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2001 FGCSA PHOTO CONTEST - page 62







Tom Trammel, Hawks Nest G.C.

SPOTLIGHT: PRESIDENTS AWARD, GCSAA SHOW

Roy Bates has been volunteering since he was a child. The effort has been rewarded with an FGCSA Presidents Award from the Everglades GCSA. Lake City Alumni raised \$13,500 for scholarships; Central Florida GCSA heard from state Sen. Darryl Jones, D-40; UF/IFAS turf faculty presented a full program to the Everglades GCSA at Naples Beach Club; Suncoast GCSA makes extra effort to keep suppliers involved.

4 _____ COVER STORY: OCEAN REEF CLUB

A lump of rock on the edge of the ocean is not the easiest place to grow a golf course... even if the fishing is great!

HANDS ON: SUMMER STRESS ON GREENS

Even though bermudagrass is a warm-season species, it can also experience environmental stress during the summer.

44 ____ STEWARDSHIP: ENVIRONMENTAL EDUCATION AT DISNEY

It's one thing to talk about helping the environment. It's another thing to do something about it.

Disney uses its golf courses to give environmental education to employees and sponsor

Audubon programs in two schools.

18 _____RESEARCH REPORTS: NEMACUR ALTERNATIVES

It seems inevitable, regardless of the real-world data, that EPA is leaning heavily to a three- or five-year phase-out of the product.

AFTERWORDS: SPEED KILLS

Jim Walker enters a plea to slow those greens down. Also, Dr. Phil Busey says we must walk the talk; Mark Jarrell is looking for partners to help build the future of the profession; Joel says that until we do a better job of educating lawmakers and the media, we will have to try to put things into perspective one story at a time.

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The Florida Green

SPRING 2002

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CALL FOR ARTICLES

Members are encouraged to submit items to the Florida Green. Contact the editor for more information. All slides and photographs should include identification of all persons in the picture and the name of the photographer.

Hands on Topics: Share your best practices and tips for these upcoming

topics. Photographs or slides are encouraged.

Summer 2002 - The Value of Maintenance Standards and Long

Range Planning
Fall 2002 - The Role and Responsibilities of the Equipment

Manager

Winter 2003 - Insect Control Programs

Spotlight: People and events making new in Florida. From award winners to chapter tournaments and other accomplishments. Send in your story. Superintendents Journal: Personal observations or experiences related to any phase of the turf management profession including balancing family life with work.

Professional Development: General management topics beyond turf. Examples: Education, training, facilities operations, personnel, computers,

Industry News: News items of interest to Florida superintendents from allied associations in the turf/horticulture industry.

Opinion: Exactly what it means. Article voicing your point of view on any topic concerning Florida superintendents.

Research: A section reserved primarily for university and technical authors to report on research results within the industry. Also reports of practical oncourse testing.

Rub of the Green: Articles and anecdotes with a humorous twist.

Stewardship: Superintendents are invited to submit articles and ideas about environmental issues and initiatives at their courses.

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Progress Out of Adversity

Research and education have always been primary focuses of this association and will continue to be so in the years ahead.

The current uncertainty regarding the Otto Schmeisser Research Green at the Fort Lauderdale Research and Education Center has been a concern to us all, and not the least to Gary Pederson, who is the technician responsible for its care. We are committed to a proactive relationship with the University of Florida and with Vice President Dr. Mike Martin,

and we will continue to build upon this relationship. Communication among the university, the FTGA and the FGCSA has improved considerably thanks to the work of Mark Jarrell CGCS, Kevin Downing CGCS, Steve Pearson CGCS and Don Benham, FTGA director of public affairs as well as many others in the industry that have seen the advantages to open and effective communications.

There is a certain disappointment amongst those that have supported the Ft. Lauderdale research green through their donations of time, money and equipment. As to its probable demise, Dr. Martin and Dr. Nell are very aware of our views and opinions and communication has been very open. Representatives from individual chapters as well as the executive board are working closely with the university and are building upon our experiences to chart a new course of action, one that will provide us with research facilities and applied research programs that will help us in the long term.

The South Florida chapter's Turf Expo that only last year donated \$27,000 to the Research Fund will continue to be a very prominent event in terms of education, product awareness and fund raising.

The support that this event has seen from vendors and turf professionals alike has been nothing less than stupendous, the monies raised at this event have been the mainstay of the Research Fund for a number of years and hopefully will continue to fund new research proposals into the future. This is not an issue that affects us alone; we are but one piece of a large pie.

Without getting on my political soap box, the disregard that our elected officials have for the education system including the work of IFAS choosing instead to rely on tourism, is a fallacy. The events of last year have shown us that to put all our eggs in one basket is sheer short sightedness. We must look positively to the future and work proactively to insure our own prosperity. Those who sit back and grumble will only serve their own misery and disappointment. Their sour grapes will not solve the challenges facing us. Change is upon us and we must participate to make the inevitable changes work in our best interest.

changes work in our best interest.

This year's FTGA Conference to be held in Tampa will be a great opportunity to listen to what has been accomplished through research and what proposals will be funded in

the near future. One true test of our resolve, when it comes to supporting research, will be the number of us that will attend this year. While this association seeks to reflect the viewpoints and wishes of the entire membership, your attendance and involvement will speak volumes compared to what I can do in this column. Take an interest this year. Let's show support for the FTGA conference and send a wake up call to those high and mighty elected officials that we are not to be overlooked.

PRESIDENT'S MESSAGE



Geoff Coggan, CGCS, MG



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SPRING 2002 5

EGCSA PRESIDENTS AWARD

Volunteer Habit Earns Top Honor For Roy Bates

Back in Milford, Mich. in the mid-50s, Mary Bates knew something was different about her young son. When Little Roy spoke his very first word, it was not the normal "momma" or "dada"; instead he simply said, "volunteer." She started thinking, "What does this mean?" Well, ever since that big day she surely found out.



Super volunteer Roy Bates, right, shown with architect Ron Garl as they formed the Florida Golf Alliance in 1998. Photo by Joel Jackson.

Bates got his early exposure to golf courses by growing up next to Highland Hills CC in Milford. One Saturday when Roy was about 12 years old, the starter left his job. Roy, who was just hanging out perfecting his putting skills, volunteered to do the job for the day. Highland Hills liked his enthusiasm and offered him the job whenever he could work after school and on the weekends. This job was his until he graduated high school.

With his love for the outdoors Bates worked seven years with a landscape company, before moving to Florida. He thought he was oh-soclever, studying up on Florida before he made the big move. He actually thought the mocking bird was our state bird instead of the mosquito. Well, after stocking up with repellent, he found employment on the crew at Imperial CC Shortly after this he met his wife-to-be, Mary. She thought this strapping (and then slender) man would be just perfect and soon they were married. Soon after wedlock, Mary decided to have their first child. Once again Roy volunteered and Kristin was born.

After four years of working his way up the crew at Imperial, Jerry Redden asked Bates if he would be willing to move up to assistant superintendent; once again Roy volunteered. Shortly after becoming the assistant, Redden asked Bates if he would get involved with some committees for the Florida Turfgrass Association and, of course, Roy volunteered.

After four years of honing his skills under Redden, Cypress Lake Country Club called and asked whether Bates would be willing to be their superintendent. About this time Mary tapped Roy on the shoulder and thought it would be a great time for another child. Roy volunteered again and Kathryn was born.

After a couple of years at Cypress Lake, Bates was asked to run 36 holes at Quail Creek. This lasted one year when Imperial called, this time wanting Bates to run the 36 holes as superintendent. He stayed there 11 years, meanwhile getting involved in FTGA and the Everglades GCSA.

He volunteered to the board of FTGA from 1990 until becoming president in 1996. After slowing down a little bit in 1997 he became president of the Everglades in 1998 and vice president of the newly formed Golf Alliance in the same year.

As you can tell Bates is a firm believer in giving back to the industry he serves, and like many who have given back, he wishes more people would get involved. "The more you know about things ready to happen in this industry, the better prepared we all will be," says Roy.

Bates now works for WCI Communities, which has developed 30 communities with 522 golf holes and more than a thousand marina slips in southwest Florida. WCI has pledged the necessary funds to the FTGA for UF/IFAS agricultural economists, Dr. Alan Hodges and Dr. John Haydu, to conduct a Florida golf economic impact study. This study builds on the 1992 Turfgrass Economic Impact study also funded by the FTGA, but focuses only on golf, including the game and its ramifications not just the turf aspect.

When David Fry, senior vice president of amenities, needed some one to head the project and to solicit money from other developers to help pay for it, guess who volunteered for the job? You guessed it.

Some people get awards because of years spent in associations, but few have made as many friends along the way as Roy has. He has truly been an inspiration with his constant positive attitude. It has been a great pleasure to know Roy for the past 15 years, he has gotten me involved and made me a better person, and I am sure he has done the same for many others.

Bates blames most of this obsessive volunteering on his mentor Jerry Redden, but personally I think it

goes back to that very first word he spoke some 48 years ago," volunteer."

The Everglades chapter spoke the words "Thank You" loud and clear to Roy Bates in September when it presented him with the 2001 FGCSA President's Award for Lifetime Service.

Glenn Zakany

LCCC ALUMNI

10th Annual Event Raises \$13,500 for Lake City CC

The Lake City Community College's Golf Course Operations Alumni group based primarily in the Everglades Chapter area pulled off its 10th Annual Endowment Fund-Raiser without a hitch Jan. 4 at WCI Communities' Colony Club. Outgoing committee cochairman Glenn Zakany reported that the event has raised more then \$100,000 since its inception and the 2002 event netted a check for \$13,500. Department Chairman John Piersol was on hand from the school to thank everyone for their support and urged the alumni and others to help support the LCCC program that produces future superintendents and equipment technicians for the industry.

This year while the committee scored the event, Chuck "The



Chuck "The Hitman" Hitter doing just one of his amazing trick shots to entertain the crowd during the barbeque dinner following golf. Photo by Joel Jackson.



2002 LCCC Tournament Committee from left, front row: John Piersol, Scott Hamm, John Johnson, Gary Higgins. Back row: Roy Bates, Mike Smith, Glenn Zakany, Chuck Hitter and David Fry. Photo by Joel Jackson.



Florida Democratic gubernatorial candidate Sen. Darryl Jones (D-40, second from left) was the guest speaker at the CFGCSA/FTGA turf research fundraiser at the Interlachen CC. Other guests, from left, included FTGA President Alan Puckett, CFGCSA Past President John Kopack and FGCSA President Geoff Coggan. Photo by Joel Jackson.

Hitman" Hitter put on a phenomenal display of golf trick-shot artistry that amazed the crowd. The Hitman took the art of hitting a golf ball from impossible situations to a new level never seen before.

The Tournament
Committee deserves a lot of credit for growing this event into one of the best-attended and -supported events in the state. Most have served on the committee since its inception. Thanks to David Fry and Glenn Zakany, co-chairmen; Scott Hamm and John Johnson, sponsors-golf resort packages; Odell Spainhour and Roy Bates, raffle prizes, golf and pictures; Michael Smith, registration; and Gary Higgins, host superintendent.

CENTRAL FLORIDA GCSA

Gubernatorial Candidate Teaches Basics of Politics

The Central Florida
Chapter held its annual FTGA
Research fundraiser at the Interlachen
CC Jan. 14. FTGA President Alan
Puckett was on hand to thank all in
attendance for their support of turf
research. The guest speaker was State

Senator Darryl Jones of Miami, who is running for the Democratic gubernatorial nomination.

Sen. Jones outlined his platform on the issues and commented on several questions on golf courses issues that were sent to him in advance. Some of his comments:

- In general golf course issues are not on the radar screen in Tallahassee.
- If you have a message you want to send to legislators, present it in concise bullet-point facts.
- The main environmental topic that is heard most often is runoff.
- If you want to get a legislator's attention on an issue, a good rule of thumb is that it takes 15 voters in a state representative's district and 25 voters in a state senator's district to get them to respond. If they are not already emotionally attached to the issue, you stand a good chance to present your case and get some action.
- Face-to-face contact with a lawmaker or staff member is best followed by letter, fax, phone call and finally email.

Central Florida External Vice President John Lammrish presented host superintendent Stuart Leventhal with a framed Summer

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7610 US Hwy 41 N., Palmetto, FL 34221 800-726-5215 www.hendrixanddail.com 2000 Florida Green cover which featured the Interlachen C.C. After the meeting and lunch, the rains set in and golf was canceled. No one asked for his registration fees back and the event raised \$4,600 for research. The Interlachen CC management deserves our continued thanks for its assistance in making this event possible each year.

EVERGLADES GCSA

IFAS Turf Faculty Offers Full Program at Winter Seminar

Matt Taylor, EGCSA
President reports over 80 superintendents converged on the Naples Beach club Jan. 17 for the annual EGCAS
Seminar which features a full program of presentations by University of Florida's IFAS turf research faculty. Dr. Terril Nell also gave an update on the IFAS budget crisis and future options for the UF turf program. The EGCSA follows up this winter educational offering with its Spring Symposium April 11 and the annual Poa Annua Classic May 9-12.



Aerial view of the Suncoast Supplier Appreciation Day attendees from 60 feet up courtesy of Save-On Enterprises' bucket truck. Equipment and product displays ringed the driving range. Photo by Joel Jackson.

Featured speakers at the Spring Symposium

- Tom Messimer, Ph.D., CDM (Environmental Mgt), Future Sources for Golf Course Water Supplies
- Milt Engelke, Ph.D., Texas A&M,

Ultradwarfs: Seek First to Understand, Then Management is the Key to Success

- Darren Davis, Olde Florida GC, Complete Golf Course Re-Grassing Project
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SUNCOAST GCSA

Chapter Aims To Bring All Industry Segments Together

The Suncoast Chapter held a Supplier Appreciation and Turf Equipment Technician Day at the Bradenton CC Jan. 28. While the superintendents held a brief business meeting, the members of Suncoast Turf Equipment Technicians Association held their annual meeting and election of officers. Joel Jackson, FGCSA director of communications, briefly discussed state and national issues. The rest of the morning was devoted to a mini-field day on the driving range for equipment and product displays and demonstrations.

More than 100 attended the event and golf was available for those wishing to try their luck on Jim Svabek's historic Donald Ross links. Following golf, attendees were treated to a downhome barbecue dinner including roasted pig and turkey. The Suncoast Chapter's goal for this event and the Suncoast Scramble in March is to bring all members of the golf industry together.

GCSAA GOES TO DISNEY WORLD

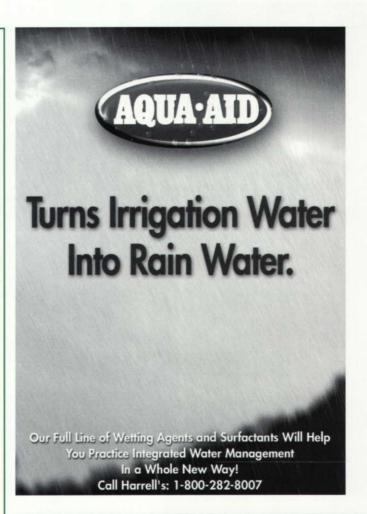
75 Years Young

Joel Jackson, CGCS

When the terrorist attack paralyzed the nation on Sept. 11, it also wiped out the GCSAA's muchanticipated 75th Anniversary Celebration to be held two days later in Lawrence and Kansas City. As the ripple effect of the attack spread and the economy went into a recessionary trend, the registration and attendance at the conference and show in



Florida GCSA President Geoff Coggan, CGCS, MG helps to open the GCSAA Conference with his welcoming remarks on Feb. 6. Photo by Joel Jackson.





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Orlando became a point of concern. Budgets were tightened for all businesses, and travel was cut back or canceled. Tourist destinations like Orlando suffered noticeably as the nation paused and took stock of the situation.

GCSAA watched tentatively as the pre-registration and cancellation numbers bounced around until the first of the year. As the nation righted itself and the war on terrorism picked up steam, dread turned to cautious optimism and GCSAA hoped for a mildly successful conference. Sensitive to the necessity of last-minute decision-making because of the economic climate, GCSAA kept on-site registration fees the same as the usually-lower advanced-registration fees and hoped for the best.

I'm not sure if they set any records, but numbers reported during the conference indicated that more than 7,000 attended the seminars and, by Friday of conference week, more than 20,000 had registered. Enough people refused to be intimidated by the gloom and doom and made their way to Orlando to



Association Manager Marie Roberts welcomes FGCSA members to the Florida Reception during the GCSAA Conference. Photo by Joel Jackson.



Bill Davidson, Jr., left, superintendent of the Colliers Reserve GC, receives the GCSAA/Golf Digest Environmental Leadership in Golf Award from Dave Heegard, vice president of sales and marketing for Pursell Technologies, Inc. at the 73rd International GCSAA Conference and Show in Orlando Pursell is one of the sponsors of the ELGA program. Photo by Joel Jackson.

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help celebrate the association's finale to its 75th anniversary.

GCSAA had a great 75th Anniversary Pavilion set up on the trade show floor which displayed course-logoed flags and golf balls from around the world. A replica of the bronze Old Tom statue by Nebraska superintendent Brad Pearson held court in a vignette symbolizing his place of honor at GCSAA headquarters in Lawrence, Kan. One replica of the statue will be placed at the World Golf Village in St. Augustine and another is being donated to the golf museum at the Old Course in St. Andrews, Scotland, There was a sampling of antique golf course equipment from the Historical Preservation Collection on display to remind all of us how far our profession has advanced over the years. Photos, articles and videos gave visitors a time-line of progress from the association's humble beginnings on Sept. 13, 1926 in Toledo, Ohio.

Besides playing host chapter to the finale of the 75th anniversary, FGCSA members participated in the conference in a significant way. President Geoff Coggan, CGCS, MG, welcomed attendees with at the opening session with a brief overview of the Florida GCSA and its goals and mission. Three Florida superintendents won honors in the GCSAA/Golf Digest Environmental Leaders in Golf Awards: William Davidson, Jr., Colliers Reserve; John Kopack, The Legacy Club at Alaqua Lakes; Jeff Klontz, Country Club of Florida and Kyle Sweet, The Sanctuary.

Kevin Cavanaugh from
The Plantation at Ponte Vedra gave a
presentation on personal public relations and communications in the
Innovative Superintendents I session,
and Tim Hiers, CGCS of Old Colliers
did double duty with a presentation in
a Golf Course Management session
on choosing paspalum turf and a presentation in the USGA Green Section
session on building a golf course in an
environmentally sensitive area.

Three FGCSA members finished in the Top 10 in the low gross division in the GCSAA Golf Championship held at the World Golf Village and Palm Coast, Mark Henderson, second; Tyler Warner, eighth; and Chris Cartin, tied for tenth. The Florida Team No. 1 of Chris Cartin, Mark Henderson, Mark Hopkins and Joe Ondo finished in third place in the team competition and Florida Team No. 2, which included Dobie McManus, Joe



Joe Ondo, CGCS, tours the GCSAA 75th Anniversary pavilion on the trade show floor. Photo by Joel Jackson.

Pantaleo and Tyler Warner, finished in decorated in a red-white-and-blue fifth place. decorated in a red-white-and-blue theme to demonstrate our America

The FGCSA held its traditional reception Feb. 7 to provide a time and place where all members, wives and supporting sponsors could meet and confer. The ballroom was decorated in a red-white-and-blue theme to demonstrate our American spirit and show our support for our troops overseas. Nearly 1,000 people made it to the reception to enjoy the camaraderie, food, drink and entertainment by the seven-piece band,

Margo Fontaine and The Rodeo Drive.

See the thank-you ad (page 13) for those sponsors and FGCSA chapters that made the reception possible. See you next in year in Atlanta.



The Florida Golf Course Superintendents Association would like to thank the following sponsors for their generous support of the 2002 FGCSA Reception

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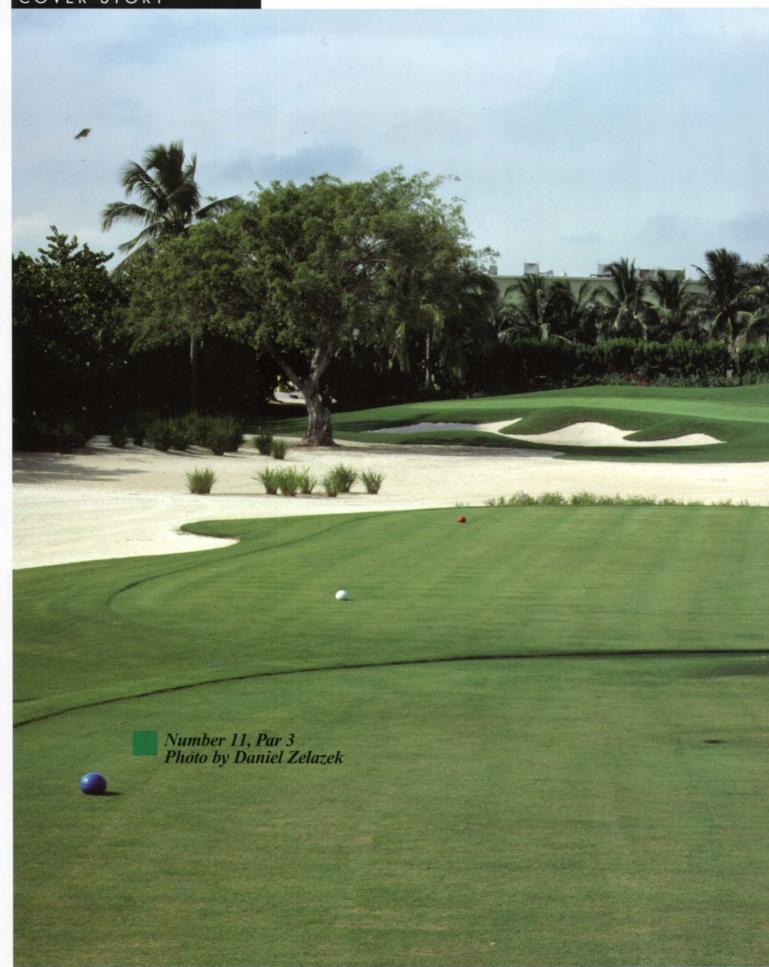
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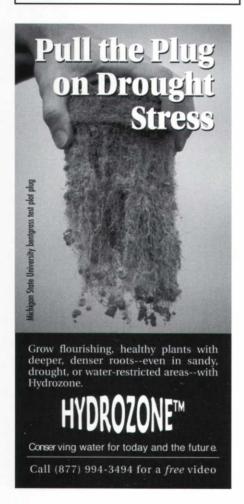
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Dolphin No.14, a 497-yard par 5. The lake was created by mining and removing the limestone bedrock in 10-foot stone pillars and selling them to a rock products company. Photo by Daniel Zelazek.



Dolphin No. 5, a 148-yard par 3. Since blasting out the lakes was prohibited, Ocean Reef had to purchase the rip-rap boulders to line the lake banks. Photo by Daniel Zelazek.

on the North American continent, dating from the early 16th century. Spanish explorers found the string of keys lacking in mineral wealth (gold) and fresh water, but the mahogany trees on the island were prized by these explorers who dubbed the species "Madera" or wood. The mahogany groves were logged over the centuries with the last grove reportedly being harvested in the late 1940s.

The first settlers built along the ocean and ruins of old cisterns and evidence of date palms and tamarind groves mark the isolated settlements linked by the ruts of an old wagon road that runs well east of the present SR 905. These early inhabitants had mixed livelihoods as fishermen, slavers, and lime and pineapple growers. Their homes were built from lumber salvaged from the sea or as they called it, the "Ocean Lumber Company."

Those of my generation can't help thinking of Key Largo without thinking of the 1948 movie of the same name starring Humphrey Bogart and Lauren Bacall. Reportedly some bar scenes were filmed on location at the Caribbean Club near Mile Marker 104 on U.S. 1. However, not one of the actors ever set foot on the island for any scenes of the movie; the bulk was filmed on a Hollywood sound stage. Plenty of celebrities visit now including President George Bush, Sr., an avid golfer and fisherman, who also frequented Gasparilla Island on the Florida west coast.

Golf made its debut on Key Largo in 1955 when Baker opened a nine-hole course and added a second nine a few years later. In 1960 a regulation golf course designed by Bruce Devlin and Robert Von Hagge was built and Bob Toski was named director of golf. The game rose in prominence as one of the many amenities for residents and visitors alike.

During the 1970s, the annual Pro-Guest Golf Tournament was in its second decade attracting a fraternity of touring pros including Gene Sarazen, Julius Boros, Dave Marr, Dow Finsterwald, Bob Murphy, Jim Colbert, and Tommy Bolt along with Toski, Ocean Reef's own Mister Golf.

The present-day Ocean Reef Club, with its Dolphin and Harbor courses, evolved from a succession of ownership groups and course configurations; the latter included the Snapper and Barracuda courses and the Card Sound Golf Club.

Ocean Reef's director of golf maintenance, Lee VanValkenburg, CGCS came to Key Largo in 1985, succeeding Dick Blake as the superintendent of the Card Sound Golf Club. He served as the director of golf maintenance for both Card Sound and Ocean Reef clubs from 1992 to 1995 and assumed his current role with Ocean Reef in 1995 during the final split of the courses into their present operations.

In 2000 and 2001, the Dolphin Course was redesigned by Chip Powell with the construction done by Reed Berlinsky. Because of the short grow-in time between seasons and limited fresh water, only nine holes were renovated

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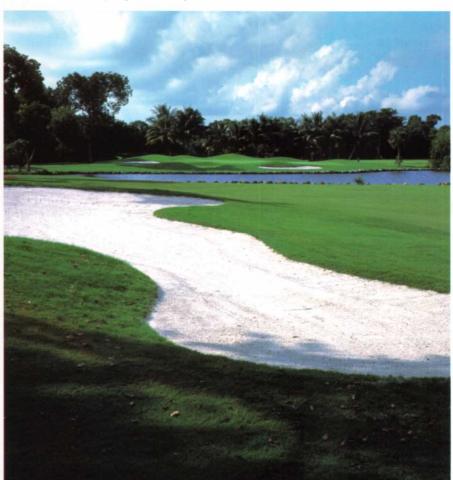




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Superintendent Lee VanValkenburg had to outfox land crabs with geotextiel fabric layers and ballast stone to keep them from undermining the rip-rap lining the lake on Harbor No. 6, a 162-yard par 3. Photo by Daniel Zelazek.



The Harbor Course may be shorter than the Dolphin, but the 412-yard 10th hole challenges all players to bring their "A" games. Photo by Daniel Zelazek.



Harbor No. 4, 254-yard par 4/3. The Harbor Course is carved through the native hardwood hammock and managing shade is a high priority. Photo by Daniel Zelazek.

at a time, which offered its own special challenges according to VanValkenburg.

VanValkenburg said, "In 2000 we found ourselves growing in TifEagle on one nine while maintaining our old Tifdwarf greens on the other. The next year we were in TifEagle grow-in mode again on one nine and maturing the one-year-old greens on the other, so we had two different regimens in play at all times.

"We chose the nine-hole-only approach because we have limited storage capacity for our irrigation water and if we got into a drought situation, we didn't want to have to rescue 18 holes of brand-new turf. So we bit the bullet."

There won't be much rest for the weary as Ocean Reef has begun master planning for the upgrade of the Harbor Course.



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SPRING 2002 19 "...if we want to trim limbs that overhang the cart paths we have to go through the course and remove any Florida tree snails and put them in a moist pail. After the trimming is finished, we tack paper cups containing the snails back onto the trees so they can crawl out and return to their habitat."

"The most positive thing to come out of all of this is the creation of a formal master plan for the club," said VanValkenburg. "This document gives succeeding committees the guidance for what has been done and what needs to be done to achieve the stated goals of the club. Previously, we had a laundry list each year of projects to do this or that, but now we have it all mapped out and we can really plan ahead, which is what I like to do.

"The Harbor Course is going to be an interesting and challenging project. We don't have the access points as we did on the Dolphin Course so we will have to work our way out from the far points back to the road. We have some serious shade considerations; and we have been documenting the sunlight patterns by taking photos of the greens at set intervals from June 23, the summer solstice, and during the year as the sun moves south casting more shadows on the turf.

"If we have to trim or remove any trees, we will have to get permits from the county since they have very strict codes along those lines. Even now, if we want to trim limbs that overhang the cart paths we have to go through the course and remove any Florida tree snails and put them in a moist pail. After the trimming is finished, we tack paper cups containing the snails back onto the trees so they can crawl out and return to their habitat.

"Another big consideration for the Harbor Course renovation will be upgrading the irrigation system. It's a long run to the course, and the pipe sizing isn't consistent, so we have serious friction loss which needs to be corrected. We are evaluating possible pump sites and ways to create additional storage for our irrigation water."

Fresh water, much less irrigation water, is a critical issue for island dwellers in the Florida Keys. Potable water costs \$6 per thousand gallons and so reverse osmosis technology has been employed since the 1970s to provide cheaper water for irrigation. The irrigation wells are more than 1,000 feet deep and tap into the southern extremities of the Floridan Aquifer as it empties somewhere into the Atlantic Ocean.

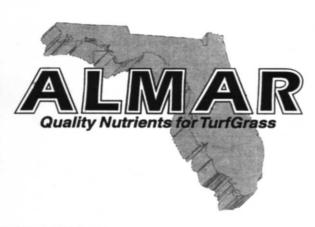
At this point in the strata, the aquifer water tests about 15,000 parts total dissolved salts and is made usable by passing the water under pressure through osmotic membranes. The water is then stored in a 2.7-million-gallon, shallow reservoir for pumping onto the grounds. While the golf course is the primary user right now, there are plans to expand the use in the future to include more home and condo sites, and resort grounds areas.

Like most people, I think of the tropical islands as getting lots of rainfall, but VanValkenburg says Upper Key Largo averages around 38 inches per year compared to the 50-60 inch average for mainland Florida.

VanValkenburg says, "We also have the plight of being the stall point for a lot of weather fronts. We get pounded with days of high winds and salt spray followed by high humidity and heavy rains as the tropical air meets the frontal zone. We can go into disease mode pretty quickly if we're not careful. We often time preventive fungicide applications when the fronts approach because we know the conditions will be ripe for disease."

Another challenge for growing turf in the Keys is the lack of soil. With only a couple of inches of material covering the limestone bedrock, renovating the golf course was interesting to say the least.

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Dolphin Course crew.

Location: Key Largo

Total acreage: 105 acres. No overseeding. Greens: 5,250 sq. ft. TifEagle. HOC: .120 in. summer; .110 in. winter. Green speeds: 8-8.5 summer, 9-10 winter.

Tees: 4 acres Tifway 419, HOC: .350 in.

Fairways: 22 acres Tifway 419. HOC: .500 in. summer; .450 in. winter.

Roughs: 65 acres each of mixed 419, Ormond and common bermudagrass. HOC:

Bunkers: 72 bunkers FS100 sand and 10

acres of naturalized links areas (coral screenings). Greens bunkers hand raked. Fairway bunkers machine raked with Toro Sand Pros with spring-rake attachments. Waterways/Lakes: 13 acres, 3 lakes.



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and plant certified Tifway 419, so we leased a sod harvester and cut out the existing sod on the fairways," VanValkenburg said. The contractor scraped and hauled off the loose sod. Then we encouraged the remaining sprigs and stolons to regenerate and when they produced new growth we treated with a combination of RoundUp and Fusilade.

"After that died off we encouraged it to grow again and sprayed it again.

"Then we added 2-3 inches of sand, some starter fertilizer and ran a heavy-duty tiller generally used to tear up roads (Rototarian) over the surface to mix the sand and organic layers together. All that was graded out and then we grassed the fairways with rolled sod."

The bedrock also presented VanValkenburg with the experience of watching new lakes being built by harvesting the bedrock in 3x4x10-foot stone columns.

Blasting is not allowed.

The columns were plucked out of the lake one at a time after a huge trenching machine crosshatched the lake site with 10-foot-deep trenches creating a checkerboard effect. A large track-hoe then broke off the stone pillars at the base and scooped them out. The cost of the lake excavations was offset by selling the stone to a company called Keystone Products which milled the columns into benches, tables and other rock

products.

Altering the landscape and creating a new look and challenges for the Ocean Reef members is done with the environmental consequences in mind at all times. Ocean Reef has participated in a USGA-funded and University of Florida IFAS-managed project to reestablish the Schaus Swallowtail Butterfly nearly wiped out by Hurricane Andrew. With the tree snails and butterflies as wards of his stewardship, VanValkenburg and staff take care to scout and time their pesticide applications to avoid harming the endangered species under their care. In fact, VanValkenberg notes that when the county or state wants to monitor the endangered species officials come to the golf course to take their counts because that's where they find them taking refuge.

Managing 36 holes of golf in this unique environment takes a lot of care and attention far beyond one person's ability to cover all the bases and VanValkenburg considers himself to be extremely lucky to have a dedicated staff to help run the operation.

"I remember when I got a chance to prove myself under Jim Ellison at Bay Hill and Adam Yurigan at Johns Island. I try to provide that same experience for our managers. I look for that spark of initiative and the willingness to work hard and improve oneself. I try to judge the depth of talent and commitment of the individual by what he shows me every day. Then it's up to me to provide him with the resources to get the job done right and to turn him loose to make mistakes; to learn to make decisions on his own; and to back him up when they goof. I guess I must be doing something right because we have a great team in place right now."

The bedrock also presented VanValkenburg with the experience of watching new lakes being built by harvesting the bedrock in 3x4x10-foot stone columns.

The course looked flawless in our ridethrough and VanValkenburg showed me specimens of the native hardwood hammock environment including some surviving mahogany trees, gumbo limbo, lignum vitae, Jamaica dogwood, green buttonwood, ironwood, torchwood and under story plants common to the Keys.

I didn't unlock any real deep, dark golf maintenance secrets on this island trip, but it sure made me appreciate the differences in turf-management techniques that come into play depending on the location - from an old citrus grove in Lake County to a tropical paradise down in Key Largo.

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OCEAN REEF CLUB

Location: Key Largo Ownership: Member owned Playing policy: Private

36 Holes: Dolphin Course - 6,467 yards, par: 71. Harbor Course - 6,090 yards, par 71/70.

Designed by: Dolphin - Robert Von Hagge &

Bruce Devlin with Mark Mahannah. Opened in 1960. Greens, tees and cart paths redesign by Ted McAnlis in 1993-95. Complete renovation and regrassing in 2000 & 2001 with design by Chip Powell and construction by Reed Berlinsky. Harbor - Original design by Robert Von Hagge & Bruce Devlin. Opened in 1974. Greens and tees redesign by Ted McAnlis in 1992.

Management: Paul
Astbury, club president;
Jim Johnson, green
chairman; Hank
Henrich, golf chairman
and director; Tom
Hilliard, director of
golf; Jim DeMallie, golf
professional; Lee Van
Valkenburg, director of
golf course maintenance.

Special circumstances: Lack of soil depth. Only 2-3 in. above bedrock. Reverse osmosis. water increases sodium replacement of calcium. Year-round germination of goose grass. Very strict county codes for tree trimming and

removal.

Communications: Biweekly department
meetings; weekly staff
meetings; monthly
meetings with green
committee, golf committee and department
managers.

Cultural/Fertility/IPM

programs: We scout pest activity and life cycles for proper timing of pesticide applications. By hitting the correct window, we have had great success using Merit for mole cricket and grub control.

Environmental management: Schaus Swallowtail butterfly, Florida tree snail, both sensitive to the timing of mosquito control and tree trimming. Working with an environmental consultant for master planning the anticipated renovation of the Harbor Course.

Waterways/Lakes: All water hazards are tidal with an average TDS of 15,000 ppm. Water quality is enhanced by using aeration bubblers and

Leadership: Tod Evans, superintendent; Michael Davies, first assistant; Robert Loria and Brian Flowers, second assistants; Miguel Diaz, head mechanic; David McFarling, first assistant mechanic; Santos Cua, second assistant mechanic; Reynaldo Ramierez and Confessor Torres,

pest control technicians; Abelino Garcia, irrigation technician; Elizabeth Palma, administrative assistant. Walter Thompson, landscape supervisor.

Total staff: 43 full time, Avg. weekly hours 40 ST with 4 0T.Total acreage: 105 acres. No overseeding.

Greens: 5,250 sq. ft.
TifEagle. HOC: .120 in.
summer; .110 in. winter.
Green speeds: 8-8.5 summer, 9-10 winter.
Tees: 4 acres Tifway
419, HOC: .350 in.
Fairways: 22 acres

Tifway 419. HOC: .500 in. summer; .450 in. winter.

Roughs: 65 acres each of mixed 419, Ormond and common bermudagrass. HOC: 1.25 in. Bunkers: 72 bunkers FS100 sand and 10 acres of naturalized links areas (coral screenings). Greens bunkers hand raked. Fairway bunkers machine raked with Toro Sand Pros with springrake attachments. Waterways/Lakes: 13

acres, 3 lakes.

Total acreage: 97 acres
Greens: 4,800 sq. ft.
Tifdwarf. HOC: .175 in.
summer; .150 in. winter.
Off- type mutations in
greens need higher cut.
Green speed goals: 7.0
summer, 8.0-plus winter.
Tees: 2.5 acres Tifway
419 & Tifgreen 328
HOC: .450 in.

Fairways: 25 acres 60% Ormond and 40% common bermudagrass. HOC: .625 in.

Roughs: 65 acres each of mixed 419, Ormond and common bermudagrass. HOC: 1.25 in.

Bunkers: 51 bunkers FS100 sand and 2 acres of naturalized links areas (coral screenings).

Waterways/Lakes: 20 acres, 8 lakes.



Ocean Reef looks good thanks to the support by key staff. From left, front row: landscapers Augustine Agiatas, Tiu Gaspar and Oswaldo Perez. Back Row: Walter Thompson, landscape supervisor; assistant mechanics David McFarling and Santos Cua and head mechanic Miguel Diaz. Photo by Joel Jackson.

oxygen diffusers. No display fountains used due

Floridan Aquifer - saline water treated by reverse

osmosis plant. Pump station: Flowtronex VFD,

1800 GPM. Toro Osmac controls with Site Pro.

Toro 670 double-row heads. Dolphin - 550 and

Irrigation: Water source for both courses.

to salt spray effects.

Harbor 435.

Lee VanValkenburg, CGCS



Originally from: Attica, New York
Family: Single. Mother Ardyth VanValkenburg, brother
Peter and sister Beth Mullen

Education: AS Business Administration, Genesee Community College; 1988 GCSAA Certified Golf Course Superintendent

Employment history: 1995-present Ocean Reef Club (36 holes) and 1992-95 Card Sound & Ocean Reef (54 holes), director of golf course maintenance; 1985-92 Card Sound GC (18 holes) superintendent; 1978-85 Johns Island Club (36 holes) assistant superintendent; 1977-78 Bay Hill Club (27 holes) spray technician; 1976-77 Rio Pinar CC crew; 1975-76 Stafford GC crew; 1969-75 Attica GC crew.

Professional affiliation and awards: CGCS; Class A member of the GCSAA, FGCSA, and South Florida GCSA; Member of the FTGA and USGA. Certified pesticide applicator with State of Florida.

Getting into the Business: I grew up next door to the Attica Golf Club. My grandfather, father and uncle all worked there and so did I. My mother would send Lady, our collie, over to the course to find me for dinner.

Mentors: My father Irving VanValkenburg - his love and dedication to the game instilled in me a desire to become involved in the golf industry. Robert Simmons, my first boss. Working with Bob with his down to earth approach made me love the profession. Adam Yurigan - Adam is the man who taught me the profession. He gave me the chance to learn by making me make decisions and some mistakes and being man enough to face the heat. How many guys are willing to do that? J.J. Curran and Lou Wozak, - they were both good friends and mentors here at Ocean Reef. Philosophy/Accomplishments: Refuse to lose. You can always find a way to get it done. My greatest accomplishment or satisfaction is seeing guys who have worked for me go out and be successful - Bryan Singleton, Mike Osley and Chuck Calhoun and most recently Tod Evans moving up to La Gorce CC in Miami.

Advice to new superintendents: Identify the talent on your team, explain exactly what is expected of them and give them the means to accomplish what's expected. Coach and guide them so they can begin making decisions on their own. This only works if you're a good judge of talent. Memorable moments: After Hurricane Andrew, we housed and fed many of our associates, who had basically lost everything. We were cut off from the mainland and most communications for a week. People got on edge. One day two guys almost came to blows over what day it was. I defused the situation by tossing a newspaper on the table and said, "You might be wrong today, but you'll be right tomorrow!"

Hobbies and interests: Fishing, Still dating, Reading. That's all I have time for. If You're Looking for Improved Pest Control . . . Du Cor has an Easier Solution!

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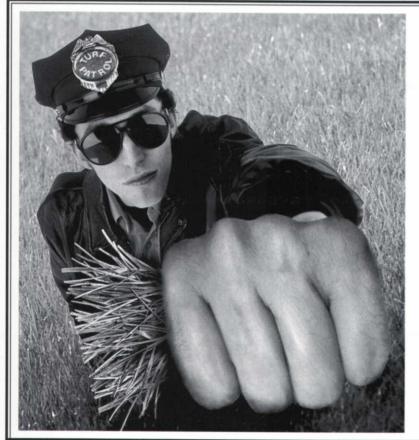
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SPRING 2002 27



Ocean Reef Harbor Course No. 4 tee platform in the mangroves. Photo by Daniel Zelazek.



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Tees: 2.5 acres Tifway 419 & Tifgreen 328 HOC: .450 in.

Fairways: 25 acres 60% Ormond and 40% common bermudagrass. HOC: .625 in.

Roughs: 65 acres each of mixed 419, Ormond

and common bermudagrass. HOC: 1.25 in. **Bunkers:** 51 bunkers FS100 sand and 2 acres of naturalized links areas (coral screen-

ings).

Waterways/Lakes: 20 acres, 8 lakes.

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SPRING 2002 29

FUN FACTS



It's plain to see why his fishing tackle is VanValkenburg's most prized possession.

Here are some things you might not know about our cover story superintendent:

- 1. Car: 1995 Camaro Z-28.
- 2. The last good movie I saw: As Good As It Gets.
- 3. I stay home to watch: Sports and nature shows.
- The book I've been reading: "First, Break All the Rules."
- 5. Favorite meal: Mom's homemade spaghetti.
- Favorite performers: The Rolling Stones, Rodney Dangerfield.
- 7. Prized possession: All my fishing tackle.

- 8. Personal heroes: Joe Torre, Colin Powell.
- Nobody knows that I: Wanted to become a paleontologist. Working in this fossilized coral bedrock, I guess I am one.
- I'm better than anyone else when it comes to: Anticipation, thinking and planning ahead.
- If I could do it over: Maybe I would have married a woman instead of a golf course.
- 12. I'd give anything to meet: Our President.
- My fantasy is: September 11, 2001 never happened.

- 14. The one thing I can't stand: Lack of planning ahead.
- If I could change one thing about myself: I'd try to be more relaxed.
- My most irrational act: Staying in Homestead for Hurricane Andrew.
- 17. My most humbling experience: Early in my career, driving a tractor into a tree in front of everyone at the clubhouse and getting exiled back to the pushtype rotary mower detail for the season.
- The words that best describe me: Humorous but intense.





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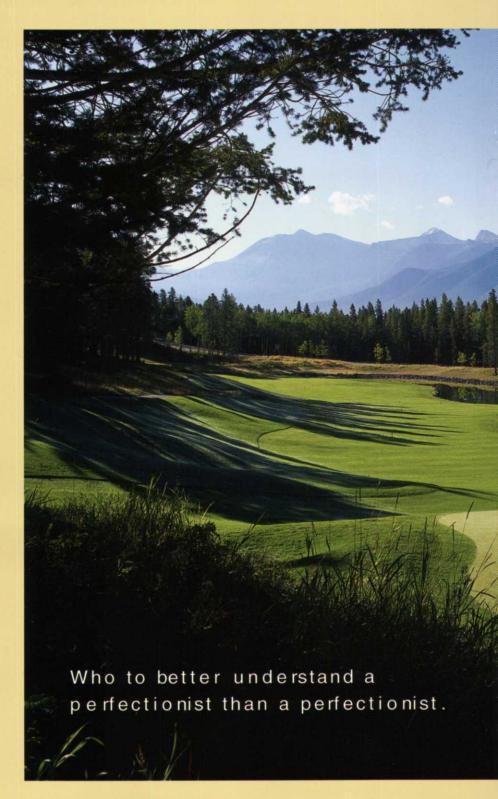




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Summertime Stress on Bermudagrass



Typical putting green appearance due to summer stress conditions. Photo by Todd Lowe.

Even though bermudagrass is a warmseason species, it can also experience environmental stress during the summer. Bermudagrass is sensitive to reduced light and requires at least eight hours of full-sun each day. Factors that decrease sunlight penetration like trees and clouds are stressful to bermudagrass and decrease food reserves (photosynthates). Closely-mown surfaces like putting greens become more easily stressed as less chlorophyll is available to intercept the sunlight.

Periods of cloudy, rainy weather produce chlorotic bermudagrass putting greens when lower mowing heights are maintained without regard to reduced sunlight and photosynthetic activity by the turfgrass. Chlorophyll is sunlight-dependent and initial signs of stress include loss of color and eventual yellowing and thinning. Aerification holes and low-set plugs often remain greener than the surrounding putting surface simply because of the increased leaf tissue in these areas.

Nature is trying to tell us something.
Raising mowing heights during this time compensates for reduced amounts of sunlight and is the best means to improve putting green quality.
Even slight increases in mowing height significantly improve chlorophyll production. This past summer

was especially cloudy and courses that weathered best were those that gradually raised mowing heights throughout the summer as daily afternoon showers began to occur. Courses that maintained low mowing heights experienced more stress as was evident in vellowish, thin putting surfaces.

It is important to limit other stresses during this time until the putting surfaces have improved. Avoid aggressive cultural practices (low mowing, core aerification, verticutting) during periods of stress as they further weaken putting surfaces and prolong recovery. Instead, light topdressing, weekly spiking and frequent foliar fertilization should be applied to aid turf quality. Also, secondary pathogens may take advantage of the weakened state of the putting surfaces, so keep a watchful eye and treat as necessary.

Previous research with zoysiagrass has shown the plant growth regulator trinexapac-ethyl (Primo) to be useful in shady situations. However, little is known about its effect on bermudagrass in reduced light. Research at Clemson University is evaluating Primo on shaded TifEagle putting surfaces and preliminary results are promising.

Todd Lowe

WINTER PINES GC

Fourth of July Color is 'Pea Green' on Push-up Greens

The stress on the Tifdwarf bermudagrass greens we have been seeing the past few years at Winter Pines has been on the greens that were the push-up style construction built without drainage back in 1968. They are still relatively free from any mutations or off-types, but certain dwarf strains start to turn a pea green around the 4th of July each year. Then they turn yellowish green and eventually, a straw color and die if not treated.

No amount of fertilizer, aerification or other cultural practices seems to be able to stop it. Areas on the greens that we cut out and resodded don't seem to be affected again.

These past few years we have sprayed the problem greens with Heritage at the .4 lb rate to try to prevent the onset of the problem, and it seems to be working. We have also used Heritage as a curative treatment and that also worked very well. One application each summer seems to do the trick. Spot spraying with a 3-gallon sprayer is used to retreat persistent areas.

The control program that has worked best for us is triggered by observing the greens. When they go off color and don't respond to normal fertilizer and water then we make our fungicide applications. So far none of the new bermudagrass greens we have rebuilt and replanted seem to be affected.

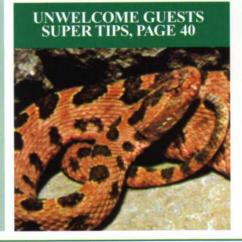
Joe Ondo, CGCS

JOHNS ISLAND WEST GC

Follow the Basics, And Pay Attention to Weather, N:K Ratio

Our greens were converted from Tifdwarf to TifEagle during the summer of 1999. Since then it has been a learning experience. I have nothing but good things to say about TifEagle; sure there have been some troubling moments, but with Nature dealing the cards, you can't always win.

We experienced a severe breakout of



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Helminthosporium of the greens around August or September in the first year. By the time it was stopped, we had lost some turf, enough to warrant sodding a couple of areas. Since then we have increased the potassium level tremendously. Our goal is to maintain around a 1 to 4 ratio of nitrogen to potassium. Since incorporating this practice, our disease problems have all but disappeared.

Between the two assistants and me, one of us is on every green every day, monitoring and watching for any problem that might develop. About the only time a fungicide is applied is if we are forecast for three to five days of rainy, overcast weather.

Our mowing practices vary throughout the year from the lowest setting of .105 to about .140 being the highest setting. We typically will keep heights up a bit during the summer, usually around .125. If it looks like we're going to have a few of those cloudy, nasty days we will bump the mowers up a little and then, as conditions improve, drop them again. It's been our opinion that the grass seems to thrive better the lower we keep it, again depending on the weather.

With the use of Primo we have managed to keep very acceptable green speeds during the summer without having to drastically lower mowing heights. The lower heights and Primo use have enabled us to keep a very dense stand of grass. The only thin areas we typically develop are in very shady spots, and of course, algae can invade. These areas are spiked as frequently as possible and chemically treated as needed.

TifEagle is a relatively high-thatch produc-

er. The first summer we were not as aggressive as we should have been with thatch removal. Since that first summer, much to the mechanic's dismay, we have become very aggressive with cultural practices. We'll try to pull cores at least four times, verticut lightly about once every other week and verticut very heavily about three times during the course of the summer.

When we do our heavy verticutting, the greens are unplayable for at least a week; fortunately we have a couple of periods during the summer that we are closed for an extended amount of time. As far as topdressing is concerned, the more sand we can keep on them the better. During this time we topdress heavily after aerifications, and lightly once a week thereafter.

Our fertility program is basic. We apply a granular product year around on a typical five- to sixweek basis. This is supplemented with liquids as needed. The majority of nitrogen is in a slow-release form, and potassium is supplied strictly through quick-release forms, usually being applied once per week. We try to coordinate fertilizer applications and watering simultaneously if possible. When we water, it is typically a heavy cycle sometimes as much as 60 minutes of water. The principle, of course, is to water as infrequently and as deeply as possible.

All in all with just following the basics and paying attention to weather forecasts, we really have not had too many problems, yet.

John Curran

ROYAL POINCIANA CC

Begin in May To Prepare for September Stress

When I started to think about this article on summer stress on ultradwarf bermudagrass, it didn't sound quite right. It should be *September* stress management on ultradwarf bermudagrass.

September is the worst month of the year to grow grass in Southwest Florida. The key factors in battling stress during the summer months are high temperatures, high humidity, cloudy days, lots of rainfall, the threat of numerous tropical storms, and an occasional hurricane; the month of September has all of them. Did I mention that the northern members return from their lush, prime-conditioned home courses on the first of October?

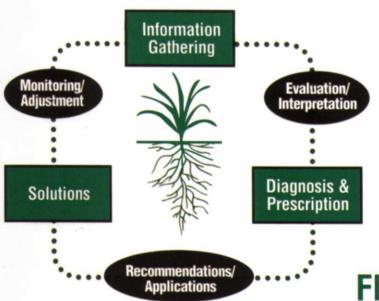
For those and many more reasons, managing our Champion Bermudagrass greens through the month of September always seems to be a challenge.

We begin our preparation for summer stress in early May by verticutting aggressively with Mataways. Some superintendents use vertical mowing machines called Gradens. I prefer the Mataway because it removes more material and causes less damage to the root system.

After using the Mataways we aerify the greens with 1/2-inch tines, leaving the holes open for 24 hours to permit gas exchange. Then we add any needed

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'I firmly believe in going out in May as early as possible so the greens have time to heal before the true summer weather sets in. From past experience, I have found that verticutting after May will not allow the turf enough time to recover before the summer weather arrives.'

amendments (along with an organic fertilizer) before the greens are topdressed. Typical amendments include dolomite, 0-0-30 and Pro-Mag.

Then the greens are topdressed and dragged in with the amendments. The next day we do a follow-up application of 21-0-0 at 1/2 lb N/1000 sq ft. Two days after the greens are topdressed, they are double rolled. Then on the third day they are mowed with a double wheile roller Triplex mower usually set at .150. Rolling is a vital step in this process to avoid scalping after aerification.

I firmly believe in going out in May as early as possible so the greens have time to heal before the true summer weather sets in. From past experience, I have found that verticutting after May will not allow the turf enough time to recover before the summer weather arrives. We will follow the same aerification process at least three times during the summer months, but the heavy verticutting is only done once in May.

During June, July and August we lightly

verticut every two weeks and topdress as weather permits. If we are experiencing cloudy wet weather, we may opt to skip the verticutting and just topdress to decrease the potential for disease and stress. If the greens begin to thin out, we will stop the verticutting (remembering that we would like to have grass on them by November) and raise the cutting heights up to .135 or higher if needed.

One issue that we battle is not letting the greens get too much thatch on them at this height of cut or it will be tough to get them back down to our normal cutting heights of .100 to .120 in October. The amount of nitrogen applied to the greens during these months is something we monitor closely. We do not have a set schedule as to how much we will apply in one given month.

One way to monitor the growth is to watch the clipping return in the mower baskets, then fertilize with nitrogen accordingly. We continue a program of Sul-Po-Mag, White Gold and Harrell's 0-0-30 to keep our potassium and calcium levels up during the summer months. Liquid fertilizer is used weekly (if needed) to spoon feed small amounts of nitrogen and other nutrients to the leaves and shoots. Remember the root system is under stress during these difficult times.

Water management during the summer months is as critical as nitrogen management. During hot summer days, canopy temperatures can rise to well over 100 degrees, especially in areas that might already have been thinned because of other stresses. Once this

happens, it seems to be a never-ending ordeal to get those thin areas back. We may hand-water these areas two or three times per day if needed to cool them down during the hottest part of the day.

When areas become thin, switching to solid front rollers on our walk mowers keeps the wheile rollers from continuing to thin the weak areas. Pitch forking is also done in these areas to help control the algae that may develop. Hand topdressing will help by giving the new runners a place to tack down to, as well as providing protection to the crowns.

During August and September, disease can be a major problem. I have tried many approaches to managing preventive fungicide programs with ultradwarfs. I honestly think that because of bermudagrass's ability to recover quickly from most disease with the exception of bermudagrass decline, most diseases can be treated curatively if caught in the early stages. From our experiences, bermudagrass decline usually stems from poor cultural practices, causing the turf to thin and become susceptible to this pathogen.

Even after managing ultradwarf bermudagrasses (mainly Champion) since 1997, I still do not have all the answers to overcoming "September Stress." One thing I am sure of, is that by starting in early spring with proper timing of cultural practices and managing the greens during the summer to avoid needless stress, I will lose less sleep during the worst month of the year.

Matt Taylor

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SPRING 2002 39

SUPER TIPS

Handling the Unwanted Guest... With Safety and Good Stewardship

Almost everyone who lives in Florida for any period of time has had to deal with a snake at sometime. In today's environmentally-conscious world, the three-iron slap shot is not always the best way to eliminate the problem. We handle our unwelcome slithery guests with a homemade snake stick.

All you need to make a world class snake stick is a hollow tube (like an old dew whipping pole), some starter cord, a small bolt with a locking nut, and a golf ball. Every course has old dew whipping poles lying around with the fiberglass insert splintered and no longer usable. The hollow aluminum-tube base is ideal for making your snake stick.

When deciding on how long to make your snake stick, remember this rule of thumb: snakes can only strike about two-thirds the length of their bodies.

Therefore, it might not be important to make the pole 10 feet long. We use one that is 4 feet long, and it works great.

Once the pole is cut to size, drill a hole as close to one of the ends as possible to insert a bolt through the tube. The bolt will act as a stopper so the cord does not get pulled up inside the pole when not in use.

Next, double the starter cord and make it longer than the pole by 3-4 feet. You need the extra cord to make the lasso; plus enough to pull the lasso closed. After the cord is cut, melt the ends to prevent fraying and feed the cord down the hollow pole with the loop end sticking out of the end where the hole is drilled. Put the bolt in and secure it, being sure to split the doubled-up cord.

The last thing to do is drill a hole in the golf ball large enough to thread both ends of the cord through, and tie it off.

To capture a snake, make a loop with the cord on the end where the bolt is. When the snake coils up, slip the loop over its body and pull on the golf ball. Be sure not to pull too hard. You only want to secure the snake. Once the snake is secure, simply pick it up and place it into a container with a lid.

The next time someone spots a snake on the course, instead of giving it the three-iron slap shot; you can relocate it. Be cautious, and learn the various species that reside around your property. Be extremely careful when capturing poisonous species.

When we capture a poisonous snake, it is taken to a local facility to be put on display for educational purposes. Check with the local community for opportunities to relocate the snake to botanical gardens, zoos, wonder gardens, or other places where the snake can be used for education.

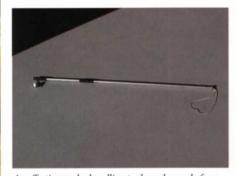
William Davidson, Jr.



Use common sense and caution when handling poisonous snakes. Keep in mind snakes can strike about two-thirds of their body length. Photo by Bill Davidson, Jr.



A small bolt acts as a stopper for the cord lasso on the end of the snake stick. Photo by Bill Davidson, Jr.



An effective snake-handling tool can be made from an old dew whipping pole, some starter cord and a golf ball. Photo by Bill Davidson, Jr.

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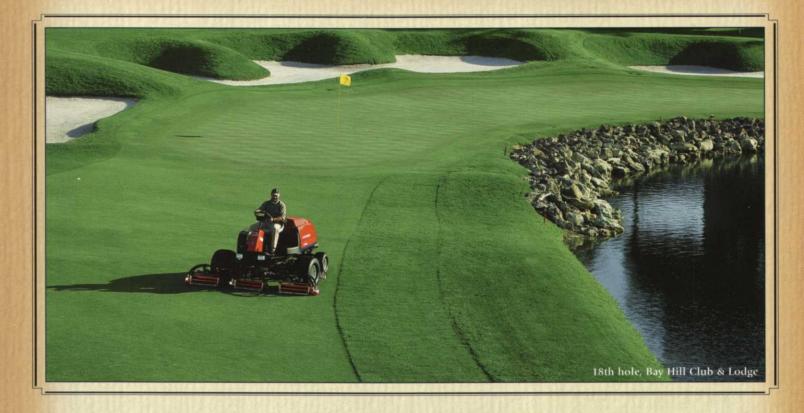


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Hunting for This Year's Column in Last Year's Magazine Doesn't Work!

By Don Benham

I called Joel to ask why my beautifully written column wasn't in the Winter issue of Florida Green. Joel said, "What are you talking about. It's on page 40!" I called him back a couple of days later and said I couldn't find it. Joel wanted to know what issue I was reading, and I responded Winter 2001. He then suggested that I read Winter 2002



Joel is still laughing.

I was backreading several publications as I find that, on second reading, I discover articles that I need to be refreshed on. Old Hickory Golf and Country Club in Ft. Myers with superintendent John Stach was

the featured club in the Winter 2001 issue with great photos and featured article that covered their environmental practices. In the same issue was an article about restoring bluebirds to the Everglades. Eight golf courses had volunteered their courses to participate in this program.

In the February 2002 issue of Golf Course Management, four Florida superintendents received the 2001 ELGA awards for their environmental efforts: Bill Davidson. Jr, Colliers Reserve Golf Club, Everglades GCSA; John Scott Kopack at the Legacy Club of Alaqua Lakes, Central Florida GCSA; Jeffery Allen Klontz at the Country Club of Florida, Palm Beach GCSA; and Kyle D. Sweet the Sanctuary Golf Club, Everglades GCSA.

Now why am I writing about golf course superintendents' environmental efforts in my FTGA column? Because as the public relations director for the FTGA, I attend many meetings and read a lot of media reporting where golf is made to be the bad guy of the environment. From Paul Harvey to environmental staff writers at newspapers, it is popular to blame golf for every problem with wildlife.

A recent column in a Manatee newspaper blames a fish kill on fertilizer runoff from the fairways of a golf course. I am not saying that is impossible, but it was only a theory of a spokesman for the Florida Fish and Wildlife Conservation Commission.

I recently attended a Central Florida GCSA fundraiser at the Interlachen Golf Club (Stuart Leventhal superintendent) with state Sen. Darryl Jones (D-40, Monroe and Dade counties) as the featured speaker. Sen. Jones stated he knew we were under the gun with chemical runoff at golf courses. I jokingly

PLANTS OF THE YEAR



Common name: Simpson's Stopper (compact form) Botanical name: Myrcianthes fragrans 'Compacta' Hardiness: Zones 8 - 11 Mature height and spread: 5' - 10' tall Classification: Evergreen Landscape use: Low hedge or specimen plant Characteristics: An evergreen Florida native shrub with small glossy leaves that bears small white fragrant flowers in late spring followed by reddish-orange berries. Birds are attracted to the



Common name: Orange Plume Botanical name: Justicia spicigera Hardiness: Zones 8B - 11

Mature height and spread: 4' - 6' tall, 2' -4' wide

Classification: Perennial shrub

Landscape use: Accent plant or massive perennial color Characteristics: A shrub that bears bright orange tubular flowers during the warm months. Evergreen but possibly cold-damaged in the upper half of the state. This accent plant needs full sun or part shade to exhibit maximum growth habits



berry-like fruit.

Common name: Bismarck Palm Botanical name: Bismarckia nobilis Hardiness: Zones 9B - 11

Mature height and spread: 30'- 50' tall. 10'-15' wide Classification: Palm Tree

Landscape use: Specimen plant

Characteristics: A massive robust palm with large silver-blue fronds. A pure green form exists, but it is less cold hardy.

Editor's Note: This program sponsored by the Woody Division of the FNGA introduces purchasers to under-utilized, but proven Florida plant material. Selected each year by a panel of horticulturists, murserymen, educators, landscape architects and other professional members of the horticulture industry, these plants have attributes which attract wildlife or have minimal maintenance impact on the environment.

responded that he was obviously being influenced by misinformed environmentalist and media writers. He responded by saying that might be true and that we need to put together a pamphlet and arrange to come to Tallahassee and speak with the legislators by calling on certain committee chairmen including himself. Sen. Jones is running for governor so he has some influence with the legislature.

I asked him what his reaction would be if we had 25,000 registered voters, who were golf club members, donating \$5.00 a year to do research at the University of Florida. Would we get the attention and support of his committee?

His response was, "if you have 25,000 people doing this then you can probably have anything you want."

Twenty-five thousand people would comprise only about 50 clubs joining the \$5 a

member program.

I know I sound like a broken record on this subject, but I really believe in it. Golf course superintendents are the best environmentalists in Florida. "Golf is good for the Environment" and that is the name of the \$5a-member program.



USGA UPDATE

Winter **Overseeding** Blues

By John Foy

Editor's Note: If establishing your overseeding this year was a problem, John Foy explains why in this

USGA Regional Update. The good news is that spring transition shouldn't be a problem. If you have been on the hot seat over your winter greens share this information with your critics.

In our last regional web update, agronomist Todd Lowe discussed the fact that warm to even hot temperatures had been experienced through the fall in Florida. The Green Section Southwest Region also posted an update discussing the difficulties associated with the unseasonably warm fall and early winter temperatures. For a lot of the country, it seems that an abnormal weather pattern has been in place. When was the last time Atlanta had more snow by mid-January than Chicago?

For Florida golf courses, the warm fall temperatures resulted in the base bermudagrass continuing to grow actively and compete against the establishment of winter overseeding covers. While there has been some variation in results, overall this has not been a good overseeding year. For Central and North Florida, the hard frost that occurred resulted in the bermudagrass losing color rapidly and entering into a semi- to fully dormant stage. This condition highlighted inconsistencies and lack of density of overseeding covers.

Winter overseeding is a standard practice at most Florida courses. Yet it needs to be remembered that this is done to provide a temporary cover of the base bermudagrass for three to five months.

If a successful establishment is not achieved in the fall, as is the case at most courses this year, reseeding and continued attempts to establish a cool-season turf cover after the first of January is generally discouraged. This greatly increases the potential for disease outbreaks and problems during the transition back to the base bermudagrass in the late spring to early summer.

While we have the possibility of more cold weather occurring over the next four to eight weeks, it is recommended to focus on managing the base bermudagrass and not the overseeding material. As soon as weather conditions are favorable for the resumption of bermudagrass growth, management efforts should be geared to accomplish a gradual yet complete transition out of the remaining overseeding material.

On a positive note, not being able to establish a dense overseeding cover this past fall greatly diminishes the potential for spring transition problems. This is almost a total reverse situation from the previous fall and winter, when very good overseeding results occurred, but then a lot of courses had a case of the "transition blues" in the early summer. For golf courses in South Florida where overseeding is not conducted, the warm fall and winter have been favorable to providing very good quality conditions.

This regional news update, and others written by the USGA Green Section staff, can be found on the USGA web site at: www.usga.org/green/news/new.html



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Disney Walks The Talk



Students help Karnes install a butterfly garden and a bird feeder in a protected area on campus. Photo by Joel Jackson.



Disney's Bonnet Creek Superintendent Bob Karnes and Assistant Superintendent Dale Dexter (back row left and right) work with the students and staff of Spring Lake Elementary to plant oak trees on the school grounds. Photo by Joel Jackson.

Audubon Environmental Education Unit Becomes PR Program for Disney

By Joel Jackson, CGCS

It's one thing to talk about helping the environment. It's another thing to do something about it. Bob Karnes, golf course superintendent at Disney's Bonnet Creek Golf Club, says that we often take the environment for granted and it's time we all did our part to correct that mindset.

Karnes did his part by making the Lake Buena Vista Club a fully certified Audubon Cooperative Sanctuary, and then helped the Osprey Ridge and Eagle Pines courses do the same. In fact last year, all of the Disney courses became certified sanctuaries.

One of the components of the ACSP certification program is called Public Education and Outreach.

ACSP bulletin boards are at all the Disney pro shops to educate golfers about the program, and last April Karnes hosted an Earth Day Walk at the Osprey Ridge GC for Disney employees. For many it was the first time they had set foot on a golf course and they were amazed at the amount of wildlife and the use of native plants on the course. The highlight of the tour was the sighting of nesting ospreys on the specially built nest poles.

Disney took its Audubon outreach off site in 2001 by adopting two schools, Bradenton High School and the Spring Lake Elementary School in Altamonte Springs, by acting as their official sponsor in the Audubon Cooperative Sanctuary Program for Schools.

Disney went a step further with Spring Lake Elementary because Karnes's wife, Rose, teaches gifted students there, so it was a logical opportunity. Karnes and his assistant superintendent Dale Dexter loaded up a pickup truck with shovels and post-hole diggers, oak tree saplings, flowers, a bird feeder and a butterfly box and set out for the school last October.

Karnes and Dexter provided the plants, tools and some muscle to help Rose and fellow science teacher Amy Delachica, Assistant Principal Nancy Fraser and Dean of Discipline Marjorie Adamczyk supervise the kids. Under their guidance the students planted the trees on the playground, installed the bird feeder and a garden to attract butterflies and a butterfly box to shelter them.

This is the school's first year in the ACSP and Rose's class is kicking off the program, but all the grades will be involved by next year. The kindergarten and first grade classes will do aluminum can recycling and the second graders will oversee a composting program. The third graders will set up a bird identification and bird count program. The fourth and fifth grade assignments haven't been decided yet.

The school is planning a field trip to the Maitland Birds of Prey compound, and maybe a trip to Hobe Sound Elementary in Stuart, one of the first Florida schools to enter the Audubon school program with the help of the Treasure Coast GCSA.

Karnes says Disney's participation in the school program satisfies the ongoing requirement of public outreach and education of ACSP certification.

"We learn how to make changes and improvements on what we do on the golf course," he said. "What better use of that knowledge than to share it with others, especially with our children who will be responsible for the future of our planet.

"Teaching these kids about our environment and how we can do simple and effective things to help make it better has been one of the most personally exciting and rewarding aspects of my career at Disney."

Thanks to Bob Karnes and all the Disney golf course staff members for doing something positive for the environment instead of just talking about it. And thanks also to the 261 Florida golf courses that have joined the Audubon Cooperative Sanctuary Program. We still have a long way to go.

STEWARDSHIP NOTES

Could Florida Match Delaware's Commitment To ACSP Program?

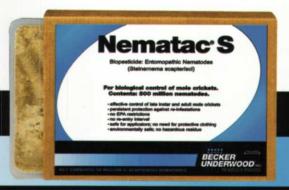
By Shelly Foy



This year's GCSAA Conference and Show in Orlando marked the first time I have actually "worked" a booth, and I must say I have never enjoyed myself more, and have never been so tired in my life at the end of the day. I had the pleasure of spending quite a bit of

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time at Audubon International's booth.

Of course I enjoyed seeing all of my Florida friends who stopped by the booth, but I also had the opportunity to meet people who are participating in AI's programs all over the world. It gave me a much greater perspective of how far-reaching AI's programs are.

While in Orlando, I also had the opportunity to represent Audubon International at a check presentation by the Delaware State Golf Association. They are the first state to have 100 percent participation in the ACSP for golf courses.

Through a venture spearheaded by the Delaware State Golf Association's Green Section (formed two years ago to address environmental issues that affect golf courses), the DSGA has agreed to fund membership dues in the ACSP for all of Delaware's golf courses. Delaware is the first state to have statewide participation in the program.

"We have been working on getting statewide participation for the past six months," said Kevin Mayhew, golf course superintendent at Newark Country Club. All of the superintendents believed in the program and wanted to join but saw the yearly dues as a hurdle. The idea of having the Green Section fund the dues was presented to our golf association and was immediately endorsed.

"Delaware superintendents would like to send the message that they want to be the best possible stewards of the land, and by joining the ACSP as a group, the entire state is sending the same message."

"We saw this has a natural progression. There is no better way for the golfers of the state to help keep the courses up with the latest programs to help protect and enhance wildlife and the environment," said J. Curtis Riley, the executive director of DSGA.

The DSGA recognizes the benefit that the ACSP provides its members and realizes that this is a continual education process for golf course superintendents. Riley also added, "We are willing to continue this funding each year and hope that other states realize the importance of environmental stewardship."

Ron Dodson, president of AI offered his congratulations to the DSGA for taking a leadership role in preserving our environmental future. Ron added, "For over 10 years, the ACSP for golf courses has benefited not only the natural environment, but also the people who are educated and forever changed through participation. It's my hope that this DSGA initiative will be replicated in states and regions throughout the country. One hundred percent participation in the program nationwide may occur someday, but at least today we are one state closer to that goal."

I spent some time talking to the DSGA representatives and they were very excited about the opportunity they have before them with their com-

mitment to the ACSP for Golf Courses. I expect we will be hearing great things from the state of Delaware in the years to come.

According to the USGA, Florida has more than 1340 golf courses, or 21,500 golf holes. We currently only have 251 (18.4 percent) courses that are members of the ACSP for Golf Courses. Only 54 (4 percent) of Florida golf courses are fully certified in the program. We are obviously a long way from 100 percent participation in the state. However, we could follow Delaware's lead and offer a challenge to each chapter in the state of Florida. So, who wants to step up to the plate and have the first chapter to have 100 percent participation in the ACSP for Golf Courses?

Here in Florida, we always like to take the lead in so many areas, so talk to members of your chapter and let's at least get started on working toward 100 percent participation, chapter by chapter.

ACSP UPDATE

New Members

Audubon C.C., Naples
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Caloosa Greens G.C., Sun City Center
Victoria Hills G.C., DeLand
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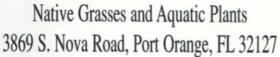






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ALTERNATIVES FOR NEMACUR?

Turfgrass Manager's Goal is Vigorous Healthy Turf, Not Dead Nematodes

By Joel Jackson and Billy Crow

Unless you have had your head stuck in the sand for the past year, you should be aware that the Environmental Protection Agency is in the final stages of reviewing the registration of the organophosphate nematicide fenamiphos (Nemacur). In fact by the time you read this, the decision probably will have been made.

Over the past year, the Bayer
Corporation, the FGCSA, the state of Florida and the
U. S. EPA have been conducting numerous conference calls to discuss the importance of the product, the risks and benefits and just how the product is used on today's golf courses. It seems inevitable, regardless of the real-world data, that EPA is leaning heavily to a three- to five-year phase-out of the product.
Curfew is another synthetic nematicide on the market, but so far only slit injection for fairways is workable. Research continues on less disruptive ways to apply it to greens.

In the late stages of the discussions, a chemical company, Parkway sent an email to the EPA stating that their organically-based product Neo-Tec might be considered as an alternative product. In fact Parkway recommends a combination of applications of a "conventional nematicide" with its product, especially if you have high nematode populations.

Parkway reports that 150-200 courses in Florida have purchased and tried the product. I have had one reliable source confirm he is getting satisfactory results using Neo-Tec.

I have also had recent reports from two highly respected Central Florida superintendents reporting positive results in reducing nematode problems using another organic product called Synzyme distributed by the Howard Fertilizer and Chemical Company.

Every time someone uses an organic product; we always ask "Where's the university research?" A couple of years ago, UF nematologist Dr. Bob Dunn shot down a whole bunch of natural products.

With the testimonials by some pretty reliable superintendents, I asked UF/IFAS nematologist Billy Crow the same question that arose when the Neo-Tec issue surfaced in the Nemacur discussions.

"I wanted to pass on some more info regarding the Neo-Tec," he said. "I did one study with the product while I was in Texas, but it had a different name 'Sincocin.' In that test it did not perform well, but neither did Nemacur.

"The main thing I wanted to point out that, other than my one test - which was inconclusive - this product has never been evaluated for nematodes on turf! It has also never been evaluated on any other crop in the US.

"Joe Noling, another nematologist with UF will be testing it this year on tomatoes and I plan on doing the same for turf."

We may be in a situation with conventional nematicides, where you are going to have to try some of these products and put their claims to the test. If you do try one of the organic products how do you know what's happening?

Dr. Crow responds:

I agree that products that prevent problems are hard to quantify. If you use a product and don't get a problem does that mean that the product worked or would you not have had a problem anyway?

These types of products can have several ways of working, if they do work.

They can kill nematodes. If they do this you should be able to detect nematode reductions compared to untreated plots. You should also get a turf response if nematodes were causing damage.

They can change the nematodes

behavior (as Neo-Tec claims) by preventing feeding, reproduction, etc. If the product works this way then you may or may not see a short-term nematode response as the nematodes will still be present in a soil sample even if the product works. However, you should see a turf response in comparison with untreated plots.

They can cause a turf response that has nothing to do with nematodes. For instance, if a product stimulates root development, the turf can become more tolerant of nematode damage and have a turf response even if nematodes are unaffect-

ed. This is a valid nematode-management approach, and I will be working with a couple of these products this year.

They can affect another organism. For instance; in some of my tests last year I included both Nemacur and Heritage plots for comparison. Interestingly, often both Nemacur and Heritage gave a visual turf response. This could be because both nematodes and fungi were causing damage so you get a response if you control either pest, or because the nematodes and certain fungi like take-all fungus can work together to cause damage in many instances. So, if you had a product that was primarily a fungicide you could get a visual turf response in some cases in areas with "nematode damage."

Turf performance has to be a major criterion for evaluating all of these products. The goal is to have healthy turf, not necessarily to kill nematodes. But, if you are preventing nematodes from feeding over a period of months there should be a reduction in populations over time because nematodes cannot reproduce without food.

My plan is to apply Neo-Tec and similar products monthly and then evaluate nematode populations, turf visual performance, and root production over a period of 6 months. If the products have any efficacy there should be both turf responses and nematode responses in comparison with untreated plots.

NEMATODE MANAGEMENT IN GOLF COURSE PUTTING GREENS USING 1.3-DICHLOROPROPENE

Help For Nematode Control Pending Registration Approval by EPA

J. Bryan Unruh and Robert A. Kinloch

Plant parasitic nematodes have long been known to adversely affect plant health. However, only since the early 1950s have nematodes been known to negatively affect turfgrass health (Dunn, 1999). Today, nematodes cause significant injury to both cool- and warm-season turfgrasses by puncturing and feeding on turfgrass roots. By debilitating the root system, nematodes weaken the turf and additional nutrients and water

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Figure 5. Nematode damage on a green at Fort Walton Golf Club. Photo by J. Bryan Unruh, Ph.D.

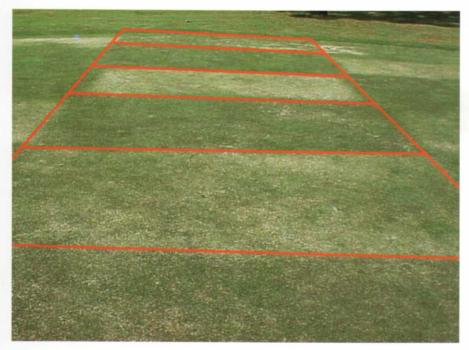


Figure 7. 1,3-D test plots on the same green above, 19 days after application. Photo by J. Bryan Unruh, Ph.D.

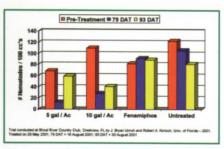


Figure 1. Control of Lance Nematodes with 1,3-Dichloropropene Soil Fumigant

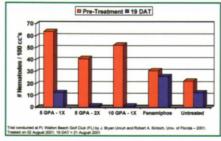


Fig. 2. Control of Lance Nematodes with 1,3-Dichloropropene Soil Fumigant

are often required to counter this destructive activity. Additionally, weakened turf also favors pest infestation, especially troublesome weeds, which necessitates herbicide applications.

Nematode Control

Several decades ago, many fumigant and non-fumigant nematicides provided effective control of nematodes. In 1977 however, environmental and health safety issues brought about restrictions on DBCP (1,2-dibromo-3-chloropropane) and since this time, many other nematicides have been removed from the marketplace (Dunn, 1999).

Today, control of nematodes has been relegated to only one synthetic pesticide, fenamiphos, and this material is available only to the golf course and sod industries. At present, there are no synthetic nematicides available for the land-scape and athletic turf markets.

Although numerous products claim nematode control, these materials have proved largely ineffective in university-conducted research (Dunn, 1999, Giblin-Davis, 2000; 2001).

1,3-dichloropropene (1,3-D), a soil furnigant, was developed in 1943 and was the first effective and inexpensive nematicide for general field use (Noling, 1996). In turf, 1,3-D was first tested for nematode control in bermudagrass turf in 1953 (Heald and Perry, 1969) and over the years, researchers and practitioners have noted exceptional control of nematodes and some soil-borne insects with this soil furnigant (Noling and Becker, 1994).

More recently, researchers have been evaluating 1,3-D for its usefulness in controlling nematodes and soil-borne insects in established turf situations (Unruh and Lickfeldt, 2002). Specifically, 1,3-D was applied at rates up to 10 gallons per acre through a coulter-shank injection machine into established bermudagrass fairways and driving ranges. Although surface disruption was minimal and recovery was quick, concern over using this application equipment on putting greens is noteworthy.

High-Pressure Subsurface Injection Technology

High-Pressure subsurface injection technology has made a dramatic impact on turfgrass management (Perrault, 1998). This equipment allows greater control of pesticide application - most notably, precision placement. Furthermore, research conducted in Georgia showed that subsurface injec-

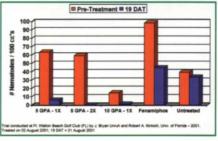


Fig. 3. Control of Lance Nematodes with 1,3-Dichloropropene Soil Fumigant

Today, control of nematodes has been relegated to only one synthetic pesticide, fenamiphos, and this material is available only to the golf course and sod industries. At present, there are no synthetic nematicides available for the landscape and athletic turf markets. Although numerous products claim nematode control, these materials have proved largely ineffective in university-conducted research.

tion of pesticides might reduce - by as much as 75 percent - the potential for pesticides to enter surface water (Perrault, 1998).

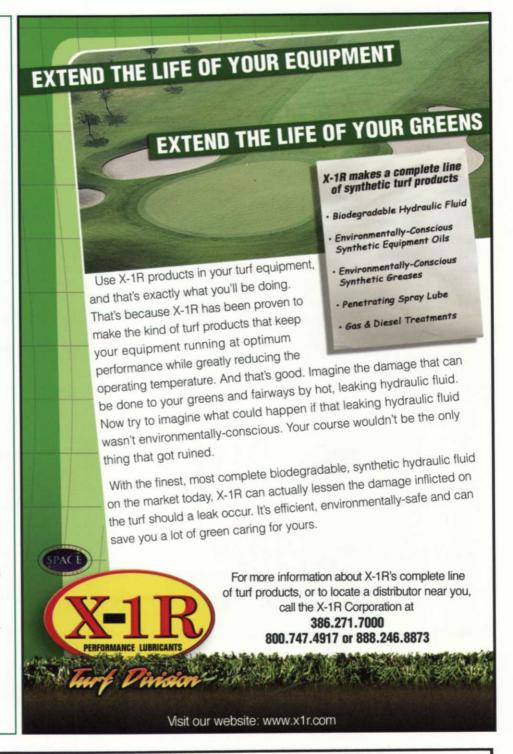
Aided by technological advances and a greater understanding of how better to use this equipment, researchers are now employing this technology in the battle against nematodes. In cooperation with Dow AgroSciences, we tested the efficacy of subsurface injection of 1,3-D using the Cushman Envirojet 160. This machine uses high-pressure pulses of water to carry the fumigant into the soil where the nematodes reside.

Research Projects

Trials were conducted during the summer of 2001 to determine the turfgrass tolerance to subsurface injection of 1,3-D and to determine the efficacy of 1,3-D for nematode control in Florida. In all the studies, applications were made using a Cushman Envirojet 160 subsurface high-pressure injection machine. 1,3-D was injected to a depth of 6 inches and the injection nozzles were spaced 4 inches apart. The operating speed of the equipment was fixed at 1.4 MPH to ensure that a 4-inch by 4-inch injection spacing resulted. The machine was calibrated to deliver 500 GPA at 2600 PSI. Tests were conducted on actual golf course Tifdwarf bermudagrass putting greens maintained at 0.156 inch.

Shoal River Country Club

Methods. A trial was conducted at



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Shoal River Country Club, Crestview, in the summer of 2001 to determine whether 1,3-D would provide effective nematode control and to evaluate the turfgrass tolerance to 1,3-D when injected into a bermudagrass putting green under high pressure.

On May 29, 1,3-D was applied at 5 and 10 gallons per acre using the equipment described above. As a comparative treatment, fenamiphos 10G was applied as a surface broadcast at 100 pounds per acre. Plot size was 10 feet X 40 feet with four replications (greens No. 1, 6, 18, and the practice green were used; one green equaled one replication).

Results. Nematode assays taken 79 days after treatment (DAT) showed that 1,3-D applied at 5 and 10 GPA provided 69 and 74 percent control of Lance nematodes (*Hoplolaimus geleatus*), respectively (Fig. 1). Post treatment nematode counts from plots treated with fenamiphos actually showed an increase in nematode numbers (Fig. 1).

Although few Sting nematodes (Belonolaimus longicaudatus) were present, both rates of 1,3-D provided 100 percent control of this nematode (data not presented). By 93 DAT, nematode populations in plots treated with 5 GPA had recovered to within 70 percent of the pretreatment values. Conversely, nematode counts in plots treated with 10 GPA had only rebounded by 30 percent. Fenamiphos provided no control of either nematode species in this study.

Objectionable turfgrass injury was observed in plots receiving 10 GPA 1,3-D.

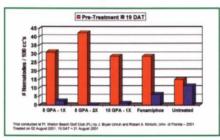


Fig. 4. Control of Sting Nematodes with 1,3-Dichloropropene Soil Fumigant

However, injury subsided within three weeks. Although nematode levels were high on these putting greens - exceeding the recommended treatment threshold - turfgrass quality was not adversely affected and post-treatment quality ratings did not show a significant improvement in turf quality (data not presented).

Bottom line. 1,3-D applied at 5 and 10 GPA provided good control of Lance and Sting nematodes. By three months after treatment, nematode counts had rebounded in plots treated at the 5 GPA rate. Under the conditions in which this trial was conducted, turfgrass injury was observed at the 10 GPA rate.

Ft. Walton Beach Golf Club

Methods. Two studies were conducted

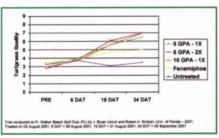


Fig. 6. Turfgrass Quality as Affected by 1,3-Dichloropropene Soil Fumigant Application

at Ft. Walton Beach Golf Club in the summer of 2001 to determine whether 1,3-D would provide effective nematode control when high-pressure injected into a bermudagrass putting green. On Aug. 2, 1,3-D was applied at 5 and 10 gallons per acre using the equipment described above.

Other researchers had noted that two passes, each injecting 5 GPA (total application rate of 10 GPA), did not cause the same level of injury as a single pass at 10 GPA (personal communication, Dr. Billy Crow). Therefore, this additional treatment regime (5 GPA 2X) was added to the trials.

As a comparative treatment, fenamiphos 10G was applied as a surface broadcast at 100 pounds per acre. Two separate putting greens were used, and plot size in both trials was 5' X 10' with four replications.

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TifSport is more aggressive than genetically pure Tifway, especially during the cool weather months. This may account for TifSport's rapid grow-in and repair time.

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TifSport's density, sod strength and good lateral growth rate give it a high ranking for traffic tolerance. Athletic field managers and golf course superintendents are reporting outstanding re-growth from normal wear and tear.

Upright Leaf Blade Orientation

TifSport's leaf blade orientation and stiffness is being touted by many golf course superintendents. They feel Tifsport gives a better ball lie in cut fairways and roughs.

Impressive Leaf Texture

TifSport has a similar leaf texture to Tifway, and a finer leaf texture than most other grasses used on fairways and tees. This also helps promote good footing on athletic fields.

Dark Green Color

 TifSport has a dark emerald green color versus the somewhat lighter green of Tifway and Quickstand.

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TifSport developer Wayne Hanna has data from a 2-year study showing that TifSport has good drought tolerance. It not only stays green longer but it also recovers faster.

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TifSport has expanded the northern limits for warm season bermudagrasses, and has remained very consistent over multiple winters in Oklahoma.

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This inside view of a typical TifSport plug shows TifSport's impressive root system, stolons and rhizomes.

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Results. In the trial conducted on practice green no. 10, 1,3-D applied at 5 GPA, 5 GPA 2X, and 10 GPA, provided exceptional control of lance nematodes (Fig. 2). Fenamiphos provide a slight level of nematode control compared to the pre-treatment counts. As noted previously in other trials, turfgrass injury was objectionable at the 10 GPA rate, but was not objectionable at the 5 GPA and 5 GPA 2X rates (data not presented).

In the trial conducted on the north practice green, all rates of 1,3-D provided 90-100 percent control of lance and sting nematodes (*Figs. 3 and 4*). Fenamiphos gave 55 and 78 percent control of lance and sting nematodes, respectively.

Of particular interest in this trial was the initial turf density - averaging only 40 percent turf coverage at the time of application (Fig. 5). Figure 6 shows the dramatic improvement of turf quality achieved with the application of 1,3-D. By 19 DAT, turf in fumigant-treated plots was at, or near, an acceptable quality level and by 34 DAT, regardless of rate, had improved from a pre-treatment value of 3.5 to a post-treatment level of 6.5 to 7.0. Figure 7 reveals photographically, the difference in turf quality observed at 19 DAT. Similar turfgrass injury results were observed in this trial.

Bottom line. Results from this study showed that 1,3-D can control lance and sting nematodes, and when used at 5 GPA or 5 GPA - 2X, will not produce objectionable turfgrass injury.

Conclusions

Results from the trials discussed here show that 1,3-D will provide a valuable nematode management tool to golf course superintendents should it receive a registration from the Environmental Protection Agency. With this tool, turfgrass managers will be better able to manage their turf and do so with fewer inputs of pesticides, nutrients, and water.

Acknowledgments

This research was supported by the Florida Agricultural Experiment Station and inkind financial support from Dow AgroSciences LLC. The authors wish to thank Chris Hood and Clint White for their technical assistance and golf course superintendents David VonSchmittou (Ft. Walton Beach Golf Club) and Radford Shirley (Shoal River Country Club) for their assistance with and support of the research.

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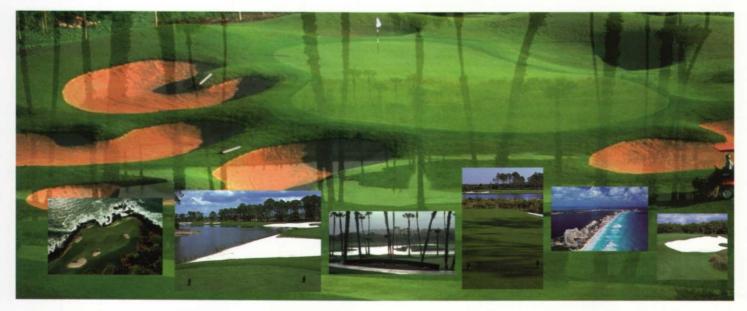
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SPRING 2002 55

Mister Mayor

by Monroe S. Miller

Editors Note: One of
my superintendent
writing heroes is
Monroe Miller, editor of the
Wisconsin GCSA's
magazine, The
Grass Roots. His
"Tales From The
Back Nine"
are always
entertaining
and inform-

ative. With all the hubbub over PDI and image, I couldn't pass up sharing this story about a golf course superintendent who is also the mayor of a Wisconsin town. Talk about enhancing your image. Enjoy!

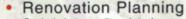
> Cheryl and I got stranded in west central Wisconsin last winter on our way to the Twin Cities to see our

kids and our granddaughter, Grace Kaster. We had to get a motel room and spend a Thursday night waiting out the snowstorm. She wasn't real happy that I had decided to take the scenic route instead of I-94, but the room was clean, and we found a good restaurant (The Fork and Spoon) for supper.

Like any normal American does these days, the first thing I did when we returned to the motel room from eating was to grab the remote and turn on the TV. There before my eyes on Channel 4, the area's public access channel, was Jack Hauge, golf course superintendent at Splendid

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Valley CC. He was presiding over a meeting of the Bergen city council meeting; the nameplate in front of him said "MAYOR."

It was a good thing Cheryl had a book with her. I was determined to watch Jack manage the business of Bergen, a town of 2,000 with a strong Norwegian influence yet today despite its founding nearly 150 years ago. Jack traced all of his ancestors back to Norway and had visited the home fjord several times.

The meeting was pretty routine, I'd say. It seemed everyone on the council - there were only six of them, plus the mayor - was congenial. Clearly, in a small town there are far fewer divisive issues when compared to, say, Milwaukee or Madison or Green Bay.

This night they were talking about paving a section of Elm Street (the 600 and 700 blocks) and approved a motion to replace the recycling containers with new and larger ones. Both were budgeted items and approval seemed a formality.

There was a brief discussion about new lighting for the ball diamond in Hauge Park. Jack's brief comments put the issue to rest: "The community park was named after my grandfather. He donated the land for it to the city, and it is a special place for me. But if it needs lights now, it needed them when we were in the budgeting process. I am firmly against unbudgeted discretionary spending."

End of that deliberation.

There was one issue that did generate some discussion among the council members. One member offered a motion to install a stop light at the intersection of Main Street and Lincoln Avenue. The city attorney pointed out the process with the Wisconsin DOT that they would have to comply with. The city engineer gave estimated costs. After weighing both sides of the issue, it was dismissed as unnecessary at this time.

And that was it. Jack had run a well organized meeting with efficiency and brevity, not unlike he ran the golf course at Splendid Valley.

The next morning we went back to the Fork and Spoon Cafe for some breakfast. We sat at the counter, ordered black coffee to drink while looking over the menu, and started to visit a little bit with the local folks who had gathered. Little restaurants like this one always have a regular crowd for each of the main meals of the day. My preference has always been the early birds, and it didn't take long to engage them in conversation about their mayor.

"Did you see him on TV last night?" asked one older fellow in bib overalls and LaCrosse boots.

"I sure did," came my reply as I volunteered, "and I have known Jack for many years. I am in the same business as he is." "Oh," was the collective response from several within hearing distance.

We ordered bacon, eggs, wheat toast and hash browns with orange juice and milk to drink. The waitress went down the counter and filled the coffee cups.

"How's he doing as mayor?" I finally asked. Norwegians are known to be a little reticent. "Well," came the reply slowly, "we got ourselves a good one. He takes the job way more seriously than any other mayor most of us can remember. And he works dang hard at it, too.

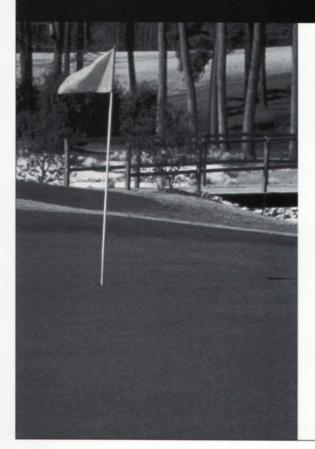
"Bergen has the best streets of any town or village out here in western Wisconsin, maybe anywhere in Wisconsin!"

The breakfast crowd was loosening up a bit.

"And if you think we have good streets in town, our parks are even better. He knows a lot about them because of the golf course he manages. He really shaped up the city crew when it comes to aerifying and mowing. Heck, he even spends a little money to fertilize them and he makes sure the weeds are killed. He does the spraying himself. We couldn't be happier.

"Plus you should see our ball diamonds since Jack has been on the city council. He put watering systems into the soccer fields and the ball fields the city owns, and now we are the envy of everybody out here in this part of the

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country!"

A man dressed in a coat and tie came in and sat at the counter with the rest of us.

"Ask him a few questions about our mayor."

I leaned around Cheryl and explained we were stranded in town last night and had watched the council meeting. "I know the mayor," I volunteered.

"EVERYBODY knows Jack," he said. "He does a really good job - I am on the council and I see him function up close and personal. We hope he sticks with it for a few more terms He has made it impossible for whoever succeeds him.

"What Jack has done is create some excellent work habits among the public works staff. They seem to have a lot of pride that they didn't have before he was elected to the council. He has chaired both the Parks Committee and the PW Committee and left his clear impression on both.

"Our town now has a brighter, neater appearance. There are never any little unfinished jobs around town. No sloppy work. Everything from picnic tables to city vehicles is in tip-top shape. He expects excellence from people."

We took a breather so we could eat our breakfast - the food was getting cold.

The man in the coat and tie had his

usual coffee and a chocolate donut. Then he continued. "Jack's influence on Bergen has gone beyond the practical and obvious things we have been talking about.

"The city infrastructure is sound. We are on a planned replacement schedule for everything from fire trucks and snowplows to our municipal water supply. We have a carefully developed plan relating to annexation and growth and land use. We have personnel policies, vehicle-use policies and even a protocol for the use of city cell phones. Should the need arise, we are prepared for implementation of a TIF plan. We have a lot of confidence in our city government, due in no small part to Jack Hauge."

I mentioned to him that I knew Jack through our mutual profession. The man smiled and said that he felt there were similarities between a smooth-running golf course operation and a smooth-running municipal operation.

He asked what course I worked for. I told him and then asked if he played any golf.

"Oh, you bet," came the quick answer. "I have belonged to Splendid Valley for many years. In fact, I am the club president this year!"

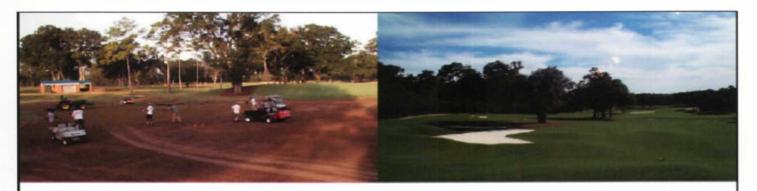
I almost fell off the counter stool. "So, when Jack is at the course, you are the boss!" "Yes," came the careful response.
"But as soon as I hit the city limits of Bergen,
Jack becomes 'Mr. Mayor'."

We talked a little longer about club politics and city politics, and he said he was happy to say Jack was above it all.

I was thinking of my colleagues and all the interesting things they did outside of work. We could count among us an opera singer, a sculptor, a Brown Swiss cattle showman, an author, an amateur flower breeder (irises), a pilot, and an accordion player in a polka band. We even had a mayor in our midst and didn't even know it What will it be next? The possibilities are limitless, just like the opportunities.

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May/June 2001

The man smiled and said that he felt there were similarities between a smooth-running golf course operation and a smooth-running municipal operation.



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Speed Kills!

When I was a young lad of about 10, I



watched a movie about the Indianapolis Speedway and the Big Race held there each year. It starred William Bendix who played the part of "Burn 'em Up" Barnes. Needless to say, old "Burn 'em Up" slammed into the wall and expired amid the wreckage and twisted metal near turn two... or three... or one of those

By Jim Walker

turns. Funny how that movie stayed with me all these years, but it has. The moral of the story, obviously, was "speed kills."

Last April, my wife and I had the opportunity to get up close and personal with Daytona International Speedway, thanks to her exhusband, with whom she has remained cordial. Bruce is an architect working for the France Company which owns the Daytona Track and several others across the country. He took us on quite a tour of the facility, but the most compelling part of the excursion was almost being

able to touch the wall in turn three where Dale Earnhart, "The Intimidator," had bought it just a couple of months before. Moral of the story: "Speed kills."

In case you were wondering what the hell a bunch of people going around in circles at 180 miles per hour has to do with turf, it is that speed bills

I have seen too many good superintendents lose jobs because their greens took a dump as they tried to maintain them at speeds of 10, 11, or 12 on the stimpmeter. This quest to have the fastest greens in town is taking a toll, and it seems to me that it is all so needless.

Now don't get me wrong, I'm not someone who putts badly on fast greens and has a personal axe to grind. As a matter of fact, the faster they are, the better I like it. This fact can be verified by any number of people whose socks I've knocked the dust out off. Putting on fast greens brings out the Jerry McGuire in me.

But enough is too much already! A stimp 8.0 to 9.0 is plenty fast enough and leaves the plant sufficient leaf tissue to accommodate photosynthesis. Furthermore, there doesn't seem to be a loss of root mass at these speeds. With products like Primo, around 8.0 on well-shaped greens is more than what 90 percent of golfers can handle. I know it's one of the main reasons play has slowed down. The greens are too fast and all these pork chops are chipping from one side of the green to the other and following that up with three- or four-putts.

I think the time has long since passed that the USGA and particularly the GCSAA began aggressive education to the masses that the green speed they see on TV every week is not what they should expect from at their clubs on a regular basis.

I wish I had kept the article in GolfWeek's Superintendent News, which alluded to the fact that the greens on three of the last four US Open courses had to be replanted immediately after the event because they had gotten so stressed out during tournament week.

That's the part of the story the golfing public never hears. "Speed Kills" is the part of the story our industry, and the people to whom we have entrusted our profession need to begin preaching. Slow 'em down!

I know that this commentary will be read by some folks at big-time clubs and be laughed at, but not everyone has a million-dollar budget and a staff of 20 or more for each 18 holes.

I have known Fred Klauk since his days at Eagle Trace, and his TPC course was one of the courses that my wife and I played last April. That was just a short time after the Tournament Players Championship. Fred is for sure one of the best two or three superintendents I have known in my

30-plus years in the business.

When we played the first par three on the front side, there was one of his trusted and knowledgeable staff members working diligently, sodding bare spots! His comment to me as we commiserated on his task was, "You can't mow 'em at .110 and expect them to grow, can you?"

No, especially not in Jacksonville at that time of year.

Come on USGA! Come on GCSAA! Get on board and come on in for the victory lap, or else we'll have you standing tall before the man.

Start telling the masses: "Speed Kills!"
P.S. That day at Fred's magnificent facility, I knocked it in on No. 17, shot 82 and didn't three-putt a green.

TURF=ENVIRONMENT

If You Really Want to Understand How the Activists Think... Join 'em

By Phil Busey, Ph.D.



Phil Busey, associate professor of turfgrass science at the University of Florida's Fort Lauderdale REC, operates "Turfgrass Management," a web site, online discussion forum and an irregular but frequent email newsletter. The following excerpts indicate that not all voices in the discus-

sion of turfgrass and the environment are either shrill or confrontational.

Walk the Talk

If turfgrass is to survive in the urban age, we must talk the talk, and walk the walk, of environmental stewardship. If you as a turfgrass manager are not a member of the Sierra Club, or the Audubon Society, or the Nature Conservancy, you should seriously consider protecting your livelihood as well as doing what good you can do as a citizen, and join one of these or other responsible organizations. If for no other reason, you'll meet some interesting people.

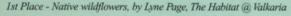
That said, we must be careful to be accurate and not exaggerate the safety of pesticides, nor to exaggerate their potential harm. This came up at a recent meeting in which there was a comment made speculating about possible complaints by neighbors (which have never occurred) regarding pesticide use.

This kind of speculation is harmful



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Easy Rules

- 1. Submissions for judging must be a color or black and white photograph or a slide. No computer print outs of digital photos will be accepted. Only one entry per category. Don't make us choose.
- 2. Photo must be taken on an FGCSA member's course and taken by the member or a member of his/her staff.
- 3. Attach a label to the back of the photograph

because of the work that the GCSAA, the FGCSA. the FTGA, the TPI, and others have done to educate their members on safe pesticide use, and to educate the public on the benefit of turf to the environment. It cuts deeply because pesticides are greatly misunderstood and distrusted by the general public. Idle and erroneous speculation about possible future complaints from neighbors can only feed the flames which identifies the category, course and photo rapher. Do not write directly on the back of the photograph. Attach the photo or slide to a piece of 8.5 x 11 sheet of paper with a loop of masking tape for easy removal for handling.

- 4. A caption identifying the category, course and photographer should be typed or printed on the paper below the photograph.
- 5. Judging will be done by a panel of FGCSA members not participating in the contest. Mail entries in a bend-proof package/mailer to Joel Jackson, 6780 Tamarind Circle, Orlando, FL 32819

Prizes

1. First Place (\$100). Second Place \$50 in each Category

of misunderstanding. Most seasoned environmentalists I know have focused their efforts on broader issues such habitat loss, noxious exotic weeds, and energy policy. In contrast, pesticides are one of the few environmental issues that are under strict regulatory oversight. With few exceptions, the kinds of pesticides that are used, and the low rates at which they

- 2. Editor's Choice Best Overall Photo \$100
- 3. All winning entries will be published in the Florida Green.

Categories

- Category 1 Wildlife on the Course: mammals, birds, reptiles, amphibians and insects.
- Category 2 Formal Landscape: annual beds, shrubs, trees, entrance and tee sign beds and any other formal plantings.
- Category 3 Native Landscape: native plant beds, aquatic vegetation plantings, natural areas and any other use of native plants on the course.
- Category 4 Scenic Hole: sunrises, sunsets, frosts, storms or any other interesting view of a golf

are used, make the biggest problem one of actually finding them in the environment. But careless comments about pesticides get attention.

-Turfgrass Management, Vol. 4, No. 7 I had an enjoyable and stimulating exchange of views regarding my suggestion that turf managers run out and join the nearest environmental club. The comment was that doing so might be like

"joining the enemy." We came to the conclusion that different strategies may work in different situations.

In my 10 years as a member of the Broward Sierra Club, I have never met someone with whom I could not intelligently discuss turfgrass and pesticides. That may not be true everywhere, but I think it would be more true with local organizations than national ones.

We even have one Sierra Club member who advertises his pest control services in the monthly newsletter; the company name "Kilzum Bob Pest Control" says it all, followed by "Environmental Solutions."

When my colleagues and I were working with Peg McPherson of the South Florida Water Management District to develop BMPs for land-scape and turf, we got to the 11th hour and realized we didn't have an environmental representative. Because of my personal friendship and membership in the club, it was easy to get the local conservation chair to a BMP meeting, sitting across the table from reps of TruGreen/ChemLawn, LESCO, and pest control organizations.

The Sierra Club representative's departing comment was, "I didn't know there was so much involved in taking care of turfgrass."

And with that we got the endorsement of the Sierra Club.

-Turfgrass Management, Vol.4, No. 8 Spray Drift Labeling

The EPA's extended comment period on

proposed new spray drift labeling guidelines ("Draft Guidance for Pesticide Registrants on New Labeling Statements for Spray and Dust Drift Mitigation") closed March 31.

While most of the proposals will not affect urban turf applications, sod producers could be affected.

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A chemical product representative in the southeastern US explained how much work was required to get the spray drift labeling guidelines to make sense. The initial draft would have permitted

required to get the spray drift labeling guidelines to make sense. The initial draft would have permitted zero drift, even where no harm or hurt would have occurred. It would have also been impossible for the EPA to enforce.

Fortunately, there were available government and university studies on the subject of drift, which industry representatives presented to the EPA.

The chemical product representative in Florida mentioned to me, "Where a small amount of drift will potentially do harm, there should be none." But with reason and common sense on both sides of the problem, they were able to convince the EPA to develop real-world guidelines that will be good for the environment, and not create a cure worse than the problem.

So, in this complex world, there are trade groups who are helping you keep your greens green.

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Wanted: Partners for the Future

MARK MY WORDS



By Mark Jarrell, CGCS

The longawaited presentation to potential industry supporters of the Pine Acres project took place at the Orange County Convention Center Feb. 9 during the GCSAA's annual conference and show. Representatives from John Deere, Toro, Textron, Rain Bird, Wadsworth Construction. Harrell's, Howard Fertilizer and Chemical Co., Golf Ventures and

many others were in attendance.

For those who don't know, Pine Acres is the name of the more than 1,000-acre plot 20 minutes south of Gainesville that is to become the centerpiece and focal point of all of



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UF/IFAS's plant sciences. The G.C. Horn turf plots on the north side of Gainesville will be relocated there. However, the Envirotron and its attendant research green will remain on campus. The G.C. Horn name will move to the new location. Turf and Ornamentals were one of the first commodity groups to commit to the move, giving us a prime plot of 40 to 50 acres.

The strategy is to consolidate UF/IFAS's many far-flung research facilities into a few manageable, efficient, and first-rate centers. The Gainesville campus continues to sprawl from increased enrollment, making it too crowded and impractical to continue the many small and diverse research areas. Furthermore, many of the smaller off-campus plots and stations have become "unsustainable" because of inadequate funding for maintenance. The operative words are "deferred maintenance," meaning the research and education centers are never given enough state funding to maintain their facilities, such as fix the roofs and air conditioners.

While the events of Sept. 11 caused our governor to slash the IFAS budget about another \$8 million this year, the truth is that IFAS has been squeezed by all the Legislatures since 1987. The bottom line is that Florida's politics are now controlled by urbanites elected by urbanites who have no understanding or appreciation for agriculture, the green industry, or natural resources.

We have worked hard over the years to show our industry's support of UF/IFAS research, only to have state support continue to diminish, and many programs to erode instead of advance. Perhaps our main thrust should be political activism to educate the urbanites about the value of IFAS programs to the green industry and to the protection of our natural resources - the primary reason people move to or visit Florida.

But I digress. The Pine Acres presentation was well received by those company representatives who attended. It was a soft sell approach meant to introduce the plans and put out feelers for support rather than to solicit a defined commitment. IFAS Vice President Mike Martin gave a superb presentation, supported by Dr. Terril Nell and several of the UF turf faculty, using an excellent video developed just for this presentation, with a take-home folder of pertinent info about IFAS and the turf program.

I give the effort an "A," but I've been at this long enough to be optimistically cautious when people are asked to reach for their wallets.

I know that some in our industry are so frustrated with the politics that they are considering washing their hands of support to the IFAS turfgrass program. This would be a big mistake. Research in Florida under Florida conditions is important to us as professionals, and to the people who live in this state, even if they don't yet understand it or help support it. We may have hit a bump in the road, but the turfgrass program is moving forward, and all Florida turfgrass professionals need to help make it the best in the country.

Putting Things Into Perspective

GREEN SIDE UP



Joel Jackson, CGCS

As the war of words continues with respect to environmental issues, it is our duty to speak up when our industry and our profession are assailed in the media and at county commission or water-management-district meetings. Words and phrases like "big water users" and "runoff" and "pollution" are bandied about and repeated so often in the media, that the

mere mention of them is accepted as fact.

Of course a little cursory fact finding and research into reality tells us that golf courses are not big water users. Just because we are visible and well maintained doesn't mean we are water wasters. According to the U. S. Geological Survey of fresh water withdrawals done in 1995, golf only used 2.6 percent of the total water pumped daily. The USGS compiles the data from all five water management districts every five years. The 2000 report is being assembled now.

You can't read an article on ground water and water quality without finding the words "runoff" and "pollution" automatically associated with the use of fertilizers and pesticides. The years of studies and research have shown repeatedly in different parts of the country, under different environmental conditions, that fertilizers and pesticides applied properly do not negatively impact

the environment.
What
reporters and critics
fail to mention is that
it is the *misuse* of
products that can

cause potential problems. But isn't that true for anything we do? Over 50,000 people a year are killed in automobile accidents. Nearly half a million birds are killed every week from flying into glass skyscrapers and from cat predation.

How many people are killed from proper pesticide use? The answer is zero.

There are some pesticide poisonings each year, but they come from suicide, homicide, accidents or misuse. There's no hue and cry to ban automobiles, raze skyscrapers or destroy all cats. There's only the constant focus on pesticides as the evil force in world.

The words "toxic" and "toxins" are used with such venom in describing pesticide use on lawns and golf courses as if pesticides were the only toxic substance mankind comes in contact with thanks to the green industries. Once again the critics ignore the fact that studies done on lab rats show that nicotine, gasoline and caffeine are more "toxic" than diazinon. Guess which substance has been banned? MSDS sheets also show aspirin is more toxic than malathion, and table salt, vinegar and baking soda are more toxic than glyphosate and benlate.

Dose makes the poison and many natural and organic substances from animal and plant extracts can be poisonous or beneficial when used in prescribed amounts. Consider antibiotics and fungicides people use to kill bacteria, athlete's foot and yeast infections in and on their bodies. Botox, a product derived from the deadly botulism bacteria, is injected in people's faces to firm up sagging skin. People have much less contact with pesticides applied to lawns and golf courses than they do with the common everyday medicines, cleansers, solvents and other products that can cause health effects when misused.

Nonprofit activist organizations need conflicts to generate publicity to generate donations and foundation grants. The media needs conflict to generate headlines and stories to generate readership to justify advertising rates. These two groups form an insidious relationship that fosters speculation, not education.

We can't out-finance or out-shout the narrow-minded critics, but we can respond to misinformation when we see it or hear it.

Abusers of any product or process should be exposed and prevented from doing harm to the environment. But painting all pesticides and fertilizers - and those who use them - with the same brush is not only shameful, it is irresponsible. The development and proper use of pesticides and fertilizers have made the U.S. the number-one food producer in the world, and we do it on less land, which allows us to preserve habitat, and we have the safest food supply in the world.

Only a relatively small percentage of the population works with nature and our natural resources. The ones who do respect and protect the environment because their livelihoods depend on it. Most of the general public, including legislators and regulators, are from urban settings; they are disconnected from the land. Their view of the world is a 25-inch TV screen or a newspaper headline screaming, "Pollution!"

We can't out-finance or out-shout the narrow-minded critics, but we can respond to misinformation when we see it or hear it. Until we do a better job of educating lawmakers and the media, we will have to try to put things into perspective one story at a time.

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