDATES?

No. We charge a flat fee.

WHAT ARE THE TYPICAL MISTAKES CANDIDATES MAKE DURING THE INTERVIEW PROCESS?

Some candidates try to anticipate the answer they think the employer wants to hear. They shouldn't try to fudge and embellish. Smart interviewers can see through that immediately. And it's not going to be healthy relationship in the long run if the candidate isn't straight about things. Be honest, forthright and a person of high character – that's going to help you more than anything else.

ARE THERE SEARCHES YOU TURN DOWN?

We won't take the business when the individual who's in charge of the search committee isn't being forthright about what the problems at the facility are. If they're not being honest with us, we can't work with them. We don't want to jeopardize our candidates by putting them in that position.

YOU'VE BEEN OBSERVING THE INDUSTRY AT A HIGH LEVEL FOR A LONG TIME. WHAT'S THE STATE OF THE MARKET LIKE?

There's going to be shakeout. We have people in the industry who got in the business for the dollars, and they have to be able to understand our business better. They got into the business for the wrong reasons, and they won't be around in the long term. Like any shakeout, it's not going to be fun.

WHAT'S YOUR TAKE ON STEVE MONA'S DEPARTURE AND EVENTUAL REPLACEMENT?

Steve Mona did a tremendous job. He did everything he was asked to do in spades. But, the board – and there are always factions on the board – needs to make decisions based on what's best for the GCSAA and not what's best from their personal viewpoints.

WHAT DO YOU TELL YOUNG PEOPLE JUST GETTING THEIR START IN THE BUSINESS?

Focus on professionalism and using systems in their management – be systematic. Make decisions based on fact, not emotion. Don't get caught up in the political aspects. And, most importantly, remember education doesn't stop after two or four years at the university.

FINAL THOUGHTS?

When I came into the industry, we didn't have well-qualified assistants. Today – and it's one of the reasons we worked so hard on scholarships – we've finally developed well-educated assistants. It's a tremendous advantage. We have better qualified people who are more knowledge. It reduces potential errors and makes the industry better. GCI

Jerry Faubel can be reached at 989-797-0677.

75% OF THE TOP 100 CHOOSE EXPRESS DUAL



**There has to be
a reason why**

www.expressdual.com

1-888 GRIND IT

(1-888-474-6348)



AMERICA'S FAVORITE GRINDER

www.golfcourseindustry.com/readerservice - #27

www.golfcourseindustry.com NOVEMBER 2007

31

By T.R. Massey

Learning the Ropes

Internships are critical experiences for turfgrass students beginning their careers

David Hume, the 18th century Scottish philosopher, touted skepticism and the rejection of historically prevalent notions. Despite his heritage, he had obviously never heard of turfgrass management program internships.

Today, golf course superintendents widely agree working in the field in tandem with the classroom makes young men and women more marketable and better able to handle the rigors of the profession after college. Perhaps the only drawback of an internship is that it can be used as a source of cheap labor. But these days, any good school takes precautions to ensure its programs aren't sending students to be simple worker bees. Penn State University's turf programs, which require an internship, is an example.

"I often preach, 'Three things will get you a job: your grades, the school you graduated from and your work experience,'" says Andy McNitt, associate professor of soil science and turfgrass at Penn State's College of Agricultural Sciences.

In the fall semester of 2007, there were 220 students in two- or four-year programs at Penn State, and there are far more requests for interns than there are students.

"Between their junior and senior years, we try to place students in a place that will help them with their careers," McNitt says. "Most places offer housing as well as pay."

While doing an internship for Penn State, students must have daily duties and complete a special project at the course that's approved by the

instructor, superintendent and student. Golf courses are vetted before a student works there.

"I can't think of one downside to doing an internship," McNitt says. "They're going to work hard, long hours, and they find out if this is what they want to do. They should know that by now. By their junior year, if they don't know that already, they're behind."

An internship is more than a mentoring program, McNitt says.

"They do what's needed, but we expect the supervisor will have a mentor role and spend time and teach them a variety of things in bringing the student along," he says. "We're constantly revising the list of responsibilities of the supervisor so it's not just a cheap labor train. Anyone who wants a Penn State intern can send a letter detailing the internship. Because housing is at a premium, that will increase the chances of getting one dramatically."

GREAT OPPORTUNITIES

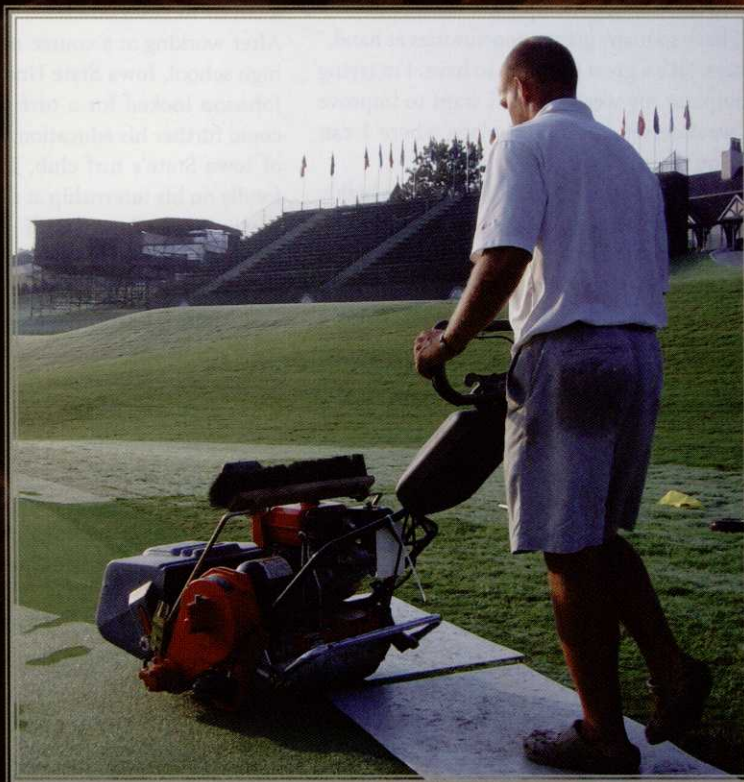
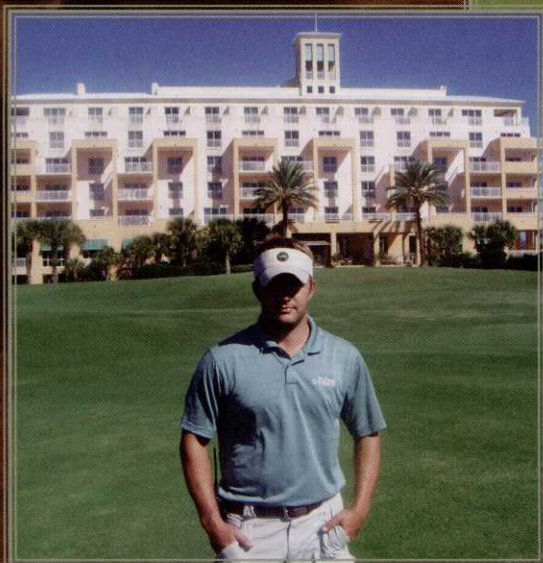
Tyler Bloom, a Penn State student who has completed two internships – one at the famed Merion Golf Club near Philadelphia and one at Southern Hills Country Club in Tulsa, Okla., for the PGA Championship this summer – says you have to give everything you've got every day.

"When you have the turf bug, you're always talking about it," he says. "It has to be a hobby for you to be successful and make it alive. You have to live, breathe and eat this stuff. You have to wake up with passion. You have to make it as perfect as you can."

At Merion, Bloom's job entailed daily tasks, including a lot of chemical spraying and hand-watering.

Professors at Penn State make sure the school's turfgrass students aren't just used as cheap labor when interning at golf courses. Photo: Chris Koleno

Although currently studying golf course management at Faulkner State Community College in Alabama, Zach Phillips (immediately below) works full time as an assistant superintendent at Kiva Dunes Golf Club. Photo: Zach Phillips



Tyler Bloom (left and above) gained valuable experience during an internship at Southern Hills Country Club helping prep for the PGA Championship this past summer. Photos: Tyler Bloom

"Their expectations were the same on the West Course and the East Course," he says. "Interns benefit from it. The operation at Merion is a great place for any intern who wants to see what it's like maintaining a top 10 course. You learn about people skills and budgets, and you learn a lot about yourself. They push you to the extreme, and you learn how much you can take. It makes everything else in life easy."

The Southern Hills operation was different than Merion because it involved preparation for a major.

"Some kids shy away from the tournament spotlight, but it's great," says Bloom, who's on track to graduate in the spring of 2009. "You can't get any better than a major championship. I'll always remember how that course looked during that week. I know the closest thing to perfect and what's expected at a top 30 course. It was great hearing what the players had to say."

Even with two internships under his belt, Bloom is looking to complete a third one.

"I have so many great opportunities at hand," he says. "It's a great problem to have. I'm trying to pinpoint my weaknesses. I want to improve my weaknesses and find a place where I can work on them."

Bloom can't rate internships any more highly than he already does.

"Being exposed to how these guys motivate a staff of 25 to 50 guys every day to do their best job is the best thing about it," he says. "Being a

Turfgrass internship benefits

- It prepares students for a career in the field by immersing them in a day-to-day operation.
- Students determine whether or not they have a passion for the job.
- Learning how to manage people is one of the most important aspects of a superintendent's job, and interns learn about it firsthand.
- A properly run program can create a reservoir of workers for the future.
- If there's a drawback, it's that some courses will use students as cheap labor rather than teaching them various aspects of the operation. But most accredited turf schools properly research the courses for the interns so this doesn't happen.

good manager is the most important thing. My previous bosses harped on that fact that being a good manager is as important as being a good agronomist. I promote internships as much as possible. I grew up more as a person than I did as a turf student. That's going to help me later on."

A LOT OF RESPONSIBILITY

After working at a course near Minneapolis in high school, Iowa State University senior Brad Johnson looked for a turf program where he could further his education. Now the president of Iowa State's turf club, Johnson looks back fondly on his internship at the Links at Spanish Bay in Pebble Beach, Calif., where Jeff Steen is the golf course superintendent.

"It was the experience of a lifetime," Johnson says. "During the drive out there, you're wondering if you should have stayed in the Midwest. But I had to see what was out there. It was a lot more than I expected. It blew me away. They gave me a lot of responsibilities at a high-end course. They do 45,000 rounds a year and maintain the best quality turf. Their main concern is nematodes. It was great to learn about that stuff. (For example,) I'd never seen nematode damage in the Midwest."

Johnson says he was involved with every aspect of the golf course. He also worked on a lot of special projects.

"Spraying, mowing, setup, bunker work – you name it, I did it," he says. "It was an education

and a learning experience.

"It's one of the building blocks of success in turf management," he adds. "It's a building block for anyone in college. The way I look at it, it's what everyone bases things on. If you work and have that reference and have a guy on your side, the possibilities are endless."

RAISING THE BAR

Phil Curran, assistant superintendent at the Stonewall Resort in Roanoke W.Va., vouches for what Johnson says. While attending an Ohio State University branch campus, he interned at the Pete Dye Golf Club in Bridgeport, W.Va., in 1998 under superintendent Gary Grandstaff.

"It was very intense and fast paced," Curran says. "There was a very wide spectrum of turf management with very high expectations. Gary spent a lot of time with me. I did everything."

Curran says raising his overall performance level was challenging, even though he'd worked at an upscale public course in Ohio when he was younger. He says the mandatory internship was invaluable.

"It raised the level of my education," he says. "There are different levels of internships. Some guys just mowed greens all summer, and that wasn't good for them. But my guys worked with me and made it part of their daily schedule to teach me, and it helped me out long term."

THE REAL DEAL

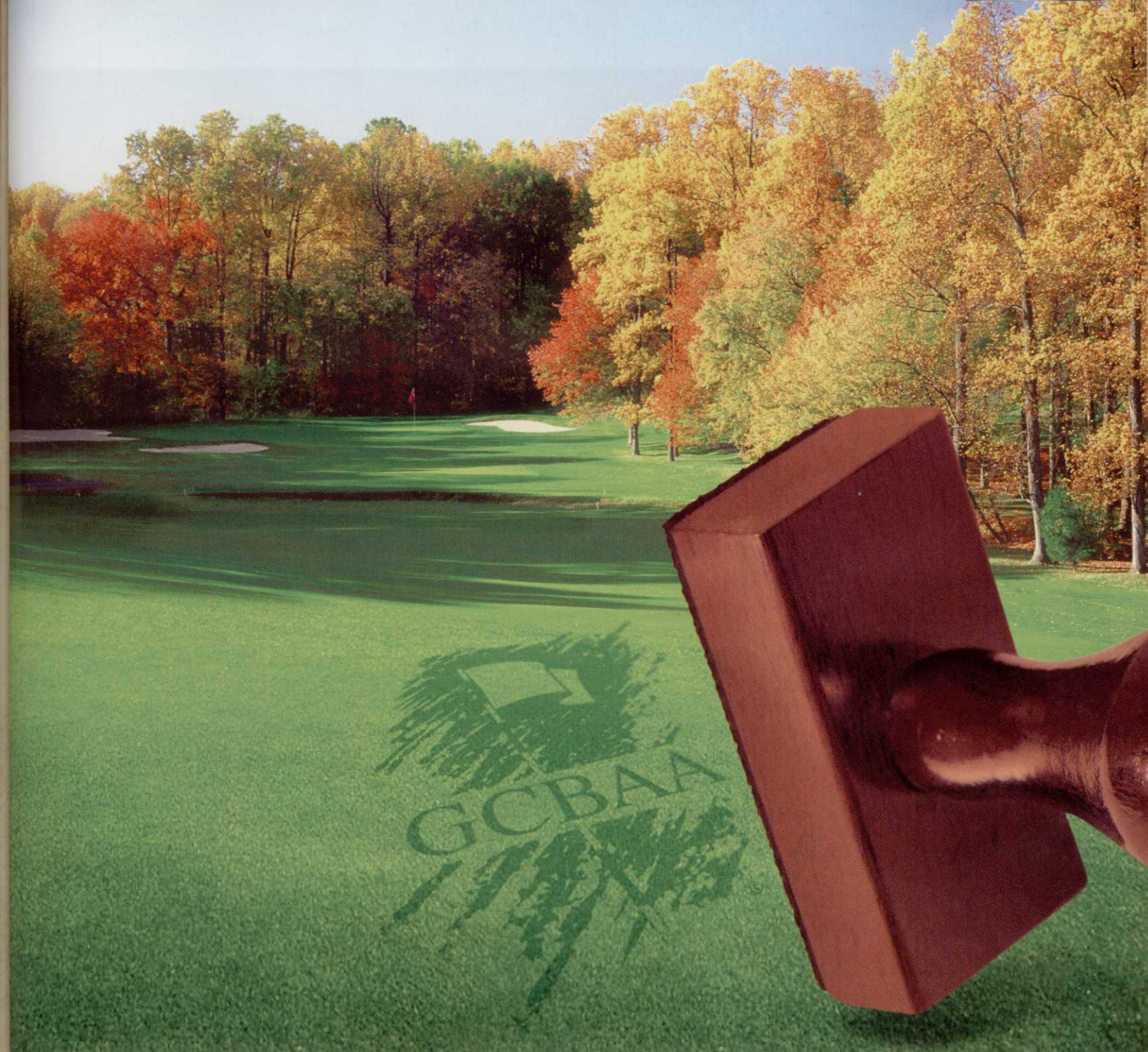
Long term isn't a worry for Zach Phillips, a 22-year-old Faulkner State Community College student studying golf course management. He works at Kiva Dunes Golf Club in Alabama as the assistant superintendent.

"It's a full-time job," he says. "I get to count my work experience as my internship. It's the best of both worlds."

Phillips, who expects to graduate after the



Phil Curran says his internship at the Pete Dye Golf Club was much more than mowing greens. Photo: Phil Curran



[THE STAMP OF APPROVAL]

For three decades, the Golf Course Builders Association of America has been providing golf development with the best-built courses in America. When you choose a GCBA builder, you choose unmatched experience, expertise and a proven track record of industry satisfaction and approval.

Whether new construction or renovation, start your next project on the right track by selecting a member of the GCBA. For builder members and additional information, visit www.gcbaa.org.

727 "O" Street, Lincoln, NE 68508 • (402) 476-4444 • www.gcbaa.org

www.golfcourseindustry.com/readerservice - #28



Disarm®

Protection From Tee To Cup™

Now in New, More Economical
DISARM® Fairway Pack™
One Gallon Jugs



Wherever you need disease control, you need DISARM®.

University trials prove that DISARM® Fungicide provides unsurpassed strobilurin disease control. And because it's priced at a more affordable cost per acre than competitive strobilurins, you can apply DISARM on fairways and greens throughout your entire golf course. Used alone or in combination with other non-strobilurin fungicides, DISARM controls all major turfgrass diseases, including brown patch, zoysia patch, summer patch, gray leaf spot, anthracnose and pythium. Plus, it is the only strobilurin labeled for control of light-to-moderate infestations of dollar spot. To learn more, contact Arysta LifeScience North America Support Services at 1-866-761-9397 or visit www.arystalifescience.us/disarm.

Always read and follow label directions. DISARM is a registered trademark of Arysta LifeScience North America Corporation. The "Protection From Tee To Cup" slogan and Fairway Pack are trademarks of ArystaLifeScience North America Corporation. The Arysta LifeScience logo is a registered trademark of Arysta LifeScience Corporation. © 2007 Arysta LifeScience North America Corporation. DSM-063



Arysta LifeScience

Harmony In Growth

Brad Johnson says his internship at the Links at Spanish Bay was the experience of a lifetime. Photo: Brad Johnson



spring semester next year, runs the day-to-day operations of the grounds, manages the crew and oversees all pesticide and fertilizer applications.

"In my first internship here, I was learning how to spray, what different products do, how to manage a crew effectively, and learning about grass types and weeds and how they react to fertilizers," he says.

Though there are some things that are easier to learn in a classroom, such as the mechanics of soil, Phillips' work experience has him ahead of his peers, he says.

"It's unreal to see how much farther ahead I am than the other students who haven't had the opportunity I have," he says. "There are a lot of expectations here, so you have to learn things a lot faster. Because of that, you learn a lot more."

While working on his internship, Phillips started as a crew member, then spray tech, then second assistant and now assistant. Superintendent Mike Rienzi is Phillips' mentor.

"He doesn't just tell me to do something," Phillips says about Rienzi. "We talk about why it's being done and the effects it's going to have. He breaks everything down for me. And I get credit for it. I'll finish all my turf classes this year, then two core classes next semester and I'll be done."

Phillips will continue to work at Kiva Dunes when he finishes school.

"I landed a job as an assistant so early in my career that I'm going to have to be an assistant for a while before I'm a superintendent," he says. "That's going to benefit me. There are some in the program who don't know how much they're missing by not doing an internship. Some guys, no matter how much you tell them, can't see it."

TEACH THEM WELL

At Spring Hill Golf Club in Minneapolis, Tim Johnson makes it a point to bring on interns. The private club, a 1999 Tom Fazio design, has had an internship program since it opened.

"I did one (at Medinah Country Club in Chicago)," Johnson says. "It was one of the best experiences I had. The internship was influential in starting one here. Many of the guys who have done internships here have come back to work for me."

Not only is an internship a tremendous resource for college students, it creates a reservoir of talented assistants.

"I'm up front with the guys," he says. "They're not coming here to sit on a mower. We teach them the things they need to know as assistants. The why's and how's of herbicides, calibration and application of fertilizers, and the proper setup of a golf course for daily play. We get them involved with irrigation and the renovation of a project or repair. Rarely will they sit on a mower. It's not a source of cheap labor."

Observing the ins and outs of a daily operation can be eye opening for interns.

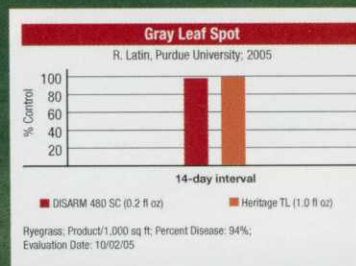
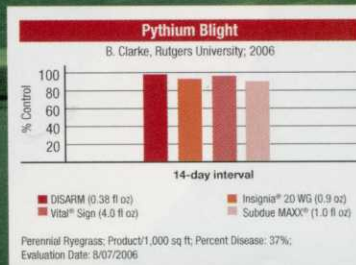
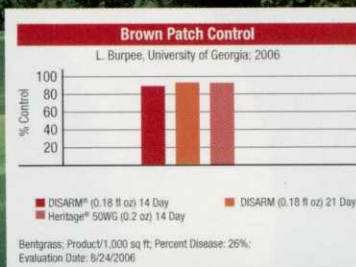
"You don't want to send a kid back to college with your name on his resume when he's not ready for a spray technician's job," Johnson says. "We want them to be well prepared." **GCi**

T.R. Massey is a freelance writer based in Columbus, Ohio. He can be reached at trm@columbus.rr.com.

Disarm®

Protection From Tee To Cup™

Greens control with fairway affordability.



Insignia is a registered trademark of BASF. Vital is a registered trademark of Luxembourg Industries (Pamol) LTD. Heritage and Subdue MAXX are registered trademarks of a Syngenta Group Company.



Arysta LifeScience

Harmony In Growth

www.golfcourseindustry.com/readerservice - #30



Read and follow all label directions. 3336® is a registered trademark of Cleary Chemical Corporation. The Cleary logo, 3336 F, 3336 WP, 3336 Plus, 26/36, Alude, Endorse, Protect and Spectro are trademarks of Cleary Chemical Corporation. TriStar is a trademark of Nippon Soda Company LTD. © 2007 Cleary Chemical Corporation.



Cleary.

A part of great looking golf courses for over 70 years.

From the tee to the green, east coast to west coast – we've played a big part in increasing turf quality and improving playing conditions on today's best looking golf courses. Backed by our 70-year tradition of excellence in product research, innovative formulation and rigorous testing, Cleary products have become the disease control solutions you can count on for outstanding performance. But what sets Cleary truly apart is our unparalleled commitment to extraordinary customer service.

Cleary. Your Long-Term Partner in Turf Management

Since 1937 we've been listening to the ideas and suggestions of superintendents which, in turn, has helped us develop our exceptional product line. For the past 53 years, Cleary has owned and operated its own golf course, so we know first-hand the challenges you face.

Cleary has always been and will remain an excellent resource for superintendents. We're more than a supplier of turf products, we're your long-term partner in turf management. For more information about our products, **contact your local distributor** or go to **www.clearychemical.com**.



Insist on authentic Cleary products.



PROUD SUPPORTERS OF

**GCSAA, NGCOA, RISE, USGA, NATIONAL GOLF ASSOCIATION
AND 38 REGIONAL SUPERINTENDENT ORGANIZATIONS**



WATER PRESSURE

Many superintendents face challenges
when dealing with restrictions and cost

BY JOHN TORSIELLO

At the TPC Summerlin in Las Vegas, superintendent Dale Hahn went from paying \$1.69 per 1,000 gallons of water to \$2.33. Photos: Dale Hahn

The price of water is rising almost as fast as the cost of gasoline in some areas of the country. Just ask Dale Hahn, superintendent at the TPC at Summerlin in Las Vegas.

"We've gone from paying \$1.69 per 1,000 gallons of water to \$2.33, and our water budget has increased from a half million dollars a year to almost \$900,000 in five years," he says. "We figure \$30 of every round goes toward water."

Of course, not every superintendent has to deal with such challenging financial issues. Yet more superintendents are facing tightening governmental water restrictions, especially in drought-plagued areas of the country such as Georgia and Florida.

"We went to a level four restriction this year because all our drinking water for the Atlanta area comes from lakes and rivers and officials were getting nervous because of the severe drought," says Mark Esoda, superintendent at Atlanta Country Club. "What that did was ban all outdoor watering with a handful of exemptions."

Esoda was restricted to watering only greens, despite the fact he draws irrigation water from ponds located on the grounds of the property.

"It seems we have a one-size-fits-all policy, and that doesn't really make sense," he says. "My ponds are full, but I can't use the water. The guidelines should be more site specific."

Keeping the course at the Atlanta Country Club green in the face of such severe water-use limits is a losing battle, Esoda says.

"We're already seeing browning on slopes and under trees," he says. "We're trying to protect the course the best way we can and still allow our members to play golf. That's always the goal."

Esoda limited golf carts to paths to help reduce stress on the thinning fairway turf and raised mowing heights. And a little help from Mother Nature is always appreciated.

"We got lucky last week and had two-tenths of rainfall each on two nights," he says. "In some areas of the state, superintendents are very nervous. Bermudagrass goes dormant and always comes out of the winter worse than it goes in, so we don't know what the ultimate effect will be."

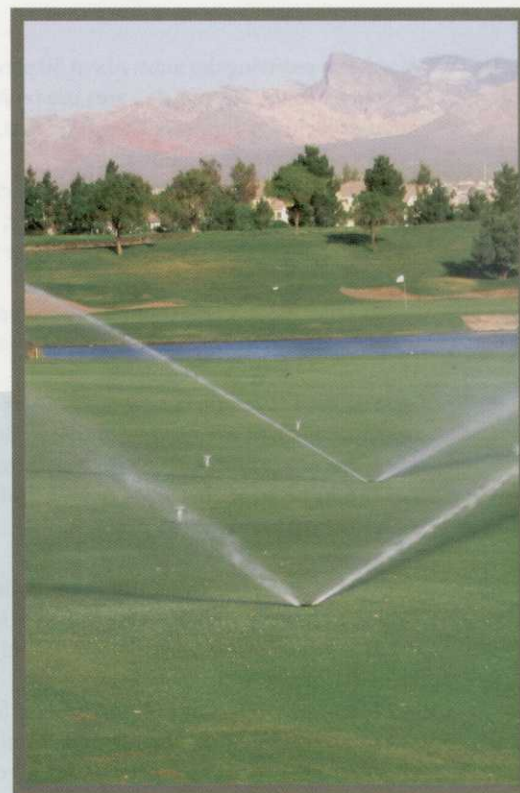
Georgia officials made certain exceptions to the water restrictions in some areas, such as allowing watering coursewide immediately after applying pesticides and fertilizers.

Florida is another state hit hard this year by a lack of rainfall, which resulted in water restrictions in some areas of the state. Mark Jarrell, superintendent at Palm Beach National Golf Club in Lake Worth, Fla., faced a 45-percent reduction of his overall water use in late spring because of the drought. The restrictions were softened in late summer, but some areas around Naples continued to be on a 30-percent reduction of their allowable water use.

"I've heard several courses in the Naples area that normally overseed cancelled it because they're afraid they won't have enough water," Jarrell says. "We had it tough for a while, especially in April and May. Most people stopped watering the roughs right away."

TIGHT RESTRICTIONS

Golf courses receive their irrigation water from a variety of sources, ranging from recycled effluent to runoff to on site ponds and lakes to wells and private and public water companies. Generally, a golf course in Florida can expect rainfall to amount to about 40 percent of the total needed each year. That number varies throughout the country, with the Southwest receiving the least and the Northwest and



"It seems we have a one-size-fits-all policy, and that really doesn't make sense. My ponds are full, but I can't use the water."

- MARK ESODA

Northeast receiving the most. About 50 percent of courses in the Mesa, Ariz., area use recycled effluent for irrigation, says Gregg Thomas, superintendent at Mesa Country Club.

"Some courses don't have the infrastructure to allow use of effluent or recaptured water, and they're buying water," he says. "My gosh is that expensive."

For water use at Mesa, Thomas must complete a water withdrawal form required by the Arizona Department of Water Resources.

"You need to tell them how much water you use, how much of your usage is from reclaimed water and down the line," he says. "Each course has a yearly average they must meet, and if the department sees repeated overages, they can fine a course."

Geoff Haynes, superintendent at Maderas Golf Club in Poway, Calif., has a uniquely local water-use problem. It seems one of the club's wells affects a nearby homeowner's well.

"When we pump the well in question for a week, we can lower the homeowner's well by about 10 feet," he says. "As a result, there's a trigger-level in place that we're not allowed to breach, or we have to shut down our wells."

Additionally, Haynes must monitor the club's monthly groundwater production through the

use of data-loggers (sensors) that have been placed in each of the wells. The sensors take hourly information readings, which are collected via a laptop and sent to a hydrologist monthly. The situation causes a juggling act during the summer months.

"We're striving to meet the turfgrass' need for water and also respect the trigger-level so that we can continue pumping groundwater," he says.

Water-use restrictions are becoming so tight in Nevada some courses are removing turf as a way to reduce their consumption. Others have incorporated more native areas.

"There's a golf course down the road that's in the process of removing 90 acres of turf," Hahn says. "It just makes sense from a financial standpoint. Plus, the state will pay you \$1 per square foot of turf removed to conserve water."

Hahn, whose course draws water from a recycled water plant a mile away from the club, says the Southern Nevada Water Authority conducted an aerial survey of golf courses in the Las Vegas area to determine what the department felt was a fair usage level according to the amount of turf each had. Hahn's course is allowed to use 6.3 acre feet of water per irrigated acre.

"Some courses were using as little as three acre feet per acre and others were as high as 10 acre

feet," he says. "They drew a line at 6.3, and that was the figure we had to live by. There's talk it might be lowered to 6.0."

"The Authority was very fair and open-minded setting up the regulations," he adds. "They met with every superintendent and took our input and adjusted the acreage that needs to be watered accordingly."

But some don't view governmental regulations in such a favorable light.

"The golf industry is an easy target when water gets tight," says Joel Jackson, a spokesman for the Florida Golf Course Superintendent's Association. "I've seen studies that show golf courses in Florida use three percent of the daily consumption of the state's water supplies. The general public uses 30 percent, and half of that is on lawns."

Golf course superintendents are the first to get fined and the only ones who have to report water use daily, Jarrell says.

"Golf is an \$8-billion-a-year business in Florida, but the public perception is that water a golf course uses gets wasted," he says. "The fact is every golf course is a positive recharger of the water supply. I have 159 acres of turf, and in an average year with 54 inches of rain, 227 million gallons of water will hit my ground. A small percentage will run off, and some will

At the TPC at Summerlin, superintendent Dale Hahn's water budget has increased from \$500,000 a year to almost \$900,000 in five years. Photo: Dale Hahn





To maximize water allotments and prevent overwatering, some golf courses need upgraded irrigation systems.
Photo: Dale Hahn

evaporate, but a majority will go into the ground water supply.

"If it rains at 1 a.m., I go to the course and turn the irrigation system off," he says. "I'll be driving to the club in a rainstorm, and there will be water bubbling up on lawns from sprinkler systems that are left on."

SPREAD THE WORD

Jarrell and others will continue to take their arguments for more site specific and enlightened water regulations to government agencies and the public. Thomas and other superintendents in the Mesa area are conducting an aggressive educational campaign to inform the public about their concern for water conservation.

"We'll be at various tournaments throughout the region this winter and at different industry events educating the public," Thomas says. "The project will allow us to get the word out that golf in Arizona is a \$3.4-billion-a-year business and we use two percent of the state's water. That was according to an Arizona State University study in 2004. But the perception is that we waste water. We're good citizens and want to tell that story."

Education also extends to club members and customers. Esoda says superintendents should always tell their members what they're dealing with. Jarrell concurs.

"Member expectations have gone through the roof when it comes to the look of the course," Jarrell says. "You have to make them aware of water restrictions and that your course can't always be as green as they expect 365 days a year."

A LITTLE HELP

Superintendents employ various methods to maximize their water allotments. Almost all use wetting agents that allow water supplied by irrigation and rainfall to soak into the ground more effectively and reach the roots of the turf where it does the most good. Others have updated their irrigation systems, and some have gone high tech.

"You have to upgrade your irrigation and computer controls," Hahn says. "We've got a small weather station that allows us to closely monitor conditions and fine-tune our watering. We read our usage meters once a week and adjust our watering accordingly. A course that makes \$100,000 a year can lose all of that by overwatering. When water becomes more expensive and is tightly restricted more ... an expenditure on a new, state-of-the-art system makes sense."

Thomas says he doesn't know of anybody who isn't using wetting agents.

"At some of the higher-end courses that have PGA Tour events and private clubs, they use wetting agents wall to wall," he says. "Everyone has a computer-controlled irrigation system and weather stations to help them closely monitor and adjust their water usage. We also reduce the depth of our watering to conserve."

WATER SURPLUS

But not all superintendents worry about water use. In fact, Bob Wolverton, superintendent at Bayonne (N.J.) Golf Club, is in the opposite position.

"The city of Bayonne has a surplus of water, and it wants us to use as much as we can, which

is nice for us," Wolverton says. "We have lost some big industrial sites down here, and the city dropped almost 4 million gallons of usage a day because of it."

Bayonne's developers attempted to find other sources of water but ended up with no appreciable results.

"We can't drill wells because we bring up brackish water," Wolverton says. "We will try to keep our water usage less than 25 million gallons this year, and we do that by using as little water as possible to keep the course alive through the summer. But one of the reasons we built a course in the links style was because we wanted to keep it firm and dry."

Bayonne doesn't benefit greatly from rainfall because the water filters quickly through a sand cap under the turf.

"I can have a one-inch rain event and then be syringing by the afternoon," Wolverton says.

DOWN THE ROAD

With greater variations of weather patterns and urban sprawl into arid sections of the country, water will likely become an increasingly precious and well-guarded commodity.

"There's talk of reducing our water usage," Hahn says. "If it gets much tighter, we'll have to start removing turf."

Jackson is sure water regulations will get more stringent, and to combat that, the industry might see greater turf reduction on courses in the near future.

Haynes recommends superintendents educate themselves about their course's average annual water requirements then make sure they thoroughly understand the restrictions in place and how they might limit consumption or production abilities. Superintendents then should be able to author a plan about how to continue providing their course with the necessary amounts of water. **GCI**

John Torsiello is a freelance writer based in Torrington, Conn. He can be reached at jtorsiello@sbcglobal.net.

Many golf course maintenance practices are based on feel, while others require scientific test results to make proper decisions. A common scientific test is a chemical soil test, which measures the content of elements in the soil.

The common elements are macronutrients – nitrogen, phosphorus, potassium, calcium, magnesium and sulfur – and micronutrients – iron, copper, manganese, zinc, boron, molybdenum and chlorine. A soil test – along with pH; conductivity; the calculated distribution of calcium, potassium, sodium, and magnesium (base saturation); and cation exchange capacity – provide the basis for fertilizer and amendment applications to soil. Chemical soil testing is standard operating procedure, and many superintendents spend money on such tests.

Most chemical soil tests address about 13 of the 16 to 20 essential elements for plant survival. Other important elements that aren't normally

tested for are carbon, hydrogen and oxygen. Some estimates of carbon content in soil come from organic matter testing. Hydrogen is related to pH levels, but you don't think of applying hydrogen to soils as an essential element. Elemental hydrogen rarely occurs in nature. Rather, hydrogen occurs as organic compounds with carbon, and there are no specific deficiency symptoms for hydrogen. Chemical soil tests don't address oxygen levels in the soil. From a nutrient standpoint, oxygen is a major component of organic compounds. It's the oxygen content in soil that drives most chemical reactions that are necessary for life functions. Without oxygen, nothing happens.

THE PROPER BALANCE

So how is oxygen in soil measured? Soil is a three-phase system consisting of solids, water and gas (oxygen and carbon dioxide). The measurement of these components is done through physical soil testing. The formation of soil and its

characteristics depends on the combined effect of physical, chemical and biological processes. Theoretically, a healthy soil consists of a balance of these three phases. When out of balance, turfgrass plants suffer.

The understanding of the proper balance between solid, water and gas is reflected by the recommendations for putting green construction in which the demand for healthy grass is required even under the most extreme environmental conditions. The accepted method for building a new root zone was introduced about 50 years ago, specifying volume of 50 percent solid and 50 percent pore space. Pore space is equally occupied by water and air. Generally, this is accomplished by using a specific particle-sized sand with the addition of a specific amount of organic matter or other amendment. This is a good starting point for the optimum soil root zone, but over time, the percentage of each phase changes. It's beneficial to know how to measure the change and how to

DIGGING IN THE DIRT

BY JIM CONNOLLY

manage the physical property of the soil.

Total pore space is divided between two types of pores based on size; capillary (very small pores) and noncapillary (very small). Large pores are necessary for free drainage water and air movement, while small pores are necessary for holding moisture. As greens age, capillary pores increase as much as 60 percent at the expense of noncapillary pore space. Because roots grow primarily in large pores where there's free air and water movement, it's easy to see a reduction of large pores results in less root mass. Additionally, infiltration rates can decrease as much as 70 percent or more, resulting in wet greens, compaction and related negative influences on turfgrass health.

Another important observation is the formation of layers of organic matter or lenses of sand, silt or clay. Evaluating a putting green profile in each layer-inch increases the understanding of how a root zone changes in layers. Other physical parameters such as bulk density, sand particle

size, silt and clay, change as a green ages. All these factors have a negative impact on turfgrass health because the measurements move further away from optimum.

PHYSICAL COMPOSITION

For years, turfgrass managers have known aeration and topdressing benefit turfgrass health. The frequency and intensity of aeration and topdressing is a guessing game unless superintendents have a way to measure the changes as a result of these practices. Most golfers know greens need aeration once or twice a year. But what if greens need three or more aerations, or there's a need to buy higher quality topdressing sand that costs 50 percent more than what's currently used? Or what if topdressing is needed more frequently? How do you explain increasing the budget by \$100,000 to buy more sand and better equipment and hire more workers? Without a physical soil test that provides useful data, superintendents

can't state with certainty or justify maintenance programs. Physical soil tests are equally important, if not more so, than chemical soil tests that are used to develop fertilizer programs.

The physical composition at the 1-inch depth in the green profile is different from the 2-inch depth and the 3-inch depth. Putting green soils age in layers and can be observed easily by studying a core sample or cup-cutting plug. Organic matter is highest in the first inch and is progressively less at deeper depths. The accumulation of fine sand from irrigation water or topdressing will be identified in a physical test in 1-inch increments.

TEST RESPONSES

The following factors are brief explanations and possible responses to a nondisturbed soil test result.

Infiltration rate. A new green should have infiltration rates of 6 to 12 inches. After several

Knowing your soil's physical condition is the key to plant health

ISSUE-BASED Solutions

Think about the most difficult day on your course. It's 100-plus degrees. You've been working for nine straight hours, with another three to go. Your neck stings with sunburn; your eyes with sweat. You're hungry; you're thirsty; you're tired.

Now, imagine how your grass feels.

There are so many issues facing your turf-grass that it can sometimes be difficult to know where to begin. Sure, it's easy to throw on a blanket solution that offers a quick remedy to a wide variety of problems – a generic fix. But your course isn't generic, so why should its treatment be?

Floratine Products Group, based in Memphis, offers issue-based solutions to turf problems. Working side-by-side with superintendents and turf professionals, Floratine uses scientific analysis to break down all parts of the problem to produce a targeted solution.

"Issue-based solutions means that we diagnose a problem and develop a plan to treat it," said Kevin Cavanaugh, vice president of golf operations for Floratine Products Group. "Once we start working on the issue, we see it through to the end, testing and tweaking the program to achieve the best possible results."



In a typical situation, a superintendent will identify an issue with their turf, then alert their Floratine representative. The Floratine rep and local agronomist will come in, look at the course and issues, and begin developing an action plan for treating the issue. Once the proper treatment is applied, the Floratine expert will continue to evaluate the treatment, often checking in every ten days to two weeks to do soil and tissue tests as needed.

"It is this process that hones our expertise and skills," said Cavanaugh. "Our strict attention to detail has allowed us to innovate new solutions that, while still targeted to a specific problem, can be used on a more broad-based level, to treat issues that are common to nearly every course."

THE FLORATINE FOURSOME

The newest addition to the Floratine arsenal of innovation is known as the Floratine Foursome.

The Foursome includes a package of four "mini jugs" containing Floratine products. Each mini jug contains one pint of product.

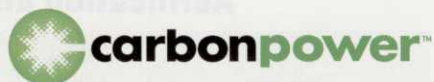
"We're often approached by superintendents who would like to try our different product offerings on a smaller scale," Cavanaugh said. "The Floratine Foursome gives them that opportunity."

The initial Floratine Foursome packages include four of the Floratine products best suited for battling heat stress: Renaissance, Perk Up, ProteSyn and Carbon K.

Renaissance is designed to ensure rapid uptake and availability of critical nutrients that are often deficient in turfgrass, promoting proper plant nutrition and delivering consistent, improved turf color and quality.

Perk Up, with its blend of calcium, simple and complex carbohydrates and naturally occurring, organic compounds, provides rapid relief to turf under photosynthetic and respiration stress. Perk Up includes elements required for wilt resistance and recovery, root growth and cellular strength.

Carbon K combines Floratine's proprietary Carbon Power technology, magnesium, and a low-salt, non-burning source of potassium to enhance the uptake, translocation and utilization of nutrients, ensuring proper cell function and chlorophyll formation.



The new, improved formulation of ProteSyn adds Amino-Lok technology, providing key amino acids that sequester nitrogen for slow linear release and promote the linkage process toward mature protein synthesis. This makes for a stronger plant by enhancing the completion of photosynthetic activity and encouraging healthy cell division, respiration and energy conservation.

"These products are the cornerstone of our offerings and are a great introduction to Floratine products," said Cavanaugh.

Superintendents who want to try the Floratine Foursome should contact their Floratine representative.

ACTION PLANS FOR ANY PROBLEM

While the strength of Floratine lies in its ability to develop focused, issue-based solutions to specific turf problems, the company also recognizes that many superintendents and turf professionals face very similar problems, such as heat stress, aerification issues, fairway color, spring and winter stresses and increased traffic due to tournament play.

To address this, Floratine developed its Management Action Plan system. The MAPs combat these issues through the use of targeted, specific applications of Floratine products.

"MAPs are defined product solutions," said Cavanaugh. "Superintendents look to our MAPs as guides, helping them solve various issues while aiding overall plant strength and health."

Floratine currently outlines seven MAPs on its Web site, www.floratine.com, including:

- Aerification Recovery, which recommends Per "4" Max, PK Fight, Carbon N and Renaissance for rapid restoration of putting surfaces;

- Fairway Color, which combines Carbon N and Largo to boost color without excessive growth;

- Heat Stress, which includes Perk Up, Carbon K, Renaissance and ProteSyn for overcoming stress caused by high temperature and humidity;

- Mining, which utilizes Calphlex, Maxiplex and Pervade to enhance the availability of nutrients in the soil;

- Spring Start, which uses Per "4" Max, Carbon N, Renaissance, PK Fight and ProteSyn to overcome sluggish growth;

- Tournament Prep, which suggests Carbon N, Astron, Turgor and PK Fight to prepare for the added stress of tournament play; and

- Winter Strength, which adds Astron, Carbon K, Renaissance and Floradox Pro to get through the slow growth and dormancy caused by cold temperatures.

To help make the MAPs even more accessible and user-friendly, Floratine recently developed its new MAP Pack system.

The MAP Pack allows superintendents to easily identify and treat specific turf problems detailed in each MAP, combined with the ease of having each component of the MAP packaged together in one box, making each MAP Pack an all-inclusive solution pre-measured to cover one acre of turf.

"With all of the products needed to follow a MAP now packaged in one box, superintendents save time with a system that is even easier to use than before," said Cavanaugh.

With its issue-based approach, teamwork-driven service and industry-best expertise in treating a wide variety of turf issues, Floratine offers superintendents and turf managers a vast resource when it comes to managing their courses.

If you need help with a specific turf issue, or if you'd like to learn more about Floratine, the Floratine Foursome, MAPs or the MAP Pack system, call Floratine Products Group at (901) 853-2898, or visit www.floratine.com.



years, infiltration rates could decrease to less than 1 inch. Infiltration rate results will tell you only how far from optimum you are but won't identify the reason why infiltration rates are low or high.

40-cm water holding percentage. The result gives an overall picture of how wet a green will remain after gravity removes free water. Ten to 20 percent is normal for a well-drained green. If the results are higher than 20 percent, the organic matter, clay or percentage of fine sand also might be high.

Bulk density. Low bulk density numbers can indicate high organic matter levels. If organic matter levels are normal, low bulk density might be an indication of thatch.

Organic matter. Organic matter content of a root zone only makes sense when tests are done at different depths. It's important to know where the organic matter is concentrated. A 4-inch homogenized soil sample might have an organic matter content of 3 percent, but 80 percent of this organic matter might be in the top inch of the green.

It's important to establish a baseline number for organic percentage in each inch of the soil profile to a depth of at least 4 inches. Once you know the organic matter percentage and where it's concentrated, an aeration program that specifies depth of aeration and size of tine can be established. For example, if the goal is 2.5 percent maximum organic matter in the top 2 inches and your levels are 5 percent, 50 percent of the green must be removed through aeration. The aeration hole size and spacing will dictate the percentage of the green removed by aeration. (See chart above.)

Aerification displacement chart

Tine size	1.25" x 1.25" centers	1.5" x 1.5" centers	2.0" x 2.0" centers	2.5" x 2.5" centers	5" x 5" centers
1/4" hollow tines	3.14%	2.18%	1.23%	0.79%	
3/8" hollow tines	7.07%	4.91%	2.76%	1.77%	
1/2" hollow tines	12.57%	8.73%	4.91%	3.14%	
5/8" hollow tines		13.64%	7.67%	4.91%	
5/8" hollow vertidrain					1.23%
3/4" hollow tines				7.07%	1.77%
3/4" hollow vertidrain					1.77%
1" hollow tines					3.14%
1" hollow vertidrain					3.14%
7/8" drill & fill (7" centers)					1.23%
Graden verticutter (15 blades @ 1" spacings)	1 mm blade 3.93%	2 mm blade 7.87%	3 mm blade 11.81%		

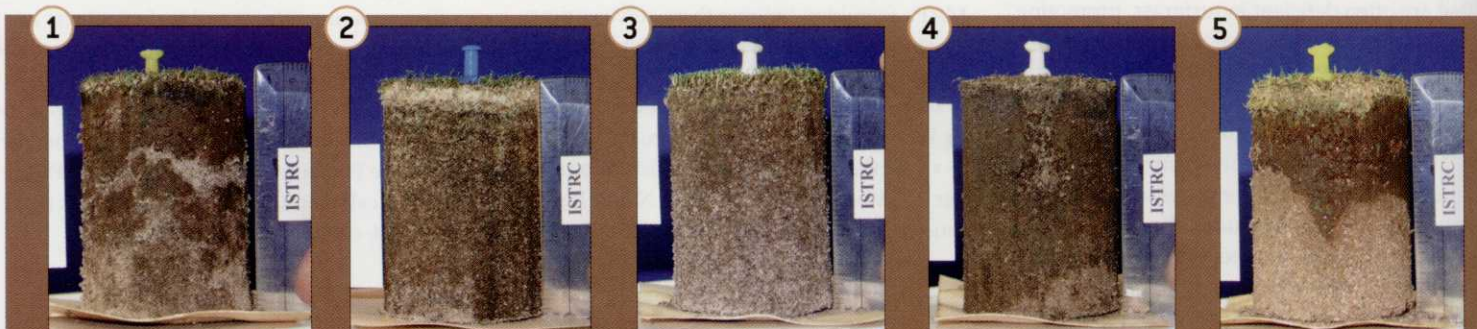
Note: Quadline setup – regular top eject on 3/8" & 1/2" hollow tines – not side eject
 - 1/4" quadlines remove as much material as regular 1/2" hollow tines
 - 3/8" minimum for ease of topdressing fill if replacement of material is required
 - For double aerification make two passes at 37 degrees to minimize overlap

Source: International Sports Turf Research Center

Subsurface noncapillary porosity. For existing greens, achieving 50 percent solid and 50 percent pore space would be next to miraculous. Pore space should be divided equally between capillary and noncapillary pores for new greens. In older greens, achieving at least 18 percent noncapillary pore space will ensure enough large spaces for free drainage, oxygen/gas movement and root development. If noncapillary pore space is less than 10 percent, it could be

because of high organic matter or poor particle size distribution.

Capillary or water porosity. Water will remain in capillary pores against gravity and can lead to waterlogged conditions. Clay and high organic soils can have capillary porosity higher than 38 percent. This condition usually results in less than 10 percent available pore space for drainage water. Soils that remain wet for long periods of time have trouble with supporting and



1. Black layer isn't always deep in the soil. Because of a deeper layer (sand), water infiltration and air content can be reduced dramatically close to the surface. 2. Organic matter is highest in the first inch and is progressively less at deeper depths. 3. Visual observation of a healthy green might not appear perfect, but a physical test revealed this soil to be near perfect. 4. An older sand green shows the build-up of organic, fine sand; silt and clay; large sealed air spaces; and the benefit of a single core aeration hole, which is filled with roots. 5. Finer textured soil laid on top of sand is a detriment to turfgrass health. Photos: International Sports Turf Research Center

supplying necessary gas exchange and oxygen for biological and chemical reactions that favor healthy roots and plants.

Particle size analysis. The proper distribution of sand, silt and clay for the construction of new golf greens has been documented by many soil scientists and golf associations. A physical test that mixes or homogenizes a 4- to 6-inch sample from a green doesn't help to identify how layers might form in the green profile. A PSA that shows the distribution in each inch of profile can provide several pieces of valuable information:

1. It shows the history of how the green has matured. Perhaps a clay layer exists at 4 inches that just happens to be about 10 years ago when superintendent "X" topdressed with soil. Or, perhaps the top inch has a high level of fine sand and high silt. When evaluating a sand supplier, you'll find topdressing sand is full of fines and silt.

2. Layers of dissimilar materials might reveal why infiltration rates are low.

Slicing or spiking can relieve low oxygen symptoms temporarily, increase infiltration and improve soil health without extreme disruption of putting conditions. Photo: Jim Connolly



3. The PSA results at 5 inches show the original green root-zone mix is perfect, but all the material between 1 and 5 inches is garbage.

4. The PSA shows that during the last several years of proper topdressing and aeration the top 4 inches has improved dramatically compared to the root-zone mix below 4 inches.

New golf courses spend thousands of dollars ensuring greens mix meets proper physical requirements. The same level of diligence regard-

ing the physical conditions of greens should be carried out every year. Lack of data regarding the physical condition of greens soil is a cause of poor putting green performance. Physical soil testing is, perhaps, one of the least used and most valuable tools available to turfgrass managers. **GC1**

Jim Connolly is president of JCC, Ltd. A former USGA agronomist, he's a consultant and can be reached at jim@jccurf.com.

Turf Diagnostics & Design



Physical Testing Laboratory

Greens Evaluations
Bunker Sand Testing
Rootzone Mix Design
Topdress Evaluations
Profile Core Testing
Construction Quality Control Programs



A2LA Accredited

Phone: 913-723-3700

Email: turfdiag@turfdiag.com

www.turfdiag.com



"managing the elements through science"



With the older greens at the Country Club of Buffalo, Jim Frank, CGCS, has adjusted the nutrition and aeration to the overall properties of the soil to match the turf's needs. Photo: the Country Club of Buffalo

BY STEVE AND SUZ TRUSTY

Fine-tuning turf

Superintendents adjust integrated plant management programs to improve conditions

Maintaining healthy turf at a certain expected level of conditioning requires much more than applying water, fertilizer and pesticides. Golf course superintendents increasingly adopt holistic approaches to turfgrass management. They combine basic turfgrass science with technological advancements and adapt cultural practices to weather conditions. Each golf course presents its own unique setting for that combination of science and art. Four superintendents share the adaptations they've made in their integrated plant management programs to improve course conditions.

BRING IT BACK

Hidden Valley Golf Course in Norco, Calif., overlooks the Corona Valley. The course design focuses on preserving the natural vegetation, dry streams and boulder outcroppings. Because the course was slotted for conversion into homes at one point, it received minimal care for three years.

In January of 2007, Iain Sturge was hired as

golf course superintendent with the charge of re-turning the course to its former prime condition. Having served as an assistant superintendent seven years previously, Sturge realized it would be challenging, especially with a budget about 45 percent of the original \$1.2-million budget.

The initial focus was to repair the pumping station and functionality to the irrigation system – 12 to 15 percent of the sprinkler heads weren't working. Resurrection of equipment to operational status came next followed by the turfgrass itself. The soil profile is about 90 percent dissolved granite, with some pockets of silty clay, which makes improvement difficult. Varietal competition added to the problem.

"When I arrived, the fairways ranged from 75 percent to 100 percent *Poa annua*," Sturge says. "We cut back on the water and allowed the *Poa* to die out with the heat. The course was originally 419 Bermudagrass, but a lot of common Bermuda was seeded in, so it's a mix now. We've pushed the Bermuda, lightly verticutting with hand rakes. We're topdressing only in the bare areas, using a

50/50 mix of composted cow manure and plaster sand, hand-raking it in. We'll skip overseeding with ryegrass to reduce stress on the Bermuda."

As for the greens, which are 75 percent *Poa* and 25 percent bentgrass, Sturge applies Primo and topdresses and verticuts them every two weeks.

Sturge, who has a small budget for chemicals, is fertilizing with urea, applying one-third of a pound of nitrogen every eight days.

"We're keeping the greens lean with very low nitrogen and lots of calcium," he says.

Sturge aerified the greens in May with standard five-eighths-inch coring, which disrupted play and lowered much-needed revenues. So, he used quadra-tining in October for much less impact on play.

"Next year, we're going to aerify with five-eighths-inch tines in July and again in August, rather than spring and fall," he says. "It's not the ideal time for the turf because temperatures can spike over 100 degrees for several consecutive days. But it's so hot, there's hardly any play, so we'll have little impact on the revenue flow."

VALENT HAS TURF COVERED



::SUPERINTENDENTS TO BENEFIT *from* DEBUT OF TWO NEW FUNGICIDES IN 2008::

Broad spectrum control, novel chemistries, improved turf quality on the horizon

by Lauren Carr

"They say golf is like life, but don't believe them. Golf is more complicated than that."

—Golfer Gardner Dickenson

Dickenson could have easily been speaking for golf course superintendents and disease management strategies when he uttered these oft-quoted words.

Managing tough turf diseases such as brown patch, anthracnose, dollar spot and pythium blight can be a complicated part of superintendents' overall turf management programs. They require multiple applications of multiple products, plus there is the threat of fungicide resistance and turf growth regulation. While winter means downtime for some golfers, there is no rest for the weary superintendent who is already mapping out his disease management program for the coming year.

Turf management will be a little less complicated in 2008 with the introduction of Valent Professional Products' two new turf fungicides, *Tourney*™ and *Stellar*™.

Tourney Fungicide

Tourney will provide superintendents with broad spectrum control of the Big Three turf diseases—brown patch, anthracnose and dollar spot. Moreover, it features a low use rate compared to other demethylation inhibitors (DMIs).

Tourney demonstrated comprehensive control in several demo trials Valent conducted during the summer of 2007, including a trial with Quent Baria, certified golf course superintendent (CGCS) for Towson Golf Country Club in Phoenix, Maryland.

Towson's close proximity to the Chesapeake Bay makes it an ideal breeding ground for brown patch.

Baria trialed *Tourney* for brown patch control on his turf nursery.

"I worked with Valent to apply four *Tourney* applications during July and August at two-week intervals. We treated bentgrass fairways and bentgrass that was mowed to putting-green height," Baria said. "I set the trial up so there were untreated check plots for both the fairway and putting-green portions of the turf nursery."

Throughout the trial, the *Tourney*-treated areas remained free of not only brown patch, for which Baria was treating, but dollar spot as well. Baria also saw excellent control of black algae on the greens portion of the trial.

"When you go out mid-season to make an application with a DMI fungicide, you would like to think that you are getting broad spectrum control," Baria said. "But, all of the DMI fungicides available at this time control some diseases but are really weak on brown patch. *Tourney* held up on dollar spot and brown patch really well."



Image from *Tourney* demo plot at Towson Golf Country Club. Left side shows untreated brown patch and right side shows *Tourney* control of brown patch.

As a superintendent, Baria sees real value in a broad spectrum fungicide such as *Tourney*.

"Being able to control several turf diseases with one application means not only dollar savings, but you also simplify your program so you don't have compatibility issues among chemistries," Baria said.

Baria plans to include *Tourney* in his 2008 disease management program by making back-to-back *Tourney* applications in July. He intends to follow that with a contact fungicide application and then two more back-to-back *Tourney* applications in August to take full advantage of the black algae activity.

Jill Calabro, the Valent turf pathologist who worked with Baria on the *Tourney* trial, notes that *Tourney* also shows promising performance on anthracnose as well as other turf diseases, including red thread, rust, gray leaf spot, large patch, Zoysia patch, fairy ring and snow mold.

"Though anthracnose pressure was light this past summer, in previous trials we have seen great control from *Tourney* on this turf disease," Calabro said. "Upon registration in 2008 superintendents who use *Tourney* can rest assured it is working on their top turf diseases."

Stellar Fungicide

Pending EPA registration, Valent also plans to launch *Stellar* in 2008. *Stellar* trials were conducted in 2007 with several still currently underway. Initial results show excellent control of pythium disease, which can be challenging to control and destructive to turfgrass if unchecked.

Stellar[™] FUNGICIDE		
Stellar Recommended Rates		
Diseases	Application Rate	
	oz/1,000 sq ft	oz/A
Pythium Blight, Pythium Damping Off	1.2	52

"*Stellar* is a unique fungicide premix that combines fluopicolide—a new active ingredient—with the proven pythium chemistry, propamocarb," Jason Fausey, Valent field market development specialist said. "In early trials, superintendents have commented on how user-friendly *Stellar* is compared to other pythium fungicides. *Stellar's* synergistic premix means enhanced control from a single product and a simplified approach to pythium management for the superintendent."

The introduction of *Stellar* offers superintendents another tool for managing resistance in their fungicide rotation program.

"Because pythium is such a prevalent turf disease and is present in all cool-season turfgrass, especially bentgrass, annual bluegrass and perennial ryegrass, there is a real threat of fungicide resistance," Fausey said. "*Stellar's* new chemical class and unique mode of action from dual active ingredients will help superintendents better manage and prevent resistant pythium."

Tourney and *Stellar* are currently under review by the EPA and registrations are anticipated in the first quarter of 2008.

For more information about Valent Professional Products, Valent U.S.A. Corporation or our full product line, call 800-89-VALENT (898-2536), or visit the Valent Professional Products Web site at www.valentpro.com/turf.

Tourney[™] FUNGICIDE		
Tourney Recommended Rates		
Diseases	Application Rate	
	oz/1,000 sq ft	oz/A
Brown Patch	0.28 to 0.37	12 to 16
Anthracnose	0.28 to 0.37	12 to 16
Dollar Spot	0.18 to 0.28	8 to 12
Gray Leaf Spot, Red Thread, Rhizoctonia Large Patch, Rust Diseases, Summer Patch, Zoysia Patch	0.37	16
Fairy Ring	0.37	16
Pink Snow Mold, Gray Snow Mold, Yellow Patch	0.37 to 0.45	16 to 19.5



Products That Work. From People Who Care® | www.valentpro.com | 800-89-VALENT (898-2536)

Read and follow the label instructions before using.

Stellar and *Tourney* are trademarks and Products That Work, From People Who Care is a registered trademark of Valent U.S.A. Corporation.
©2007 Valent U.S.A. Corporation. All rights reserved. Printed in the U.S.A. 2007-VPP-6001 (LT/AM) 9/07

We'll baby the turf through it and plan to deep-tine the following spring to compensate for it. We'll continue to adjust, steering toward a more conventional turf management program as we increase revenue."

SCALING BACK

Hillcrest Country Club in Long Grove, Ill., is an 18-hole private course northwest of Chicago. About a third of the course's soil profile is predominately black peat dredged from mid-course wetlands during conversion of part of that area to an irrigation pond. The remainder is silty loam, with the exception of the push-up greens. The greens, tees and fairways are a combination of

Poa annua and bentgrass, and the roughs are a mix of bluegrass and ryegrass.

George Ott, CGCS, has eliminated early spring granular fertilization on greens, opting for a dormant application of slow-release organic fertilizer with at least half a pound of nitrogen, balanced with phosphorus and potassium.

"We generally apply it in early November, following a similar granular fertilization in September or early October," he says. "Our previous program was pushing too much top growth too early. Now we don't make another granular application until the end of May or the first part of June, depending on the weather."

Ott recently started matching the frequency

Iain Sturge, golf course superintendent at Hidden Valley Golf Course in California, has implemented an unconventional turfgrass program because of previous course neglect and a reduced budget. Photo: Hidden Valley Golf Course



of greens topdressing with turf growth.

"We watch the quantity of clippings the greensmowers are getting," he says. "As the baskets become fuller, we increase the frequency and might even topdress every week for a while. We used to topdress every three weeks all season long. The adjustment keeps our surfaces firm and maintains the faster green speed our golfers want."

Management implemented budget cuts in 2007, adapting to the regional market, but Ott anticipates a return to previous funding levels within the next year or two. He has cut his staff to 11 from 15 and is adjusting maintenance practices to reduce expenditures while striving to retain quality levels.

"Instead of two postemergent applications for broadleaf weed control, we made one application

about two weeks later than the first application of previous years," he says. "It allowed more weeds to germinate, so there was a short period of visibility to our golfers, but the delay accomplished an effective eradication. It saved the costs of labor and herbicide for a second application."

Despite the budget reduction, a new irrigation system installation was completed in the spring of 2007. Now, the system has twice as many heads on the fairways, set in three rows rather than two, for better coverage control and greater efficiency.

"With the radio-operated system, we can turn on a single head for a quick syringe instead of sending an individual to hand water by hose, which allows us to allocate that crew time to other areas," Ott says.

MEETING TURF NEEDS

The Country Club of Buffalo in New York is on the site of a former stone quarry. Part of the course is built on the Onondaga Escarpment, the limestone shelf that extends from Ontario, Canada, to Syracuse, N.Y., and is responsible for

the formation of Niagara Falls. Six of the greens lie below the escarpment, and 12 lie above it. The pH of the soil and natural water source are high. Turf on the greens, tees and fairways is a mix of *Poa annua* and bentgrass. The roughs are a mix of ryegrass, Kentucky bluegrass and *Poa*.

Jim Frank, CGCS, is in his 14th year as golf course superintendent, and when he started, the greens were still 100-percent native soil.

"It's been an opportunity and a continuing challenge for me to promote a competitive putting surface in today's world," Frank says. "We've used multiple drill-and-fill procedures over an extended period, incorporating sand to an eight- to 10-inch depth. We've worked through all the issues of layering and the variances of physical and chemical properties within the sand. Even when constructing a new green, the cation exchange and the nutritional inputs can vary significantly, so with our older greens we've needed to adjust the nutrition and aeration to the overall properties of the soil and try to match turf needs. The designer, Donald Ross, was a genius moving water off the greens, so we haven't needed to install additional drainage."

Weather conditions are a continual challenge.

Superintendent Iain Sturge has focused on reducing the *Poa* population on the course and improving the health and increasing the density of Bermudagrass. To help reduce stress on Bermudagrass, he won't overseed this winter. Photo: Hidden Valley Golf Course

Excessive rains as remnants of a hurricane might sweep through. Winter snows might start as early as October and continue into late spring with Lake Erie, the shallowest of the Great Lakes, freezing from shore to shore some years.

"Once September arrives, we need to aerify and verticut, and when it seems we've done enough, we do a little more," Frank says.

"The blizzard of October 12, 2006, that dumped two feet of snow and brought seven- to 14-day power outages hit our course hard," he adds. "We ended up removing more than 250 damaged trees. That turned into a good thing for our turf, creating additional air circulation and opening some areas to coverage by our irrigation system. Adjusting maintenance practices to the altered microclimates was a little thing compared to the benefits."

Frank only spot-aerifies greens in the spring, punching areas that have a tendency to dry out or wilt the quickest.

"I've added more verticutting to our program, just tickling the surface more often for grooming," he says. "I'm experimenting with subbing deeper verticutting for core aeration. There's less surface disruption and the results are surprisingly positive."

Another change is the use of a new greens-mower with floating head technology.

"It's ironic, but we're mowing the greens lower, yet doing less damage and causing less stress," Frank says.

BETTER BALL ROLL

Located in the Willamette Valley of Portland, Ore., the state's top grass seed production area, Waverley Country Club was constructed in 1896. Its soil profile is silty loam with one small pocket of heavier clay.

"With our climatic conditions, we're growing *Poa annua* whether we want to or not," says golf course superintendent John Alexander, who has been at Waverley for 11 years. "We've decided to encourage it on the greens, tees and fairways. We have some in the rough, along with rye and some spots of fescue and bent."

With the amount of rain the area receives, drainage is always an issue at Waverley.

"Though some top-end clubs lightly topdress weekly, our budget only allows four to six applications of about a 16th of an inch each time," Alexander says. "We've found providing the plant with oxygen and keeping the soil drained is as beneficial as fertilizer."

Alexander and his staff core aerify the greens twice a year to maintain the firmness they want.

"We plan to core aerate the fairways twice, too, but if spring conditions preclude that, we'll compensate with a Vertidrain or a couple spikings," he says. "We're opting for more solid tining and spiking. The process is so nondisruptive with the rollers, the golfers hardly know we were there."

Summers are typically mild, with little rain from July through September, yet keeping the *Poa* healthy is a balancing act.

"We'll see afternoon stress and irrigate to about 80 percent of the ET rate, just enough to keep the *Poa* alive and get the playing surface we want," he says. "If we went to 100-percent ET replacement every night, we'd create too many soft spots. We'll have three to five crew members hand-watering dry patches most days."

Alexander uses wetting agents to keep the surface firm and water percolating during the

frequent dry down and rewet cycles. He and his staff have started verticutting the greens weekly, reaching about one-sixteenth of an inch below the surface.

"We're not fighting grainy or thatch conditions with *Poa*, just creating better ball roll," he says.

Alexander also has adjusted his fertilization program, basically spoon-feeding the greens with a spray application every seven to 10 days. He also applies two granular applications a year in the fairways.

"We spray them every 14 days, putting down no more than 0.2 pound of nitrogen at any one application," he says. "We add Primo about every three weeks. It doesn't cut mowing frequency, but reduces clippings and improves the tightness of the turf for better ball roll." GCI

Steve and Suz Trusty are freelance writers based in Council Bluffs, Iowa. They can be reached at suz@trusty.bz.

MAX YOUR TURF

Harrell's MAXLine™ Liquid Nutritional
Fully Chelated. Quick Response. Long-lasting Results.

Get your NPK & Minors



MAX 18-3-6
slow-release N
MAX Calcium

MAX Stress Relefe

MAX Minors

MAX Root Enhancer

MAX Ornamental
9-3-6

Products containing
UMAXX
SOLUBLE NITROGEN FERTILIZER

MAX 12-0-0
with 6% Iron

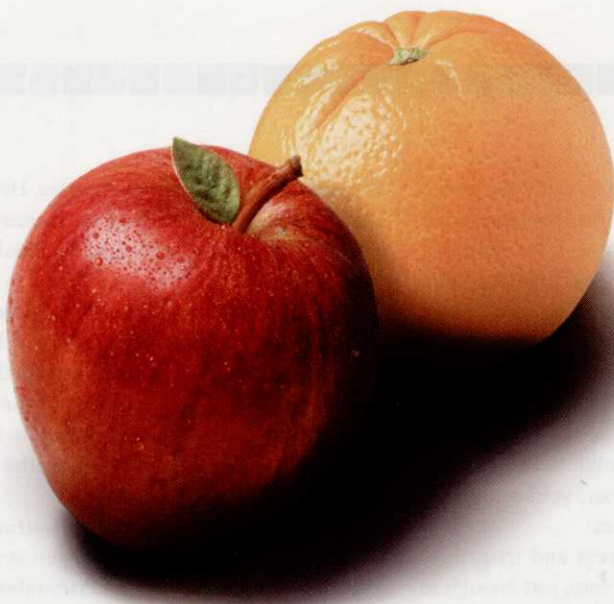
MAX 18-3-6

MAX 4-0-1

MAX 12-2-12

See the entire line of MAXLine Products
@ www.harrells.com
or contact a Turf Specialist at 800.282.8007

Harrell's
Growing A Better World™



SOME COMPARISONS DON'T WORK

A superior bunker liner will improve your bunker's appearance by preventing washouts and sand contamination. Companies claim this and that and present endless charts listing meaningless statistics. But don't be mislead.

The simple fact is that bunker liners are not equal and the choices between them are as different as apples and oranges. Sandtrapper was introduced over 8 years ago for the purposes of combating washouts and contamination in bunkers. Specific properties like fiber denier, binder composition, and matrix were considered in producing Sandtrapper, a bunker liner that performs to the highest standards.

Since Sandtrapper is the acknowledged leader in bunker liners, our competitors make every attempt to compare their product to ours and make claims of equal composition, performance, and durability. But when you take a closer look, it's easy to see why Sandtrapper stands alone and at the top.

Contact us toll free 888-970-5111 or visit us on the web at www.sandtrapper.com.

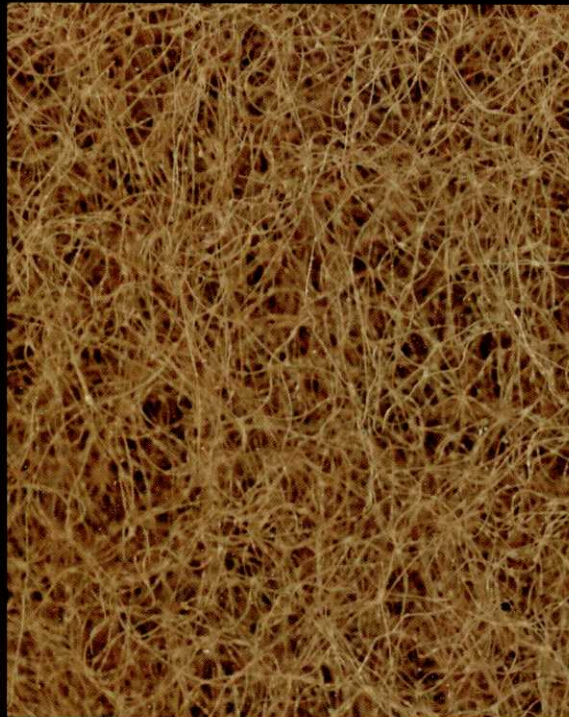
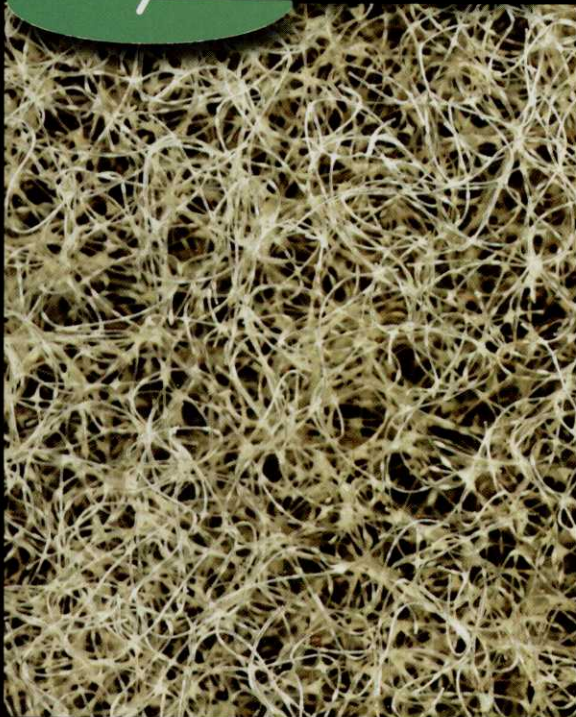


GET WHAT YOU EXPECT... AND DESERVE





THE OTHER GUYS



See for yourself. Sandtrapper has greater strength through heavier fibers and more aggressive binding agents, drains water faster at a rate of over 2-1, and is 75% more resistive to compression. These are dramatic test results using accepted geotextile tests relevant to erosion control and soil stability. The conclusions are clear. Sandtrapper delivers the performance you expect and has the numbers to prove it.

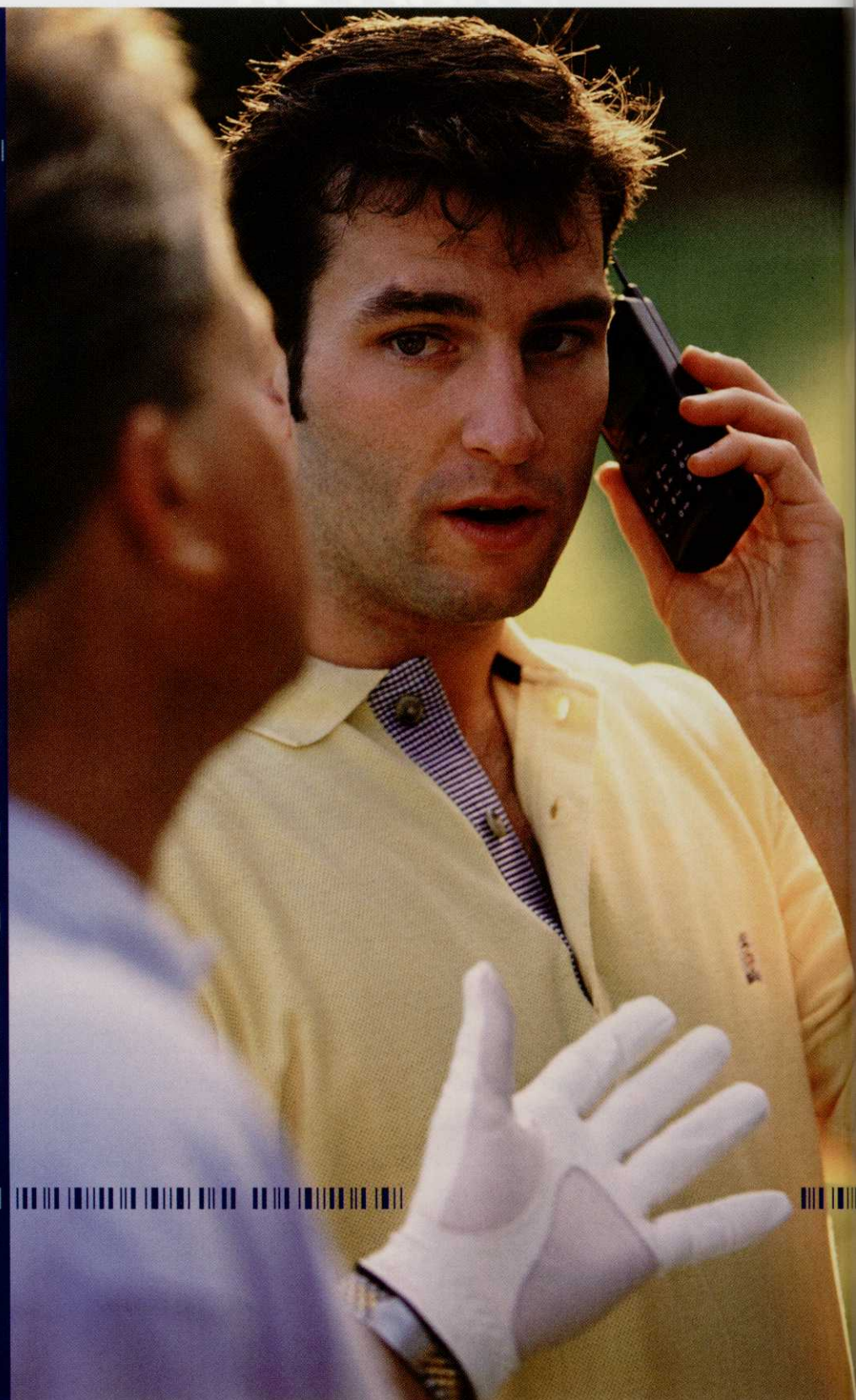
200	Fiber Thickness (Denier)	25/45
16 oz sq yd	Weight	12 oz sq yd
.81 inch	Thickness	1.0 inch
59.4 lbs	Tensile Strength	30 lbs
43.5 lbs	Compression	25 lbs
7.22 sec ⁻¹	Permittivity	3.5 sec ⁻¹
567.27 gpm/ft ²	Flow Rate	250 gpm/ft ²
10 years	Warranty	5/10 years
4 years	Zero Replacement Cost	1 year

©2007 Indian Valley Industries, Inc. Sandtrapper is a trademark of IVI-GOLF. All rights reserved.

RELIABLE RESOURCES

Chemical
manufacturers
support
superintendents
and the industry
in various ways

BY JOHN WALSH



Feeling more pressure from companies selling generic pesticides in the golf market, chemical manufacturers continue to focus on distinguishing themselves not only by the products they make but also by the support – aside from research – they provide the industry and golf course superintendents.

Bayer Environmental Science offers a solutions approach to golf course superintendents to address their individual problems.

"If you look at a golf course superintendent, he's providing a revenue stream, so we want to help make sure that course is at or above expectations," says Scott Welge, director of marketing for the green professional business. "For each situation, we build programs, and we're never afraid to recommend a competitive product if that product works best in a program approach. But we're not just selling a product, we're selling a solution. It's your reputation on the line. We're trying to establish and extend long-term relationships – that's what it's all about."

"If you look at it from research and development, Bayer is all about innovation and new technology," he adds. "Our objective is to introduce new technology that adds value to golf course superintendents."

Dow AgroSciences, which has a dedicated business unit offering solutions to golf course superintendents, invests its profit in future pesticide products, among other investments.

"We continue to invest in the industry on a national and local level," says Mark Urbanowski, senior marketing specialist for the turf and ornamental business. "We invest in associations and universities to help promote golf."

Additional support comes from Dow's sales representatives and researchers, who are called on for various needs.

"We're consulted a lot to help with major tournaments, especially with overseeding," Urbanowski says. "We start a year ahead. Our reps will recommend our products, as well as other company's products, so superintendents can be the best they can be. Our company culture is to help meet the needs of our customers, even if that means recommending other products. Long term, if superintendents know you're a partner, they're more likely to invite you back."

When a superintendent buys a product from Syngenta, he's buying more than just a product, according to Dave Ravel, golf market manager. Syngenta assists superintendents with such things as sprayer nozzle selection (making sure the right one is used), pesticide usage and volume rates.

"It comes down to making sure you get uniform coverage," Ravel says. "In some cases, you want the product to get down into the crown, so you would want to use a different nozzle."

The company has a tech platform, called GreenCast, which is a Web site containing information such as historical data for disease predictability and weather conditions that help superintendents make informed agronomic decisions.

"We look at what superintendents need and provide them a solution that fits their problem,"

Ravel says. "If we don't have a solution, it's our job to recommend something that will work."

From a historical perspective, FMC has been primarily an insecticide company, but the past three or four years it has focused on the turf market, according to Rick Ekins, product manager for turf and ornamental.

"We're establishing close relationships and open communication with superintendents to find out what problems they can't solve or are looking for a better way to solve," he says. "Our mission at FMC is to find those product solutions that fit the needs in the golf marketplace."

The company provides support in many ways, one of which is the most basic – the telephone customer service center. Customers can call to receive product support and help with label interpretation and compliance, general use directions, spill or emergency issues, sediment testing or other service-related problems.

FMC, which has offices in Washington, D.C., also works on behalf of superintendents on regulatory- or EPA-related pesticide and application issues.

"We are very active at the legislative level, working on issues that impact our industry today and in the future," Ekins says. "We work daily to influence policies that reflect appro-



Green Start Academy is an example of Bayer's support for the industry. Photo: Bayer Environmental Science



Urbanowski



Bucci



Ravel



Schwartz

appropriate product stewardship and safety while maintaining product use reflective of what the end-user needs."

FMC also provides support for superintendents through educational workshops, some of which enable them to maintain pesticide application licenses. The company, through its field technical and sales reps, helps superintendents stay abreast of new technologies. It also performs diagnostic work for them.

"We're investing in the future of the superintendent's business," Ekins says. "If they have an issue they can't resolve, it's our business to find that technology. We ask, 'What's going to plague them in the future, and how we can fill in those performance or sales gaps now.'"

Although DuPont reentered the turf and ornamental market only recently (in 2004), the golf market is important to the company, says Nancy Schwartz, marketing manager for turf professional products. The company supports local and national GCSAA meetings and funds education for superintendents.

"Superintendents in many states rely on local university professors and us to introduce products and research to the golf community," Schwartz says. "Chuck (Silcox, Ph.D., the turf and ornamental product development manager,) has partnered with Patricia Vittum, Ph.D., at the University of Massachusetts to host a seminar at the 2008 Golf Industry Show. It's a new half-day seminar about turf insecticides modes of action and resistance management. We will also be sponsoring the Internet Cafe at the show to help superintendents stay con-

nected while away from their course."

Schwartz says DuPont looks at what it can do to help superintendents. One recent example is its series of regional webcasts that provide superintendents with access to the latest industry research and insect trends from their local university researchers and DuPont scientists.

BASF is looking to meet the needs of the market, not just go to market with a product simply to talk about something, says Toni Bucci, business manager for the T&O division of the agriculture division. One of the four pillars of the company's business model is helping customers be more successful. The T&O division provides online training for end users and distributors, helps distributors market products and helps them manage their business. Overall, the company tries to be proactive.

"We need to anticipate the hot topics that affect pesticide use," Bucci says.

Cleary Chemical's business philosophy is

based on forming partnerships with its customers. As an owner/operator of its own golf course for the past 53 years, Cleary understands the challenges superintendents face first-hand, says president Mary Ellen Warwick.

"By really listening to the ideas and suggestions of superintendents, we've been able to develop products and support programs that get results," Warwick says.

ADDITIONAL SUPPORT

Green Start Academy, an educational program for assistant superintendents, is another example of Bayer's support for the industry.

"There's very little product-sales-type information presented," Welge says. "It's more focused on such topics as best management practices, water and resource management, networking opportunities, and interaction with industry-leading golf course and grounds directors who are available to provide feedback and address issues such as career development."

Bayer also has been sponsoring five superintendents to attend the GIS. These are superintendents who haven't attended in the past two years and are financially challenged to attend.



Chemical manufacturers stress the importance of the solutions to problems, not just pesticides, they provide superintendents.

> COMING IN JANUARY:
Chemical manufacturers support the industry through research and field reps.



Silcox



Warwick



Welge

**"If we don't have a solution,
it's our job to recommend
something that will work."**

- DAVE RAVEL

On a more local level, the company also supports superintendents by sending turf samples to a sponsored lab to identify specific pathogens.

"Most of the time, our products are the best choice to combat the specific pathogen, but sometimes they're not," Welge says. "This is solution oriented where we want to provide what's best for the superintendent's individual problem."

Nationally, Dow is involved with the GCSAA, Project Evergreen (a nonprofit organization representing the green industry) and the Responsible Industry for a Sound Environment (a not-for-profit trade association representing producers and suppliers of specialty pesticides and fertilizers). Locally, it supports the industry by devoting time and money to help superintendents with their jobs. Industry support beyond the local level includes research and development and sponsoring Web-based e-learning organized by the GCSAA and the Environmental Leaders in Golf awards program.

Dow also works to keep necessary pesticide products, such as 2,4-D, on the market.

"2,4-D is in almost all broadleaf herbicides," Urbanowski says. "Superintendents might not know all the work Dow does to keep certain tools on the market."

Cleary's support includes its Web site and monthly newsletter, which provide superintendents the most current research, disease and regulatory information. The Web site and newsletter also help superintendents with spray programs.

"We field 100 calls a week from superintendents and those in the greenhouse industry," Warwick says. "We can take samples from superintendents, take them to universities and return

to the superintendents with solutions."

As one of the oldest manufacturers in the industry and one of the founding members of the GCSAA, Cleary is a long-time supporter of the golf course industry. The company has given scholarships to Rutgers students the past five years, is a member of all industry associations and donates to the Robert Trent Jones endowment fund for people pursuing careers in golf course management.

Warwick says superintendents can always pick up the phone and call the company for help.

"If you have a problem, we'll help you get through it," she says. "Between our field and technical support staff and our relationships with other superintendents, we'll solve it together."

SPECIFIC EXAMPLES

Chemical manufacturers can be a reliable resource to help superintendents in need. For example, a superintendent had a sprayer compatibility problem with a Bayer product while tank mixing, which can produce less-than-desirable results, Welge says.

"We sent actual product and water samples to our Clayton Development & Training Center, and it turned out the superintendent's water pH level was extremely high, which was affecting the performance of the product."

In a different situation, a superintendent was working with his green committee, discussing green speed, *Poa annua* and bentgrass. The superintendent called a Syngenta sales rep for support. The rep confirmed the superintendent's observations, which allowed the superintendent to move on with support of his

green committee.

In a separate instance, a superintendent had an issue with odor from a tank-mixed application, so he called DuPont for advice, and the company leveraged its relationship with the University of Wisconsin and professor Chris Williamson, Ph.D.

"We concluded that a mixture of products caused the odor," Silcox says.

Some superintendents travel to FarmLinks in Sylacauga, Ala., for solutions to their problems, and because BASF is now a partner with FarmLinks, the company can offer help. In other instances, the problem can be application related.

"When we launched Trinity, a superintendent called us and said he messed up one of his greens," Bucci says. "We checked it out, and he had eight or nine products mixed in the tank. We helped him work through the problem. We'll help superintendents with a problem even though it's not caused by a BASF product."

Ekins offers another example.

"Last summer, we responded to a turf injury call with our sales representative and two field technical service representatives to investigate the cause of injury," he says. "Quick response and a vast knowledge base among our field reps helped gain an understanding of the situation and provide the superintendent with answers to his questions. We discovered the cause and recommend a resolution that worked."

"We strive to establish our field personnel as resources so superintendents can get valid, reliable, timely information to help them deal with their problems," he adds. "If you establish yourself as a go-to person, those calls will happen more often." **GCI**

BY PETER BLAIS

WHAT LIES BENEATH

A subsurface air and drainage system and a ceramic soil mix improve greens at a Chicagoland club



Westmoreland Country Club reopened this past summer following a renovation project – and a bit of agronomic drama – which, to the naked eye, changed nothing. Below ground, however, there's a new reality for golf course superintendent Frank Heery.

Working with architects at Arthur Hills/Steve Forrest & Associates and builder Golf Creations, Heery oversaw the installation of a new subsurface air and drainage system under 20 greens, then outfitted the new putting surfaces with a ceramic soil mix. The goal was to change nothing about how the greens look (they were photomapped beforehand) and everything about how they're played and maintained.

For this Chicagoland club, originally designed by Joe Roseman, Heery opted for the Precision Air system, blowing air underneath the green surface, providing oxygen to roots, cooling them in summer and warming them in winter. The portable system, which ties to the drainage system, can vacuum water through the green profile to drain putting surfaces quickly following heavy rainstorms.

Heery became a fan of Precision Air after seeing results at The Alotian Club in Little Rock, Ark., where superintendent John Mills opted to install a vaulted, subsurface infrastructure. Mills and Paul R. Latshaw, a consulting agronomist at Westmoreland since 2000, acted as quality-control consultants on the Westmoreland project.

"They have a vaulted system on every green that enables them to heat or cool all their greens," Heery says about The Alotian Club. "They're growing A-4 bentgrass in Little Rock, which is challenging, especially during the summer."

Before rebuilding the 20 greens at Westmoreland, Golf Creations built a USGA-spec test green so Heery could see how a subsurface unit would work in suburban Chicago's cooler climate. Golf Creations built half the test green to accommodate Precision Air and the other half without it.

"We would be using the heating and air conditioning for different reasons than The Alotian Club," Heery says, noting the Precision Air half of the putting surface outperformed its counterpart. "We would use it primarily to heat the greens in the spring and fall, to keep the bentgrass viable and competing with *Poa* when *Poa* is at its most active and has the ability to contaminate new greens. The vaulted system with the air conditioning/heating elements is almost complete insurance for quality greens, especially based on what I saw at The Alotian Club."

DISEASE TROUBLE

As any Chicago-area superintendent will tell you, there's no sure thing in agronomy. Case in point: the drama that accompanied

The goal of the recently completed renovation at Westmoreland Country Club was to change how the greens are played and maintained.
Photo: Westmoreland Country Club



the unveiling of Westmoreland's new greens last spring. The scheduled reopening of the golf course was for June 16, but the greens were unresponsive as of June 13.

"I made chemical applications, but I didn't think it could be a fungus damaging the greens," Heery says.

Just to be safe, Heery sent test plugs to two labs for second and third opinions. The first lab found nothing, but the lab at the University of Rhode Island had a different take.

"They came back to me right away and said, 'Whoa! You have a test case for root rot pythium,'" Heery says. "This is down below, not like pythium blight on the surface. They said we needed to spray and five days later I'd see a dramatic improvement. Sure enough, they improved during those five days. On the surface, it looked like devastation – and there were some mighty worried people around here.

"It sounds ridiculous, but the root structure we had on these new greens was so good, it nearly came back to bite us," he adds. "When we made the initial application of Coban, with root structure

The renovation included a system that blows air underneath the greens, providing oxygen to roots, cooling them in the summer and warming them in the winter. Photo: Westmoreland Country Club



The subsurface air system consists of 6-inch main pipe down the middle of each green and a herringbone system of 4-inch tile off the main pipe on 10-foot centers. A loop system around the outside of the green connects the 4-inch pipe and the main pipe to another 4-inch pipe that encircles the green. Photo: Westmoreland Country Club

12 inches down, we couldn't drench it in. The root structure was too established. But that proved to be our bread and butter to get the greens back. Soon, the disease stopped working, and they came right back."

Heery says the putting surfaces were completely healthy by the first week of August, though he didn't sleep much the previous seven weeks.

"This summer definitely took years off my life, but now the greens are acting the way they acted in April," he says.

A TRUE MANIFOLD

The subsurface air system at Westmoreland is different than others. Instead of drain tile on 15-foot centers, Golf Creations and subcontractor Leibold Construction installed a 6-inch main pipe down the middle of each green and a herringbone system of 4-inch tile off the main pipe on 10-foot centers. A loop system around the outside of the green connects the 4-inch pipe and the main pipe to another 4-inch pipe that encircles the green.

"Normally on a USGA green, the tile lines are laid 15 feet apart, but on the Westmoreland project we laid these tile lines 10 feet apart and ran perimeter tile all the way around each green, too," says Kevin Stieneke, operations manager for Golf Creations. "A normal green would take 600 feet of tile. We did 1,300 feet for each green. The more tile, the more spots

where the air is pushing up into the soil profile, and the more air the better."

What the construction team basically has done is create a true manifold that ties into the drainage to blow warm and cold air underneath the greens, Heery says.

"The ultimate would be to have the permanent heating and cooling units tied in underneath," he says. "But, right now, we are a percentage of the way there with the mobile units. If we run into trouble this year, we can evacuate water quickly or blow air in with those units. I've seen this work at Congressional Country Club. It has a lot of benefits. Black layer is almost nonexistent when you blow air underneath."

The mobile units can blow warmer, ambient air under the greens for 20 to 30 minutes during the winter to help melt ice on the greens. And, if and when the time comes to install permanent units, Golf Creations says the permanent machines could be retrofitted in as little as an hour apiece.

PIN LOCATIONS

For Arthur Hills/Steve Forrest & Associates, the main challenge was to retain the green contours while expanding the number of pin locations. Paul Granger of New Jersey-based Aqua Agronomic Solutions, which designed the irrigation system, used Light Detection and

Ranging remote sensing technology to collect and store topographic information about all the greens. (National Oceanic and Atmospheric Administration and NASA scientists pioneered LiDAR technology to document topographic changes along shorelines.) Granger entered the information into a computer-aided design file. Hills/Forrest then used the information to redesign additional pin locations onto the greens and provided Golf Creations with the information it needed to retain the contours.

CERAMIC SOIL MIX

Heery was sold on the use of ceramic soil mix in greens construction by Paul R. Latshaw, who he worked for at Congressional, and Paul B. Latshaw, who he worked for at Merion Golf Club in Pennsylvania. Golf Creations rebuilt the soil profiles using a ceramic mix called Perma Pore instead of peat. The mix, tested in a nursery Heery maintains at Westmoreland, is designed to hold more water in the profile during times of drought. It also can be sized to the same gradation as the greens sand.

"The uniformity of the ceramics is amazing," Heery says. "Some have used peat successfully, while others have told horror stories. When we engineered the growing medium, the members' big concern was that the rebuilt greens be receptive to shots. We ran this past every accrediting

AT A GLANCE

Westmoreland Country Club

Location: Wilmette, Ill.

Web site: www.westmorelandcc.org

Type of project: Greens renovation

Cost: \$2.1 million

Project start: July 2006

Course reopened: June 2007

Architecture firm: Arthur Hills/Steve Forrest & Associates

Builder: Golf Creations

Subcontractor: Leibold Construction

Superintendent: Frank Heery

lab. We wanted something that would set up softer and let us create firmness through the root structure rather than sand. These greens are receptive. They will be firm, but hold shots."

With the ceramics, the greens percolate at just less than 30 inches per hour. Mills has consulted on several new courses and used ceramics in all of them, which was one of the reasons he was brought in as a consultant at Westmoreland.

"You have to change your thinking as a superintendent when using ceramics instead of peat," Heery says. "Ceramics absorb water and retain soluble nutrients. You use less water and nutrients than on a traditional green with peat."

NEW TECHNOLOGIES

The project's success was largely due to a team of experienced professionals who had a willingness to try new technologies and work together, Heery says.

"It was especially nice to be working on a project that featured such cutting-edge technologies," says Bob Lohmann, founder and principal of Lohmann Golf Designs, which is the parent company of Golf Creations. "It shows that we're trusted in the marketplace to do the job exactly right." **GCI**

Peter Blais is a freelance writer based in North Yarmouth, Maine. He can be reached at pblais@maine.rr.com.

Ceramic soil mix was used in greens construction instead of peat. The mix is designed to hold more water in the profile during times of drought. Photo: Westmoreland Country Club



Myth?

BUSTED!

A New England superintendent tests flagsticks to see how they react when golf balls hit them

BY RICH GAGNON

One of my first jobs after accepting the superintendent position at Segregansett Country Club in Taunton Mass., was to sit down with my green chairman at the time, Chris Ryding, and figure out which pins/flagsticks the members wanted on the golf course. I had three full sets of completely different style pins and no idea which one they preferred.

Par Aide manufactured all three different style flagsticks, which are listed in the company's catalog as:

- the half-inch solid regulation fiberglass flagstick;
- three-quarter-inch tapered tournament flagstick; and
- one-inch aluminum/fiberglass tournament flagstick.

Ryding and I agreed on the three-quarter-inch tapered tournament flagstick, which seemed to look better and would be more durable because

Some members of Segregansett Country Club complained about the flagsticks on the course because they were too hard and they thought balls were less likely to drop in the hole after hitting them. Photo: Segregansett Country Club



of its weight and thickness. We didn't give it much more thought than that.

That is until a complaint rolled in from a member that changed our way of thinking a bit. The complaint was that we needed to get rid of the "metal" flagsticks because the ball bounces off them too hard and is less likely to fall into the hole. I was told we needed to go back to the half-inch, solid regulation fiberglass flagsticks. I assured the chairman the flagsticks were made of fiberglass and the only metal component was the ferrule on the bottom and the screw threads on the tip, which hold the flag on. I was told that regardless of what the flagsticks were made of, fewer balls go in the hole with the flagsticks we were currently using.

A couple years passed. The same three-quarter-inch tapered tournament flagsticks were being used, but now I had a new chairman, Earl Dion. The old complaint had resurfaced with a new set of ears to listen, and I was asked if it was



To meet the needs of members, superintendent Rich Gagnon and assistant superintendent Tate Asselin tested three different flagsticks to determine how they affected ball bounce. Photo: Segregansett Country Club

3 of the Top 4 International Developments of the Year grassed with SeaDwarf

-- By Golf Inc. Magazine

3 SeaDwarf Courses named to America's Top 100 golf communities

-- by Travel & Leisure Golf magazine

Course Grassed with SeaDwarf Ranked 6th in the World

--by the Toronto Star



For a licensed grower near you:
(863) 452-6595 or
www.environmentalturf.com

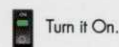
www.golfcourseindustry.com/readerservice - #38



ENERGIZE YOUR FUNGICIDE

Maximize your fungicide efficacy and dollars with Precision Laboratories' first and only adjuvant created specifically for fungicides – SYNC™ Fungicide Activator. University and field trial results show that fungicides combined with SYNC provide improved disease control with greater longevity. SYNC will energize your fungicide performance.

SYNC™
FUNGICIDE ACTIVATOR

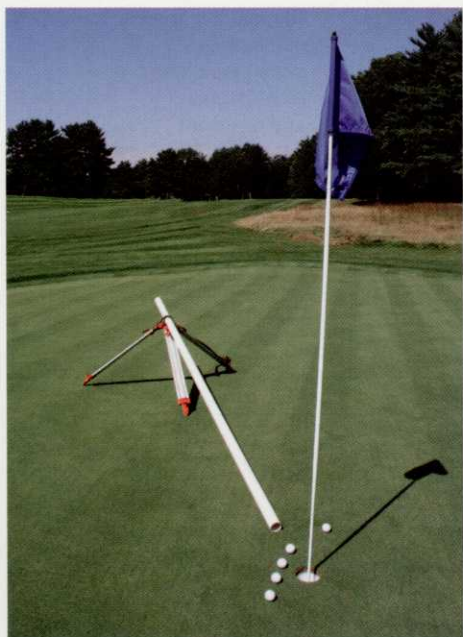


See the research for yourself at
www.precisionlab.com/sync



1429 S. Shields Drive
Waukegan, IL 60085
800-323-6280

www.golfcourseindustry.com/readerservice - #39



Rich Gagnon needed data to back up his claims about flagsticks to help his debate with members. Photo: Segregansett Country Club

a legitimate complaint once again. It seemed that if all the flagsticks were eight-foot tall and had a half-inch-wide base made of fiberglass that it wouldn't affect the ball dropping into the hole or kicking to the side. After hearing this complaint yet again, I figured I'd try to put the myth to rest – that the flagsticks we were using were reducing the chances of the ball dropping into the hole.

Segregansett has 20 members who have a USGA handicap index of 2 or lower, 12 members who qualified for the Massachusetts Amateur Championship in 2007 and two members who played in national USGA events last year. The members have the reputation of being one of

the best playing memberships in the state. I wasn't about to win any debate with any of them about what a ball does or doesn't do when it hits a flagstick. That is unless I had data to back up what I said.

SET IT UP

To conduct this test, I used all three sets of pins. I set a regulation cup into a green mowed at one-eighth inch on a flat surface and set up a transit tripod several feet away from the cup. Then I cut a 10-foot section of PVC irrigation pipe, set it on the tripod and raised the entry point of the pipe two feet off the ground, with the exiting end of the pipe 14 inches from the hole resting on the green. All the flagsticks had flags on them, the ferrules were all the same, and the Par Aide cup was set at regulation depth.

Assistant superintendent Tate Asselin and I rolled 100 balls through the PVC pipe at each of the flagsticks. We removed a ball from the cup

98 Varieties
What's Your Pleasure?

JACKLIN
ESTABLISHED 1937
QUALITY SEED
JACKLIN SEED

Catch up to the fact that Jacklin's been developing new seed varieties for more than 70 years. Whether they are bents, blues, fescues, or ryegrasses, our in-depth research combined with our consistently high NTEP ratings make us a top performer in the industry.

Whatever your grass needs may be – lawn & landscape, sports turf, or golf course fairways, greens, tees, and roughs – our full product line, from our Alpha bentgrass to our Sunrise zoysia, has got you covered.

JACKLIN — THE BEST QUALITY YOU'LL EVER SEED.
For more information: 1-800-688-SEED • www.jacklin.com

JACKLIN
SEED

www.golfcourseindustry.com/readerservice - #40

EVERYBODY IS DOING IT!



Pile in and enroll in Floratine University for the best plant nutrition education in the industry.

At F.U. you'll share information and learn from your peers, for more information visit floratine.com.



www.golfcourseindustry.com/readerservice - #41

FREE FAST

GOLF COURSE INDUSTRY

Name _____
 Title _____
 Company _____
 Address _____
 City _____ State _____ Zip _____
 Phone _____
 Fax _____
 E-mail Address _____

For faster service fax to 330-659-4043

Check off the reader service numbers that
 you're interested in and mail in this card.
 Or visit www.golfcourseindustry.com.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320
321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340
341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360

November 2007

GOLF COURSE INDUSTRY

Do you wish to receive/continue to receive a
FREE subscription to Golf Course Industry?

☐ Yes ☐ No

Signature _____
 Date _____
 Name _____
 Title _____
 Company _____
 Address _____
 City _____ State _____ Zip _____
 Phone _____
 Fax _____
 E-mail _____

GIE Media Inc will only use your email address to contact you with
 relevant industry or subscription information. If you do not want to
 receive email from trusted 3rd parties, please check here. ☐

What is the best way to contact you for future renewals?
 _____ email _____ fax _____ telephone

1. How Do You Want to Receive Your Subscription?

- ☐ 1-Digital and Print
☐ 2-Print Only
☐ 3-Digital Only (No Print Copy Received)
 (a valid e-mail address is required for digital
 delivery)

2. What is your primary business at this location? (check one)

- ☐ 21-Public Golf Course
☐ 22-Private Golf Course
☐ 23-Semi Private Golf Course
☐ 24-Municipal/City/State Golf Course
☐ 25-Hotel/Resort
☐ 26-Par3/Executive Golf Course
☐ 27-Practice Facility
☐ 29-Other Golf Course
☐ 30-Golf Course Management Company
☐ 31-Golf Course Architect
☐ 32-Golf Course Developer
☐ 33-Golf Course Builder
☐ 39-Supplier/Sales
☐ 99- Others (please describe)

3. What best describes your title?

- ☐ A-Golf Course Superintendent
☐ B-Green Chairman
☐ C-Director of Golf/Head Pro
☐ D-Club President
☐ E-General Manager
☐ F-Golf Course Owner
☐ G-Builder/Developer
☐ H-Architect/Engineer
☐ I-Research Professional
☐ K-Assistant Superintendent
☐ L-Golf Course Management Company
 Executive
☐ Z-Others (please describe)

4. Number of Holes: (check one)

- ☐ A-9 Holes
☐ B-18 Holes
☐ C-27 Holes
☐ D-36 Holes
☐ E-Other

6. Total Annual Maintenance Budget: (check one)

- ☐ 1-Less than \$50,000
☐ 2-\$50,000-\$99,999
☐ 3-\$100,000-\$249,999
☐ 4-\$250,000-\$499,999
☐ 5-\$500,000-\$749,999
☐ 6-\$750,000-\$1,000,000
☐ 7-\$1,000,000+

7. Total Course Acreage _____

8. Course Renovation Plans for the Next 12 Months

- ☐ 1-Full Reconstruction
☐ 2-Partial Reconstruction
☐ 3-Greens
☐ 4-Tees
☐ 5-Fairways
☐ 6-Irrigation System
☐ 7-No Renovations Planned

9. If Only a Partial Reconstruction is Planned, Please Indicate the Number of Holes _____

10. What is the Name of the Architect Who Designed the Course? _____

11. What Year was the Course Built? _____

12. Is this course part of a

1. Resort Chain
 2. Golf Course Management Company
 3. Municipal Course System
 4. None of the above

13. What is the name of the Resort Chain, Golf Course Management Company, or Municipal Course System? _____

Please allow 6-8 weeks for delivery of first issue. Incomplete
 forms will not be processed. Publisher reserves the right to
 reject all non-qualified subscription requests.

Postage
Required
Post Office will
not deliver
without proper
postage.

GOLF COURSE
INDUSTRY

PO BOX 532
RICHFIELD, OH 44286-0532

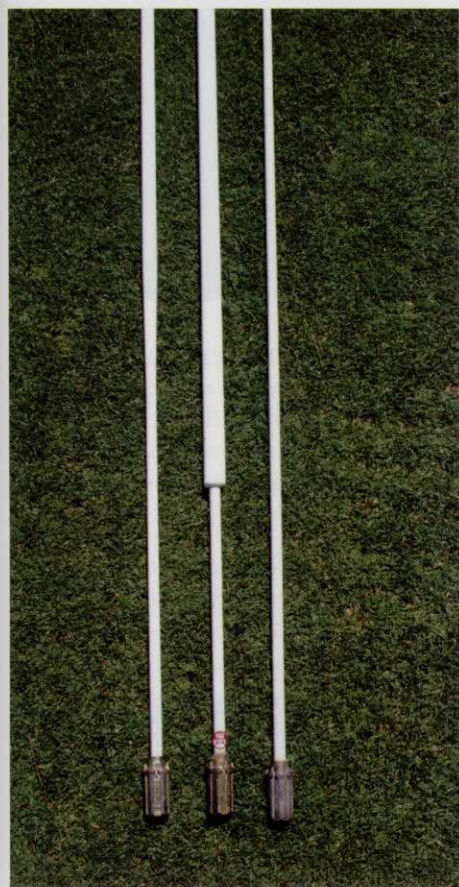


Postage
Required
Post Office will
not deliver
without proper
postage.

GOLF COURSE
INDUSTRY

PO BOX 2191
SKOKIE, IL 60076-7891





After research, it turned out more balls were likely to fall into the hole after bouncing of the half-inch flagstick. Photo: Segregansett Country Club

based on their individual characteristics, and the idea was a great one, but our final decision to use 100 random golf balls, not 100 of the same kind. This was based on one factor: I wanted to duplicate what is actually happening on the golf course when my membership hits the flagstick on a chip shot. What better way to test for this

than having 100 random balls that were hit by the membership at one time, picked up by me after they were lost and eventually used in this experiment?

RESULTS THAT MATTER?

After 300 balls were sent through the pipe, the results were in. With the flagstick we were using (three-quarter-inch tapered), 67 percent of the balls fell into the cup. With the half-inch flagstick, 72 percent of the balls fell into the hole. The complaints were valid, but barely. At a 5-percent difference in the members' favor, it

every time one landed in it to make sure the balls leaning against the flagstick didn't have any effect on vibration or stability. We wanted to simulate a chip shot as it hits the flagstick but wanted to make sure all balls hit the flagstick dead-on at a normal pace to see how the ball reacted.

We understood that, in the real world, any perfect chip shot that just drops in the hole wouldn't be affected by which flagstick was in the cup and any ball skulled or off center wouldn't be impacted either. What we wanted to avoid was the ball traveling too fast, too slow or too off center. The 10-foot pipe set up at two feet off the ground on one end and 14 inches from the hole on the other end seemed to be the perfect combination for simulating a direct hit at a medium pace.

As the flagstick test was under way, Asselin thought it would be a good idea to take the test to another level and use the exact same make of ball to assure consistency and accuracy. I'm sure some balls might react differently than others

United States Postal Service Statement of Ownership, Management, and Circulation Required by 39 USC 3685

(Requester Publications Only)

1. Publication Title: GOLF COURSE INDUSTRY		
2. Publication Number: 1054-0644		
3. Filing Date: 10-1-2007		
4. Issue of Frequency: January, February, March, April, May, July, August, September, October, November		
5. Number of Issues Published Annually: 10		
6. Annual Subscription Price: Free to Qualified		
7. Complete Mailing Address of Known Office of Publication (Not Printer): GIE Media, Inc., 4020 Kinross Lakes Parkway #201 Richfield, OH 44286	Contact Person: Melody Berendt	Telephone: 800-456-0707
8. Complete Mailing Address of Headquarters or General Business Office of Publisher (Not Printer): GIE Media, Inc. 4020 Kinross Lakes Parkway #201 Richfield, OH 44286		
9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor - Publisher: Kevin Gilbride, GIE Media, Inc., 4020 Kinross Lakes Parkway, #201, Richfield, OH 44286; Editor: John Walsh, GIE Media, Inc., 4020 Kinross Lakes Parkway, #201, Richfield, OH 44286; Managing Editor: n/a, GIE Media, Inc., 4020 Kinross Lakes Parkway, #201, Richfield, OH 44286		
10. Owner - Full name: GIE Media, Inc., Richard J. W. Foster, Owner, 4020 Kinross Lakes Parkway #201, Richfield, OH 44286; .		
11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities: None		
13. Publication Title: GOLF COURSE INDUSTRY		
14. Issue Date for Circulation Data: September 2007		
15. Extent and Nature of Circulation	Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
a. Total Number of Copies (Net press run)	32,275	35,223
b. Legitimate Paid and/or Requested Distribution (By Mail and Outside the Mail)		
(1) Individual Paid/Requested Mail Subscriptions Stated On PS Form 3541. (Include direct written request from recipient, telemarketing and Internet requests from recipient, paid subscriptions including nominal rate subscriptions, advertiser's proof copies, and exchange copies)	30,331	33,077
(2) Copies Requested by Employers for Distribution to Employees by Name or Position Stated on PS Form 3541	0	0
(3) Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid or Requested Distribution Outside USPS	46	115
(4) Requested Copies Distributed by Other Mail Classes Through the USPS (e.g. First-Class Mail)	0	0
c. Total Paid and/or Requested Distribution (Sum of 15b (1), (2), (3), and (4))	30,377	33,192
d. Nonrequested Distribution (By Mail and Outside the Mail)		
(1) Nonrequested Copies Stated on PS Form 3541 (include Sample copies, Requests Over 3 years old, Requests induced by a Premium, Bulk Sales and Requests including Association Requests, Names obtained from Business Directories, Lists, and other sources)	1,397	1,739
(2) Nonrequested Copies Distributed Through the USPS by Other Classes of Mail (e.g. First-Class Mail, Nonrequester Copies mailed in excess of 10% Limit mail at Standard Mail or Package Services Rates)	0	0
(3) Nonrequested Copies Distributed Outside the Mail (Include Pickup Stands, Trade Shows, Showrooms and Other Sources)	190	0
e. Total Nonrequested Distribution (Sum of 15d (1), (2), (3))	1,587	1,739
f. Total Distribution (Sum of 15c and 15e)	31,964	34,931
g. Copies not Distributed	311	292
h. Total (Sum of 15f and g)	32,275	35,223
i. Percent Paid and/or Requested Circulation (15c divided by 15f times 100)	95.04%	95.02%
16. Publication of Statement of Ownership for a Requester Publication is required and will be printed in the issue of this publication.		November 2007
17. Signature and Title of Editor, Publisher, Business Manager, or Owner		Date
Kevin Gilbride, Publisher		9/28/2007

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).

Even the smallest details on a golf course, such as flagsticks, are important to members of Segregansett Country Club. Photo: Segregansett Country Club

appeared that for every 20 chip shots that hit the flagstick dead-on, one more fell into the cup with the half-inch flagstick compared to the three-quarter-inch tapered flagstick. Although not a major difference, there still was a difference.

"If I hit the flagstick with 100 chip shots this year, I want the five birdies – there's a difference!" Dion says. "If I go up against a good chipper in the club championship, I want the three-quarter-inch flagsticks in. Who wouldn't?"

Most golfers would say there's no difference which flagstick was in the cup. And, statistically, the 5-percent difference in our results would probably hold true for 100 coin tosses. But one flagstick had to win the race and the results would never turn out 50/50 anyway. There might not seem to be a difference between the half-inch and the three-quarter-inch flagsticks, but when the two pins were matched up against the one-inch flagstick, the results proved there can be a significant difference between flagsticks and the

percentage of balls falling into the cup.

The biggest shock of all was that with the one-inch flagsticks, no balls fell into the hole. That's right, none. It's hard to imagine there would be such a big difference, especially since the bottom 12 inches of all three flagsticks is exactly the same width (half-inch) and made of fiberglass.

WEIGH IN

I took things a step further and wanted to see if weight had any effect on the results since the area that the ball was hitting was exactly the same on all the flagsticks. The three-quarter-inch flagstick was heavier than the half-inch one, but the one-inch flagstick was lighter than the three-quarter-inch flagstick. Weight, materials and width in the impact area all have no effect on the results.

Is 5-percent difference enough to change the flagsticks at Segregansett to the half-inch ones?



It's still debatable, but I can assure you that after reading the results of our experiment you'll never see the one-inch flagsticks in our cups again. That is, until my chairman goes up against a good chipper in the club championship. **GCI**

Rich Gagnon is the golf course superintendent at Segregansett Country Club in Taunton, Mass. He can be reached at sccturf@hotmail.com.

Consultant/Specifier, Pumping Station Producer, Owner/Superintendent

Finally a water filter they all agree on

ORI Series

Line Pressure Powered Filters

- For irrigation system protection
- 50-12,000 gpm



ORE Series

Electric Powered Filters

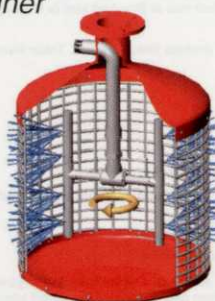
- For high dirt load
- 50-6,000 gpm



ORS Series

Pump Suction Strainer

- Fully automatic
- 100-5,300 gpm
- Heavy duty bearing



Case Study

Bodega Harbor Country Club recently replaced its three carbon steel Filtomat (now owned by Amiad) filters with all **Stainless Steel** construction Orival Filters

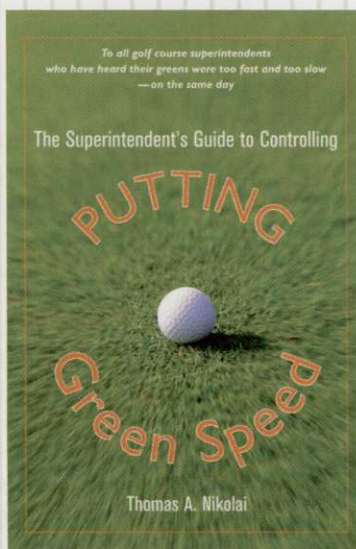


213 S. Van Brunt St.,
Englewood, NJ 07631
(800) 567-9767
(201) 568-3311
Fax (201) 568-1916
www.orival.com
filters@orival.com

International Irrigation Show Booth #1845
Golf Industry Show Booth #3437

NOW AVAILABLE IN OUR BOOKSTORE

A SPECIAL SAVINGS



The Superintendent's Guide to Controlling Putting Green Speed

Special Price: \$55

(Normally priced at \$65.00)

Thomas Nikolai

ISBN: 0-471-47272-7, Hardcover,
160 pages, October 2004

It is critical for golf course superintendents to know the factors that impact green speed. This book covers every aspect of green speed maintenance including playability, environmental considerations, mowing and pest management. It also provides practical decision-making advice relative to financial and budgeting issues.

ORDER TODAY!

Call 800.456.0707 or Visit www.golfcourseindustry.com/store

PLEASE FILL OUT ORDER FORM COMPLETELY

Name _____ Title _____
Company _____
Address _____
City _____ State _____ Zip Code _____
Phone _____ Fax _____
E-mail Address _____

PAYMENT INFORMATION

☐ Checks: Make payable to GIE Media (drawn on a U.S. Bank, in U.S. dollars)

☐ I authorize GIE Media to charge my:

☐ VISA ☐ MasterCard ☐ American Express ☐ Discover

Card Number _____ Expiration Date _____

Signature _____

Please Note: All products will not be shipped until payment information is received. All faxed and phone purchases MUST include credit card information. Check must be drawn in U.S. dollars and drawn from a U.S. Bank. There will be a \$25 fee for returned checks.

ON THE WEB: Purchase online at www.golfcourseindustry.com/store

BY PHONE: Call 800/456-0707 and ask for a store representative

BY MAIL: Complete form and mail with payment to:

GIE Media, ATTN: Bookstore, 4020 Kinross Lakes Parkway, Richfield OH 44286

BY FAX: Complete form and fax, with credit card information, to 330-659-4043

DESCRIPTION

QTY. PRICE

The Superintendent's Guide to Controlling Putting Green Speed		\$55.00
MERCHANDISE TOTAL		
Ohio residents add 6.5% sales tax		
SHIPPING & HANDLING - subject to change		
Inside the United States - first item \$6.00; additional items \$2.00 each		
International - first item \$11.00; additional items \$4.00 each		
TOTAL AMOUNT DUE		

GCI Nov 07

BY M.L. ELLIOTT, J.A. MCINROY, K. XIONG, J.H. KIM, H.D. SKIPPER AND E.A. GUERTAL

In the zone

A look at the diversity of rhizosphere bacteria in USGA putting greens

The soil environment immediately around a root frequently has a larger number of microorganisms compared to soil just a few millimeters away from a root. This zone of influence is called the rhizosphere (Rovira, 1991), which is composed of many groups of organisms that are capable of affecting plant health beneficially and deleteriously (Schippers et al., 1987).

Putting greens are artificially constructed soils, built from a predetermined mixture usually composed of sand and organic matter (USGA Green Section staff, 1993). In the Southeastern U.S., newly built putting greens are often fumigated before planted. However, previous research shows microbial populations present before fumigation rebound quickly after fumigation (Elliott and Des Jardin, 2001; Elliott et al., 2004). Additionally, as the putting greens mature, thatch, root and shoot production will cause significant increases in organic matter (Gaussoin et al., 2006), which will promote microbial growth.

Natural materials, organic materials and microbial inoculants are used by the golf course industry because there's an assumption few microbes are present in the turfgrass system or the "wrong" microbes are present. However, recent studies indicate turfgrass systems have extensive micro-

bial populations (e.g., Bigelow et al., 2002; Elliott and Des Jardin, 1999; Elliott et al., 2004; Feng et al., 2002; Mercier, 2006) and diverse microbial communities (e.g., Mueller and Kussow, 2005; Sigler et al., 2001; Yao et al., 2006). Also, it's unclear whether introduced bacteria can influence bacterial populations in the phyllosphere, thatch, rhizosphere soil or bulk soil (Hodges et al., 1993; Lynch, 2002; Mercier, 2006; Mueller and Kussow, 2005; Sigler et al., 2001).

The emphasis of the project described herein was on culturable bacteria because it's culturable bacteria that are being exploited by the golf course industry. In other words, if you can't grow bacteria in large quantities (by a company or directly on the golf course in fermentation tanks), they aren't useful as products. While we know there's a diverse microbial community present in turfgrass root systems, it's not known which culturable fluorescent pseudomonad species or culturable bacilli species are present.

A joint project was undertaken by Auburn University, Clemson University and the University of Florida to examine bacterial populations and diversity in USGA putting greens during a three-year period after the greens were established. We've reported on the flux of the extensive bacterial populations present in putting greens (Elliott et al., 2004), the

North Carolina creeping bentgrass rhizobacteria

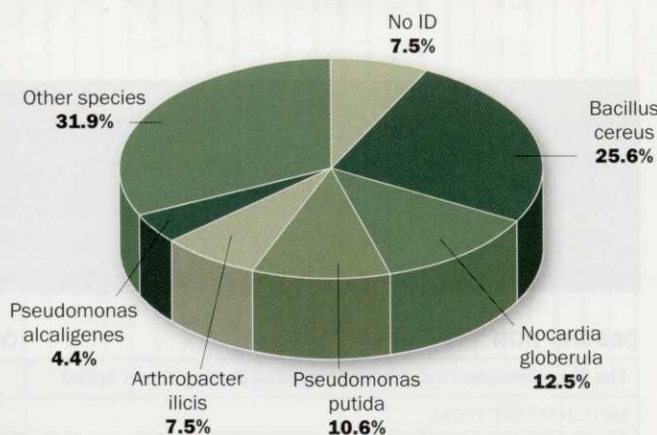


Figure 1. Distribution of rhizobacteria by species from bentgrass greens in September 2000

Alabama creeping bentgrass rhizobacteria

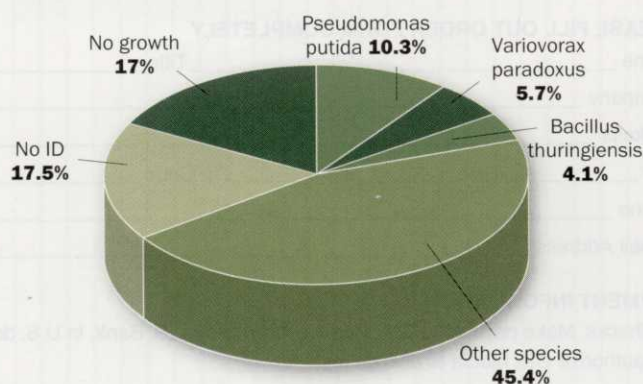


Figure 2. Distribution of rhizobacteria by species from bentgrass greens in August 2000

effect of nitrogen rate and root-zone mix on rhizosphere bacterial populations (Elliott et al., 2003), and the identification of a diverse group of denitrifying bacteria from putting greens (Wang and Skipper, 2004). This report summarizes which culturable bacterial genera and species were present and dominant in bentgrass and Bermudagrass putting greens in the Southeastern U.S. (Elliott et al., submitted).

STUDY SITES

The bentgrass (Crenshaw) putting greens are located at the Charlotte (N.C.) Country Club Golf Course and Auburn (Ala.) University. The hybrid Bermudagrass (Tifdwarf) putting greens are located at the Cougar Point Golf Course in Kiawah Island, S.C., and the University of Florida in Fort Lauderdale. All four sites were fumigated with methyl bromide before planting the turfgrass. Putting greens at university sites (Alabama and Florida) are miniature versions of those on golf courses. All greens were managed in a manner typical for the region.

RHIZOSPHERE SAMPLE

Four putting greens from each location were sampled four times a year (about every three months) for a minimum of three years in 1997 to 2000. Ten cores (0.40 inch by 4 inches)

Summary

Taxonomic diversity of bacteria associated with turfgrass roots hasn't been widely explored. The purpose of this project was to isolate and identify culturable bacteria from the rhizosphere of creeping bentgrass and hybrid Bermudagrass in the Southeastern U.S. Almost 10,000 randomly selected bacterial isolates were analyzed using gas chromatography fatty acid methyl ester (GC-FAME).

- The two dominant genera in bentgrass and Bermudagrass rhizospheres were *Bacillus* and *Pseudomonas*, with *Bacillus* dominant in Bermudagrass and *Pseudomonas* dominant or equal to *Bacillus* in bentgrass.
- Other genera that composed at least 1 percent of the isolates at all four sites were *Clavibacter*, *Flavobacterium*, and *Microbacterium*.
- *Arthrobacter* also composed a significant portion of the bacterial isolates in the bentgrass rhizosphere but not the Bermudagrass rhizosphere. Overall, there were 40 genera common to all four sites.
- At the species level, there were five that composed at least 1 percent of the isolates at each location – *B. cereus*, *B. megaterium*, *C. michiganensis*, *F. johnsoniae*, and *P. putida*.
- This project demonstrates there's considerable taxonomic diversity of bacteria present in the rhizosphere of putting greens.

South Carolina bermudagrass rhizobacteria

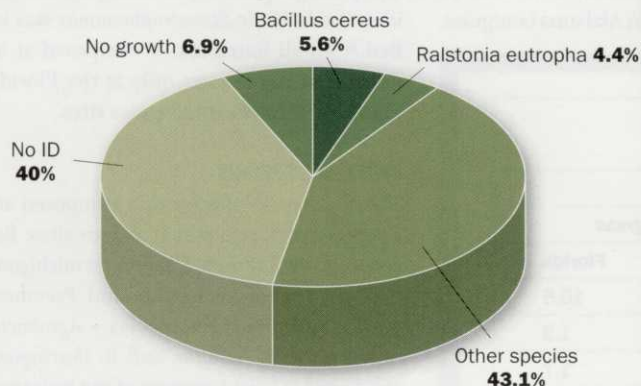


Figure 3. Distribution of rhizobacteria by species from bermudagrass greens in September 2000

Florida bermudagrass rhizobacteria

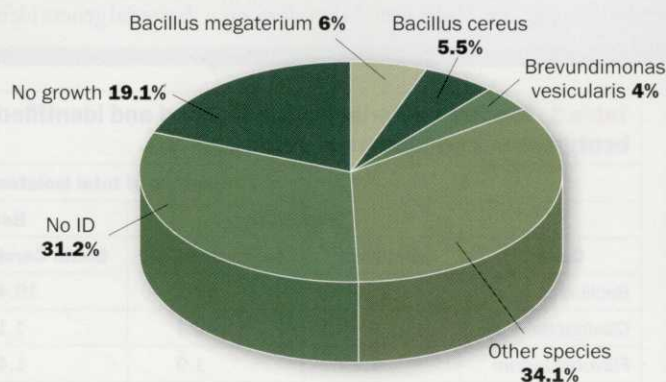


Figure 4. Distribution of rhizobacteria by species from bermudagrass greens in August 2000

Research

Scientists' research demonstrates there's a considerable taxonomic diversity of bacteria in the rhizosphere of putting greens.

were collected per putting green to constitute a sample. Green tissue was removed from each core with a sterile razor blade. For each sample, turfgrass roots were separated from the root-zone mix, and all root material and rhizosphere soil was subjected to shaking in a sterile diluent. Aliquots of dilutions were spread plated onto duplicate plates of selective and nonselective media (Elliott et al., 2004). For enumeration of total aerobic bacteria and selection of bacteria for identification with GC-FAME, solidified 10 percent tryptic soy broth (10 percent TSBA), amended with 100 µg mL⁻¹ cycloheximide to inhibit fungi, was used. For each sampling date, 40 bacterial isolates per green sampled were randomly selected from the 10 percent TSBA for future identification. An estimated 10,000 bacterial isolates were selected for identification during the course of this study.

ID BACTERIA ISOLATES

Analysis of the bacterial isolates was conducted using the GC-FAME/Microbial Identification System (MIDI in Newark, Del.) at Auburn University or at the Multi-user Laboratory at



Clemson University. Isolates were processed according to the protocol for aerobic bacteria of environmental origin (Sasser, 2006). Fatty acid peak profiles were analyzed using the Sherlock Standard Aerobe Libraries (MIS version 4.0, Microbial ID, www.midi-inc.com). According to literature provided by MIDI, strains with a similarity index of 0.50 or greater are considered a good match at the species level, whereas strains with a similarity index between 0.30 and 0.49 are considered a good match at the species level but indicates an atypical strain (Anonymous, 2005a). Because the bacterial species present in putting greens were largely unknown when this study was initiated, a similarity index of 0.30 or greater was used as the basis for identifying bacterial isolates.

BACTERIAL GENERA

A total of 9,216 bacterial isolates were analyzed using the GC-FAME/Microbial Identification System. Overall, there were 50, 57, 64 and 64 bacterial genera identified in Alabama bentgrass,

North Carolina bentgrass, Florida Bermudagrass and South Carolina Bermudagrass, respectively. There were 76 genera identified at both Bermudagrass sites, with 13 unique to Florida, 13 unique to South Carolina and 50 common to both. There were 59 genera identified at both bentgrass sites, with three unique to Alabama, nine unique to North Carolina and 47 common to both. Forty genera were common to all four sites.

There were five genera that composed at least 1 percent of the isolates at all four sites (*Bacillus*, *Clavibacter*, *Flavobacterium*, *Microbacterium* and *Pseudomonas*, with *Bacillus* and *Pseudomonas* the dominant bacterial genera at each location. However, the percentage of isolates identified as *Bacillus* in the Bermudagrass sites was almost twice the number of isolates identified as *Pseudomonas*. At the bentgrass sites, *Pseudomonas* was either the dominant genus (North Carolina) or was equal to *Bacillus* (Alabama). This is consistent with the previously reported enumeration data that *Bacillus* is the dominant genus over *Pseudomonas* in the Bermudagrass rhizosphere, and that significantly greater numbers of fluorescent pseudomonads are found in the bentgrass rhizosphere than in the Bermudagrass rhizosphere (Elliott et al., 2004).

Arthrobacter composed a significant portion of the bacterial isolates at the bentgrass sites (9.1 percent at Alabama and 7.5 percent at North Carolina), with only *Bacillus* and *Pseudomonas* composing a greater percentage of the isolates identified. While *Stenotrophomonas* was identified from all four sites, it composed at least 1 percent of the isolates only at the Florida and South Carolina Bermudagrass sites.

BACTERIAL SPECIES

There were five species that composed at least 1 percent of the isolates at all four sites: *Bacillus cereus*, *B. megaterium*, *Clavibacter michiganensis*, *Flavobacterium johnsoniae* and *Pseudomonas putida*. Another three species – *Agrobacterium radiobacter*, *B. pumilus* and *B. thuringiensis* – composed at least 1 percent of the isolates at the Alabama, Florida and South Carolina sites, but not the North Carolina site. A fourth species, *Comamonas acidovorans*, composed at least 1 percent of the isolates at the NC, AL and Florida sites but not the South Carolina site. One species was common at the 1-percent level only to the Bermudagrass locations: *Stenotrophomonas maltophilia*. Four species were common at the

Table 1. Top five bacterial genera isolated and identified from bentgrass or bermudagrass putting greens.

Genera	Percentage of total isolates ¹			
	Bentgrass		Bermudagrass	
	Alabama	North Carolina	South Carolina	Florida
<i>Bacillus</i>	13.9	12.5	19.4	10.5
<i>Clavibacter</i>	2.0	2.4	1.1	1.3
<i>Flavobacterium</i>	1.5	1.9	1.4	1.7
<i>Microbacterium</i>	1.2	1.7	1.1	3.1
<i>Pseudomonas</i>	13.6	18.7	9.1	5.8
No match ²	34.3	32.0	38.0	50.1

¹ Total isolates analyzed is 1,896 for Alabama, 2,832 for North Carolina, 2,617 for South Carolina and 1,871 for Florida.

² No isolate for that site had a match to a genus in the FAME database.

1-percent level only to the bentgrass locations: *Arthrobacter ilicis*, *P. chlororaphis*, *P. fluorescens* and *P. syringae*. Figures 1 to 4 illustrate examples of species composition for single dates at each study site.

UNIDENTIFIABLE ISOLATES

The number of unidentifiable isolates (similarity index of less than 0.30) was 50.1 percent for Florida Bermudagrass, 38 percent for South Carolina Bermudagrass, 34.3 percent for Alabama bentgrass and 32 percent for North Carolina bentgrass (Table 1). These values fall within the range of unidentifiable isolates obtained in other studies using GC-FAME for identification purposes (Germida and Siciliano, 2001; Gooden et al., 2004; Kim et al., 2001/2002; Mahaffee and Kloepper, 1997; Poonguzhali et al., 2006; Siciliano and Germida, 1999). Thus, the number of unidentified isolates in this study, obtained from an artificially constructed soil, would appear to be similar to the number from field soils in the same states using the same identification system.

Why are some bacterial isolates not identified? The MIDI aerobe bacteria library includes fatty acid profiles for 695 environmental species,

with usually 20 or more strains representing each species or subspecies (Anonymous, 2005b; Sasser, 2006). Our results and those of others illustrate that a significant number of bacteria isolated from bulk or rhizosphere soils aren't part of the bacterial collection that's the basis of the MIDI environmental species library. Any database is only as good as the data – in this case, fatty acid methyl ester profiles of bacterial isolates – accumulated within it. The unidentifiable isolates aren't necessarily new species per se but simply might be species not represented in the MIDI database.

TAXONOMIC DIVERSITY

This is the first study to survey for a portion of the culturable, aerobic bacterial genera and species common to golf course putting greens in the southeastern U.S. It demonstrates there's considerable taxonomic diversity present in the rhizosphere of putting greens, despite their intense management. Obviously, while we have identified some of the bacteria genera and species present in golf course putting greens, there still are many unidentified bacteria. Even less information is known regarding what these bacteria do in the turfgrass system. **GCI**

M.L. Elliott, Ph.D., is professor and associate center director in the department of plant pathology at the University of Florida in Fort Lauderdale; J.A. McNroy is a research associate in the department of entomology and plant pathology at Auburn University in Alabama; K. Xiong, J.H. Kim and H.D. Skipper, Ph.D., are professors in the department of entomology, soil and plant science at Clemson University in South Carolina; and E.A. Guertal, Ph.D., is a professor of turfgrass management in the department of agronomy and soils at Auburn University.

Acknowledgements: This research was supported, in part, by a grant from the USGA, and by the Agricultural Experiment Stations of Alabama, Florida and South Carolina. The authors gratefully acknowledge the cooperation of M. Stoddard and M. Pilo at the Charlotte Country Club and K. Bibler and K. Wiles at the Cougar Point Golf Club.

Editor's note: Literature cited for this article can be found online at www.golfcourseindustry.com posted with this article.

IMPACT ON THE BUSINESS

Back to basics

BY PAT JONES

Much of the research in the golf and turf academic community is directed to determine highly specific results. Which Bermudagrass performs the best under saline conditions? Which fungicide was most effective on *Poa annua*/bentgrass greens? Which wetting agent was best suited for highly compacted soils?

This article separates itself from the pack because it looks at a very basic question: Which tiny critters (bacteria) are hanging out in the soil of different types of putting greens? Ultimately, it gets back to the age-old question of what is the right soil ecosystem for creating greens that are viable and manageable.

WHY?

Soil microbial action has become increasingly recognized as an important indicator of turf health (or lack thereof) throughout the past decade. Yet, the presence or nonpresence of these diverse microscopic thingies raises a bunch of questions that turf scientists are just starting to answer. Those questions include:

- Which microbes are present?
- Are they beneficial or harmful?
- What is the right balance for your soils?
- How can they be promoted or eliminated to achieve that balance?

This article addresses the first question: What do you typically find in different kinds of greens structures.

WHAT'S NEXT?

The real question is how do you manage the microbial populations that inevitably live under every golf putting surface. Once again, soil testing is a big part of the answer. According to experts in the field, certain elements (calcium, potassium, etc.) probably promote a healthy microbial mix. Regular and relatively extensive soil testing offers a chance to benchmark soil mineral composition against microbial activity.

COSTS AND BENEFITS

As noted previously, soil testing costs

can range from zero (the free services offered by chemical companies) to thousands of dollars annually for sophisticated testing provided by independent labs. Unfortunately, course owners and green committees sometimes fail to understand the value of independent testing and will look at this "consulting" fee as one of the first things to be axed when budgets get tight.

That short-sighted view can result in much higher costs later when the soil ecosystem gets out of balance and much more expensive cures are needed. In short, testing almost always pays for itself. **GCI**

SOIL AMENDMENTS

BY HEATHER DAVIES

Playing rough at Oakmont

Superintendent leaves nothing to chance, even outside the fairways

I'm sure you've heard plenty about the countless hours John Zimmers and his staff put into preparing Oakmont Country Club for the 2007 U.S. Open. You've probably read about the speedy greens, the daring tree removal program, the fast-and-firm fairways and almost every other aspect of getting the famed course ready for one of the most successful Opens in recent history.

But what was going on right outside the greens and fairways – in the rough? It turns out Zimmers put almost as much thought and effort into the tall grass as he did the manicured turf.

Now that he's put the big event behind him and had a chance to catch up on his sleep, Zimmers is happy with the way things turned out.

"More importantly, the USGA and the membership were pleased with the conditions," he says.

Heading into the Open, Zimmers worried most about the weather forecast for the week.

"Weather is the biggest possible obstacle that is totally out of your control as a superintendent," he says. "It also has the largest impact on the outcome of the championship."

Fortunately, Mother Nature mostly played along, and conditions progressed perfectly throughout the week thanks to a little early moisture followed by sunny and dry conditions during play.

There's little doubt the majority of players', media's and fans' attention was – as always – on the putting surfaces. And Zimmers was prepared for that.

"You always worry the most about the putting greens," he says. "They're basically what you get judged on the most, as far as course conditioning goes, and are the most vulnerable."

In some ways, the demands of Oakmont's low-handicap membership made that part easier. Green speeds and tough pins used for the event aren't unusual in the context of regular member play at what many consider to be one of the most challenging courses in the world week in and week out.

"The Oakmont membership prides itself on playing championship conditions on a daily basis," Zimmers says. "It's also a benefit that the club has been through this several

times before, as this was Oakmont's eighth U.S. Open."

One thing, however, that was different than typical Oakmont play was the newly tree-free area surrounding the greens and fairways: the rough.

"Going into the Open, I thought our rough was the weakest part of the course," Zimmers says. "I was concerned about trying to provide 5-inch-plus uniform rough without it laying over. That's difficult to achieve."

The greens usually receive all the attention and most of the babying, but the USGA historically has viewed the rough, as the part of the course that provides the most protection against unreasonable scoring, as important.

"When you think about the U.S. Open, penal rough comes to mind," Zimmers says.

In the years leading up to the event, Zimmers talked with colleagues and suppliers

Soil testing showed there were subsurface deficiencies in the rough at Oakmont before the U.S. Open, and silica was one of them.
Photo: Oakmont Country Club



to see what, if any, types of products and practices might be able to simultaneously strengthen the rough and create more upright growth. The goal was to be appropriately penal but not have balls that were completely unplayable because of hayfield-type rough.

During his research, Zimmers considered the option of using silicon-based products. Soil testing showed there were subsurface deficiencies in the roughs, and silica was one of them. Research from Penn State and other universities suggested silicon-enhanced products provide better cell rigidity and, therefore, more turgidity and improved upright growth. In short, the higher-mown turf in the rough tends to stand up instead of roll over.

Eventually, Zimmers found a prilled, calcium-silicate product that also contained magnesium and other micronutrients. Most importantly, the custom blend – called Ex-

cellerator from Excell Minerals – contained the soluble silicon that had been shown to bolster the upright growth that Zimmers needed in the tall grass.

“It ended up turning out just fine – it was uniform, upright, turgid and withstood the wear from the equipment wonderfully,” Zimmers says. “I attribute that to the Excellerator product that we had been applying throughout the entire rough.”

Application rates of Excellerator initially should be enough to correct existing silicon deficiencies. Zimmers started the program in April 2006 at an initial rate of 25 pounds per 1,000 square feet and made subsequent applications in November and April 2007 at the same rate.

For most facilities, an initial rate of 25 pounds per 1,000 square feet is standard, according to Excell Minerals. Follow-up applications should be 10 to 12 pounds per 1,000 square feet every three to four weeks,

the company says. The target rate is about 50 pounds per growing season.

The bottom line for Zimmers is presenting the best-conditioned, most challenging golf course possible for Oakmont's members, guests and the pros. The rough was and will continue to be a big part of that, so Zimmers recognizes the importance of the calcium-silicate program long term. There's more to the program than just getting rough to stand up, he says.

“We use less fertilizer, and we've seen stronger, healthier turf that withstands traffic much better,” he says. “It really greens up, and we think we've had some suppression of disease as well. The only thing I would've done differently was to start on the program earlier. The results speak for themselves.” **GCI**

Heather Davies is a freelance writer based in Columbus, Ohio.

Research suggested silicon-enhanced products provide better cell wall rigidity and more turgidity, improving upright turfgrass growth. Photo: Oakmont Country Club



SOIL AMENDMENTS

BY KATIE MORRIS

Making amends

Illinois superintendent uses natural resources as soil amendments.

Golfers prefer playing on surfaces that are green, smooth and consistent. Soil amendments helps give turf the strength and absorbance it needs to withstand daily mowing, watering and foot traffic. To keep the course looking healthy and green, Steve Diel, golf course superintendent at Quail Creek Country Club in Robinson, Ill., uses natural resources around him to amend the course's soil.

Diel has been with Quail Creek for 31 years and previously was the superintendent of Charleston (Ill.) Country Club. He has learned from being in the industry for more than 40 years what type of soil amendments work best on the course. He uses two types of amendments: pure sand and compost that consists of grass clippings and leaves.

Topdressing the greens with sand builds the soil system, allows for better drainage and restrains compaction, Diel says. His crew applies a light application six to seven times a year and a heavy application when they aerify the greens twice a year.

The second type of amendment involves his lawn division gathering grass clippings and leaves during the year and composting them to mix in the soil. Compost is mainly used for building or renovating areas such

as tees or bunker surrounds, Diel says. He thought of the idea to use compost after realizing he and his staff needed to do something with the material generated from maintaining the course. He thought this would be a good way to make use of the materials.

"Adding this organic matter helps drainage, and because compost isn't as tight as clay, it helps keep soil looser," he says.

Diel's composting of grass clippings and leaves comes at a minimal cost for a course that has a \$275,000 annual maintenance budget, of which about \$5,000 is spent on soil amendments. The composting happens

onsite, so the only expense comes from rolling the pile over during the process to keep the microbes active, he says.

Diel purchases the topdressing sand from a sand and gravel supplier located 35 miles away from the club. He purchases a blend the supplier makes specifically for golf course construction. The supplier typically hauls a couple loads to Quail Creek during spring and fall.

"We probably purchase 50 to 75 tons a year, and spend about \$11 to \$12 a ton," he says.

Topdressing greens lightly with sand takes



Topdressing greens with sand builds the soil system, allows for better drainage and restrains compaction. Photo: Redexim Charterhouse

two crew members five to six hours. It takes them three hours to lightly dust the greens with sand, then they brush it in. When applying heavy topdressing the process takes all day because they're putting down much more material.

The composting application is only applied to new construction or areas that need to be renovated. The process involves working an area down to a grade they want with yellow clay, applying a 2-inch layer of compost, applying 4 to 6 inches of soil and then seeding the area.

"We've been doing a lot of small projects pretty frequently, but no major overhauls," Diel says.

Another part of Diel's soil amendment process includes conducting soil tests every three years. He's in a routine where he tests a third of his greens, tees and fairways every year so every third year they're all getting checked.

"It's a way for us to monitor trends of various nutrients and adjust our fertility to keep us moving where we want to go," Diel says.

Superintendents looking into soil amendments should ask themselves what kind of problem they have and what a particular product is going to do for them – not just in the short run but in the long run, Diel says.

"They should think about how this process is going to affect things in the long run because once you get in and start changing the soil, that effect is going to stay with you," he says. **GCI**

"Adding this organic matter helps drainage, and because compost isn't as tight as clay, it helps keep soil looser."

- STEVE DIEL



At Quail Creek Country Club, compost is mainly used for building or renovating areas such as tees or bunker surrounds. Photo: PICSUNV | istock.com



Tim Moraghan is principal of Aspire Golf Consulting in Long Valley, N.J. He can be reached at tmoraghan11@comcast.net or 908-635-7978.

TAKING THE CORRECT STEPS

Q While attending the U.S. Open Championship at Oakmont Country Club in June, I was disappointed to see the players so far forward on the teeing ground at the practice range. Why were they so far forward on the tee?

A To provide the competitors with the same practice conditions they would experience on the golf course, the USGA, in cooperation with the PGA Tour, has the players begin practicing at the back of the teeing ground on Monday. Throughout the week, they're moved forward toward the front of the tee so the turf remains free from pedestrian traffic and divots and debris, and the same height of cut and turf density as the fairways.

This method allows the grounds staff to maintain and clean the turf without old divot scars and the soil mixes damaging or dulling the mower reel blades.

Q During a championship, I watched the grounds volunteers pick up old divots from the fairways each night and fill the scar with a dark material. What's in the bottles and buckets, and why not use sand?

A Competitors have complained about playing a shot from sand-filled divots from the middle of the fairway. To them, it constitutes a penalty. So, to reduce these concerns and to provide a firmer and more reliable playing surface, the recommendation to host sites is to have the divot replacement mix be an equal combination of soil, sand and organic matter. Seed in the mixture only applies to certain turf types.

Once the mix is added, it's tamped for firmness so players will have a level, firm and predictable shot response. Divot replacement is accomplished each evening so the mix remains dry and unaffected by the morning dew. Too much moisture can cause the mix to streak on the fairways and lessen reel sharpness.

Q What's the repair strategy for a golf course after a heavy rain and an ensuing play delay during a championship?

A Repair depends on several factors: the amount of rain, the degree of damage to the course, the time it takes to recover and be ready for play, and if there's lightning in the area, which will prolong the delay. Officials also need to determine if play can return without additional rules issues.

The repair procedure primarily focuses on the putting surfaces first, followed by: greenside bunkers, fairway bunkers, fairway landing zones and teeing grounds, where any standing or casual water might be present. When repairing for play, the grounds staff must be allowed ample time to finish the work without rushing and be in constant communication with the Rules staff.

Q When starting work so early in the morning and in the dark most times, is there any way to increase light so the grounds staff can see better?

A At The PGA Championship at Southern Hills Country Club, Russ Myers, CGCS, borrowed Department of Transportation lights to illuminate the golf course. However, after conducting one of his many television interviews, he noticed how bright the studio lights were. One lamp could light up several of the fairways close to the clubhouse, allowing all fairway mowing groups to start cutting long before sunrise.

Q All we heard during the week of the FedEx Championship at East Lake Golf Club was how bad putting green conditions were and that they were virtually unplayable. However, it didn't appear to hurt Tiger Woods or the rest of the field. What was done to prepare the surfaces for play?

A First, Ralph Kepple, CGCS, his staff and the volunteers should be com-

mended for their hard work. Second, the putting surfaces weren't unplayable. Ralph and his team took all the correct steps to encourage healthy turfgrass growth.

All member, PGA Tour player and corporate play was halted before and during the practice rounds to reduce traffic stress. A fertility plan was implemented to strengthen and grow the turf, fill in any surface voids and withstand the stress from the competition. Fans were used to move stagnant air. Subsurface ventilation was initiated, and the height of cut was raised and reestablished to meet PGA Tour requirements. Solid front rollers for walk-mowers replaced grooved rollers to reduce damage to the turf through mechanical stresses. Cutting frequency was reduced compared to other golf major operations, and hand syringing and irrigation was employed. Light and frequent hand topdressing was used to smooth any surface blemishes to allow for a consistent ball roll and tracking. All potential hole location areas were reviewed and protected.

Most importantly, the PGA Tour players understood the difficult summer conditions, including record high temperatures, humidity and too much or not enough rain. These environmental factors, combined with the club's difficult microenvironment (its close proximity to downtown Atlanta increases temperature and humidity) made growing a cool-season bentgrass turf extremely difficult. However, the end result was uniform conditions for all competitors, for which Ralph is to be commended.

This championship should help all golfers better understand that preparing a golf course to its highest level takes painstaking commitment, knowledge and dedication. Maybe they'll even understand it's the same daily routine for all golf course superintendents. **GC**

Editor's note: If you have questions about course set-up or maintenance related to golf tournaments or events, e-mail Tim Moraghan at tmoraghan11@comcast.net.

Terry Buchen, CGCS, MG, is president of Golf Agronomy International. He's a 38-year AA life member of the GCSAA. He can be reached at terrybuchen@earthlink.net.



EQUIPMENT IDEAS

Light it up

At the Coco Beach Golf & Country Club in Rio Grande, Puerto Rico, golf course superintendent Dave Russell, assistant superintendent Jason Matos and head mechanic Hector Encarnacion installed bright lights on the maintenance equipment.

Two quartz halogen, 12-volt lamps were installed on Toro Sand Pros, Toro 6500 five-plex fairway mowers and Toro 4500 five-plex rotary mowers so it's easier for the operators to see where they're mowing turf and raking bunkers during early morning and nighttime operations. The lights will come in handy when the club hosts the Puerto Rico Open, a first-time event on the PGA Tour, in March 2008.

The light fixtures, which are for off-road use only, cost about \$20 each and were purchased from a local auto parts store. The larger lamp fixtures (similar to aircraft landing light fixtures in their lighting output) replaced smaller light fixtures on the equipment, so the wiring was in place already. It took only an hour to install them. On the fairway and rough mowers, the smaller light fixtures were left in place for lighting closer to the cutting units.



Travels With Terry

Globetrotting consulting agronomist Terry Buchen visits many golf courses annually with his digital camera in hand. He shares helpful ideas relating to maintenance equipment from the golf course superintendents he visits – as well as a few ideas of his own – with timely photos and captions that explore the changing world of golf course management.

Protection from the elements

The golf course maintenance department at Coco Beach Golf & Country Club knows how to protect its staff members from the bright sunlight and 80-plus inches of annual rainfall that occur in Puerto Rico without spending much money.

Inexpensive golf umbrellas were acquired from Sam's Club for about \$15 each. They're kept in place at the top of the mowers' roll bars. The handle is wedged in between the operator's seat and a plastic tube that holds the owner's manual. One-quarter-inch-diameter golf course roping secures them properly.

A traditional sunlight and rainfall cover is an optional piece of equipment for mowers. The cover, which can cost as much as \$1,000, would be attached to the roll bar and is available from equipment distributors or aftermarket equipment companies.

The golf umbrellas are used on the Toro Multi Pro 1200 sprayers, 3500 and 3100 Sidewinder triplex rotary and reel mowers, and 3150 Greensmaster triplex greens mowers, which are all used to help maintain the 36-hole complex that was designed by Tom Kite in 2003. **GCI**



BUSINESS FOR SALE

200 Acre Sod Farm 90 miles E of Chicago
50x170 bldg with offices
2-40x80 bldgs w/shops - 2 homes
Sand Sod inventory/Machinery
Serving major athletic fields 269/695-5505

GOLF COURSE FOR SALE

18 HOLE GOLF COURSE FOR SALE.
Course measures 6840 yds. has bent
grass greens. There is a 3700 sq. ft.
club house plus maint. bldg. Located in
Hartsville, S.C. There is additional land
available.

Priced at 2.2M. For details
call 910-575-6262.

BUSINESS OPPORTUNITY**PROFILE YOUR COURSE FOR FREE**

Promote your course as our guest in
podcast show telephone interview which
includes video of your site.

No cost to you for interview or video.

We distribute the interview to high traf-
fic podcast directories and video distri-
bution networks across the internet.

We need golf course managers, tour-
nament and sales staff, of public play
courses, to participate as guests in tele-
phone interview.

Interview features your golf course,
tournament management, wedding
services, on site restaurants, accom-
modations, etc.

The viewing of video over the internet
is increasing rapidly.

Now is the time to present your course
to this growing internet audience, in a
pleasant business style interview with
digital video.

Frank Ducey
949.481.8071
usaprotour.com
ceo@usaprotour.com

FOR SALE**How to Outsmart
Mother Nature...**

**Use
EVERGREEN™**
**The Turf Blanket
the World Relies On**

- Earlier spring green-up
- Faster seed germination
- Deeper root development
- Delays dormancy in fall
- Ideal winter blanket
- Best for quick turf repairs
- Available in any size
- 3 or 7 year warranty covers

For details call 1-800-387-5808 today!

covermaster.com
E-MAIL: info@covermaster.com

COVERMASTER™
COVERMASTER™
COVERMASTER™
MASTERS IN THE ART OF SPORTS SURFACE COVERS

COVERMASTER INC., TEL 416-745-1811 FAX 416-742-6837

TECH SALES

Golf Course Division

REPLACEMENT:

Bearings, Oil Seals, V-Belts

- > Nation's Leading Supplier
- > Most Competitive Pricing In The Industry
- > Same Day Shipping On Most Parts

1-800-373-6002

www.techsales-golfcoursedivision.com

FOR SALE**Golf Course Animal Control Supplies**

NoMol Mole Traps, Goose Repellents,
Coyote & Fox Decoys, Sonic Repellers
(Goose Buster, Super Bird Xpeller Pro)
Over 1400 items in stock. Lowest Prices.

www.discountwildlifesupplies.com

Call: 800-451-6544

A patented **impermeable** ripstop barrier
between your turf & the winter elements!



greenjacket®

for more details and free samples
GreenJacket.com or 888-786-2683
and see research results online!

- Minimizes temperature fluctuations & protects against ice damage, crown hydration and desiccation.
- Lightweight and durable—years of easy installation & storage.
- Millions of square feet of turf protected

**EAGLE GOLF
&
LANDSCAPE PRODUCTS, INC.**
SERVING THE GOLF INDUSTRY WORLD WIDE

Eagle Interface
A Root Zone & Moisture Barrier for Greens Construction

ADS
NDS **Nyloplast**

GreensP
Soil Protection Series

Sand daM **COLBOND**
Futerra **Enka Path**
Enka Shoreline
Enka Mat

Profile **Johns Manville**

WWW.EAGLEGOLFANDLANDSCAPE.COM
714-524-8598 800-21-EAGLE FAX 714-524-6195

TURBO TURF HYDRO SEEDING SYSTEMS



Great for
small repairs
& small projects

50 GALLON SEEDER \$ 1495.00

Call for **FREE** Info pack & video

TURBO TECHNOLOGIES, INC

www.TurboTurf.com 800-822-3437

HELP WANTED

FIND YOUR JOB TODAY

www.GreenIndustry-Jobs.com

Golf Course Company seeking experienced Shaping, Irrigation, Drainage and Management personnel for International Projects. Resumes to be e-mailed to frank@intergolfinc.com.

Wadsworth Golf Construction Company

Seeking Project Superintendents, Irrigation Foremen, Site Work Foremen, Shapers and Equipment Operators for Projects in the Mid Atlantic region and other areas of the country. Great opportunity for candidates with golf course experience willing to learn, travel and grow with the country's Premier Golf Course Builder. Competitive compensation package including travel allowance, health insurance and profit sharing opportunities.

Visit us at www.wadsworthgolf.com

Fax a resume to 610-361-7805

or e-mail to wgccmw@wadsworthgolf.com
attn: Human Resources

Territory Sales Opportunity



We are currently interviewing for sales positions in various states. Prior Irrigation, Landscape or Golf Course Industry experience with strong relationship selling skills essential.

Please send resume to: hr@watertronics.com

Or fax to: 262-367-5551



PLACE YOUR CLASSIFIED AD TODAY

Call Bonnie Velikonya at
330-523-5322 or email her
at bvelikonya@gie.net.

www.golfcourseindustry.com

AD INDEX

COMPANY	PAGE	RS
Agrotain International.....	25.....	24
www.agrotain.com		
Arysta LifeScience.....	19, 36, 37, 21, 29, 30	
www.arystalifescience.com		
Bernhard & Co.....	31.....	27
www.expressdual.com		
Champion Turf.....	54-55*	36
www.championturfarms.com		
Cleary.....	38-39.....	31
www.clearychemical.com		
Environmental Turf.....	65.....	38
www.environmentalturf.com		
Floratine.....	46-47, 66, 85 32, 41, 43	
www.floratine.com		
Friesen USA.....	14.....	16
www.meridianmfg.com		
Golf Course Builders Association.....	35.....	28
www.gcbaa.org		
GolfInX.....	11.....	14
www.golfInX.net		
Harrell's Turf.....	53.....	35
www.harrells.com		
Helena Chemical.....	86.....	44
www.helenachemical.com		
Jacklin Seed.....	66.....	40
www.jacklin.com		
John Deere Golf Irrigation.....	12-13.....	15
www.JohnDeere.com		
Milliken.....	7.....	12
www.millikenturf.com		
Nufarm.....	21.....	22
www.turf.us.nufarm.com		
Nutramax Agriculture.....	23.....	23
www.nutramaxlabs.com		
Orival Inc.....	70.....	42
www.orival.com		
Otterbine Barebo.....	30.....	25
www.otterbinebarebo.com		
Precision Laboratories.....	65.....	39
www.precisionlab.com		
Rain Bird.....	17.....	20
www.rainbird.com		
Sand Trapper.....	54-55*.....	37
www.sandtrapper.com		
SePro Corp.....	4.....	11
www.sepro.com		
Standard Golf Co.....	9.....	13
www.standardgolf.com		
Subair Systems.....	16.....	19
www.subairsystems.com		
Tee-2-Green.....	2, 30.....	10, 26
www.tee-2-green.com		
Turf Diagnostics.....	49.....	33
www.turfdiag.com		
Valent.....	51.....	34
www.valentpro.com		
Wells Fargo Financial.....	16.....	18
www.wellsfargofinancial.com		
Z Screen.....	15.....	17
www.zscreen.com		

* Denotes regional advertisement



Pat Jones is president of Flagstick LLC, a consulting firm that provides sales and marketing intelligence to green-industry businesses. He can be reached at psjhawk@cox.net or 440-478-4763.

CUT AND PASTE

If you're a regular reader, you know I generally write articles pandering to ... er, I mean attempting to edify and inform you – the golf course superintendent. This month's column is a little different.

Instead, this humble scribbling is aimed at a new and untapped audience: your players. You know, those nice folks who shuck out anywhere between \$15 a round and \$15,000 a year to play at your place. In short, the idiots. Your idiots.

Thus, it's with great pride I present the "Complete Idiot's Guide to Golf Course Maintenance." Feel free to cut, paste and post this in the locker room as needed – if you dare.

Greetings esteemed fellow golfer:

Allow me to introduce myself. My name is Pat Jones, and for 20 years, I've been privileged to write magazine articles about the art and science of golf course maintenance for nice folks like your golf course superintendent. I've met, worked with and/or written about thousands of superintendents and golf courses, literally. Along the way, I've learned a few things that might be helpful to your enjoyment of the game and your understanding of some important aspects of how courses are maintained. I respectfully submit the following polite thoughts for your consideration:

- It costs money to maintain these things, you bonehead. Don't expect champagne conditions on a beer budget. If you're paying \$30 a round, shut your gaping piehole, ignore the flaws around the edges and play golf, dammit.

- Only a handful of you fools carry a handicap low enough to appreciate the nuances of very fast greens, so stop yapping about wanting them all the time. Unless you're GHIN card has a single digit on it, you shouldn't even be allowed on greens running 11 or higher on the Stimpmeter. Do yourself a favor, you moron, and learn to appreciate the fact you're just not that good and fast greens will make you stink even worse and lose even more Nassau to

the clowns you play with.

- You know those big holes with the sand on them in various places around the course? They're called bunkers (there's no such thing as a "sand trap," knucklehead), and they're supposed to be a hazard. The really smart person who designed the course put them there to make the game more challenging. Being in one is called a penalty. Should the sand not meet your standards of perfection, don't hit into it. If you do hit into it – which is probably a lot because you suck – stop whining and swing about an inch behind the ball and follow through (repeat as necessary). Then take 10 seconds and rake the bunker, you lazy schmuck.

... I hope you've enjoyed this chance to see the beautiful world of golf through the eyes of your course superintendent.

- Don't even get me started about frost delays and cart restrictions. The weather is what it is, not some vast conspiracy dreamt by superintendents to deprive you of an early start or a motorized cup-holder for your can of Bud Light. Frosted greens and footprints don't mix, dog-breath. Driving carts on soggy fairways kills grass and makes big-ass ruts that screw up the course for weeks. By the way, you might want to consider the fact golf is meant to be a walking game and carts were invented for handicapped people, you fat shiftless turd.

- Just exactly how many of those freebie souvenir ball-mark repair tools do you have stuck away in that crappy old bag of yours anyway? Perhaps you could dig around through all the range balls you've stolen, find one of those tools and actually use it,

you dope.

- It might come as shocking news to you, but when it doesn't rain for a long time, grass turns brown. Did you skip biology class in high school the day they covered that whole "plants need water" thing?

- Unless his name is Carl Spackler, the person who maintains the course is not the greenskeeper. He's usually the golf course superintendent or he might even prefer to be called the greenkeeper (with no "s" in the middle, dimwit). Whatever you call him or her, the superintendent probably works harder than you and actually cares about doing a good job as opposed to spending most of the day surfing the Web for fantasy football statistics and stealing office supplies like you, you useless doofus.

- Enough already with the moaning about trees. Trust me, the superintendent hates them even more than you do.

- Last but not least, don't, under any circumstance, compare the course conditions you see on TV with the conditions of courses you actually play. The facilities that host Tour events spend a zillion dollars and commit thousands of extra man-hours to create a short-term illusion. Prepping a course for a televised event is like putting on a big fireworks display on the Fourth of July – it takes a lot of time to organize, costs a bunch of money and only lasts for a beautiful, fleeting moment. If you're ever planted in your La-Z-Boy some Sunday afternoon watching golf on the tube and think, "Our course should look like that," please smack yourself upside your pointy little head and get over it.

So, my fellow lover of the links, I hope you've enjoyed this chance to see the beautiful world of golf through the eyes of your course superintendent. It's my fervent wish these small insights will give you a new appreciation for the game and the importance of sound maintenance practices, even though they might perturb or inconvenience you occasionally. I know you'll accept my meager words in the sincere spirit in which they've been offered.

Now just shut up and hit the @#\$%!! ball. GCI

WARNING

**THIS COMBINED
PRODUCT PACKAGING
WILL CAUSE
HEALTH TO BREAK OUT**



Floratine's new MAP Pack, is a pre-engineered solution containing the Floratine products you need in an easy to follow application plan to prevent turf problems before they arise. MAP Pack is a low-cost, simple, targeted plan designed to strengthen your turf and prepare it before stresses arrive. To learn more, talk to your local Floratine distributor or visit www.floratine.com.

Floratine
For the strongest turf™

www.floratine.com

Save Water & Reduce Irrigation Expenses!

RESERVOIR 50
Soil Hydro-Logics

RESERVOIR
DG Soil Hydro-Logics

Save Tons of Water with Soil Hydro-Logics Technology!

Here's the bottom line for your golf course. You can literally save millions of gallons of water and related irrigated expenses with the Soil Hydro-Logics technology in Reservoir DG and new Reservoir 50.

Reservoir DG is a dry granular product that lets you broadcast or make spot applications to address localized dry spots (LDS). It can be applied to greens without interfering with play.

Reservoir 50 is a new 50% active liquid formulation that is designed for easy injection into irrigation equipment.

Both products work by improving soil aggregation properties. This increases soil porosity and water infiltration. In effect, it "unplugs" the soil and allows more water in the soil profile. This soil activity also reduces evapo-transpiration, and minimizes nutrient and pesticide leaching by "loading" the soil profile with more water.

Reservoir DG and Reservoir 50 remain active in the soil for 3 - 5 weeks and then bio-degrades into natural materials.

Save water and money! Use Reservoir 50 or Reservoir DG. For more information, contact your local Helena representative.



New Reservoir 50 is designed for easy injection into irrigation systems.



The extremely fine particles of Reservoir DG allow application to greens without interfering with play.

- **Increases irrigation efficiency, reducing water usage by 20 to 60 percent**
- **Increases soil aggregation properties for greater soil porosity and improved water infiltration**
- **Remains active for 3 - 5 weeks**
- **Lowers expenses for irrigation-related costs**
- **Reduces leaching of nutrients and pesticides**
- **Bio-degrades into natural materials**

RESERVOIR and People...Products...Knowledge... are registered trademarks and Soil Hydro-Logics is a trademark of Helena Holding Company. Always read and follow label directions. © 2007 Helena Holding Company.

HELENA People...Products...Knowledge...



Helena Chemical Company • 7664 Moore Rd • Memphis, TN 38120 • 901-752-4414 • www.helenachemical.com