



The Florida Green

Summer 1995



Osprey Ridge GC
16th Hole
Disney's Bonnet Creek Club

For some, perfection is a goal. For Jack Nicklaus and his crew, it's merely a starting point.

As one of golf's legendary players and course designers, Jack Nicklaus sets the pace for quality play. To maintain his courses and his reputation, he chooses turf equipment that does the same. Jacobsen.

Take Jacobsen greens mowers for example. A complete family of walk-behind greens mowers offers the selection to match individual green terrain and conditions for precise cutting and striping.

The one and only patented Jacobsen Turf Groomer® turf conditioner creates healthier greens with improved playability.

And the Greens King™ IV with steerable reels cuts smoother and cleaner than anything on wheels.

Jacobsen equipment makes a noticeable difference. It's one reason Muirfield Village Golf Club is consistently rated #1 by the pros as the best maintained course they play on the PGA tour. And Desert Mountain, another Nicklaus-designed course, is #1 on the Seniors tour.

In fact, Nicklaus recommends Jacobsen to help keep all 131 of the courses he designed at the top of their game...and at the top of "best course" lists around the world.

THE PROFESSIONAL'S CHOICE ON TURF.

**JACOBSEN
TEXTRON**

Jacobsen Division of Textron Inc.

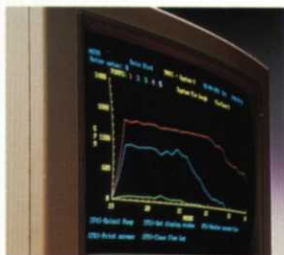


Tresca
4827 Phillips Highway
Jacksonville, FL 32207
(904) 448-8070
(800) 262-6741

Tresca
6025 Highway 301 N.
Tampa, FL 33610
(813) 621-3077
(800) 304-5690



Renovation by Rain Bird



What do Pebble Beach Golf Links®, Cypress Point Club, Muirfield Village, Shinnecock Hills Golf Course and La Quinta-Mountain Course have in common? Irrigation renovation by Rain

Bird. In fact, five of the TOP TEN* golf courses in the United States have all upgraded their irrigation systems in recent years with state-of-the-art Rain Bird irrigation products.

Whether you have a nine-hole country club course or a world-class tournament course, you can achieve excellent results by choosing Rain Bird irrigation products for your renovation needs.

Each course presented unique challenges. That's why at Rain Bird, we offer a complete range of irrigation

products: Irrigation Control Systems—MAXI® V, PAR, MSC satellites—and The Freedom System™, our newest wireless technology; remote control valves, both self cleaning and pressure regulating in brass or plastic; quick coupling valves; and your choice of DR impact drive or EAGLE™ gear drive rotors.

In addition, Rain Bird won't leave you high and dry after the sale. Rain Bird's

Technical Service staff, along with our worldwide network of distributors, assures you immediate after-sales service and parts availability.

Before you choose an irrigation system, consider Rain Bird.

IT'S THE PRODUCT OF CHOICE.



RAIN BIRD
GOLF IRRIGATION

Reproduced by permission of Pebble Beach Company.
* As rated by *Golf Digest* 1993.

The next is yours

MAKE IT WITH AgrEvo™

Experienced pros know. Mother Nature is a formidable adversary. Pros who have mastered the turf & ornamentals game know a strong opening won't be enough to beat back the competition. They know when to apply a strong offense or strong defense. . . when to strike quickly. . . when to play the waiting game. Grounds management is complex. Climate, geography, weeds, disease and the environment can affect your game plan. When it comes time to make a move, experienced, grounds managers rely on AgrEvo for a complete product line of herbicides, insecticides, fungicides and fertilizers — all designed to provide you with a strategic edge.

It's your move. Checkmate turf & ornamental problems with knowledge, experience and AgrEvo.



A company of Hoechst and NOR-AM

Specialty Products

AgrEvo USA Company
Little Falls Centre One, 2711 Centerville Road
Wilmington, DE 19808

For further information contact your Florida representative.

West Coast
BRIAN MacCURRACH
(813) 678-3100

East Coast
BOB HICKMAN
(407) 831-8729

move



IMPORTANT: Please remember always to read and follow carefully all label directions when applying any chemical.



Officers

President Scott Bell
Bent Pine GC
6001 Clubhouse Drive
Vero Beach, FL 32967
(407) 567-9422

Vice President Greg Plotner, CGCS
Medalist Golf Club
9650 SE Federal Highway
Hobe Sound, FL 33455
(407) 546-0647

Secretary/Treasurer Dale Kuehner, CGCS
Colony West Country Club
6800 NW 88th Ave
Tamarac, FL 33321
305-721-5980

Past President Paul Crawford
Palm Beach Country Club
P.O. Box 997
Palm Beach, FL 33480
(407) 845-2395

Directors

Central Florida Joe Ondo, CGCS
Winter Pines Golf Club
(407) 657-7565

Everglades Mike Mongoven
Fort Myers CC
(813) 278-7261

North Florida Kimberly Shine, CGCS
Windsor Parke GC
(904) 223-0886

Palm Beach Chip Fowkes
Frenchmen's Creek GC
(407) 622-1188

Ridge Alan Puckett
Lake Region Y&CC
(813) 324-4678

Seven Rivers Michael Swinson
Cypress Run G&CC
(813) 039-5832

South Florida Al Ross, CGCS
Sunrise CC
(305) 305-742-4545

Sun Coast Tom Crawford
Misty Creek CC
(941) 022-2141

Treasure Coast William Lanthier
Mariner Sands GC
(407) 283-0202

West Coast Chip Lewison
Gator Creek GC
(813) 922-0853

Staff

Association Manager Marie Roberts
1760 NW Pine Lake Dr
Stuart, FL 34994
Phone: Days (407) 692-9349
(800) 732-6053 (Florida WATS)
(407) 692-9654 (Fax)

CONTENTS



SUMMER
1995

FOREWORDS PRESIDENT, PUBLICATIONS CHAIRMAN 6
President Scott Bell's farewell president's column discusses the media's and environmentalists' failure to recognize progress... Greg Plotner says golf is not an environmental problem; golf provides solutions to environmental problems.

SPOTLIGHT SPRING FLINGS 12
It's been an eventful spring with the Poa Annuu Classic, Envirotron Golf Classic, Suncoast Scramble and Blue Pearl Tournament raising money and awareness. Profiles follow on President's Award winners Lonnie Stubbs, Joe Snook and Lou Oxnevad.

COVER STORY CLASSIC COURSES 28
Walt Disney Company's Bonnet Creek Golf Club has two classic side-by-side 18-hole courses designed by two classic architects, Pete Dye and Tom Fazio.

HANDS ON POTPOURRI 58
Professionalism, bio controls and computer weather information are expertly discussed.

HEADS UP: WATER QUALITY MANAGEMENT 64
This sixth and final part of a continuing series on the Audubon Cooperatibe Sanctuary Program discusses managing and maintaining the quality of water on golf courses.

THE FLORIDA TOUR MARCH MADNESS 82
Here's Part 2 of what it's like to prepare a course for professional golfing in Florida.

PHOTO CONTEST OPEN TO SUPERINTENDENTS 90
For all those FGCSA member superintendents who have become expert amateur photographers.

AFTERWORDS: JARRELL, JACKSON 94
Jarrell discusses the need for research to maintaining turf standards. Jackson says your job is changing even faster than you think.

About the use of trade names: The use of trade names in this magazine is solely for the purpose of providing specific information and does not imply endorsement of the products named nor discrimination against similar unnamed products. It is the responsibility of the user to determine that product use is consistent with the directions on the label.

The Florida Green

Official Voice of the Florida Golf Course Superintendents Association

Published four times a year:
On the twenty-fifth of January, April, July, and October

Editor Joel Jackson, CGCS
Disney's Magnolia G.C.
Address Florida Green business to:
6780 Tamarind Circle
Orlando, FL 32819
(407) 248-1971 Florida Green voice/fax
(407) 824-6298 Work
(407) 351-3729 Home

Assistant Editor Mark Jarrell, CGCS
Palm Beach National G.C.
7500 St. Andrews Rd
Lake Worth, FL 33467
(407) 965-0046

Publications Chairman Greg Plotner, CGCS
Malist Golf Club
9650 SE Federal Highway
Hobe Sound, FL 33455
(407) 546-0647 Work
(407) 546-1795 Work Fax

Business Manager Paul Crawford
Palm Beach Country Club
P.O. Box 997
Palm Beach, FL 33480
(407) 845-2395

Editor Emeritus Dan Jones, CGCS
Banyan GC
West Palm Beach

COPYRIGHT NOTICE: Copyright 1995, Florida Golf Course Superintendents Association. All rights reserved. May not be reproduced in whole or in part without written permission of the FGCSA. **EXCEPTION:** Official publications of all golf course superintendent associations affiliated with the Golf Course Superintendents Association of America are welcome to use any material contained herein provided they give credit and copyright notice.

SUBSCRIPTIONS: \$20 for four issues. Contact the FGCSA office.

ADVERTISING: For rates and information, contact the FGCSA office at 800-732-6053

EDITORIAL: All inquiries should be directed to the editor, Joel Jackson, CGCS. Unsolicited manuscripts and photographs cannot be returned.

Contributors to this issue

Cover Photographer: Dan Zelazek

Cover Story Feature Photos: Joel Jackson, CGCS

Cover Story Writer: Joel Jackson, CGCS

Hands On Package: Joel Jackson, CGCS, coordinator

Audubon Series: Shelly Foy, coordinator

Research Report: Scott Bell

Spotlight: Scott Bell; Shelly Foy; Joel Jackson, CGCS; Dan Jones, CGCS

Florida Tour: Joel Jackson, CGCS, coordinator; Kenneth Lee Dixon; Fred Klauk

Afterwords: Mark Jarrell, CGCS; Joel Jackson, CGCS

Copy Editor: Jennifer Jackson

Production

The Florida Green is published with the assistance of Janlark Communications, Inc.

President Larry Kieffer
Project Manager Philip Pettus

JANLARK
COMMUNICATIONS, INC.

208 South Main St. • P.O. Box 336
Auburndale, FL 33823
813-967-1385 Fax 813-967-4553

Advertiser Index

AgrEvo	2	Nucrane Corp.	C3
AgriGro	11	Nutri-Turf, Inc.	87
Agro-Tech 2000	14	Otterbine-Barebo Inc.	55
Almar Chemical Co.	14	Parkway Research Corp.	89
AmerAquatic Inc.	66	Partac Peat Corp.	63
Aquatrols Corp. Of America	71	Pennington Seed	31
Arbor Tree & Landscape	51	Precision Laboratories	16, 68
Atlantic FEC Fertilizer	20	Rain Bird Sales Inc.	1
Boynton Botanical	9	Regal Chemical Co.	92
Brevard Oil Equip.	79	Rhone Poulenc	35
Ciba Turf Division	37	Smithco	21
DuCor International	73	South Florida Grassing	34
E.R. Jahna Industries	93	South Florida Turf Products	51
Envirogenesis	91	Southern Ag Insecticides	83
Environmental Waterway Management	81	Southern Golf Products	39
Everglades GCSA	15	Spread-Rite, Inc.	63
Florida Silica Sand	59	Standard Sand & Silica	85
Florida Turfgrass Association ...	77	Subaqueous Services Inc.	48
Go-For-Supply	38	Sullivan Electric & Pump	24
Golf Agronomics Supply	69	Sunniland Turf Products	10
Golf Ventures	27	Terra Asgrow	32, 33
Greg Norman Turf	43	Terra Asgrow Florida	95
Harrell's, Inc.	45	The Scotts Company	93
Haverland Blackrock Paving	89	Tifton Physical Lab	55
ISK Biosciences Corp.	19	TMI Turf Merchants	25
Jacobsen Dealers of Florida	C2	Tom Burrows Turfgrass Svc.	63
Kubota Tractor Corp	61	Toro Dealers Of Florida	Insert
Lesco, Inc.	C4	Turf Specialties	75
Liquid Ag Systems, Inc.	81	United Horticultural Supply 47, 67	
Lofts Seed, Inc.	17	Valent USA	7
		Van Waters & Rogers	23
		Vicksburg Chemical	53
		Vigoro Industries	13
		Zeneca	41, 57

Advertising Information

The Florida Green welcomes advertising inquiries to:

Marie Roberts, Association Manager

1760 NW Pine Lake Drive

Stuart, FL 34994

407-692-9349

800-732-6053 FL WATTS

I have taken a keen interest in the tactics and spin that the radical so-called environmentalists have used to communicate with the citizens of our

nation. It is hard to determine if it is centrally controlled or if it is the work of many different factions coming from different directions.

At the Poa Annua we had a very informative program that David Court put together. The first three hours of the program were a lesson in media relations,

put on by Dow Elanco's Issues Manager, Terry Henderson. The program was interesting and timely. The last hour and a half, the class engaged in a lively panel discussion on the media. The

panel consisted of three reporters from the southwest Florida area. One of the reporters was from a local television station, another reporter covered local news for a local paper and the other person was a local sportswriter. All three of the reporters felt that they were fair and that they tried to explore both sides of an issue before they wrote or aired a story.

Many superintendents in the class had horror stories of misquotations and misrepresentations. Others did have positive stories of how they were properly portrayed. This brings me to my point, which is that everyone has a particular view and many people are not going to change.

Have you ever had an employee who

you felt was not carrying his share of the work? I have. Every time that I would confront one of these people, they would respond by telling me that they are one of the hardest workers on the staff, and I should look at others who they felt did not carry a fair share. I have found the same to be true with environmentalists and media. I recently wrote a letter to the editor of an well-known environmentalist magazine to dispute the slant they gave golf courses in one of their articles. I do not know if it was published (I doubt it), but I did get a reply. The reply was the same untruths and environmentalist packaging that they give many anti-golf stories. I have seen enough of it that I can recognize it by now. My letter had no effect on the individual, and his basic reply was, "the fact that golf is doing environmentally favorable things proves that it was hurting the environment in the first place."

In the May 1 edition of *Sports Illustrated*, in the Scorecard section, an article was written regarding the 25th anniversary of Earth Day. The first question that I had was why that magazine was doing this story in the first place.

The story lambasted the new Republican Congress and, oddly enough, the Clinton Administration, for its lack of movement in the environmental fields. What frustrates me with stories like that is that no credit is given to what has been done.

The mindset seems to be that the sky is falling, and everything that is done


Please see Page 10

...a lively
panel
discussion on
the media.



A handwritten signature in black ink that reads "Scott Bell".

Scott Bell, CGCS
President, FGCSA



Either Protect Your Turf, Or Enlarge Your Sandtraps.

Mole crickets. Fireants. Cutworms. Sod webworms. Armyworms. Fleas. Chinch bugs. Wasps. Who knows what they could eventually do to your golf course? Exactly why you should protect all of your greenery with ORTHENE® Turf, Tree &



Ornamental Spray. It's easy. It's economical. It controls the broadest spectrum of tough turf pests. And best of all, it's a heck of a lot better than the alternative. For more information, call 1-800-89-VALENT.

Professional Products Team



Now in easy-to-use Water Soluble Pouches.

Golf is a solution, not a problem

In this issue I would like to share some excerpts from comments made by Robert Trent Jones, Jr. at the 1993 Green Section Education Conference:

"...No one is quite sure when the term was contrived. Perhaps it was back in the teens or even before that, but many of our early golf courses were called "country club." These early clubs and courses were located well out of the inner cities — out in the country. One reason they were there was because golf not only requires space, but they were also there because of the environment they provided for members and players of all ages.

In those early days, you went to your club in a horse and buggy or, later, in a Model-T with your clubs in the rumble seat. The streets of the city were littered with horse manure and, later, with smoke-belching autos. The environments of the major metro areas were not at all that delightful and even today, some

say that our cities are no better.

But at that country club, all was bright and beautiful. One hundred acres or more could be found of green grass, white sandy bunkers, and often a glittering blue sky. There were no horse droppings, no smoke, no noise, no clutter, no urgency, no problems...unless you considered a tough golf shot a problem.

With this in mind, we can say that "greens keepers" can be thought of as early environmentalists. They provided players with a place to go to enjoy nature and the great outdoors. These superintendents kindled the beliefs that courses provide habitat for wildlife and green spaces for all of us.

Isn't it strange that the game that found its earliest roots in environmentalism is often attacked today by those who call themselves environmentalists? Many of those people don't truly understand or appreciate the game of golf. They see it as a giant club with privileges not to be enjoyed by the populace; they see it as a wasteful use of land and water; and they see it as a residue of chemicals gone astray.

There are obviously some misconceptions and misunderstanding here, and it is our mission to heal this void and to bring more true understanding to these detractors and to make them realize that we — all of us superintendents — are true environmentalists.

This is not something new with us or with the game of golf. Golf course superintendents, with our absolute professionalism and sharp attention to maintenance methods, provide the best, cleanest and most wholesome environment we possibly can.

We must carry the message to these critics that golf may once have been a game for the well-to-do, but now it is played by everyone. Take them out to our municipal courses. Let them see the seniors, the women, the juniors, the peewees and the handicapped who play this game.

Let them see our strict adherence to tight regulations on chemical use, whether it is pesticides or fertilizer. Show them that we follow the rules — we often do better than what is regarded as standard practice.

We are what we have always been, with a long history and thousands of golf courses to prove it. We are dedicated environmentalists, and we are getting better at what we do each and every passing day!

So the message today is loud and clear. The environmental movement is here to stay and we are a major part of it. As devout and dedicated as we have been in the past — we can be even more so in the future.

The golf industry demands that we be good at what we do because there is no place for us if we aren't. We prove how good we are every day, just as the golf pros do on the tour. Just as those talented players have the best equipment with which to play the game, we also have remarkable tools and pieces of machinery to help us with our work.

It is time for each superintendent, and all others associated with the game of golf, to stand tall and proclaim that golf is not an environmental problem. Golf is an answer, one of the best answers we have, to make this world a better place in which to live, to play, and to enjoy a clean and healthy outdoor environment.

Plotner's Page



Greg Plotner, CGCS
Publications Chairman

KNOW THE DIFFERENCE



LARGER BLUE FLAG
Iris versicolor

BOYNTON BOTANICALS

9281 87TH PLACE SOUTH • BOYNTON BEACH, FL 33437
(407) 737-1490 • (800) 642-1033 • (407) 738-9598 FAX

'The doomsdayers are never going to go away'

from Page 6

just makes our world worse. The environmentalists seem to take no credit, nor do they give any credit, for things improving. The environmental movement has been responsible for many major victories and some have been positive.

In the past 25 years, we have seen the creation of the EPA at national and state levels, the Clean Water Act, and the Clean Air Act, as well as the recycling of water, plastic, paper, metal and other materials. The movement has been, in my opinion, partly responsible for the movement of American factories and job out of our country, thus resulting in a lowering of living standards.

You may view some of the things listed above as positive or negative, but either way the environmentalist

movement has affected all of our lives. I feel that they do not want to admit that any of that is true, and they would rather keep playing David vs. Goliath and making America think that they are a small group, a faint voice in the wilderness, trying to save America and mankind from itself.

We cannot rest on our current position that seems kinder to us than in the past. Many environmental laws are restrictive and cumbersome, but we have learned to work with them and accept the costs. Some laws were necessary, and 25 years ago we had some very polluted waters and air. Much of that has been cleaned up to safer levels, and we need to question where the happy medium is.

The doomsdayers are never going to go away, and we will never change their minds. The best that we can hope for is to get the people in the

middle to our side. Many people are more skeptical of the environmentalists as they see costs associated with the environment going up and they see business handcuffed with regulations.

Keep informing people and doing positive things for our industry. Be judicious in your chemical and fertilizer usage. We can improve our situation, but it takes all of us.

This is the last of my President's Messages. I hope that you enjoyed them or that the messages at least made you think of our industry. After this past season, I think that it is evident that we all need to stick together and help each other out.

Thank you for letting me serve, as I have truly enjoyed it. Support Greg as you have me. Thanks to Marie, Paul, Greg, Dale, Kevin, Donnie, Debbie, Joe, Joel and my staff. 🍀

Duststorms Got Members Trading Carts For Camels?



After you've done everything else right, why take short-cuts on course maintenance with ag-grade fertilizers? Sunniland's custom blends are formulated specifically for your course. Uniformly granular, too, eliminating hazardous dust on the course, your equipment, pools and members! The course will look superb and so will you. We knew you wouldn't mind if we cleared the air on course maintenance, so phone our Sunniland Golf Products Representative today.



Post Office Box 8001 • Sanford, Florida 32772-8001 • Phone (407) 322-2421 or (800) 432-1130

Turf Formula[™]



The Natural Solution

Agri-Gro of Florida, Inc. introduces **Turf Formula**, "The Natural Solution" for quality Turfgrass maintenance. Florida golf course superintendents are experiencing the following benefits of **Turf Formula**:

1. Increased Soil Microbial Activity
2. Increased Root Mass and Root Penetration
3. Helps Eliminate Algae on Greens
4. Increased Aerobic Bacteria, a Natural Predator to Nematode Eggs
5. Increased Water Penetration and Percolation
6. Aids in the Decomposition of Thatch

Turf Formula is a non-toxic and environmentally safe product which contains stabilized micro-organisms from the following genera: *Azotobacter*, *Bacillus* and *Clostridium*.

Turf Formula is a premium soil amendment and bio-catalyst with a four year shelf life.

For information and product availability:

GOLF VENTURES
2101 East Edgewood Dr.
Lakeland, Florida 33803

1-800-330-8874
(813) 665-5800
Fax (813) 667-0888

UNITED HORTICULTURAL SUPPLY
3632 Queen Palm Dr., Suite 306
Tampa, Florida 33619

1-800-457-0415
(813) 628-0496
Fax (813) 664-0371

VAN WATERS & ROGERS, INC.
4240 L.B. McLeod Rd.
Orlando, Florida 32811

1-800-826-2611
(407) 843-2611
Fax (407) 649-8433

LIQUID AG SYSTEMS, INC.
5610 N.W. 12th Ave. Suite 211
Ft. Lauderdale, Florida 33309

1-800-884-6942
1-305-776-2288
Fax (305) 776-6942

1995 Poa Annuua Classic



EVERGLADES GCSA
Thanks Sponsor Clubs

BIRDIE CLUB		
EXTECOR CHEMICAL	SUNBIRD SEEDS	PRODUCERS FERTILIZER
EVANS OIL	VALENT U.S.A. CORP.	O.M. SCOTT'S & SONS
STATION MASTERS	GOLD RUST	S.F.L. TURF PRODUCTS
GOFOR SUPPLY	W.A. CLARY, INCORPORATED	AGREVO USA
NOUVE SYSTEMS INC.	CENTRAL FL. TURF	

EVERGLADES GCSA	EAGLE CLUB	EVERGLADES GCSA
MAW HINES & ROGERS	BAITE CORPORATION	MAW HINES & ROGERS
BOYD PAW & BROTHER	CYBERTECH SYSTEMS	BOYD PAW & BROTHER
MC JENSEN & BROTHER	GOLF AGRONOMICS	MC JENSEN & BROTHER
AQUACROOLS	LESCO, INC.	AQUACROOLS
T.M. BUCKLEY & SONS	AMERIAQUATE, INC.	T.M. BUCKLEY & SONS
SPRINGER WORTH INC.	TURF MEDICINE, INC.	SPRINGER WORTH INC.
VIGORO INDUSTRIES	LIQUID AG	VIGORO INDUSTRIES
	GOLF VENTURES	
	WHEELS CONTROLS INC.	



Please see story, Page 14

Graduated With Honors From Over 25 Prestigious Universities

HERE'S AN HONOR ROLL OF LEADING
UNIVERSITIES WHICH HAVE PROVEN
THE OUTSTANDING PERFORMANCE
OF IBDU® SLOW RELEASE NITROGEN:

UNIVERSITY OF WISCONSIN
PURDUE UNIVERSITY
CORNELL UNIVERSITY
UNIVERSITY OF RHODE ISLAND
THE PENNSYLVANIA STATE UNIVERSITY
UNIVERSITY OF KENTUCKY
NORTH CAROLINA STATE UNIVERSITY
CLEMSON UNIVERSITY
UNIVERSITY OF GEORGIA
THE OHIO STATE UNIVERSITY
MICHIGAN STATE UNIVERSITY
VIRGINIA POLY TECHNIC INSTITUTE
COLORADO STATE UNIVERSITY
UNIVERSITY OF HAWAII
RUTGERS UNIVERSITY
AUBURN UNIVERSITY
LOUISIANA STATE UNIVERSITY
TEXAS A & M UNIVERSITY
UNIVERSITY OF CALIFORNIA
WASHINGTON STATE UNIVERSITY
OREGON STATE UNIVERSITY
UNIVERSITY OF IDAHO
UNIVERSITY OF NEBRASKA
UNIVERSITY OF ILLINOIS
UNIVERSITY OF FLORIDA
UNIVERSITY OF GUELPH

Why do competitive fertilizers "go to school" on Par Ex® with IBDU® slow release nitrogen? Maybe it's because IBDU®'s been passing the test at major universities for more than 20 years.

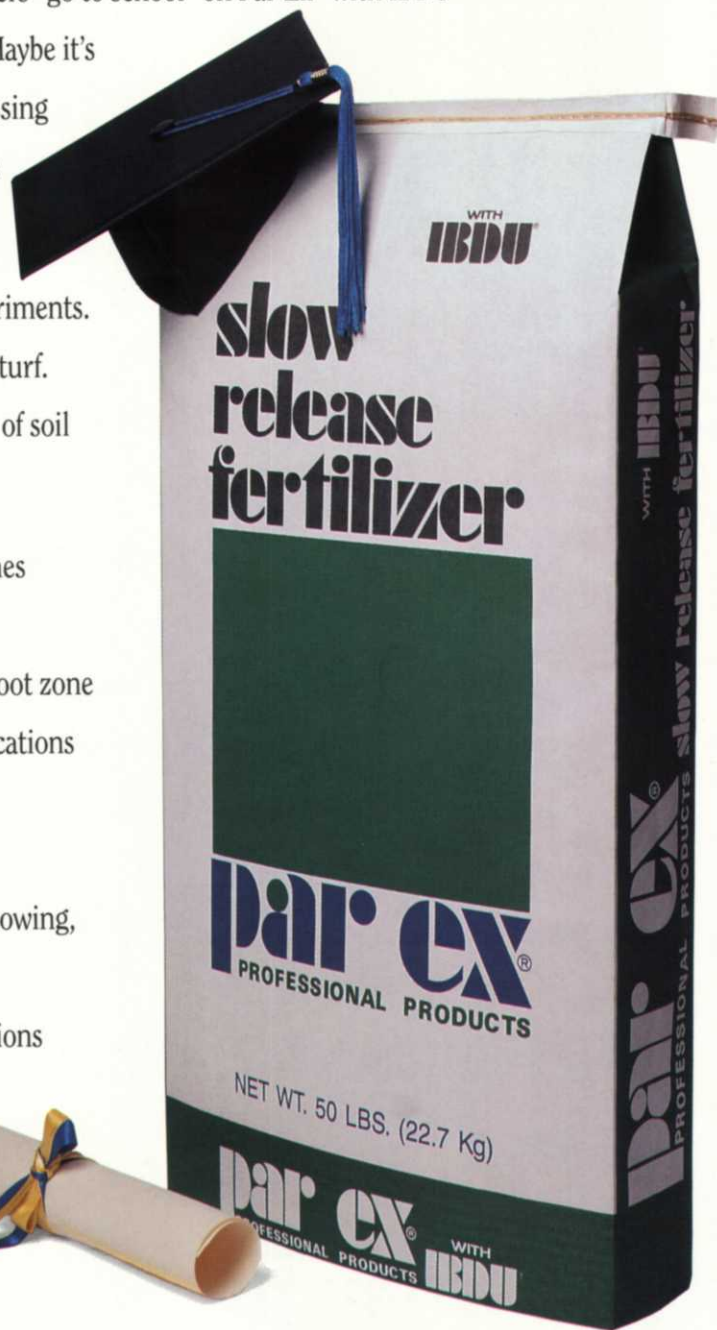
Not just in controlled laboratory experiments. In actual field testing. On all types of turf. Under every conceivable combination of soil and weather conditions.

Par Ex® earns straight A's when it comes to performance:

- Steady, continuous feeding to the root zone
- Extra staying power for fewer applications
- Primarily unfazed by temperature, moisture extremes
- Uniform turf growth for reduced mowing, labor costs
- Unmatched for late season applications

To study up on Par Ex®, call us at 1-800-767-2855.

We'll show you how to get an advanced degree of IBDU® slow release nitrogen for your turf.



PAR EX® GIVES YOUR TURF AN ADVANCED DEGREE OF SLOW-RELEASE NITROGEN

Poa Annua Classic: productive, educational, fun

The annual Spring gathering of Florida superintendents began on the morning of Friday, May 19, with the FGCSA Board Meeting. At this meeting the CIBA corporation presented a check for over \$25,000 in rebate incentives to be used for turf research. Also at this meeting, funding was approved to partner with the FTGA to sponsor DNA testing of hybrid bermudagrasses.

At noon, Dow Elanco's Issues Manager, Terry Henderson, presented a program called Emergency Response. The second half of the seminar included a lively panel discussion with three media representatives of the Fort Myers-Naples area.

On Saturday, May 20, the Everglades Chapter buried the competition and took team honors in the annual fund raising Poa Annua Classic. Jim Osburn of Cape Coral CC took individual honors with a sterling score of 68. Kevin Downing of the Treasure Coast was second with a 72.

Michael Swinson of Seven Rivers GCSA was low net superintendent winner with a 62 and Dickie Harrell was the low supplier with a gross 73. Later that evening, contestants and guests enjoyed a "Southwest Fiesta" banquet complete with entertainment.

Sunday morning saw David Barnes and company kick off the Annual G.C. Horn Memorial Tournament which raises endowment funds for the FTGA Research Foundation. Once again, a productive, educational and fun weekend. Our hats off to the Everglades Chapter for another first-class event. All golf events were held on the Naples Beach Club Golf Course, which is managed by Dick Naccarato.

The Envirotron Golf Classic raises \$35,000 for research

The third annual Envirotron Golf Classic, held April 24 at World Woods Golf Resort in Homosassa Springs, raised

\$35,000 for the Envirotron Research Laboratory at the University of Florida.

The tournament's net proceeds will go toward purchasing research equipment and supporting an in-house researcher. The inaugural event, held June 28, 1993, yielded a \$22,500 donation. Last year's tournament brought \$30,000. The Envirotron Golf Classic's overall research contributions total \$87,500.

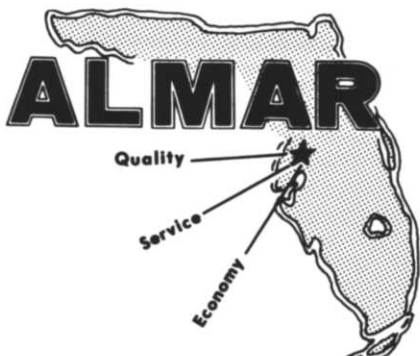
Funded in part by the Florida Turfgrass Association, the 3,100-square-foot, state-of-the-art research field laboratory opened in November, 1993 and includes a greenhouse, four climate-controlled glass houses, two walk-in growth chambers, two laboratories, study areas, classrooms and offices.

Designed to study and develop new technology on the relationship of turfgrass with biological, environmental and cultural factors, the Envirotron allows scientists to study the entire turfgrass system from root to blade. This facility's

•TURF TRACER • FOAM GARD • RUST BUSTER • BEAUT/

KNOCK M' DED • GRIME OFF • GREEN LAPPING SOAP • RUST BAN • GREEN MAG/

GREEN • PENETROL • KICK IN THE GRASS • TURF IRON • SUPER WET • EV R GREEN



ALMAR

Quality
Service
Economy

CHEMICAL CO. INC.

P.O. BOX 18101
TAMPA, FL 33679

CALL COLLECT:
813-839-3363

STUART COHEN
EAST FLA.

RUSS VARNEY
WEST FLA.

URF KOTE • WATER PENN • GREEN MASTER • SCRAM //

Predictable Results.

In managing golf course turf, it's what matters most. As specialists in turf care, we look long and hard for products that are truly superior before we present them to you. We insist manufacturers prove their claims in the lab *and* the field, because we're committed to your results - on your course and for your bottom line. Call. Let us demonstrate the terrific results you'll get with these technically superior products.



Amends soil to give you more leeway managing the crucial air/water balance in root zones. Aerify, rototill, topdress. More porous than clay-based amendments. Does not compact. Proven effective in USGA greens.

BREAK-THRU™

The most effective wetting agent known to science (that you can afford). Proven safe. Decrease pesticide use while increasing effect. Save 40% or more on soil conditioning. Affordable dew control.

AGRO-TECH 2000 Inc.

PLAINSBORO, NJ

1-800-270-TURF

Available in Florida from: • GO-FOR SUPPLY 1-800-475-7081
• DICK BLAKE 407-736-7051

**THE EVERGLADES GOLF COURSE
SUPERINTENDENTS ASSOCIATION
WOULD LIKE TO RECOGNIZE AND THANK
THE FOLLOWING SPONSORS OF THE
1995 POA ANNUA GOLF CLASSIC:**

EAGLE SPONSORS

**Ag Resources
Almar Chemical Company
AmerAquatic
Aquatrols
Bayer Corporation
Boynton Pump & Irrigation
CIBA Turf & Ornamental Products
DowElanco
Environmental Waterway
E. R. Jahna Industries, Inc.
Golf Agronomics Supply
Golf Ventures, Inc.
Griffith Paving
Harrell's, Inc.
Hi Tech Chemicals, Inc.
H. M. Buckley & Sons, Inc.**

**Kilpatrick Turf Equipment
Lesco, Inc.
Lewis Equipment
Liquid Ag Systems, Inc.
Naples Rent-All & Sales Co.
Nematode Controllers, Inc.
Nucrane Machinery
Nutri-Turf
Professional Greens & Turf
Rhone-Poulenc Ag Co
Terra Asgrow Florida
Turf Merchants, Inc.
United Horticultural Supply
Van Waters & Rogers
Vigoro Industries, Inc.
Wesco Turf, Inc.**

BIRDIE SPONSORS

**AgrEvo USA
Aquatic Systems, Inc.
Central Florida Turf, Inc.
DuCor International Corp.
Evans Oil Company
Go For Supply
Gold Kist Inc.**

**M&R Specialty Sales Co.
Producers Fertilizer Co.
South Florida Turf Products
Stationmaster Associates
Sunbelt Seeds, Inc.
The Scotts Company
Valent USA Corp.**

Envirotron Golf Classic

primary studies deal with temperature modifications, noise abatement, pollution and water purification, as well as the aspects of turfgrass culture.

Presented by the Seven Rivers Chapter of the Florida Golf Course Superintendents Association, the tournament comprised of a pair of 18-hole, 4-man scrambles, played on two of the nation's top courses — Pine Barrens (rated No. 1 by *Golf Digest*) and Rolling Oaks (rated No. 8 by *Golf Digest*).

Major sponsors included World Woods Golf Club, Seven Rivers Golf Course Superintendents Association, Barbaron, Tresca/Jacobsen, United Horticultural Supply/Bayer, Ag Resources/Helena and Southern Golf Products.

For information on sponsoring the Envirotron or FTGA membership, contact Jane Rea at (800) 882-6721.



The Suncoast GCSA Board meets to plan the scramble.

Suncoast Scramble raises funds for projects

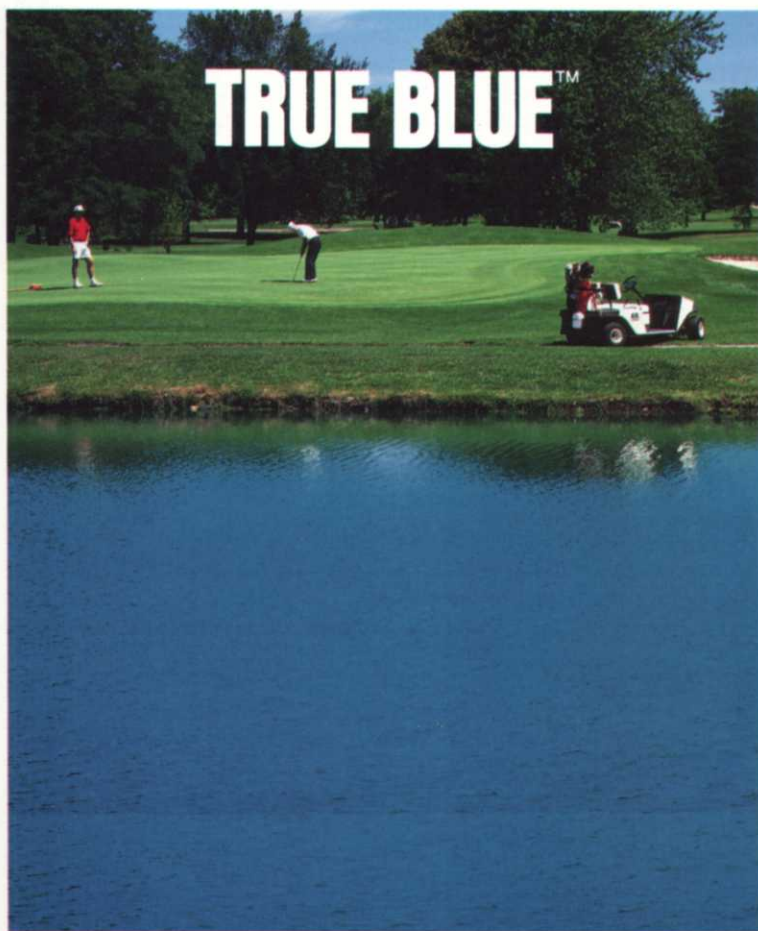
Misty Creek G & CC hosted the Twelfth Annual Suncoast Scramble. Thirty area club teams participated in the tournament this year. Each team was made up of manager, pro, superintendent, and supplier. Each player had the opportunity to purchase two mulligans and an unlimited number of raffle tickets.

Host superintendent Tom Crawford

had the golf course in top condition with "Sunday" pin placements and quick rolling greens that everyone enjoyed.

Over fifty gold, silver and bronze sponsors donated from \$50 to \$500 as tee signs that helped raise \$8,700. The proceeds will be distributed to FTGA, educational seminars, scholarships and junior golf.

Gary MacDougall
President Suncoast GCSA



The better, more natural looking lake and pond dye

Why settle for artificial looking dye when TRUE BLUE™ will give your lake or pond a natural, living color appearance. The secret's in our tried and true blue formula that makes the other brand look unnatural by comparison.

Try it and see for yourself why TRUE BLUE is fast becoming the preferred lake and pond dye. The one that's a natural. For more information and a technical bulletin, call or write today.



No Blue



TRUE BLUE



PRECISION LABORATORIES, INC.

Distributed by:

Gold Kist, Inc.
P.O. BOX 2210
Atlanta, GA 30301
800-241-4966

Harrell's, Inc.
P.O. Box 607
Lakeland, FL 33802
800-282-8007

TRUEBLUE is a trademark of Precision Laboratories, Inc.

LASER

Poa trivialis

IS PROVING ITSELF...

Over

At Arnold Palmer's Bay Hill Club, Orlando, FL

"I've been overseeding with 100% Laser since it was first introduced. Now I wouldn't use anything else. It really does an excellent job for us at Bay Hill." Dwight Kummer

and Over

At Buck Creek Golf Plantation, No. Myrtle Beach, SC

"Using Laser in conjunction with perennial ryegrass has enabled me to reduce the total poundage, counter the wear associated with heavy play, provide an ultra smooth transition in fall and spring, and provide our golfing guests with an outstanding putting surface. I've heard many comments such as, 'Best bent greens we've played here on the beach'." John E. McWhite

and Over

At Bonita Bay Club, Bonita Springs, FL

"I have used Laser *Poa trivialis* for the last several seasons and I have been very pleased with its color, texture, establishment, spring transition and especially with its durability. It's definitely part of my future overseeding plans." Mark Black

and Over

At Grayhawk Golf Club, Scottsdale, AZ

"At Grayhawk Golf Club we use an 85/15 blend of Palmer II/Prelude II/Laser on our fairways, roughs, and tees. The high seed count of the Laser blend allows us to reduce our seeding rates and prep work while providing a superior playing surface compared to straight perennial rye." Mike Pock

and Over

At Lake Nona, Orlando, FL

"I normally utilize a 50/50 blend of bentgrass/*Poa trivialis* for my greens overseeding program. This year however, because our tournament schedule dictated a later overseeding window, I will use straight Laser *Poa trivialis* at a slightly higher rate. This will be the fourth year I've used Laser. During those years, we've experienced a variety of weather conditions and traffic challenges. Laser has consistently exhibited good color and the drought tolerance that is so important in achieving a smooth spring transition. That was the reason I tried Laser in the first place and it has performed very well." Ken Glover

and Over Again

At Hunter's Creek Golf Course, Orlando, FL

"For the past five years, we have overseeded our greens with straight Laser. Year after year, Laser has out-performed the other *Poa trivialis* varieties we've compared it against. It has consistently proven to have better color, quicker establishment, better disease resistance and better durability under high traffic. Laser produces an excellent putting surface. Our observations have convinced us that Laser is the superior choice of *Poa trivialis*." Craig A. Shelton



Tournament-quality greens are expected at Arnold Palmer's Bay Hill Club. Overseeding with 100% Laser every year helps Dwight Kummer meet those expectations.

Arnold Palmer's
BAY HILL CLUB


BUCK CREEK
GOLF PLANTATION

Bonita
Bay
Bonita Bay Club


Grayhawk
GOLF CLUB


LAKE NONA


HUNTER'S CREEK
GOLF COURSE

Let Laser prove itself again...on your golf course.



Lofts Seed Inc.

World's largest marketer of turfgrass seed
Bound Brook, NJ 08805

Lofts/Great Western
Albany, OR
(503) 928-3100
(800) 547-4063

Lofts/Ohio
Wilmington, OH
(513) 382-1127
(800) 328-1127

Lofts/Maryland
Beltsville, MD
(301) 937-9292
(800) 732-3332

Lofts/Pennsylvania
Allentown, PA
(610) 266-6612
(800) 708-8873

Lofts/New England
Arlington, MA
(617) 648-7550
(800) 648-7333

Sunbelt Seeds, Inc.
Norcross, GA
(404) 448-9932
(800) 522-7333



**Just before the
Blue Pearl Tournament —**

Helicopter Hole In One

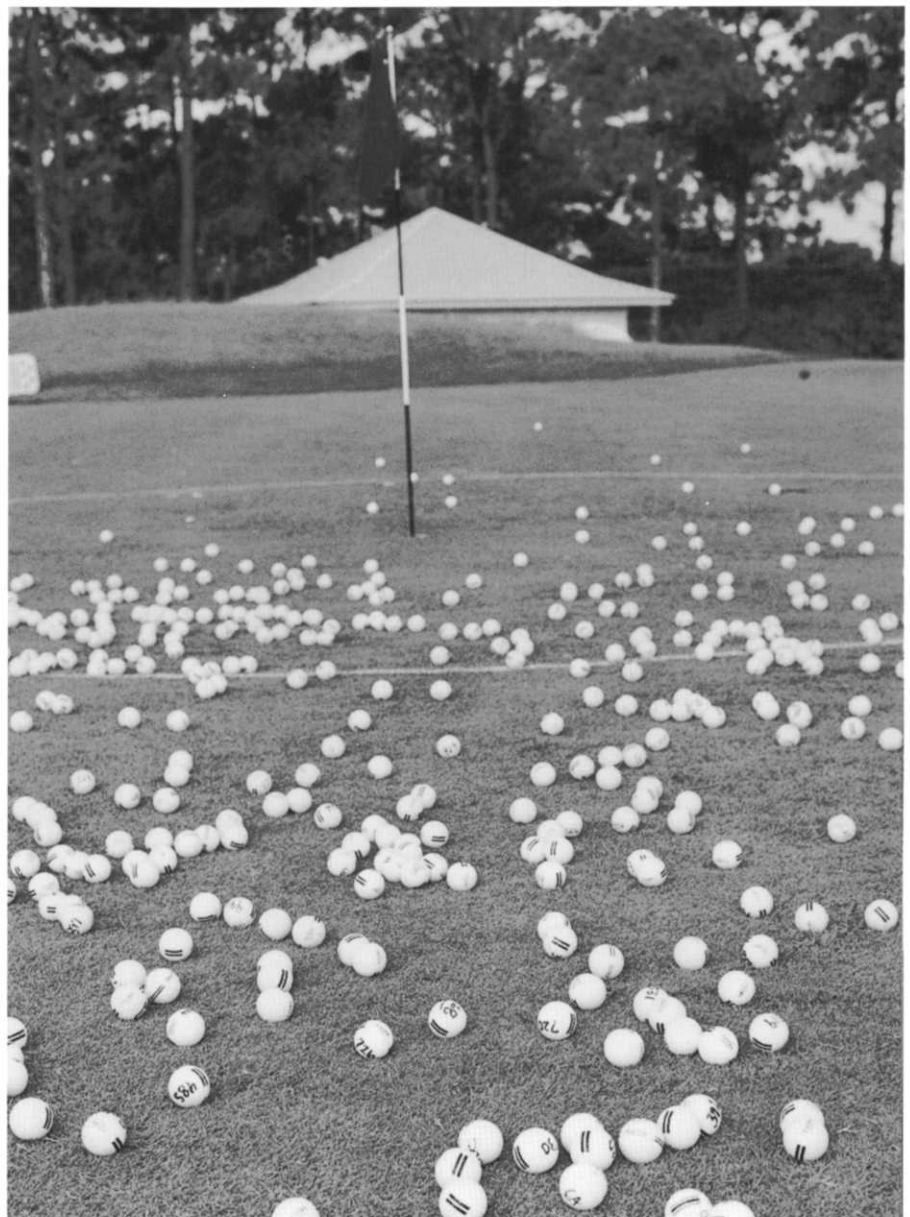
Have you ever seen 1,000 golf balls dropped from a helicopter onto a green? Well, it happened at Loblolly Pines just before the Blue Pearl Tournament.

Shelly Foy organized this fundraiser for the Hobe Sound Women's Club, and they raised \$6,000 in six weeks! With the help of Greg Norman's helicopter and pilot, 1000 numbered golf balls were dropped onto a temporary green.

Shelly says it was the "coolest" thing she had ever seen and was most definitely a lot of fun! Each numbered ball was sold for \$10, and the ball that landed closest to the pin won \$1,000.

Proceeds will be shared between the Cooperative Sanctuary Program for Schools and the Hobe Sound Women's Club Education and Scholarship Fund.

If you missed out on your chance to win this year, don't worry. Plans are already underway for the Second Annual Helicopter Hole In One!



INTRODUCING NEW ADVANCED SPRAY-DRY DACONIL ULTREX™ FUNGICIDE



- Mixes fast, won't settle out and won't clog nozzles.
- Improved control of tough Brown patch plus equally exceptional control of 14 other major turf diseases and algal scum.
- Virtually dust-free, low-foaming formulation makes handling easier.
- Pours completely out of the bag, so there's no waste or need to rinse bags before disposal.

ISK BIOSCIENCES™

ISK Biosciences Corporation
Turf & Specialty Products Division
1523 Johnson Ferry Rd., Suite 250
Marietta, GA 30062

Always follow label directions carefully when using turf and ornamentals plant protection products.
™Trademark of ISK Biosciences Corporation.

Blue Pearl Tourney benefits program

The Treasure Coast Golf Course Superintendents Association hosted their 2nd Annual Blue Pearl Charity Tournament at Loblolly Pines Golf Club Saturday, May 13th.

Proceeds from this years event will benefit the Cooperative Sanctuary Program for Schools. The TCGCSA will adopt 10 schools, provide reference materials on native plants, wildlife and habitat, as well as establish a \$5,000 grant fund so the adopted schools will have a funding source for projects they wish to work on.

The TCGCSA has received recognition from the Audubon Society of New York for providing the first fundraiser for the Cooperative Sanctuary Program for Schools. They have also been recognized by the GCSAA for leading the way with the School Program, as it was announced at the FGCSA Poa Annua meeting that the GCSAA will become the sponsor of the Cooperative Sanctuary Program for Schools.

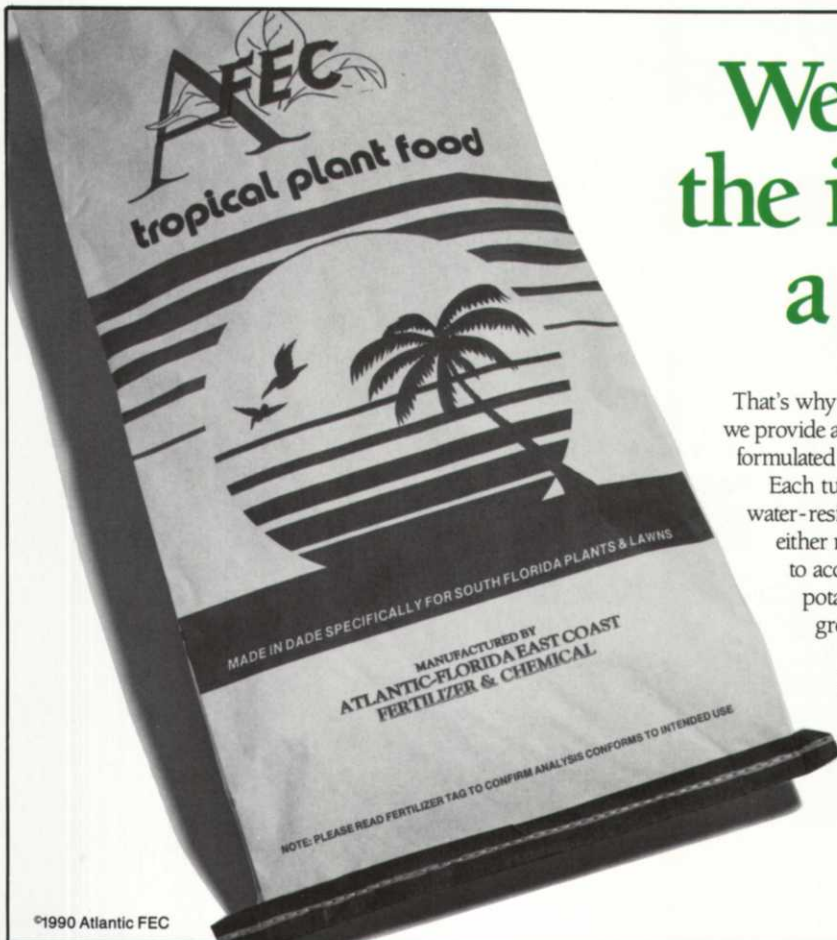
Congratulations Treasure Coast! 🦅

Cooperative Sanctuary Program for Schools



The Three Amigos

Tim Cann, President, TCGCSA; Ron Dodson, President, Audubon Society of New York State; Craig Weyandt, Treasurer, TCGCSA. Check out the hats with the blue dots!



We understand the importance of a good mix.

That's why it's important that you get to know Atlantic FEC. Because we provide a variety of specialty mixes and related products specifically formulated for the South Florida turfgrass industry.

Each turfgrass mix is delivered by Spyder equipped trucks in water-resistant paper or plastic bags. Bulk material is available in either normal size Killebrews or "small door" (24") Killebrews to accommodate your turf spreader. Drop trailers, sulfur coated potash, and new Micro Prill Greenskote, a quality putting green blend, also available.

Call us toll free at 1-800-432-3413 or visit us at 18375 S.W. 260th Street in Homestead to find out how you can benefit from quality mix from the Atlantic FEC turfgrass professionals.

Atlantic FEC

Better Mixes Since 1923.

SO QUIET, YOU CAN HEAR A PUTT DROP

World's first electric bunker rake Exclusive ultra-quiet finishing rake

Sand Star E



NEW SILENT SAND FINISH RAKE



SMOOTH, FIRM FINISH... NOT SOFT

SOLD AND SERVICED BY:

KILPATRICK TURF EQUIPMENT

901 Northwest 31st Avenue ■ Ft. Lauderdale, FL 33311
Telephone: 305-792-6005 ■ Fax: 305-584-5831

TIECO/GULF COAST

540 W. Michigan Avenue ■ Pensacola, FL 32505
Telephone: 904-434-5475 ■ Fax: 904-434-2786

TRESCA INDUSTRIES

4827 Phillips Highway ■ Jacksonville, FL 32247
Telephone: 904-448-8070 ■ Fax: 904-448-2725
3930 N. Orange Blossom Trail ■ Orlando, FL 32804
Telephone: 407-291-1717 ■ Fax: 407-297-6166
6025 Highway #301 ■ Tampa, FL 33610
Telephone: 813-621-3077 ■ Fax: 813-620-0303

ALWAYS OUT FRONT

SMITHCO

WAYNE, PENNSYLVANIA 19087

Lonnie Stubbs: A Man of Enduring Quality

BY SCOTT BELL

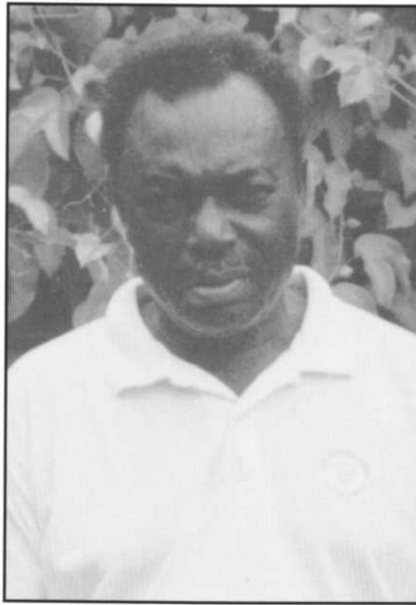
It is rare in this business for a person to stay at one club for an entire career. Lonnie Stubbs is an exception to the rule. This year marks Lonnie's 35th year at Club Med at Sandpiper.

In the late 1950s, Lonnie was doing landscape work for General Development Corporation at a housing development in Vero Beach. He was approached about going to work at the then-named Sandpiper Bay Country Club. At that time General Development Corporation, or GDC, had many projects going on all over the state in such places as Miami, Port St. Lucie, Labelle, Palm Bay and others.

Lonnie started at Sandpiper in 1960 as the assistant golf course superintendent, under the well-known architect Chuck Ankrom. Lonnie has been at Sandpiper since the construction of the Sinners Course in 1960. The Saints Course was built in 1961.

The original director of golf was Chick Howard, who is in the Golf Hall of Fame. After Chuck Ankrom left, LeRoy Phillips, a 1992 President's Award recipient, filled in as golf maintenance director for GDC. In 1974 Lonnie became the head superintendent.

Lonnie takes great pride in the fact that he was there in 1960 when the property was being surveyed and that he is still there today. He helped to oversee every facet of the construction, and he knows the property like the back of his hand. As I drive down US 1 in Port St. Lucie past the shopping centers, malls and fast food, I can't help but to think of what it was like in the 1960s when the area was sparsely



Lonnie Stubbs

settled. Consider also the changes in equipment and irrigation that one would see over 35 years.

Lonnie has worked for three different owners of the Sandpiper property. The first was obviously GDC. The second was a company called Tulman and Huntley, who currently own the property and now lease the golf courses to Club Med. Club Med, a French vacation company with holdings all over the world, has been at Sandpiper for over eight years. Lonnie oversees the two golf courses and a nine-hole pitch and putt, as well as the hotel grounds. When Lonnie worked for Tulman and Huntley, they had a day to celebrate his 25th year at the club. Many superintendents were invited for lunch and golf.

Lonnie's son David is following in his

father's footsteps. David is one of Lonnie's assistant golf course superintendents. Two of his other sons, Lonnie Jr. and Thomas, also work on the courses at Sandpiper.

Like Joe Snook and 1990 President's Award recipient Adam Yurigan, Lonnie was a founding board member of the Treasure Coast Chapter. Lonnie was president of the chapter in 1982, second after the legendary Yurigan. Most of the Treasure Coast board meetings were held at Sandpiper between 1980 and 1985. Lonnie, Joe, Adam and Jim Callaghan got the Treasure Coast Chapter started in 1980, and most of them helped out for the first five or six years to help to grow the chapter. They are owed many thanks for that hard work.

Former Treasure Coast Chapter President Jim Callaghan commented that "it is a heck of a milestone for a superintendent to be in the business for 35 years, especially at the same club."

Lonnie and his long time friend, Joe Snook, were both given their President's Awards in 1994. They both exemplify the credentials searched out for the award. They were both instrumental in the formation of the Treasure Coast Chapter, and they easily had the twenty years in the business with ten years as superintendents. To me, they took it a step further. They are an example of what has always been right about our business. Two friends at different courses, helping each other out. When the Treasure Coast Chapter nominated them, someone made the comment that "you can not nominate one without nominating the other."

Joe Snook: Treasure Coast's Mr. Versatility

BY SCOTT BELL

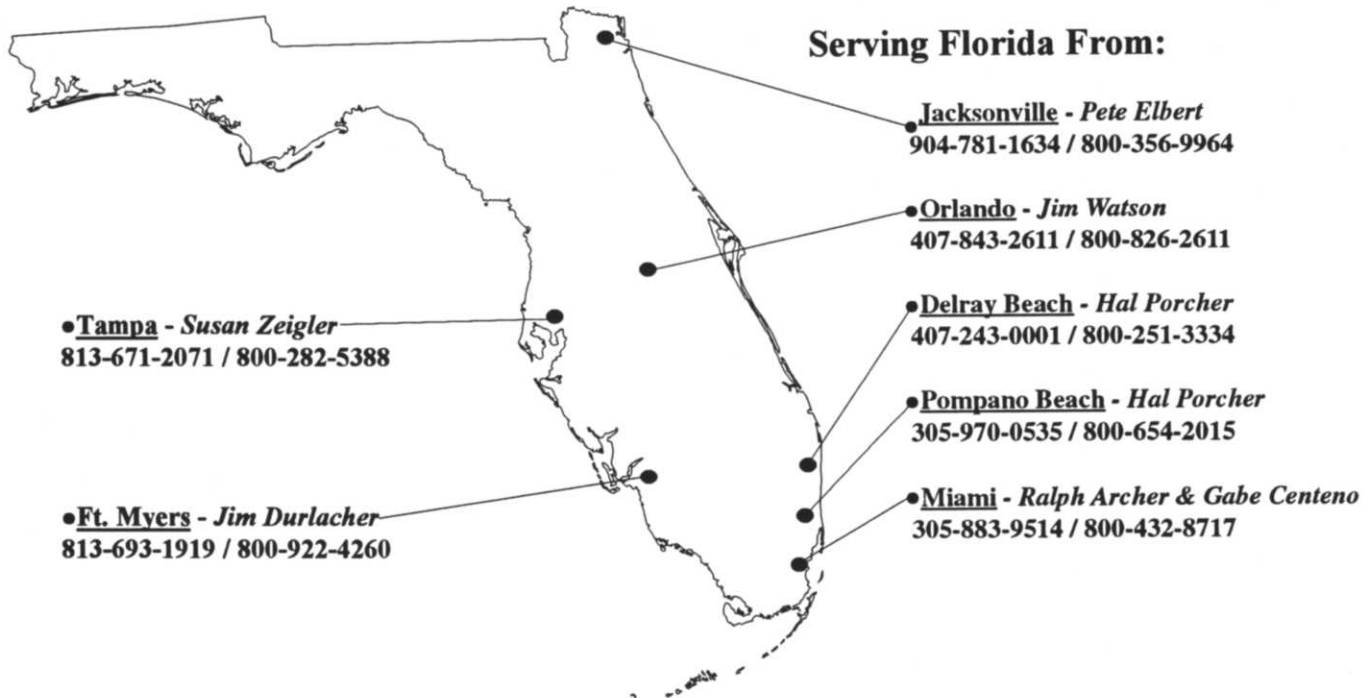
A good pilot tries to change direction when he sees rough weather ahead, and that's what Joe Snook had to do in 1973. Joe was a pilot for a well-known national company when he realized that the quality of the aircraft that he was flying was beginning to decline and the company was not upgrading or replacing the planes as quickly as they had in the past. He

feared that the company that he worked for would soon be discontinuing or scaling back its corporate flight division, so Joe searched out his old friend, Tom Burrows, who was working in Stuart at the time. Joe had worked part-time for Tom when he was not flying and they both worked in Chicago.

In 1974, Tom Burrows was the Golf and Landscape Director at Mariner Sands

in Stuart. He hired Joe to work in the landscape division of the development company. Shortly after Joe began working, his immediate boss moved on and Joe was put in charge of the landscape division. Unfortunately, the development company was struggling and rumors of bankruptcy were floating around. Tom left his position, and Joe was asked to run the golf course as well. Joe ran the first

**FOR YEARS THE BEST SOURCE FOR
TURF CHEMICALS HAS BEEN RIGHT
UNDER YOUR
NOSE.**



Professional Products For The Turf Industry



Van Waters & Rogers Inc.

subsidiary of **Univar**

"Where Service Is Our Only Business"

Joe Snook: A friend to many —

eighteen until one day when the comptroller for the project approached Joe while he was mowing the first green. Joe was told to gather the staff and lock up all of the equipment in the maintenance building — the company was closing the doors. Joe asked if he could finish mowing the green and was told that there was no need to because they were going to let the course go. He then reminded the comptroller that they had not been paid. Joe was told “no problem, just go down to the pro shop and take what you think your last pay was worth.” Joe got a set of clubs and some sport jackets as his final pay. The course was let go for a period of time, and the grass and weeds did grow up.

Joe was unemployed for only two days when the pro that he worked with at Mariner Sands called and told him of a job at Riverbend in Tequesta. Joe has

been at Riverbend Country Club since 1975. His course is always in fine shape, thanks to his years of dedicated service. He was also back near his buddy Tom, who had been working at Turtle Creek in Tequesta. Joe has been working with his assistant, John Scotten, for those same 20 years and he has enjoyed their relationship.

In the 1970s, the South Florida Chapter included Palm Beach and the Treasure Coast, as well as Dade and Broward. For meetings, the guys would often have to drive to Miami or Ft. Lauderdale. Joe and Tom would join up with Lonnie Stubbs to attend the SFGCSA meetings. Tom and Lonnie got Joe signed up to join the GCSAA. In 1980, Joe helped to form the Treasure Coast Chapter. The area was growing and more courses were being built. Joe served as president of the Treasure Coast Chapter in 1983 and 1984.

Jim Callaghan, superintendent at Rio Mar Country Club in Vero Beach, has known Joe since the late 1970s and says, “Joe was instrumental in getting the chapter started.” Jim said that Joe could always be counted on to come through.

Tom Burrows and Joe have been friends for nearly 30 years. When I asked Tom if he had any good stories to tell about Joe Snook, he replied, “There are not enough hours in the day to tell all of the stories about Joe Snook.”

Joe Snook has been involved in golf course management for over twenty years and he helped start the Treasure Coast Chapter. Joe was an integral part of the first board here. Joe has been a friend to many. In fact, Joe was part of a dual nomination for the President’s Award in 1994. His long time friend and colleague, Lonnie Stubbs, is also honored in this issue.



SERVICES

DESIGN, SALES, INSTALLATION AND SERVICE OF ALL TYPES OF GOLF COURSE AND COMMERCIAL IRRIGATION PUMP SYSTEMS.

FULLY STOCKED WAREHOUSE WITH SPECIFIC EQUIPMENT TO MEET YOUR IRRIGATION NEEDS.

FULLY EQUIPPED, RADIO DISPATCHED TRUCKS PROVIDE 24 HOUR EMERGENCY SERVICE.

COMPLETE CRANE SERVICE.

INHOUSE PUMP REPAIR FACILITY.

MOTOR REPAIR AND REWIND FACILITY.

PREVENTATIVE MAINTENANCE PROGRAMS.

TOTAL LIGHTNING PROTECTION AND INTERFACES SYSTEMS. UL LISTED INSTALLER.

UNDER WATER WETWELL AND INTAKE CLEANING AND REPAIR.

LICENSED & INSURED ELECTRICAL CONTRACTORS.

PRODUCTS

- SYNCROFLO IRRIGATION PUMPING SYSTEMS
- OTTERBINE AERATORS
- EPS LANDSCAPE PUMP STATIONS.
- EPS HYDRAULIC PUMP STATIONS.
- WESCO FOUNTAINS.
- CLAYTON VALVES & PARTS.
- WESSELS HYDROPNEUMATIC TANKS.
- SELF CLEANING INTAKE SCREENS.
- THOMPSON LIGHTNING PROTECTION EQUIPMENT.
- VERTICAL TURBINE PUMPS.
- CENTRIFUGAL PUMPS.
- REPLACEMENT MOTORS.
- CUSTOM CONTROL PANELS, ETL LISTED

"Servicing South Florida"

YEARS OF UNIVERSITY TESTS SHOW CYPRESS POA TRIVIALIS AS THE SUPERIOR CHOICE FOR OVERSEEDING!

Since 1991, Cypress Poa trivialis has had a proven record in university trials for being better and different than comparable varieties. Differences such as a darker genetic color, faster establishing rate, and better disease resistance.

Instead of taking our word for it, here is what the experts have to say...



Cypress' prostrate growth habit is apparent in these P.V.P. trials. One picture is worth 1000 words.

TMI will be happy to send to you copies of the complete trial data for any of the trials we have mentioned below.

University of Florida 1991-92 Overseeding Trials Gainesville, Fla.		
	Mean Quality Scores	Color
Cypress	7.2	7.8
Sabre	7.2	5.4

University of Arizona 1992-93 Overseeding Trials		
	Mean Quality Scores	Color
Cypress	5.4	5.3
Laser	5.0	5.0

USGA Stimpmeter tests at University of Arizona revealed a higher average ball speed of 92 inches for Cypress; better than for Laser.

"Although Cypress and Sabre Rough Bluegrass had equal seasonal Turf Quality Ratings of 7.2, the 'Cypress' cultivar had better color and less dollarspot disease in May."
Univ. of Florida Gainesville 1991-1992 overseed Trial.

Turfgrass	Monthly and seasonal mean values for turf quality on cool-season grasses overseeded on a 'Tifdwarf' bermudagrass putting green from Dec. 1993 to Mar. 1994 at Gainesville, Fl.				
	Dec.	Jan.	Quality Feb. Rating	Mar.	Mean
Cypress	6.8	8.2	8.0	6.8	7.25a
Colt	7.1	8.2	7.8	8.5	7.19a
PT-GH-92	6.3	7.8	8.0	7.1	7.19a
LPT-CT (Loft)	6.6	7.8	8.0	6.8	7.16a
PT-GH-89 C11 (Dark Horse)	8.1	7.3	7.8	7.0	6.97a
Danish Common	7.5	8.2	7.5	5.8	6.94a
LPT-HWY (Loft)	6.6	7.7	7.9	8.2	6.88a
Winterplay	6.6	7.5	7.8	6.3	6.88a

Quality mean based on eight visual ratings on a scale of 1-9 where 9 = best

Establishment rate of Poa trivialis varieties overseeded on dormant bermudagrass in Florida (data from Dr. A.E. Dudeck, Univ. of Florida)			
days:	7	14	21
	—% ground cover—		
<u>1991</u>			
Cypress	2	23	79
Sabre	2	17	70
<u>1992</u>			
Cypress	87	93	86
Laser	36	58	83

CERTIFIED



FOR YOUR NEAREST DISTRIBUTOR CONTACT:

TMI TURF MERCHANTS

33390 TANGENT LOOP • TANGENT, OR 97389
PHONE: (503) 926-8649
OUTSIDE OREGON: 800-421-1735

FAST-PUTTING, LOW-MOWING, GOOD LOOKING CERTIFIED CYPRESS!

Lou Oxnevad: In the Old Tom Morris Mold

BY DAN JONES, CGCS

Today's designs...tomorrow's white elephants?

All the new golf courses have shown a trend toward severe, highly penal designs that frustrate the average golfer and, in the long run, alienate a growing number of new golfers or old members. These are the ones who pay the bills.

The average golfer wants a course that makes him strive to play a better game without penalizing him for every slight mistake. It is much easier to build a fancy course, impossible to score on, where money is no object, than to improve on a very fine proven course.

The above is a typical remark by Lou Oxnevad. Straight forward and to the point. No politics, no side steps, just the straight honest facts.

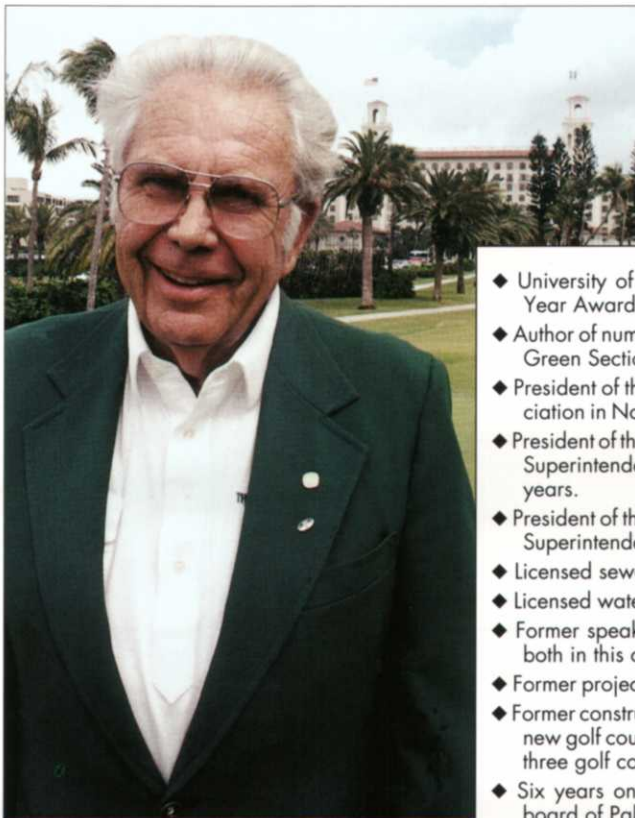
Lou was born in San Bernardino, California, 67 years ago. He is married to Selema, and they have four grown daughters. Lou's parents divorced when he was six years old, and Lou went to 13 different schools while growing up. He attended a one-room school house which provided 12 grades with one teacher for 38 students.

So, how did Lou get into the superintending business? We have to go back to World War II to get the answer.

Lou served with the 82nd Airborne and upon discharge in 1947 moved to Northern California, where he worked for the Division of Parks and Highways. He and Selema raised flowers for arrangements at resorts. They lost their home to a forest fire and moved back to Louisburg, North Carolina, where Lou attended North Carolina State University, majoring in horticulture.

Lou and Selema started a small nursery, and Lou worked part-time for the state measuring and plotting land for contour plowing and crop rotation. Louisburg has a nine-hole golf course with sand greens. They asked Lou to take it over and convert the greens to grass. A group from Saudi Arabia came over to Green Hill CC to learn how to maintain sand greens. Lou converted the greens and used a one-man paporinator bag to spray the greens.

Lou then moved on to Carolina CC,



Two class acts: Lou Oxnevad and The Breakers Hotel
Photo by Dan Jones

Lou Oxnevad: A Man For All Seasons

- ◆ University of Florida Horticulture of the Year Award for 1975.
- ◆ Author of numerous articles for the USGA Green Section.
- ◆ President of the Triangle Turf Grass Association in North Carolina for two years.
- ◆ President of the South Florida Golf Course Superintendent's Association for two years.
- ◆ President of the Florida State Golf Course Superintendent's Association.
- ◆ Licensed sewage plant operator.
- ◆ Licensed water treatment plant operator.
- ◆ Former speaker at national conventions both in this country and in England.
- ◆ Former project manager on two projects.
- ◆ Former construction superintendent on six new golf courses and the remodeling of three golf courses.
- ◆ Six years on the planning and zoning board of Palm Beach Gardens.
- ◆ Formerly involved with the drilling of 147 wells, one of which was 2,220 feet deep.
- ◆ Currently doing consulting work for croquet courts and golf courses.
- ◆ Designer and builder of waterfalls and estate gardens.

where he rebuilt the greens and changed them from common Bermuda to Tifton 328 bermudagrass. The total maintenance budget was \$42,372 and a walking greens mower cost less than \$200.

Lou then went to McGregor Downs CC, where he built the golf course in a virgin forest. He spent the first year cutting timber and building a lake. He hydro seeded the greens with Penncross bentgrass.

In 1968, Lou moved to Florida to take the superintendent position at Lost Tree CC in North Palm Beach. Fred and Glen Klauk worked for Lou during summer vacations and helped install a new irrigation system. While at Lost Tree, Lou built two golf courses at John's Island.

In 1972, Lou went to Riviera CC in Miami and rebuilt the greens. There he rowplanted 419 bermudagrass into common bermudagrass.

In 1980, Lou built Highridge CC in West Palm Beach under the watchful eye of golf course architect Joseph Lee.

In 1984, Lou worked for Ransome Mowers getting the Florida market established.

Then in 1985, Lou found a home at

the Breakers Hotel and Club in Palm Beach. For ten years, Lou took pride in caring for the golf course and hotel grounds. Lou remained at the Breakers until his retirement on April 1, 1995. (No fooling.)

Lou has done so much for the golf course superintendents in Florida. In 1975, he asked Dan Jones to get involved with the Florida Green Magazine. Lou trained and encouraged many of our golf course superintendents. For 11 years Lou represented us on the USGA Green Section Committee. Lou was the first certified golf course superintendent in the state of Florida. Now there are more than 125 in our state.

The list could go on and on. Lou has represented his profession well. He can look back with pride on his contributions to our industry, and I wish him well as he enters into another challenge — retirement.



FLORIDA'S
#1 Sales Force
#1 Product Line

FERTILIZER
CHEMICALS
SEED
ACCESSORIES
PSA™
CONTRACT SERVICES

GREAT GREENS OF AMERICA

Marty Bennett
 (800) 835-6080

Bob Schroeter
 (904) 635-5272



Chris McRae
 (407) 932-8067

Frank Cook
 (813) 245-6387

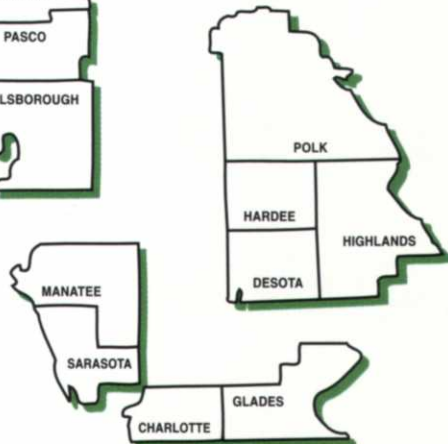
Mel Hallack
 (800) 533-2112
 ID #1782

Frank McGhee
 (813) 985-1209



David Cheesman
 (407) 288-6149

John Baniak
 (941) 481-1358



Walt McMahon
 (407) 371-6343

Glenn Zakany
 (941) 481-1358

Brad Walters
 (941) 481-1358



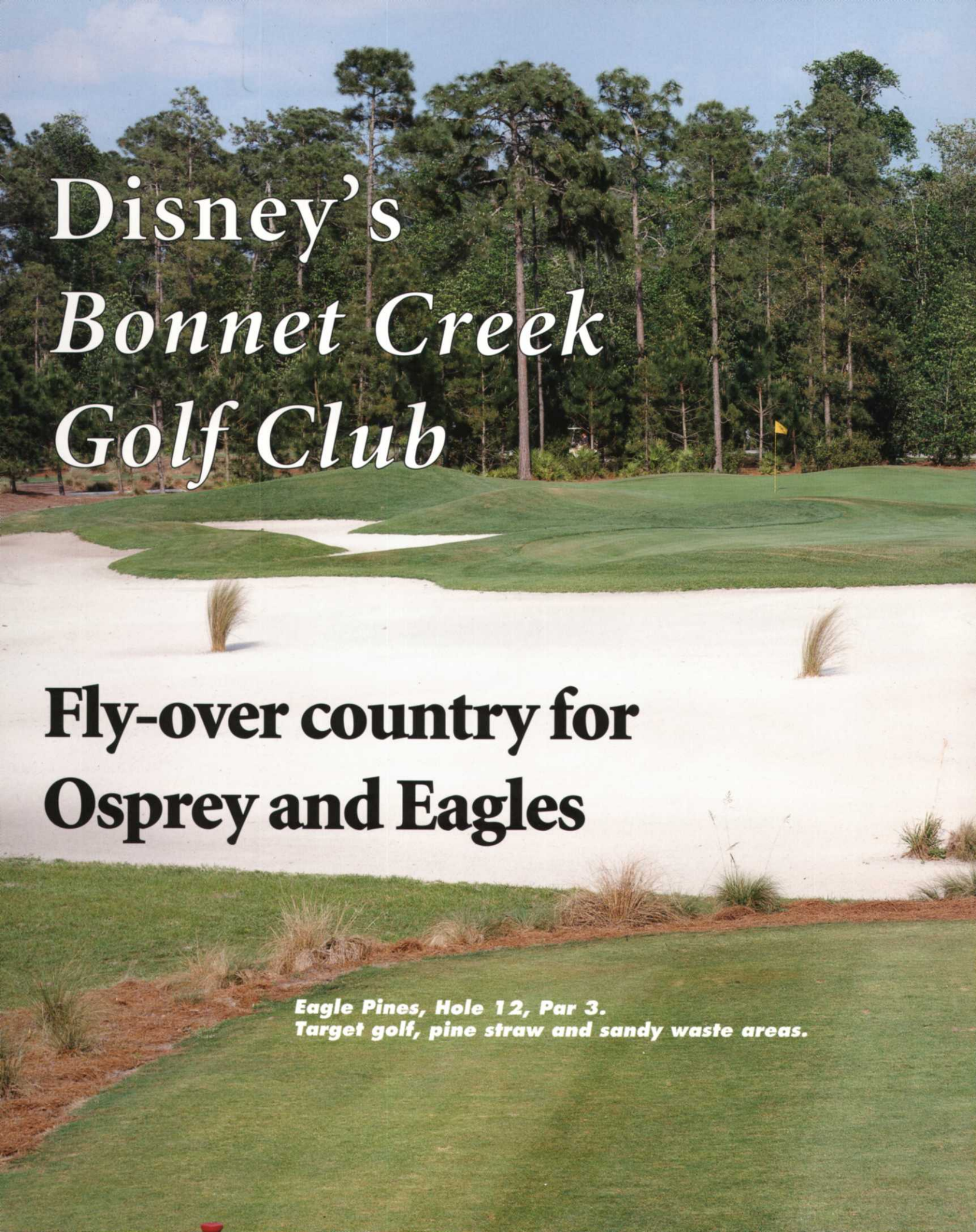
Alex Kagnus
 (305) 657-6138



2101 E. Edgewood Drive
 Lakeland, Florida 33803
 (941) 665-5800 • (800) 330-8874
 Fax: (941) 667-0888

14513 N. Nebraska Avenue
 Tampa, Florida 33613
 (813) 975-0606
 Fax: (813) 632-8796

15864 Brothers Court, SE
 Fort Myers, Florida 33912
 (941) 481-1358 • (800) 481-8911
 Fax: (941) 481-6166



Disney's *Bonnet Creek* *Golf Club*

Fly-over country for Osprey and Eagles

***Eagle Pines, Hole 12, Par 3.
Target golf, pine straw and sandy waste areas.***





Osprey Ridge #3. Par 3. Aim left.

A Tale of Two Courses

Bonnet Creek Golf Club

Location: Lake Buena Vista, FL.

Ownership: Walt Disney Company

Courses: Osprey Ridge, 18 holes (See Page 56); Eagle Pines, 18 holes (See Page 49).

Playing policy: Resort — public

Management: Mike Beaver, Director of Golf and Tennis; Larry Kamphaus, CGCS, Manager of Golf Maintenance and Kevin Prentice, Head Golf Professional.

BY JOEL D. JACKSON, CGCS

It was the best of times, it was the worst of times, it was the age of automation, it was the age of manual labor, it was the epoch of environmentalism, it was the epoch of development, it was the season of Fazio, it was the season of Dye, it was the winter of opening and overseeding, it was the spring of transition, we had everything before us, we had nothing before us, we were going direct to Golf Digest's Top 100, we were going direct the other way...

Paraphrasing the opening of Charles Dickens' classic, *A Tale of Two Cities*, might be overstating it slightly, but Disney's Bonnet Creek Golf Club, home to the Osprey Ridge and Eagle Pines golf courses, has become a classic in its own right.

The sweeping boldness of Tom Fazio's Osprey Ridge and the creative innovations of Pete Dye's Eagle Pines side by side offers dramatic contrasts just as the

cities of London and Paris did in Dickens' tale.

I often wondered if Pete and Tom overtly planned the contrasts between the two courses with Pete saying, "You take the high road and I'll take the low road and I'll get to opening before ye." The operative word in Osprey Ridge from day one was "Ridge". As Pete cleverly sculpted a low-rolling course on Eagle Pines, he sent all his excess fill north for Tom to construct a network of ridges that separates holes and provides some pretty impressive elevated tees on Osprey Ridge.

But I'm getting ahead of myself. Why build Bonnet Creek at all? The fortunes of Disney golf had ridden quite nicely for twenty years on three Joe Lee-designed courses: Lake Buena Vista, Palm and Magnolia. With the addition of Oak Trail, a Ron Garl 9-hole walking course next to the Magnolia, all the bases seemed cov-

LOOK!

Up In The Air!
It's...It's A Pennington
Turf Specialist



Well...our Turf Specialists can't actually fly, but they can be pretty amazing when it comes to turfgrass. If you have a question or a problem, just give us a call. Pennington's turf specialists may not have capes on under their suits but they are well-trained and knowledgeable. They can advise you about the latest developments in turfgrass, which grasses will best meet your turf requirements, water conditions, and climate. Not only that, they'll make sure that you get what you want when you want it. If it's Specialty Turfgrass that you need, then it's Pennington Seed you need to call.

PERENNIAL RYEGRASSES - Pennington 240, Shining Star, Stallion Select, Morning Star, Sunrise 246

PERENNIAL RYEGRASS BLENDS & MIXTURES - Sunrise Primo, CBS II, Triple Play, Sunrise plus Poa Trivialis, Professional's Select, Fairway Classic, Sports Club Mix

TURF TYPE TALL FESCUES - Duster, Tradition, Virtue, Finelawn Petite, Finelawn 88, Enviro Blend, Triad Blend

SEEDED TURF TYPE BERMUDAS - Cheyenne, Yuma



Call 1-800-285-SEED
for a Pennington Seed Specialty Turfgrass Distributor near you

Results Don't Lie.



Don't be fooled by competitive claims or isolated tests. In trial after trial, Terra® Thalonil™ stood up strong to the competition.

The fact is, for solid protection against dollar spot, brown patch, snow mold, algal scum and many, many more costly diseases—you can't buy better than Thalonil.



With Thalonil you get the leading fungicide *and* a fair deal at the same time. This season, talk to Terra for Thalonil and all of your professional product needs.



From Terra

THALONIL™ STICKS.

Always read and follow label directions.

Trial results summary available on written request.

Contact Your Nearest Florida Service Center

- | | |
|---|--|
| <p>• Alachua
Highway 441
(904) 462-1242</p> | <p>• Arcadia
122-A N. 11th Ave.
(813) 494-4400</p> |
| <p>• Belle Glade
1033 NW 16th St.
(407) 992-4004</p> | <p>• Boynton Beach
9293 State Road 7
(407) 737-1200</p> |
| <p>• Ellenton
3203 US Hwy
301 NE
(813) 722-4564</p> | <p>• Ft. Pierce
7361 Commercial
Circle
(407) 466-6607</p> |
| <p>• Hastings
8520 Highway
207 East
(904) 692-1502</p> | <p>• Homestead
790 NW 10th Ave.
(305) 247-1521</p> |
| <p>• Immokalee
800 E. Main St.
(813) 657-8374</p> | <p>• Lake Hamilton
51D Highway
27 South
(813) 439-1140</p> |
| <p>• Plant City
103 S. Alexander
Street
(813) 752-6351</p> | <p>• Plymouth
2975 West Orange
Blossom Trail
(407) 886-4744</p> |
| <p>• Quincy
Rt. 1, Box 378
(904) 442-9000</p> | <p>• Tavares
13539 Southridge
Industrial Dr.
(904) 343-5577</p> |
| <p>• Vero Beach
9035 17th Place
(407) 562-2142</p> | <p>• Wauchula
804 S. 6th Ave.
(813) 773-4543</p> |

Terra
ASGROW
FLORIDA

ered. In fact, the 25th anniversary of the annual PGA event, The Disney-Oldsmobile Classic, will be celebrated on the original courses this October.

Each of those courses have had their greens rebuilt to USGA specifications over the past three years. Two important factors became the driving forces in adding to Disney's golf course inventory. First, like many Central Florida courses, Disney was turning away play in the winter. Second, Disney was building more hotels which would mean more guests to accommodate year round. And so it was that the Disney Development Company (DDC) was commissioned to build Bonnet Creek.

With environmental protection and enhancement foremost in mind, the project began. A wildlife study revealed a colony of gopher tortoises in an upland habitat on the Osprey Ridge site. The tortoises were moved to a temporary holding area during construction. Wetland areas were



Each course has
its own man-
made irrigation
lake which is
recharged with
effluent
water...

Scott Welder

Osprey Ridge Golf Course Superintendent

Originally from: Evansville, Indiana.

Family: Wife, Doris. Children: Daughter, Tonya.

Education: Studied architecture at Brevard Junior College. Studied landscaping at Valencia Community College.

Employment: Walt Disney World, Superintendent since 1988; worked for company since 1971. Previously served as Superintendent of Palm and Lake Buena Vista Courses.

Hobbies/Interests: Fishing, old cars, golf.

Professional affiliations: FTGA; GCSAA; Director, Central Florida GCSA.

Memorable moments: The opening of Bonnet Creek.

Advice: Be a "hands on" person. Hard work does pay off.

Mentors: Larry Kamphaus, a close associate for 24 years and sharer of information and knowledge. Joel Jackson, a true professional golf course superintendent. Pat Hennessey, my fellow superintendent at Bonnet Creek, who showed me that hard work pays off.

About Osprey Ridge: The tremendous popularity of the course makes conditioning a challenge. We have a large volume of play and no 1 & 10 tee set up to give us time to work on the first hole unless we're closed. We use a Toro Hydroject aerifier in the winter to help relieve compaction.

roped off just like tournament fairways. Miles of silt fencing was also installed along all wetlands that bordered the construction sites. All storm runoff is contained and filtered by spreader swales, internal drainage, man-made marshes, ponds, and lakes.

All perimeter irrigation is part circle, watering only the golf course. On Eagle Pines, Dye went even further by irrigating only tee tops with small heads and leaving large areas between tee and fairway unirrigated in the ever famous "waste area" concept. We will visit the waste area topic later.

Each course has its own man-made irrigation lake which is recharged with effluent water which makes each course a filter and recharge location for water resource conservation and recycling. All of the other Disney courses have been retrofitted to use effluent water.

The Bonnet Creek irrigation is controlled by a Rainbird Maxi computer system complete with a weather station to provide on site data to customize the daily watering needs. Each controller in the field has its own preset rain switch to turn off that zone if it should receive rainfall that exceeds the selected amount. The system is not fool proof. If the weather station records sufficient rainfall it shuts down the whole system. After studying the rainfall patterns across the two courses six rain gauges were installed to double check the computer's shutdown commands and to provide data to adjust watering times.

Both architects did an excellent job designing drainage systems that move surface runoff to drain basins quickly. Much of the design credit goes to the on-site Design Associates, Steve Masiak for the Fazio group and Michael O'Connor for Pete Dye. The only thing they couldn't control was the soil content on some of the holes.

Invariably it seems in the construction phase of every project that heavy hard-pan and clay soils find their way to the surface of fairways instead of being buried under mounds. Naturally, during periods of heavy rainfall those areas don't percolate as readily as sandier profiles, thus prolonging the challenge and aggravation to superintendents and golfers everywhere.

Another lesson learned during this project is that USGA spec greens really should have an inner and outer head system. Inner for the the putting surface and outer for the slopes, bunkers, etc. Normally the surrounds of the green will not be as porous as the green's well itself with its special sandy mix and intricate drainage system.

Trying to follow the recommended deep watering techniques can be a problem when watering two radically different areas with one head. This concern is not unique to Bonnet Creek, but one that can be avoided in future projects everywhere.

Landscaping the courses was easy. Look around. What's

419 SOD

Tifdwarf

University of Georgia Release Lot #G8003-JK

- ★ Reworking & Planting Fairways, Tees and Greens
- ★ Rolled Sod •• Sprigs
- ★ Hydromulching, Seeding & Mulching

South Florida Grassing, Inc.

1-800-483-4279
407-546-4191

P.O. Box 725
Hobe Sound, FL 33475

Control Summer Stress Complex^{*}

*Occurs when stresses such as Rhizoctonia and Pythium species combine with heat, traffic and other factors. This results in reduced turfgrass vigor.



RHONE POULENC AG COMPANY
P.O. Box 12014, 2 T.W. Alexander Drive
Research Triangle Park, NC 27709
1-800-334-9745



Osprey Ridge #14, par 4. Bunkers and ridges.

Osprey Ridge

Oaks and hickories surround Osprey Ridge # 13.

already here? Pines. Oaks. Cypress. Bays. Hickories. Maples. Wax myrtles. OK! Plant some more where you need them. Extensive use was also made of low maintenance native grasses like cordgrass and gulf muhly, which has a dynamite pink bloom in the fall.

Bahiagrass was planted in unirrigated roughs and areas that required stabilizing like some of the remote lake banks.

The only other non-native plantings on the grounds are a splash or two of annual beds along the entrance road; a ground-cover bed of jasmine on a steep slope behind the clubhouse; and a small Shillings holly bed for Mickey's nose on the putting green. That's what I said, "Mickey's nose!" The boss in profile. You have to see it to believe it!

Growing in the courses, especially Osprey Ridge, was a challenge just from





OVERSEEDING.



OVERSEEDING WITH PRIMO.

During overseeding, speed is the name of the game.

Primo® gives you a dramatically quicker transition by doing what it does best: slowing the growth of existing turf by 50 percent.

This makes existing turf less competitive, and allows more sunlight, oxygen,

and nutrients to reach the newly seeded grass.

Which means you get a faster stand and a higher rate of germination.

And since Primo is foliar absorbed, it has no effect on new seedlings.

So this year, be sure to use Primo. It's like turbo-charging your overseeding program.



an access point of view. The course is a links layout with the ninth and tenth holes the farthest point from the maintenance facility.

The four closest holes 1, 2, 17 and 18 were the last to be completed. Holes 3 through 16 were on the other side of a wetland area. Construction of a permitted wooden bridge to span the wetland was also completed late in the project.

Therefore, equipment and personnel had to be driven or transported several miles around the property on a perimeter canal bank road that put extra wear and tear on new equipment not normally incurred during grow in.

There were haul roads that cut through the Eagle Pines course but they were often impassable due to heavy rains and rutting by construction equipment. A Cushman is no match for a scraper or a dump truck.

And when the project got down to the last four holes it was September and not much time left to sprig before fall weather

could set in. The final holes were sodded wall to wall except the greens surfaces. In doing so, a caravan of sod trucks made their way to Bonnet Creek from every available sod farm. Having said that, no one should be surprised if we came up with some color and texture differences in some of our Tifway 419 areas.

That was in 1991 and since then Tifway 419 has been the point of much discussion about contaminated or mutated turf fields. And now, unfortunately, even Tifdwarf purity has come into question. In fact, the FGCSA and FTGA are now funding DNA research that will hopefully hasten the return of certified turf to Florida. It will not be a quick fix. It is not a good guy v.s. bad guy problem. It has more to do with returning to a turf certification program, and the DNA testing is just one tool to help us get there.

One of the best outcomes of building a golf course is creating new habitat. In the late stages of grow-in aquatic plants like spike rush and bull rush were estab-

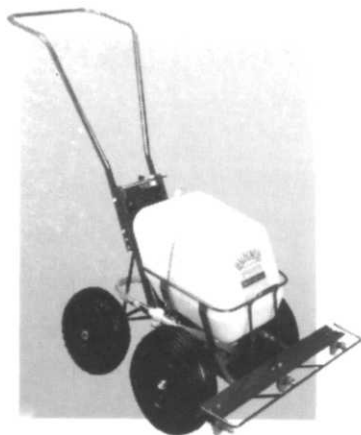
lished along the lake and pond banks to provide cover and habitat for the fish populations that would follow.

It was satisfying to watch small 2 to 3 inch long fry of large mouth bass, bream, and catfish grow into catch and release size so quickly. After the fish came the fishers. Herons, cormorants, ospreys and even eagles. During the first year of operation nine osprey nesting poles were installed to provide homes for the name-sake of Osprey Ridge. This spring, patience (sometimes a rare commodity in golf) paid off as a nesting pair of Ospreys took up residence and started a family on the pole between Osprey Ridge's #7 and Eagle Pine's #15.

The Bonnet Creek Golf Club is a member of the Audubon Cooperative Sanctuary Program. Many of the initiatives already taken during original construction will help qualify for full certification.

The Bonnet Creek Golf Club opened its doors in late December 1991. I secretly think, that during the conceptual plan-

USA DIST. FOR ALLEN WALKOVER SPRAYERS



GO-FOR
SUPPLY



THE PROFESSIONAL

Tank Capacity: 5.5 Gallons:
Delivery Volume: 33 Gallons/acre

This elite sprayer is designed and built for the professional user for the accurate treatment of large areas of fine turf, such as bowling greens, cricket squares, golf greens and tennis courts.

We go for you!

Order by phone or fax
1-800-475-7081
Fax: 813-475-7081

For Go-For Distributor nearest you call 1-800-475-7081

ACCESSORIES

American Eagle
Bayco
EZ-Rake
Fairway Markers
Flex Stakes
Fore Par
Markers, Inc.
Master of the Links

Par Aide
Rico
Standard
Southern
T.A.T. Golf Signs
MISC.
Barrier Net
Chain, Rope
Marking Paint &

Chalk
Grid System
Igloo Coolers
Tee Towels
SEED
TMI - VIP Blends,
Poa Triv., Rye, Bent
EQUIPMENT
Allen

Broyhill Sprayers
(Grains Keeper)
Red Max
Stihl
Tanaka
Tool Totes
**FERTILIZERS &
SOIL AMENDMENTS**
Axis

Break Thru
Howards Fertilizer
Plant Marvel (Nutriculture)
PARTS & SHOP
SUPPLIES
Accu-Gauges
Back-Lapping Machines
Grinders
Lapping Compound

Lifts & Lift Tables
R & R Distributor
Safety Equipment
Tire Changers
Tools (Wholesale)
SERVICES
Pesticide Applications, Inc.
Campbell Aerifications
Services



They Want To Play Checkers!

What Are You Waiting For?

Players really like our easy-to-see checkers - one of our most popular flags. Southern offers the largest selection of checker color combinations and each square is individually sewn together for unequalled strength and durability. Tube or Grommet - Same Price!



- Totally Custom Color Combos
- Embroidered Design
- Screenprinted Design



- Totally Plain
- Basic Color Combos In Stock
- Custom Color Combos-No Charge!

Add some stripes for the HOTTEST Flag & Flagstick Combo around.



Available in 7' and 8' with Black, Red, Royal Blue, or Forest Green stripes to compliment any flag color combination!!

Surveyor
Stripe Stick

1/2" straight
or 3/4" tapered stick

Great Flags.
Great Sticks.
Great Cups.
Great Savings!

Machined
Aluminum
Ferrule & Tip



SOUTHERN
GOLF PRODUCTS
& UNIFORMS

297 Dividend Drive
Peachtree City, GA 30269
800-233-3853
FAX 800-277-7701



Looking back down #14, Osprey Ridge, a tough par 4.

OSPREY RIDGE



Osprey Ridge #17, a two-tiered challenge.



New *Scimitar*[®] GC

All the Assurance You Need from the Grounds to the Golfers

As a golf course superintendent, there's more to your job than just caring for the grounds. You also have to care about the environment and the people on the grounds. New SCIMITAR GC gives you all the assurance you need to take care of your entire job—from the grounds to the golfers.

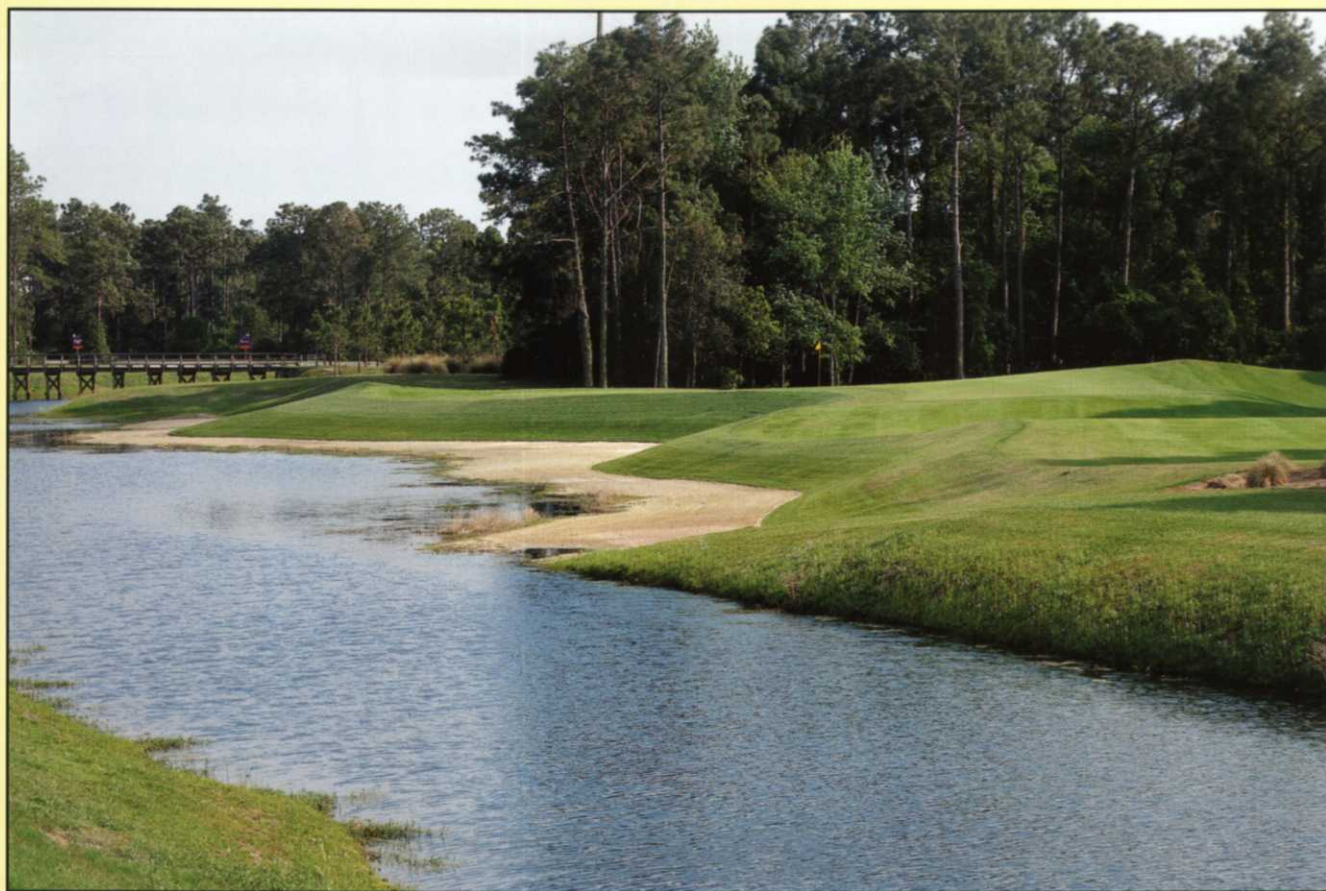
New SCIMITAR GC delivers superior, fast-acting control of tough turf and ornamental pests on your golf course. It quickly controls a broad spectrum of pests including chinch bugs, bluegrass billbug adults, mole crickets, sod webworms, fire ants, and even suppresses certain grubs. All at extremely low use rates, an economical price, and without an annoying odor. Which means no raised eyebrows from your Greens Committee and no raised voices from your golfers.

The advantage of SCIMITAR GC is the patented microencapsulation. This encapsulation gives you the best of both worlds—fast action and controlled release for control of both surface and subsurface pests. And SCIMITAR GC is packaged in convenient 32-ounce squeeze-and-pour containers for easy use.

So rest assured—New SCIMITAR GC provides the control you need for your grounds and the confidence you demand for your golfers. For more information about SCIMITAR GC, contact your Zeneca Professional Products representative, or call 1-800-759-2500..

ZENECA
Professional Products

SCIMITAR GC is a restricted use pesticide.
Always read and follow label directions carefully. SCIMITAR[®] is a trademark of
a Zeneca Group Company. A business unit of Zeneca Inc. ©1995. Zeneca Inc.



Eagle Pines' L-shaped 3. A par 3 over water.

Eagle Pines



Eagle Pines #7 with pine straw accents and a marsh lake.

GREG NORMAN TURF COMPANY



*"A QUALITY TURFGRASS
SHOULD BE THE TUXEDO
OF A GOLF COURSE."*

- GREG NORMAN



Greg Norman's first U.S. turf project - the majestic MEDALIST CLUB in Hobe Sound, Florida is receiving wide acclaim from all sectors of the golf industry.

Greg Norman's debut turfgrass, GN-1, is a hybrid bermudagrass with a deep green color, superior tolerance to low temperature and parasitic nematodes and less thatching than other hybrid bermudagrasses. The patented GN-1 features quick divot recovery, higher ball elevation and DNA fingerprinting for authenticity. Durable and convenient, GN-1 can be maintained at fairway and tee cutting heights.

OTHER GRASSES AVAILABLE:

- 419 Tifway Bermuda
(Golf Course Quality)
- Tifdwarf

NEW PRODUCTS COMING SOON:

- Dwarf Perennial Peanut
- Floradwarf Bermuda
(New Hawaiian Dwarf)
- FLoraTeX™ Bermuda

GREG NORMAN TURF COMPANY



4520 Kinsey Road • Avon Park, Florida, 33825 • 800-871-7570 • 813-452-6595 FAX: 813-452-5079



‘There is probably no one who has experimented more with textures and contrasts as part of the design of a course...’

A short par 4, Eagle Pines 8, invites big hitters to go for it.

ning for Bonnet Creek, Golf Director, Mike Beaver, heard a voice whispering in the pines. It said, “Build it and they will come.”

And come they have in record numbers. Just ask the maintenance staff as they try to beat the first golfers down the #1 fairways to the green. But when the players come, they play courses rated in the Top 10 resort courses in the USA. Both courses have participated in the finals of the Oldsmobile Scramble.

They have hosted the Bryant Gumbel, Charles Barkley, and Frank Viola Celebrity Pro-Am tournaments. By virtue of its 1 & 10 tee start capability, Eagle Pines has also hosted the 1994 Disney-Oldsmobile Classic PGA event and the LPGA’s HealthSouth Inaugural this year.

You don’t get those kind of credits by having the sorcerer’s apprentice conjure up thousands of broomsticks mowing and grooming the course. Like Walt always said, “It takes people!”

It was my pleasure and good fortune to return to Disney in June of 1991 and partner with superintendents, Scott Welder and Pat Hennessey, under the very capable direction of Manager of Golf



Toughest par 3 on Eagle Pines. Hole 15.

Course Maintenance, Larry Kamphaus, CGCS to help make the Bonnet Creek project a reality.

Suffice it to say that in my travels I

have never met any superintendents that have exceeded their capacity for hard work, commitment, hands on versatility, ability and perseverance. They are a great

POLYON[®] RONSTAR[®]

**TWICE
THE
POWER.**

(half the work!)

Full season fertilizer—with no more weeds. You know about Polyon[®], the controlled-release fertilizer that gives a season's worth of nutrients with one application. Now Harrell's custom blends Polyon[®] with Ronstar[®], the just-as-long lasting pre-emergent herbicide that doesn't root prune.

Stronger, healthier turf and half the work. Call today **1-800-282-8007** for details on how Polyon[®] Fertilizer with Ronstar[®] can be your answer to successful turf.

Polyon is a registered trademark of Pursell, Inc.

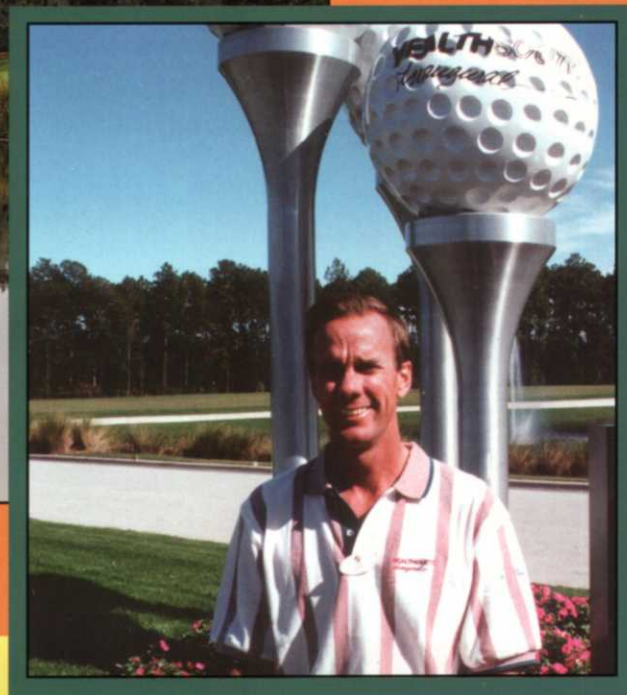


POLYON[®] WITH Ronstar[®]

The full season fertilizer and herbicide you've been counting on.



The 17th green on Eagle Pines at the end of a long par 4.



Pat Hennessey

Eagle Pines Golf Course Superintendent

Originally from: Holyoke, Massachusetts.

Family: Wife, Vivian. Children: Patrick, Ryan and Michael.

Education: Studied horticulture at Holyoke Community College and Valencia Community College.

Employment: CMS Landscaping, Holyoke, Mass., Foreman, 6 years. Walt Disney World, Foreman, 11 years; Superintendent, 4 years.

Hobbies/Interests: Golf, fishing, following sports, children's activities.

Professional affiliations: FTGA, GCSAA, Central Florida GCSA.

Honors: Top 10 Resort Golf Courses in USA.

Personal Philosophy: Treat all employees fairly. Be honest. Stress team effort; have workers take pride in what they do. For myself, do whatever it takes to get the job done.

Advice: Consult with other superintendents. Don't be afraid to seek advice. Be dedicated to your course and profession.

Mentors: My parents, who taught me the importance of values and family. My wife, who influenced me in obtaining goals. My colleagues at Walt Disney World.

About Eagle Pines: It was definitely a learning process for all of us after dealing with the older wall to wall turf courses and now managing large "natural" areas. They are not necessarily low maintenance. Weed encroachment can be a real problem. Also managing bermdua and St. Augustine side by side is challenging since they have different requirements.

bunch of gentlemen to work with. I will not dwell in this area too long lest I am accused of gilding the lily. But sometimes, we don't say thank you enough to the people we work with every day.

Scott left his post as superintendent of the Lake Buena Vista Club in January 1991 to serve as the on site superintendent to work with DDC and to represent the Golf Division during construction. He and Larry provided DDC with input on equipment lists and necessary infrastructure for the project. They also were responsible for helping DDC enforce construction specifications and suggest some obvious changes overlooked in the contract.

Sometimes the wish list fell victim to "value engineering," but eventually the list will be completed by the "real engineers" who run the place. Scott serves as the Head Superintendent of the Bonnet Creek Club, and also has day to day responsibility for the Osprey Ridge Course.

Pat was promoted to Superintendent of Eagle Pines from his Assistant's position on the Palm course.

I promised to revisit the topic of "waste areas" and the time has come. Pete Dye is unquestionably one of the premier innovators and risk takers in golf course design. There is probably no one who has experimented more with textures and contrasts as part of the design of a course. His concern and passion for the environment are legendary. He incorporated nearly 65 acres (over one-third of the total Eagle Pines acreage) in pine straw "waste areas" around teeing areas and outer roughs. The initial visual effect was spectacular and would require, in theory, very low maintenance.

Please see Page 55

Our commitment to your success continues with TURFGO® products.



As part of our continuing commitment to turf care professionals, United Horticultural Supply proudly features our own TURFGO® line of fertilizers, chemicals and turf seed.

These top pros have discovered that TURFGO® products are premium quality in addition to being environmentally sound.

For example, TURFGO® Dursban* 2 Coated Granules provide cost-effective, broad spectrum control of turf insects, including cutworms and crickets. It bonds tightly to plants and soil providing residual control that's hard to match.

Also, TURFGO® Dursban 2CG's active ingredient forms a vapor in the turf's micro-climate, providing control even where sprays can't reach.

Whatever your need, United Horticultural Supply has a product that performs as promised and is always in good supply. Call us at 1-800-457-0415 for more information.



United
Horticultural Supply™

* Dursban is a registered trademark of DowElanco





Reelmaster[®] 6500-D

Mid Size Fairway Mower

The first truly mid-size mower for perfect fairways during any season. With abundant power to superbly cut even the toughest, thickest turf.

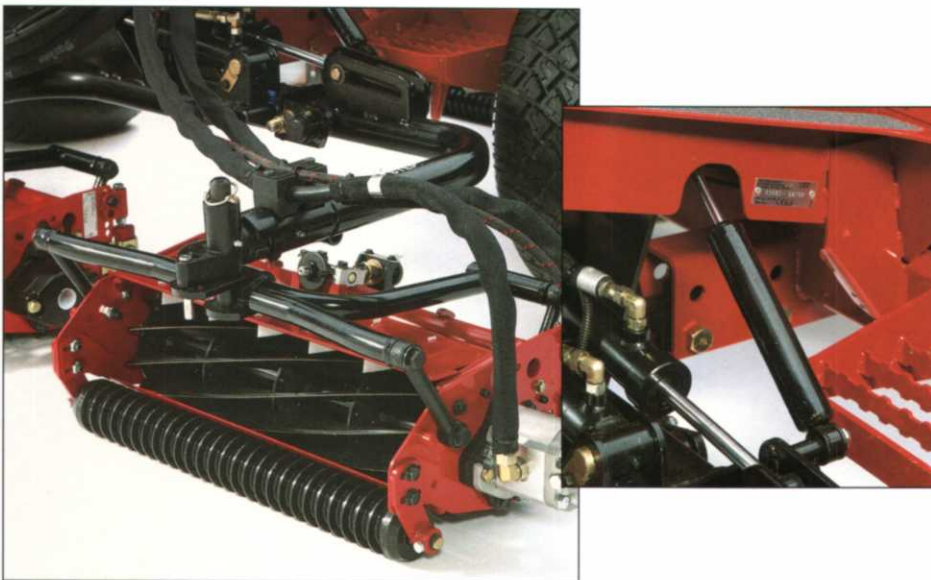




Reelmaster® 6500-D

*Something
new under
the sun.*

If your golf course is located in a warm weather region, it's likely you're using two different fairway mowers. A heavyweight for thick, warm season grasses. And a lightweight for cooler months. Now you need just one. Toro's all new Reelmaster® 6500-D. The first truly mid-size fairway mower for year 'round operation.



Power Packed

The 2 or 4-wheel drive 6500-D equips a powerful 38 hp Peugeot diesel engine to tackle heavy bermuda, zoysia, overseeded rye, bent or blue grasses. It's also ideal for high altitude areas where most other mowers don't have reserve power. Yet it operates quietly, measuring only 85 decibels.

Heavy Duty Reels

Toro's cutting technology is totally new. For example, Reelmaster® 6500-D features five heavy duty, variable speed reels. All interchangeable. These heavy duty 7 inch diameter reels are designed to easily handle fast growing, tough seasonal grasses. And each 22 inch wide reel can be quickly changed from steerable to non-steerable. The overall cutting width is a productive 96 inches.

Contoured Cutting

The 6500-D gives your fairways a consistently superb quality of cut. Its secret is the new L-I-N-K-S™ system. Its four-bar floating linkage and individual lift arm dampers give the Reelmaster® 6500-D the ability to hug the turf and reduce "bobbing" better than anything else on the market.

Leak Alert

The 6500-D's hydraulic system is state of the art. All hoses are frame mounted and shorter, reducing flexing and chafing. Fewer bends mean fewer leaks. What's more, Toro's exclusive TurfDefender™ electronic leak detection system senses and alerts operators to turf damaging leaks, but minimizes the false alarms that plague conventional systems.



Operator Friendly

Operators like Reelmaster® 6500-D for several reasons. Toro's advanced noise reduction complemented by rear air draw. Ergonomic design with single joystick control. Clear visibility. Seat belt safety. And ROPS

(Roll-Over Protection Structure), standard with 4-wheel drive, optional with 2-wheel drive.

Automated Controls

ACE™ (Automated Control Electronics) is another Toro®

exclusive. Among its many capabilities it automatically adjusts reel speed to mowing speed and can also be programmed to set and control mowing speed. Maximum mowing and transport speeds are 7.5 mph and 10 mph respectively.

Easy Maintenance

The 6500-D offers easy access to components. Improved single point adjustment. Rerouted hydraulic hose lines. Fully interchangeable reels.



The ACE™ system can help you quickly separate electrical from hydraulic problems. If electrical, it can pinpoint the fault with your hand held tool. And the Data Log™ system can be installed on units experiencing intermittent electrical problems. It captures and records information for accurate diagnosis.



Fast Track Delivery

Parts for your Reelmaster® 6500-D are backed by Toro's 24 Hour Fast Track guaranteed parts delivery program* or your parts are free. And Direct Today 48 Hour means reliable arrival in two days*. For full program details contact your local Toro distributor.

*24 Hour Fast Track and Direct Today 48 Hour delivery are available in the 48 contiguous states and cover only parts supported by The Toro Company, Bloomington, and do not include irrigation or certain engine parts. Program subject to carrier delivery restrictions.

Reelmaster® 6500-D Specifications*

MODEL 03800, 2-WHEEL DRIVE OR MODEL 03801, 4-WHEEL DRIVE				
ENGINE	Peugeot, 4 cylinder, 4 cycle, overhead cam, 116 cu. in. (1.9 liter) displacement, liquid cooled diesel engine. 38 hp (28 kW); governed to 2500 rpm. High idle 23.5:1 compression ratio, 3.27" (83 mm) bore x 3.46" (88 mm) stroke. Automatic glow plug system. Heavy duty, 2 stage, remote air cleaner.			
RADIATOR	Rear-mounted, cross-flow agricultural type radiator; 7 fins per inch. Approx. 7.5 quart (7.1 liter) capacity. Air to oil cooler mounted to rear of radiator tips outward for cleaning. Removable oil cooler/radiator screen.			
ELECTRICAL FEATURES	12 volt, 530 cold cranking amperes at 0°F (-18°C), 85 minute reserve capacity at 80°F (27°C), maintenance free battery. 55 amp alternator with I.C. regulator/rectifier. Automotive type electrical system. Seat switch, reel and traction interlock switches.			
FUEL SYSTEM	Rotary fuel injection pump with energized-to-run (ETR) fuel flow solenoid. Replaceable spin-on fuel filter/water separator with water sensor. Fuel capacity: 15 gallon (64 liter).			
CONTROLS	Foot operated traction and brake pedals. Hand operated throttle, speed control lever, parking brake lock, ignition switch with automatic preheat cycle, single joystick control for cutting unit on/off and lift/lower. Cutting unit backlap switch located under operator's seat. Reel speed input located under control panel.			
GAUGES	Hour meter, speedometer, fuel gauge, temperature gauge, 4 bank warning lamp: oil pressure, water temperature, amps, and glow plug. 2 bank warning lamp: water in fuel, water level.			
DIAGNOSTICS	The Automatic Control Electronics, ACE™ system allows precision timing and control of machine functions for maximum reliability. Standard diagnostic display connects to an electronic control unit to pinpoint any electrical problems quickly and easily. Available DATA LOG™ system allows mechanic to find intermittent problems.			
TRACTION DRIVE	Servo-controlled hydrostatic system driving double planetary gear reduction front wheel drives. Foot pedal control of forward/reverse ground speed. Toro 4-Matic® 4-Wheel Drive System only: couples rear drive axle to hydrostatic transmission via overrunning clutch for full time on-demand 4 wheel drive. A Roll Over Protective Structure (ROPS) and seat belt are standard.			
GROUND SPEED	0-10 mph (0-16.1 km/hr) forward; 0-4 mph (0-6.4 km/hr) reverse.			
TIRES/WHEELS/PRESSURE	Two rear steering tires: 20 x 10.00-10, tubeless, 6-ply rating. Two front traction drive tires: 29 x 12.00-12, tubeless, 6-ply rating. Recommended tire pressure: 10-15 psi (69-103 kPa).			
MAIN FRAME	All welded formed steel frame, includes tie-down loops.			
BRAKES	Individual totally enclosed, multi-disc, wet brakes and parking brakes on front traction wheels. Hydrostatic braking through traction drive.			
STEERING	Power steering with dedicated power source.			
CUTTING UNIT SUSPENSION	Equal length lift arms with the L-I-N-K-S™ suspension system.			
SEAT	Deluxe high back suspension seat. Optional Armrest Kit, Model 30707.			
OVERALL DIMENSIONS	Height 60" (152 cm)	Length 120" (305 cm)	Overall Transport Width 84" (213 cm)	Overall Operational Width 110" (279 cm)
WEIGHT	Model 03800: 3,200 lbs. (1,451 kg) with 5 blade cutting units and full fluid levels. Model 03801: 3,300 lbs. (1,497 kg) with 5 blade cutting units and full fluid levels.			
WARRANTY	One year limited warranty. Refer to the appropriate Operator's Manual for further details.			
SOUND LEVEL	85 dB(A) under normal operating conditions.			
CERTIFICATION	The Reelmaster 6500-D complies with American National Standards Institute (ANSI B71.4-1990) and European Community (CE) specifications with required kits and ballast installed.			
5 AND 11 BLADE CUTTING UNITS, MODELS 03854 AND 03856				
TYPE	Five 22" (56 cm) width cutting units are fully interchangeable to any mounting location on the machine.			
WIDTH OF CUT	96" (244 cm) total; 22" (56 cm) each cutting unit.			
HOC RANGE	3/8" – 1 1/4" (9.5 mm – 32 mm) height of cut range. Recommended use: 5 Blade — 3/4" – 1 1/4" (19 mm – 32 mm); 11 Blade — 3/8" – 3/4" (9.5 mm – 19 mm).			
HOC & ROLLER ADJUSTMENT	Height of cut adjustment is made at rear roller with quick locating pin and/or threaded micro-adjustment. Front roller position is adjustable to 3 locations to set cutting unit attitude.			
REEL CONSTRUCTION	Fairway reels. All welded construction. 7" (17.8 cm) diameter reels.			
REEL DRIVE	Reel motors feature quick disconnect for removal or installation onto cutting unit. Cutting units can be driven from either end.			
BEDKNIFE/BEDBAR	Single point adjustment mechanism.			
CLIP FREQUENCY	.375" – 1.25" (9.5 mm – 31.7 mm). Reel speed automatically adjusts to maintain proper clip. Reel speed is continuously calculated based on the current forward speed and the pre-set reel type and height of cut.			
ROLLERS	Front rollers: 3" (7.6 cm) diameter Wiehle rollers. Rear rollers: 2.5" (6.4 cm) diameter full rollers. All rollers use the same heavy duty ball bearings with two conventional single lip seals and a Toro labyrinth seal to provide four sealing surfaces to protect the bearings. Replacement 3" (7.6 cm) diameter full rollers, P/N 93-3040, are available for the front position.			
ROLLER SCRAPER KITS	Front Roller Scraper Kit, P/N 93-2967. Rear Roller Scraper Kit, P/N 93-2962.			

*Specifications and design subject to change without notice. "Toro", "Reelmaster" and "Toro 4-Matic" are registered trademarks and "Automated Control Electronics," "ACE", "Data Log", "L-I-N-K-S" and "TurfDefender" are unregistered trademarks of The Toro Company, 8111 Lyndale Avenue South, Bloomington, Minnesota, 55420-1196. Products depicted in this brochure are for demonstration purposes only. Actual products offered for sale may vary in design, required attachments, and safety features.

♻️ Easy on the Environment. 50% Recycled Fiber – 10% Post Consumer.

Commercial Products



Helping you put quality into play.®



The Eagle Pines 13th tee complex with gulf muhly in bloom. (Photo by Joel Jackson)

Eagle Pines Golf Course

Designed by: Pete Dye. Assisted by Michael O'Connor.

Constructed by: Fore Golf — Devcon.

Opened: December 1991.

Major Renovations: Reduced 65 acres of pine straw down to 25 due to drainage problems and unmanageable washout areas.

Acreage: Total turf = 142 acres. Lakes = 25 acres.

Greens: 3.5 acres, Tifdwarf. HOC = .141 - .156. Average size = 7,500 square feet. Overseeded w/Poa trivialis @ 18 - 22 lbs. per 1,000 square feet. Green speed 8.5 - 9.5.

Tees: 3 acres, 419 Bermuda. HOC = .438 - .5. Overseeded w/Perennial Rye @ 15 lbs. per 1,000 square feet.

Fairways: 35 acres of 419 Bermuda, HOC = .5. Overseeding wall to wall, fall 1995.

Roughs: 50 acres of 419 Bermuda, St. Augustine (Delmar), Bahia. HOC = 1.25 - 1.75. Overseeded w/Perennial Rye @ 250 lbs. per acre.

Irrigation: Source: Re-use. Equipment: Flo-Tronex Variable Speed Pump Station, Rain Bird Maxi 5, Hydraulic System.

Total Staff: 20, including superintendent.

Wildlife Inventory: Club Membership Audubon Cooperative Sanctuary. Birds - Thrush, blue jay, cardinal, mockingbird, towhee, red bird, crow, LBB's, herons, egrets, ibis, eagles and hawks. Mammals - deer, bobcat, panther, otter, raccoon, opossum, squirrel, rabbit. Fish - stocked population.

Playing Characteristics: Large undulating greens make good putting a premium to achieve par. Wide rolling fairways keep ball in play. Hole layouts reward good shotmaking for approaches to the greens. Large native areas frame manicured turf and offer spectacular visual contrasts. Not overly long. Good players on their game have a chance to shoot a good score. Course record 61 by Jay Overton.



Top, *preparation*;
left, *transportation*.

Photos By Joel Jackson

Osprey Pole Installation

Opposite page:
left, *installation*;
right, *Patience is rewarded*.
*First nesting pair arrives
three years later.*



1-800-432-2214

1-407-622-0667

**Distributors for
Howard Fertilizers**

**QUALITY FERTILIZERS & CHEMICALS
FOR THE TURF INDUSTRY**

P.O. Box 8081
Jupiter, Florida 33468

TREE DISPOSAL

- Tub Grinding • Equipped for Any Terrain
- The Right Equipment



1-800-932-7267

ARBOR
TREE & LANDSCAPE
CO., INC.



Fish Stocking at Bonnet Creek

Top, *Transporting the young fry;*
Middle, *Acclimating for water temperature differences.*
Bottom, *Release!*
Photos by Joel Jackson



*Largemouth bass, sunfish (breem)
and catfish were released.*



**UNLESS YOU CAN CONTROL YOUR WEATHER,
YOU'D BETTER CONTROL YOUR N AND K RELEASE.**

THERE ARE TOO MANY THINGS ABOUT RUNNING A COURSE THAT YOU CAN'T CONTROL. LIKE WEATHER, TRAFFIC AND GREENS COMMITTEES.

BUT YOU CAN CONTROL THE DELIVERY OF NITROGEN AND POTASSIUM TO YOUR TURF. WITH K-POWER®.

K-POWER POTASSIUM NITRATE PROVIDES A BENEFICIAL BALANCE BETWEEN POTASSIUM AND NITRATE NITROGEN NOT FOUND IN OTHER POTASSIUM SOURCES. AND K-POWER'S BREAKTHROUGH POLYMER COATING, MULTICOTE®, RELEASES

BOTH NUTRIENTS TO YOUR TURF EVENLY OVER TIME.

THAT'S GOOD TO KNOW, BECAUSE A PROPER N:K BALANCE IS KEY TO HEALTHY TURF. AND A HEALTHY PAYCHECK.

K-POWER GIVES YOU CONTROL OF NUTRIENT DELIVERY ACROSS YOUR ENTIRE FERTILITY PROGRAM: GREENS GRADE, FAIRWAYS AND SOLUBLES. SO GET A LITTLE MORE CONTROL OVER YOUR DESTINY WITH K-POWER.

FOR MORE INFORMATION, CONTACT YOUR DISTRIBUTOR OR CALL US AT 1-800-227-2798.



**THE
GOOD
STUFF™**

Vicksburg
chemical company

© 1995 VICKSBURG CHEMICAL. K-POWER AND MULTICOTE ARE REGISTERED TRADEMARKS OF VICKSBURG CHEMICAL. **ARI** COMPANY

Wildflowers at Bonnet Creek Golf Club

Landscaping by Mother Nature



Wildflower Identification Key

- | | |
|--------------------|-------------------------|
| 1. ? | 14. Spreading Dayflower |
| 2. Tickseed | 15. Caesar Weed |
| 3. ? | 16. False Foxglove |
| 4. Primrose Willow | 17. Cypress Vine |
| 5. Tickseed | 18. Butterfly Pea |
| 6. Lantana | 19. Cypress Vine |
| 7. White Sabatia | 20. Bitter Sneezeweed |
| 8. Grass Pink | 21. ? |
| 9. ? | 22. ? |
| 10. Lobolly Bay | 23. Deer Tongue |
| 11. Dayflower | 24. ? |
| 12. Tarflower | 25. Tarflower |
| 13. Rattlebox | 26. False Foxglove |

from Page 46

Two things happened to shatter that theory.

(1) Pine straw harvested and baled elsewhere, and then scattered on the ground in an artificial application did not hold up to traffic and required frequent replacement.

(2) Sudden heavy thunderstorms moved the pine straw off of slopes and caused large mats of the pine straw chaff to clog drain basins.

To correct the tremendous labor impact of restoring these areas after a heavy rains and traffic, Pete concurred with the plan Scott, Pat, and Larry devised to reduce the pine straw area down to 25 acres.

Elevated sloping areas were sodded either with bermuda or bahia depending on the location and irrigation capability. Other areas were converted to sandy "waste areas."

Pete came back several times to view the handiwork and to report that he was still using pine straw areas, but this time he put them only where existing pine trees could naturally replenish the straw and the slopes were not a factor.

There is another design element that has proven to have its shortcomings. Pete used a lot of Delmar variety St. Augustine to surround the bunkers. It has proven to be very susceptible to uncontrollable patch diseases during the warm season. I understand that it may not be for sale any longer. If it is, stay away from it. It is a poor performer at least for us. Long range plans call for a phase out to Tifway 419 to eliminate management problems.

It's nice to know that even the old masters keep learning. That's what makes the best stand out. Along their way they leave us an Osprey Ridge and an Eagle Pines to enjoy. And so the tale is told. Perhaps not complete for the work is never done, but enough I hope to hold you till the next course is begun.

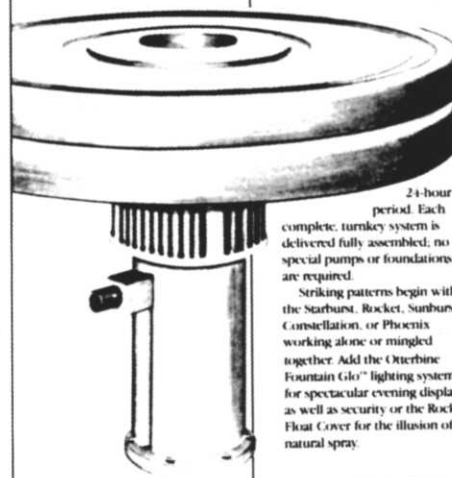
Editor's note: The author served as Superintendent of the Osprey Ridge Course from June 3, 1991 until his transfer to the Magnolia course on March 1, 1994.

Troubled waters?

Otterbine Aerators

The prescription for troubled breathing, poor circulation, and changing temperatures in ponds and lakes is practical engineering that is esthetically pleasing.

These aerators range in power, circulating from 600,000 to 20 million gallons of water in a



24-hour period. Each complete, turnkey system is delivered fully assembled; no special pumps or foundations are required.

Striking patterns begin with the Starburst, Rocket, Sunburst, Constellation, or Phoenix working alone or mingled together. Add the Otterbine Fountain GLO™ lighting system for spectacular evening display as well as security or the Rock Float Cover for the illusion of natural spray.

Otterbine Aerators meet the water management needs of golf courses, parks, recreational lakes, office developments, and residential condominiums. Call or write for more information:

SULLIVAN
SELECTRIC & PUMP, INC.

(407) 588-5886



Tifton Physical Soil Testing Laboratory

Specializing in:

- Testing All Materials for USGA Golf Green Construction.
- Developing Putting Green Rootzone Mixtures that meet USGA Specifications.
- Recommending Topdressing and Bunker (Trap) Sands that meet USGA Specifications.
- Developing Sportsturf Rootzone Mixes with Optimum Physical Properties for Athletic Fields.

1412 Murray Avenue
Tifton, Georgia 31794



T. Powell Gaines
(912) 382-7292



Eagle Pines and Osprey Ridge crews. Photo by Joel Jackson

Osprey Ridge Golf Course

Designed by: Tom Fazio. Assisted by Dennis Wise and Steve Masiak

Constructed by: Fore Golf/Devcon.

Opened: December 1991.

Acreage: Total turf = 130. Lakes = 32 acres.

Greens: 4 acres, Tifdwarf. HOC = .141 - .172. Average size = 8,200 square feet. Overseeded w/Poa trivialis @ 16-20 lbs. per 1,000 square feet. Green speed 8'6" - 10'.

Tees: 3.6 acres, 419 Bermuda. HOC = .438 - .5. Overseeded w/Perennial Rye @ 15-20 lbs. per 1,000 square feet.

Fairways: 40 acres of 419 Bermuda, HOC = .5.

Roughs: 60 acres of 419 Bermuda, HOC = 1.5 - 2.0. Overseeded w/Perennial Rye.

Irrigation: Source: Re-use. Equipment: Flo-Tronex Variable Speed Pump Station, Controls: Rain Bird Maxi 5.

Total Staff: 20, including superintendent.

Wildlife Inventory: Addition of osprey "nesting platforms". This year will have "first born" on the platforms. Platform between Osprey #7 and Eagle #15 has 2 eggs. Whole range of wading birds and song birds from A to Z. Bird of prey include Eagles, hawks, ospreys and owls. Everything else from alligators and armadillos to panthers and turtles.

Playing characteristics: Can be stretched to 7000 yards. Elevated tees and ridges influence shot making. Wide fairways keep the ball in play. Large greens place premium on approach shots and putting skills. Gentle undulations on greens. What you see is what you get, but there's lots to see! Reachable, gambling par 5's.

When you think you need Roundup, try REWARD®.

With REWARD herbicide, there's no waiting for it to go to work. Because REWARD is absorbed by broadleaf and grass weeds just minutes after application. On golf courses, around residential and commercial turf, greenhouses and nurseries, in right-of-ways — wherever you have a weed problem. REWARD is especially good for spot treatments, edging, tree wells and other areas where you need quick, effective weed control. Unlike other herbicides, REWARD can be used in both aquatic and grounds maintenance situations. Plus it's rainfast in only 30 minutes.



Also with REWARD, there's no worry about the surroundings. It stays where you spray it, controlling weeds without affecting non-target vegetation, fish and other wildlife.

NO WAIT. NO WORRY.

REWARD herbicide. For broad-spectrum weed control without the wait — and without the worry.

For more information, contact your distributor or call Zeneca at 1-800-759-2500.

Always read and follow label directions.
REWARD® is a trademark of a Zeneca Group Company.
Roundup is a trademark of Monsanto Company.
©1995. Zeneca Inc. A business unit of Zeneca Inc.

ZENECA
Professional Products

BioControls, BioStimulants, and Wetting Agents

With lofty goals and good intent, I dedicated this edition of Hands On to the discussion of programs involving products in the title above. A funny thing happened on the way to production of this issue, no one sent in any articles discussing their programs.

Some suppliers volunteered additional product information, but this space is dedicated to those comments and tips from superintendents about the topic at hand. Armed with my trusty tape recorder I ambushed a slew of superintendents attending the Poa Annuu in Naples and asked them point blank about these products and how they are using them.

The results of my interviews can be summed up rather quickly. First, practically everyone is trying or testing all of these products in some form or the other. I suppose the relatively new emergence of so many products has a lot of us taking a wait and see approach.

Practically everyone is using some type of wetting agent on "hot spot" and a few are on a regular program. More courses are cautiously trying the nematodes for mole cricket control. Some folks report success using products like Roots, Iron Roots, Panasea, and Sand Aid. There is also a product called Syn-Zyme Activator which has reported success in algae treatment on greens and in ponds.

At Disney, we have applied Proactant and Vector II for mole cricket suppression. We increased the coverage this year after seeing success on the Oak Trail fairways last year. Overall feeling is that although there still are hot spots emerging, the number and severity is less than last year at the same time.

We are also trying a consistent wetting agent program, by applying Aquatrol's Primer monthly to the greens. On the Palm course we are trying the Bio-Ject system for thatch reduction, and we are trying Toro's Bio-Pro on the Lake Buena Vista course.

While it is our fervent desire to embrace natural organic products to avoid

Hands On

Editor's Note: This edition of Hands On will take care of some old business and include articles on Professionalism that had to be cut due to size limitations last time out. And frequent contributor, Darren Davis, has some good input about the Golf Link computer service that needs to make it to print. Since everyone was bashful about speaking up on their "Bio" programs, we'll just partake of a mulligan stew of topics and clean up my files.

using more potentially toxic products, there is some concern about the overall efficacy and benefit of some of the products. An article by Dr. Wayne Kussow follows and offers a dose of healthy skepticism. More importantly it points out the need for more independent research in this area.

Joel D. Jackson, CGCS
Disney's Magnolia G. C.

A Letter From IFAS

Enclosed are excerpts from a recently-published book chapter by Howard Frank which describes, in detail, our biocontrol efforts against mole crickets in Florida. I have highlighted important facts and concepts, but I urge you to read the entire thing to get the whole story. Although published in 1994, some important events have occurred since then:

The parasitic wasp *Larra bicolor* (pp. 469, 470, 473) collected from Bolivia was released near Gainesville in 1988-89. This population was discovered (in fall 1993) to be established near Gainesville and is apparently spreading quite well. 10% of tawny mole crickets collected from a local golf course were found parasitized.

The parasitic fly *Ormia depleta* is now known to be established in **all counties of the Florida peninsula at the latitude of Alachua County (Gainesville) and south** (except Monroe County where we have not looked at it). I have found as many as

25% of female tawny mole crickets, collected from a golf course, to be parasitized, although the fly does not perform equally well in all locations.

We are still having difficulty in rearing the predatory beetle *Pheropsophus aequinoctialis*; however, this has improved somewhat recently.

The nematode *Steinernema scapterisci* is now sold commercially as a biopesticide. It can provide control similar to chemical insecticides but is much more expensive and requires greater care in storage, handling and application. However, it can act as a classical inoculative biocontrol agent (p. 469) similar to *O. depleta*; once established in a mole cricket population, it will kill a certain percentage of adult mole crickets indefinitely and it can spread, via infected hosts, to untreated areas.

Future research needs include determining nectar sources (landscape and wild flowers) of adult flies so that their performance might be enhanced; determining host range of the beetle so that we may obtain permission from regulatory agencies to make field releases; and determining effects of the wasp on mole cricket populations. Currently **no** funding is available for such research which, of course, seriously hampers progress.

Best regards,
Patrick Parkman
Research Associate

Humate and Humic Acid

BY DR. WAYNE R. KUSSOW

DEPARTMENT OF SOIL SCIENCE

UNIVERSITY OF WISCONSIN-MADISON

Numerous products being sold for turf use as growth enhancers or growth stimulants contain humate or humic acid. Given the number of inquiries I've had about these products, the time seems right to assess their value in turfgrass culture. To begin, we need to understand something about humate and humic acid.

Humic acid can be extracted from any material containing well-decomposed organic matter — soil, coal, composts, etc. Extraction is by way of treatment of these materials with a solution of sodium hydroxide. This dissolves much of the organic matter present. If we then take this solution and add enough acid to drop its pH to about 2, organic material will begin to flocculate and can be separated from the liquid portion. The flocculated material is humic acid. What remains in solution is fulvic acid.

If we take the flocculated humic acid and dry it down to form a black mass that can be crushed and sized by dry sieving, we have humate. In other words, humate is humic acid in its solid state. Therefore, the chemical properties of humate and humic acid are basically the same.

Humic acid defies precise description except in very general terms. Black or very dark brown high molecular weight organic polymer is as good a description as any. The color of the material is effectively used as a sales or advertising attribute. Black organic matter conjures up

the image of dark fertile soils covered with lush plant growth.

Chemically, humic acid contains more carbon and less hydrogen and oxygen than does the plant and animal residues from which it has formed through extensive biological decomposition. It also contains about 4% nitrogen. But don't expect this N to be of any consequence as far as turfgrass growth is concerned. Because humic acid is one of the end products of the biological decay of organic matter, it has great resistance to further decomposition. Estimates of its microbial decay rate are often in the range of 0.3% per year under ideal laboratory conditions.

Two properties of humic acid that may have some benefit in turfgrass culture are its cation exchange capacity and its capacity to form chelates with the metallic micronutrients iron, copper, zinc and manganese. The cation exchange capacity (CEC) of commercially produced humic acid is in the range of 500 to 600 milliequivalents (me) per 100 grams. This is about 5 times greater than the CEC of good quality peat moss and twice as high as the CEC of soil humus.

To gain some perspective on the possibility of effectively making use of the high CEC of humic acid, we can examine the recommendations of one manufacturer that call for addition of 2 lb. humate per cubic yard of 80:20 sand-peat rootzone mix, or substitution of 3 lb. humate for the peat moss. By my calculations, assuming the pH of the rootzone mix and sand are near 7.0, 2 lb. of humate would contribute about 0.37 me CEC/100 g of the 80:20 mix. This would be in addition to the approximately 2.9 me of

CEC provided by the peat moss. That turns out to be a rather expensive 13% increase in the CEC of the rootzone mix. When substituted for the peat moss, you wind up with a rootzone mix with a CEC of about 0.55 me/100 g. Considering the fact that the potassium leaches readily from sand-peat mixes with 5 times more CEC than in the sand-humate combination, this doesn't seem like a wise substitution.

The chelating action of humic acid is sometimes used to produce chelated iron products. Without the addition of a nutrient such as iron, the claim is often made that humic acid has the ability to solubilize micronutrients already in the soil. This is a valid claim, but one has to realize that turfgrass roots themselves excrete organic compounds that solubilize micronutrients. Regardless, here in Wisconsin, where we've yet to confirm a deficiency of Fe, Cu, Mn or Zn on turfgrass, the chelating action of humic acid has to be deemed to be of little or not importance.

Now let's go to the research reports on the effects of humic acid additions on turfgrass. I have but one in my files. A search of the 17,000+ entries in the Turfgrass Information Center revealed no reports where "humate" was a key word, four reports with "humic acid" as a key word, and three reports with "growth stimulant" as a key word. Only two of the seven literature citations were of relevance to this article. Both were studies that demonstrate how strongly humic acid can absorb fungicides and herbicides. Indications are that surface applications of humic acid or humate can significantly reduce the effectiveness

Special
GOLF
COURSE
MIXES



Sterilization Available

Since 1948

**Florida Silica
Sand Co., Inc.**

Dade County
949-3521

Broward County
923-8323

1-800-330-3521

Complete Line Of
LANDSCAPE
Materials

Red Ball
Diamond Clay

of systemic pesticides by reducing their absorption by plant roots and soil-borne pathogens and insects.

The single research report in my files is for a study in which 14 “non-nutritional growth enhancers” were applied to a creeping bentgrass putting green. Several humic acid and humate products were among those tested. The focus of the study was the effects of the products on rooting and root development. Data averaged over all rooting depths for the entire growing season revealed that none of the products significantly affected bentgrass root length or root to numbers.

Because so little research seems to have been done with humic acid products on turfgrass, there exists the possibility that there are situations where significant positive responses can occur. My assessment is that we should not expect positive effects over a wide range or conditions. Other than possible reductions in the effectiveness of pesticide applications when the humate or humic acid resides on the soil surface, the products are rather harmless when applied at rates recommended by the manufacturers.

There is, however, no justification at this time for using them on more than a small scale, trial basis. Humic acid will not compensate for poor turfgrass cultural practices.

Editor's Note: Reprinted from *The Grass Roots*.

Linking Up with the World of Golf

BY DARREN DAVIS
OLDE FLORIDA GOLF CLUB

Have you ever had a vendor come into your facility and try to sell you a product that you felt would be of absolutely no benefit to you? Later, after much thought or persuasion, you find your way clear to purchase or try the product. The months pass by, and each month you experiment with the product a little more or put more faith into it. Finally, a year goes by and you reflect back and ponder how you could have ever survived without this great product.

Sound familiar? Well, this is a true



Olde Florida Assistant Superintendent Scott Whorrall checks latest weather radar on Golf Link.

story and it happened to me recently. The product is Golf Link, a complete weather and information satellite service.

Like most of you, I am very picky how I spend my club's money, and I treat it as if it were my own. When a vendor came by with a demo of this product I wondered to myself how I could ever justify leasing a product like this. Then he told me about a trial offer that guaranteed me that if I did not like the system, I could return it. That sounded fair, and I trusted the vendor, so I checked a couple of references and agreed to the trial.

What is Golf Link? Among other things, Golf Link is an electronic weather system. Golf Link is a division of Broadcast Partners. Broadcast Partners supplies Golf Link with the electronic weather information. This information is also supplied to other similar companies, one of which is FarmDayta. This is the system I originally leased and which many other superintendents still have. The

FarmDayta system provides excellent weather information. However, some of the other information, such as the price of beef in Iowa or the stock market figures, had no bearing in my grass-growing world. I consider myself a well-rounded person, but I didn't find this information relevant to the golf course that is paying for this service.

One day I was thumbing through a copy of a trade magazine and came across an article on Golf Link. The article stated: "Golf Link is designed for the golf industry, providing subscribers with news that superintendents would enjoy. This includes turf tips, national and local association updates, research, new product information and commentaries. And, probably most importantly instant Doppler weather radar, weather forecasting capabilities and soon lightning strike maps." After reading the article on Golf Link, I thought it sounded just like my system with one major difference. The

difference is that instead of providing rarely used farm information, Golf Link provides information that relates directly to the golf course business.

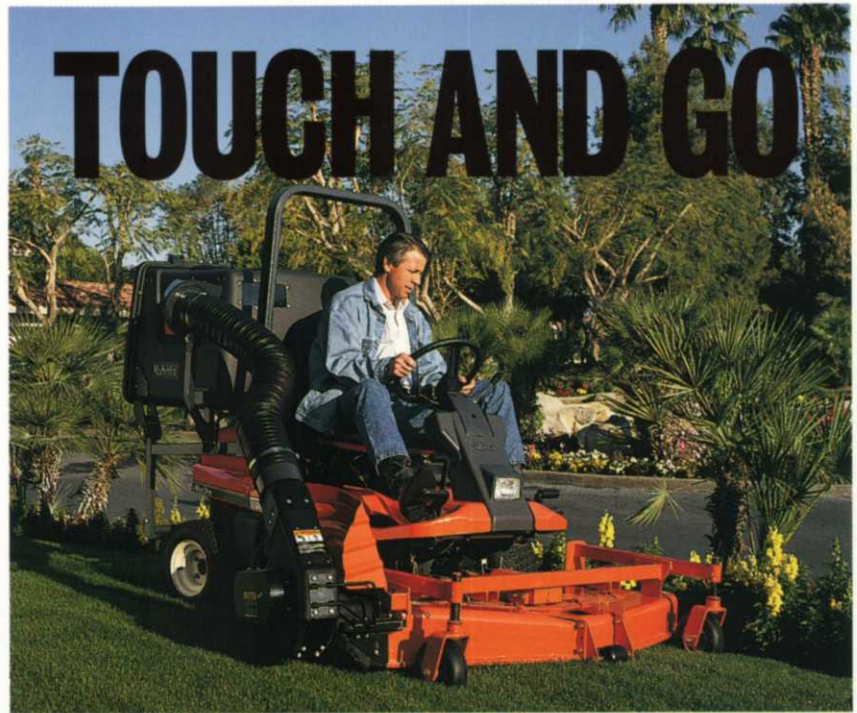
Golf Link provides access to the systems of the GCSAA, USGA, PGA, NGF, EPA, architects, builders and others. Also, recently the FGCSA Board of Directors gave permission to Golf Link to put published articles out of the *Florida Green* into the system.

As you can see, the benefits of the Golf Link system are numerous. However, I have found two main uses that my staff and I employ the system for, both of which have substantial financial rewards to my club. These benefits are both related to the weather functions the machine provides, including instant Doppler weather radar and various projected forecast maps that are updated continuously, 24 hours a day, seven days a week.

The hardware and monitor are located in the office of the office manager, who can be in radio contact with my staff and me at any time during the day. If adverse weather is approaching, the information is communicated by hand-held radio to the management staff, who can then make a judgment call on when to order the crew members off the golf course. Once the crew is in the maintenance facility, the Doppler weather radar is analyzed by the staff to help make a decision on whether to keep the crew at work or allow them to leave for the day. This helps us to save on labor cost that might have otherwise been wasted.

The other financial reward that we obtain by using the weather functions of the system is in planning applications of fertilizer or other compounds. We all know that one application of a product that is washed away by rainfall can be a costly mistake. By using the system in correlation to the application of compounds that could be potentially harmful it also signifies a commitment to being a conscious environmental steward.

The weather maps and radar are also used daily when determining whether or not to irrigate the golf course. We are fortunate enough to have a weather station that will cumulate all the factors that go into evapotranspiration and down-



Kubota's GF1800 diesel front mower gives you "on command" 4WD with the touch of a pedal. Mow slopes and work the toughest terrain with it's foot controlled 4WD that engages and disengages without stopping.

Power-matched with Kubota's 18HP liquid-cooled diesel engine that's designed to work clean, quiet and efficient. This easy maintenance diesel is rubber mounted to reduce vibration and cool air, rear discharged for increased operator comfort.

Hydrostatic transmission eliminates clutching and shifting while a hydraulic lift system, tilt wheel and cruise control add to operator efficiency.

The tight turning GF1800's smooth, shaft-driven PTO easily attached to a choice of 48", 54" and 60" mower decks.

There's even an optional grass catcher with a choice of hopper or bag types.

Touch and go with Kubota's GF1800 diesel front mower.

Kubota Tractor Corporation markets a full line of tractors through a nationwide network of over 1,000 dealers.

Kubota 



See the Kubota dealer nearest you!

BOYNTON BEACH

Florida Coast Equipment
9775 W. Boynton Beach Blvd.
(407) 369-0414 • (800) 343-7594

MIMS

Robinson Equipment
3030 Cuyler Road
(407) 267-2023 Sales • (800) 654-5894 Parts

KISSIMMEE

Kissimmee Tractor & Mower
1770 E. Irlo Bronson Memorial Hwy.
(407) 846-2400

NAPLES

Naples Rent-All & Sales
2600 Davis Blvd.
(813) 774-7117

WINTER HAVEN

Polk Tractor Co.
3450 Havendale Blvd.
(813) 967-0651 • (800) 532-8783

load this information to the computer to adjust the daily watering times. However, before we allow the computer to do this, we check the current radar and the forecast map to insure that rain is not imminent. Even though the irrigation system is hooked into a rain sensor, if the computer has already begun to run the nightly irrigation schedule the water that was applied might have been unnecessary.

I think the moral of the story, or the lesson I have learned, is that things are not always black and white. If you look hard enough into something you will find many functions or uses that are not always evident at first glance. We have a tough job that isn't getting any easier and every tool that we can utilize to help us accomplish our duties is of benefit to us.

Professionalism, Part II — Is Your Image a True Reflection?

Do you consider your professional work responsibilities comparable to that of an airline pilot or a judge? If you answered "yes" then I like your attitude. If you said "no" then we've got something to discuss. Do think they are superior to you?

Just why do we look up to the profession of an airline pilot? When we see the pilot and flight crew walking to our gate, don't you expect to see a certain "image" in the pilot? A crisp neat uniform, confident attitude, walking tall, in command. How would you feel if instead you saw an unshaven, staggering, bleary eyed individual with alcohol on his breath. Would you be inclined to board the plane? Probably not! No matter what you do for a living shouldn't you have the expectation of positive traits and behavior that define a professional's career?

An airline pilot's or judge's image can be easily identified with life and death responsibility in their work. Have you thought about the golf course superintendent's responsibility for proper administration of pesticides. We have to guard against improper exposure to our employees, golfers and the environment

in general. How can our image presumed to be any less important? How can we afford to be any less professional?

On my return flight from the GCSAA Conference, we hit a patch of turbulence over the Rocky Mountains that sent the plane dropping, dipping and veering off course. The plane was stone quiet as we sat frightened to death as the "professional" in the cockpit fought to control the plane. In a few minutes the plane was stabilized and the pilot came on the intercom and apologized for the inconvenience. He explained that the unstable air we hit is caused by the mix of warm and cool air blowing over the mountains. It doesn't show up on radar. You can't see it coming. You just have to deal with it when it happens.

I didn't see a single passenger go up to the cockpit and chew him out or disagree with his answer. Why? Because we're not qualified to dispute his answer. It seems that we, as golf course superintendents, are always second guessed. Our explanations and answers are often disputed and challenged. Golfers seem to think because they mow grass they are qualified to pass judgment. They don't have much empathy for that "unseen turbulence" we experience like low oxygen levels in lakes that might cause a fish kill. They immediately point a finger at the "pilot" superintendent and think something incompetent has happened.

If we can form a visual image of that commanding pilot or a wise judge, what is the image of a golf course superintendent? More and more everyday we are being called upon to be leaders and stewards of a very valuable resource, the green space and wildlife sanctuary in the ever sprawling urban environment. The mantle of environmental responsibility is being placed on our shoulders.

Our professional image will be formed by our ability to provide thorough and accurate information that educates the public and dispels the negativism to golf that has been so widely publicized. Our image will also be reflected in the behavior and appearance of our staff from the rookie greensman to the Superintendent. It will be manifested in the cleanliness of our shops and equipment.

Professionalism has to come from the top. If you lead by example, that professionalism will trickle down to the most inexperienced person on your staff. Professionalism to the utmost is what every golfer expects of you whether you like it or not. What do they see? Is your image a true reflection of a professional?

*Mike Bailey, GCS
Boca Rio C.C.*

Professionalism, Part II — The Assistant's Role in Golf Course Operations

In recent times, the image and responsibilities of the golf course superintendent have greatly changed. In the early years, they were thought of as greenskeepers with little or no formal education. Today, many golf course superintendents hold a specialized degree in turfgrass management and are recognized as golf course managers. As challenges and opportunities for the modern golf course superintendent have changed, so has the role of the assistant.

Today, many golf course superintendents are busy with committee meetings, budget tracking and preparation, as well as dealing with numerous government regulations. For these reasons, a superintendent places greater responsibility on the assistant superintendent.

It is the assistant who carries on the day-to-day tasks of the golf course. He or she works directly with the golf course crew in scheduling, training and ensuring assignments are completed properly, efficiently and safely. Self-confidence in his or her abilities to supervise the golf course staff and deal independently with a variety of issues, without daily guidance from the superintendent, is necessary.

An assistant superintendent must display strong work ethics through hard work, honesty and dependability because he or she is a positive role model for the crew. The assistant must also project a professional image to other club employees as well as to the club's membership.

A good assistant will employ the ideas and philosophy of the superintendent. The assistant may not understand why some things are done the way they are, but he or she must trust and support the superintendent's judgment. You learn to use tact when inquiring about certain decisions the superintendent makes, not to question, but to learn.

A variety of skills are essential to be an effective assistant superintendent. One is good communication skills, not only with the crew, but also with the superintendent, vendors, other professionals and club members. It allows the assistant to effectively inform the superintendent on the status of the golf course, its employees and events that may directly or indirectly affect the golf course operations.

Problem solving is another necessary skill. Making the right decisions in the superintendent's absence, based on experience with the superintendent, the assistant will solve many small and less difficult problems. These problems can range from turf and pest practices to personnel issues. He or she will also be aware of the guidelines and limitations regarding certain types of decision that require the superintendent's input and final decision.

Computer literacy is yet another needed skill. The assistant is usually the one that operates, or assists, in the operation of a sophisticated computerized irrigation system. A data base management system may also be used to track pesticide and fertilizer applications.

Having a degree in turfgrass management, or equivalent knowledge, is a definite advantage for an assistant superin-

tendent; education plus experience is an even greater advantage. This combination provides knowledge not only for field diagnosis of problems and turf and pest management, but also in how to build resources and network with various agencies and peers. Resources, and an active network of peers having various degrees of practical experience, supply a vast pool of knowledge to draw from or simply exchange ideas.

In order for the assistant to be successful, it will take more than hard work, honesty and dependability. He or she must work for someone who has the same values and wants to see the assistant succeed. The superintendent must give the assistant guidelines to

work within. In most cases the guidelines are in the form of a job description. The superintendent and assistant should talk often to ensure they both share the same priorities (i.e., if the assistant has the responsibility of doing crew schedules). As more responsibility is delegated to the assistant, a good superintendent will support decisions the assistant makes because the superintendent will realize there is more than one way to get things accomplished. If the assistant makes a mistake, a good superintendent will inform the assistant, not in a condescending manner, but as a teaching experience. By so doing, the assistant will not be reluctant to make more decisions.

The assistant's role today is nearly as demanding and diverse as the superintendent's role. It can also be just as rewarding. Attitude, dedication, hard work and a superintendent who motivates and teaches his or her assistant su-

perintendent is what will make tomorrow's knowledgeable and confident superintendent.

Matt Taylor

Assistant Golf Course Manager
Collier's Reserve

(305) 581-0444

SPREAD-RITE, INC.

CUSTOM SPREADING
FERTILIZER • DOLOMITE • ARAGONITE

LAMAR SAPP

6001 S.W. 19th STREET
PLANTATION, FL 33317
MOBILE: (407) 479-9417



TESTING

- Soils
- Water
- Physical
- Tissue
- Environmental

Tom Burrows
Certified Agronomist
Turfgrass Specialist

Phone: 407-692-1221
1741 San Souci, Stuart, FL 34994

CGCS
Golf Course Supt. - 29 years
FGCSA Past President
Penn State - 1960
Musser Int'l Turf Foundation - VP

YOUR "ONE-STOP" SOURCE
FOR AMERICA'S LEADING
GOLF SURFACES & SUPPLIES!

PARTAC® GOLF COURSE TOP-DRESSING



HEAT TREATED
PLUS CONSTRUCTION,
CART PATH, SAND TRAP,
AND DIVOT REPAIR MIXES

TYPAR®
GEOTEXTILES & TURF BLANKETS

Terra-Green®

SOIL CONDITIONER

NEW PARTAC® NEW GREEN SAND DIVOT REPAIR MIX

A UNIQUE SOLUTION TO UNSIGHTLY DIVOTS!
PARTAC® GREEN SAND BLENDED
WITH PARTAC® PREMIUM
TOP-DRESSING FOR EXCELLENT
GERMINATION AND
DEEP GREEN COLOR!

THE BEST DIVOT REPAIR MIX AVAILABLE!

AVAILABLE NATIONWIDE

800-247-2326
IN N.J. 908-637-4191

PARTAC PEAT CORPORATION
KELSEY PARK, GREAT MEADOWS, N.J. 07838
ORLANDO (FL) MEMPHIS (TN) RENO (NV)

HIGHLIGHT GOLF HOLES,
IMPROVE VISIBILITY,
& MAINTAIN CONSISTENCY

U.S. GOLF HOLE

TARGETS™



TerraFlow™
Drainage Systems

FLEXIBLE GOLF COURSE MARKERS
SAND TRAP PUMPS
RAKES, PLUG PUSHERS, SQUEEGEES
AND MANY MORE
GOLF SPECIALTY PRODUCTS

Water Quality Management

BY JOHN FOY, DIRECTOR

USGA GREEN SECTION

On our planet, water makes up over two-thirds of the entire surface area. It is also a basic requirement for survival of all life forms. Water bodies and wetlands are found on virtually every golf course in Florida.



John Foy

Protecting surface and ground-water quality should be a goal and an integral part of course management. To insure that your golf course is maintaining good water quality, it is important to have a strategy in place to monitor water quality, improve conditions if warranted and deal with any problems that may arise.

Water quality management will be the focus of this sixth and final article in this ACSP series. To achieve certification in this category, you

need to consider the following things:

(1) **Baseline Data and Water Quality Monitoring:** What baseline information has been established for water quality, including clarity, dissolved oxygen, and pH? What water sources are tested? Who conducts the tests and how often are they carried out?

(2) **Streams:** If a stream or creek is on the property, what stream protection measures are in place to reduce erosion, maintain adequate shading, and reduce pollution inputs? Has anyone sampled for "macroinvertebrates" (insect larva and

To insure that your golf course is maintaining good water quality, it is important to have a strategy in place to monitor water quality, improve conditions if warranted and deal with any problems that may arise.

ACSP: Part VI

In this final Part 6 of this series on the Audubon Cooperative Sanctuary Program for Golf Courses, methods of *Water Quality Management* are presented.

- ✓ Environmental Planning
- ✓ Member/Public Involvement
- ✓ Wildlife & Habitat Management
- ✓ Water Conservation
- ✓ Integrated Pest Management
- ✓ **Water Quality Management**

other organisms that lack a backbone)? Since many of these organisms are sensitive to pollution, they are a highly reliable indicator of pollution.

(3) **Wetlands:** If wetlands are present, what condition are they in (degraded? viable & productive? invaded by phragmites or purple loosestrife? protected?) What measures are taken to protect or improve wetland habitat?

(4) **Buffers and "No Spray" Zones:** Vegetative buffers around water features help to filter runoff and reduce erosion. Have you established buffers and "no spray" zones near water sources to minimize potential drift and runoff?

(5) **Drainage:** What areas drain to lakes, ponds or wetlands? What filtering mechanisms are present? If fertilizers are getting into lakes, that can be a major cause of algae problems.

(6) **Chemical Additives:** What (if any) chemicals have been added to water features? Have you made any changes in chemical management of water features? Have you tried alternatives such as biological remediation or aquatic planting? Is wildlife abundant or scarce?

(7) **Maintenance Buildings:** The maintenance area can be a potential source of contaminated runoff. Are all buildings safe and up to code? Are there repairs that need to be made? If someone came to inspect your facility, would they come away confident or wary about your management practices?

As an additional note on water quality management, research conducted by the USGA on the environmental impacts of golf courses revealed that when fertilizers and pesticides are used properly, the potential for leaching of these materials into ground water is minimal. However, this research revealed that minimizing runoff into surface water is an area that needs greater attention.

The creation of buffer strips and no spray zones should be pursued at all facilities. Although a vegetation buffer surround-

Water quality affects virtually every golf course

ing all sides of a water body would provide the best nutrient filter, this is usually not an acceptable situation when an area comes into play. Maintaining a higher height of cut turf buffer strip or grassed swale for those areas in play is a reasonable compromise that can also help minimize maintenance requirements. For the out-of-play areas of lakes or ponds, border shrubs and emergent plants should be established and maintained.

Ideally, "no-spray" zones approximately 50-foot wide should be enforced

around all surface water bodies. However, adhering to this ideal is not always feasible on a golf course. When fertilizer applications must be made immediately adjacent to a water body, the use of drop spreaders is recommended.

Also, only slow release nitrogen sources and no more than 0.5 lbs. of actual nitrogen per 1,000 square feet should be applied at a time in sensitive areas. If an unacceptable level of pest activity develops in a "no spray" zone, naturally the first route to pursue would

be the use of biological control agents. If a pesticide must be used in these areas, it should only be applied as a spot treatment.

Also, the chemical characteristics of the pesticide options should be carefully considered in selection of the material to use in these locations.

The Jan/Feb, 1995 issue of the *Green Section Record* contains a listing of commonly used pesticides and their characteristics.

Water management by design

BY STEVE EHRBAR, CGCS

OLD MARSH GOLF CLUB

Old Marsh Golf Club was built on a unique 460 acres of land. Architect Pete Dye routed many of the holes around protected wetlands and his design for the irrigation and drainage systems were very well thought out.

The irrigation system was installed with many different sized heads and half circles to ensure no irrigation water would be thrown into the wetlands or created marshes.

The drainage system on the course has approximately 30 catch basins per hole. All the excessive runoff water from rain or irrigation is collected by these basins and run through a series of pipes to containment lakes. From these containment lakes, the water is pumped to the main irrigation lake for reuse.

One design feature that each hole has is that all the perimeters of the fairways and roughs are built higher than the middle of the fairways to ensure no fertilizer or pesticides contaminate the wetlands. We are very selective on our use of products, and try to be environmentally conscious.



Pete Dye manages water at Old Marsh with unique design features.
Photo courtesy USGA Green Section.

Grassing for Water Quality



Canal at the Hole in the Wall Club before restoration project.

BY FRED YARRINGTON

Note: Fred Yarrington is an ACSP Resource Committee Member for the Hole In The Wall Golf Club, Naples

At Hole in the Wall Golf Club, we have approximately 10 acres of land in 4 or 5 areas which are out of play. Most of these areas are adjacent to native vegetation areas or bodies of water.

Our long-range goal is to environmentally restore all of these areas, which are currently mowed on a regular basis, and eventually have a low maintenance area of natural vegetation.

The project started in 1987, when we decided something had to be done about the algae in the canals (*see photo above*). We were told we needed to deepen the canal in order to control the

On Course, With The Proper Balance.

AmerAquatic keeps water environments in balance... clean, healthy and attractive. Our unique "spot treatment" method solves small problems before they develop into big ones. Trust our technicians--experienced, state-certified professionals--to manage your lakes safely and effectively. On course with the proper balance. For algae and weed control, fish stocking, aeration, lakescaping, mitigation, lake design and more, call AmerAquatic. *Your lake's best friend.*

FLORIDA • GEORGIA • CAROLINAS 800-432-1349

AmerAquatic™ *Your lake's best friend.*sm



United Horticultural Supply™

**Call UHS for all your fertilizer, seed, and chemical needs.
The leaders in environmental services and information.
1-800-457-0415**



UHS distributes proven turf and ornamental products from Zeneca.

REWARD®

- For aquatic and grounds maintenance weed control
- Fast-acting, non-restricted herbicide

Scimitar®

- Superior turf and ornamental insect control
- Available in WSP or new CS liquid

CRUSADE®

- Excellent grub and mole cricket control
- 99% dust-free formulation

FUSILADE®

- Fast-acting: Annual and perennial grasses stop growing within 48 hours of application
- Can be applied over-the-top for economical, trouble-free grass control

GRASSING FOR WATER QUALITY

First Phase: *Deepening the canal*



algae problem (See photo, above). In December, 1994, we selected a one-acre area, approximately 1,000 feet long, adjacent to a drainage canal. This "trial" area was planted with cord grass on 3-foot centers, and we also added aquatic plantings in the canal.

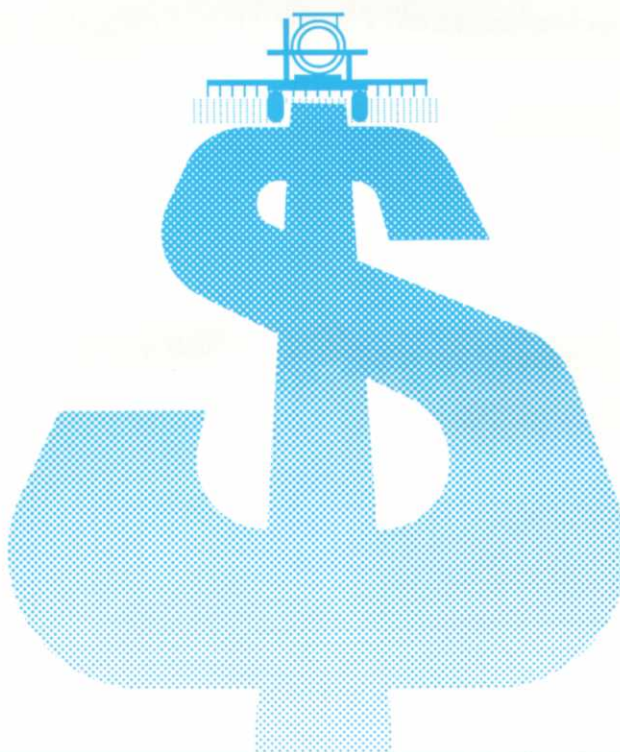
The plantings are six months old and are slowly growing in. We would have preferred a more dense planting, but selected the 3-foot centers for cost reasons. The trade off is that more weeding is required in the interim until the grass grows dense enough to inhibit weed growth.

GOLF MAINTENANCE BUDGET BLUES?

Are your Spray Pattern Indicators costing too much money?

Switch to **SIGNAL™** and \$ave money!!

Get more color for your Spray Pattern Indicator Dollars - use **SIGNAL.**



SIGNAL distributors:

GOLD KIST, INC.

Bradenton, Robert Giehls
813-730-2308

Gulf Breeze, Nelson Murdock
904-934-1707

Chuluota, Roger Widrig
407-365-7076

Cairo, Mike Bishop
912-377-8306

HARRELL'S, INC.

Lake Wales, Bill Fowler
813-325-6904

Lakeland, Dick Harrell
813-660-5989

Dunedin, Joe Clay
813-660-5988

W. Palm Beach, Bill Rayside
407-371-2544

Vero Beach, Matt Shook
407-563-7488

Lake Worth, Butch Singo
407-399-2242


PRECISION
LABORATORIES, INCORPORATED
800-323-6280

May, 1995:
*After the cordgrass
and aquatic
plantings.*



We no longer have a problem keeping the canal clean in this planted area. During construction to deepen the canals, we inserted a weir near the 17th green which enables us to control water levels and flow through the canal. Therefore, we are able to keep the water level in the canal much higher than we were before this project.

Our membership has been very supportive of this project. We got the idea and source of the cord grass from Collier's Reserve Country Club. I believe a key to success in the Audubon Cooperative Sanctuary Program is the sharing of ideas and information.



COMPUTER-EXACT CUSTOM MIXES.
EVERY ORDER. EVERY TIME.

Every order received by **Golf Agronomics** is prepared in our fully computerized machine. Double screening capabilities ensure that your first mix portion is the same as your last.

Golf Agronomics meets all your top dressing needs with its ability to customize your mix with a variety of soil

amendments including: **Dolomite, Hi-Cal, Wetting Agents, Charcoal, Humic Acid, Minor Elements, Rock Phosphate, Gypsum.**

Golf Agronomics donates a % of every ton of top dressing sold to the FGCSA. Since its opening, **Golf Agronomics** has donated in excess of \$11,000. Our sincere thanks to all of our customers.

**Golf
Agronomics
Supply &
Handling**

G.A.S.H.

(800) 626-1359
(813) 955-4690 Fax
P.O. Box 3455
Boynton Beach, FL 33424



One of three removable sumps on the wash pad

Water quality management for the equipment wash area

BY DARREN DAVIS
GOLF COURSE SUPERINTENDENT
OLDE FLORIDA GOLF CLUB

The equipment wash area has become a hot topic in recent years. Most superintendents' management styles are slightly different, but I believe we all want the same outcome, an environmentally conscious equipment wash area that functions up to our standards.

A couple of years ago, it seemed everyone was jumping on the band wagon and buying water recycling units. The recycling units were supposed to filter all contaminants from the water and recycle the water for reuse. The feeling was that the units were going to be the wave of the future, and someday they might be.

However, it seems that people are currently shying away from these units because of the horror stories that are being told by some of the original purchasers, not to mention the cost. I was told by one equipment technician that he spends one-third of this time working on their recycling unit. I also know of a golf course that bought a unit three years ago, and it has still never worked to this day.

I contemplated the purchase of one

when I was designing our maintenance facility. I did not buy one, and with a few minor exceptions, I am very happy with the system we are using at Olde Florida. I am sure that this system would not work for everyone, but it is an option.

Goals

My goals of the equipment wash area are simple:

To be located in a convenient area that coincides with the desired flow of traffic.

The area to be large enough so that at least three pieces of equipment can be cleaned at once.

The quality of water used to clean equipment be free of any damaging compounds that might cause premature corrosion or deterioration of the equipment.

The availability of compressed air for use on electrical components or other needed parts of the equipment.

Complete capture of any clippings/solids.

Complete capture of any petroleum products (by using an oil/water

separator or a similar baffle system).

A pleasant area to clean the equipment, with little or no unpleasant odor.

The Pad

The concrete pad at Olde Florida measures 20-feet by 40-feet. The sides and back also have a 5-inch poured concrete curb to prevent water and/or debris from leaving the area. Along with the wash pad, a concrete ramp should be poured leading on to the wash area so that water and debris are not channeled on to the pad from the surrounding area.

The concrete pad is sealed with a silicone, acrylic concrete stain. It is very important to use this or a similar concrete stain, and follow the directions completely. If you do not, you will most likely be dissatisfied with the longevity of the coating.

Before applying the stain, the concrete should be at least 45 days old, clean, dry and free of paint and grease.

For best results, the concrete should be etched with one part muriatic acid and two parts water. The solution can be mixed in a plastic sprinkler can. The area

should be thoroughly and evenly wet with the solution. Then rinse the area with clean water after 20 minutes. The concrete should then be allowed to dry for at least 24 hours before applying the stain.

For the first two coats, one gallon of concrete stain should be mixed with one to two quarts of solvent. The third coat (and fourth if needed) should be straight concrete stain. The final step is simple, stay off the area for at least 72 hours.

Why seal the concrete? I can think of several reasons. One, the area is aesthetically more pleasing (it looks cleaner). Don't laugh until you think about this. If an inspector (DER, EPA, etc.) came to your facility, I think you would agree that the cleanliness of this area will most likely have an impact on his decision whether to investigate the area further.

I also strongly believe that a clean maintenance facility results in better work habits among the staff. In addition, a clean, organized maintenance facility will provide a more positive feeling by the membership towards the money they are spending for the maintenance of the golf course.

Another reason to seal the concrete is since concrete is semi-permeable, the concrete stain/sealer will not allow petroleum products to penetrate. The grease spots can then be wiped off with a reusable shop rag and a cleaner.

The pad is formed so that the entire area slopes to one of three concrete sumps. The sumps are 1-foot by 1-foot by 2-foot deep. The sumps have a recessed lip so the aluminum grate that covers the sump rests flush with the concrete pad. Inside the sumps are removable stainless steel baskets that catch the solids that enter the sump.

One side of the basket has a stainless steel grate so clippings are contained, and the water flows unobstructed through the baskets. These baskets are removed daily, excess water is allowed to drain out of them, and the clippings are emptied into a utility vehicle to be disposed of on property.

Separation Tank

Once the water leaves the three sumps, it travels through a 4-inch pipe into a 1,200-gallon concrete tank. The tank is a

septic tank that was modified for Olde Florida. It is divided into three chambers by using two concrete divider walls.

The first wall extends from the very bottom of the tank upward to a height slightly below the intake pipe. The object of the first chamber is to contain all solids that might escape the catch baskets in the sumps.

The first chamber periodically must be cleaned. To dispose of this material, our loader/backhoe is used to carefully scoop out this material. This material is then transported by a utility vehicle to a site on property and either spread out, or used to fill in a hole. Experience has shown the need to clean this chamber approximately every 9 months.

**AQUATROLS INVENTED
SOIL WETTING AGENTS 40 YEARS AGO!**
We felt it was time
to offer the turf industry something new...
A CHOICE!



Call 1-800-257-7797
for information on Aquatrols' three
unique chemistries that provide
solutions for your soil-water
management problems.

AQUATROLS
Making Water Work Efficiently
5 North Olney Avenue
Cherry Hill, NJ 08003 USA
1-609-751-0309 • 1-800-257-7797
FAX: 1-609-751-3859



Left, a 40 x 20 ft. wash area with multiple air and water stations. In photo below, the sumps are emptied daily and the collected solids are spread on the course.

The second chamber that is formed between the two walls functions as an oil/water separator. The second wall extends from the top of the tank and does not extend the full distance to the bottom. Therefore, it creates a chamber that would contain oil, since oil will always float on water. The water then flows under the second wall into the third chamber.

The third chamber should have clean water in it always. However, to be extra cautious, we extended the exit pipe down from the top so that the water is forced up from the bottom of the tank. Therefore, in theory, it would be impossible for any soil to escape the tank.

Since the tank is installed level, it remains full of water. Because the exit pipe is lower than the entrance pipe, hydraulics force the water through the system (not gravitational flow). This is important since the second chamber is used as an oil/water separator. If the water level would fluctuate, the oil that might be in this area, could in theory escape under the second wall.

The lid of the tank must be removable so that at least solids contained in the first chamber can be removed. At the same time, the lid must be secure enough so it makes a seal to the second wall. This will ensure the second chamber retains all potential oil that might enter the system.

The water that leaves this tank then filters through a long retention swale that contains a healthy stand of wetland plants (duck potato). The water is then retained on-site in the irrigation pond.

Other features

When designing the maintenance facility, we provided numerous blank conduits under the surrounding pavement for future use. In particular, two were provided to the equipment wash area so that compressed air hoses could be run through the conduits for use at the equipment wash area.

Using air to assist in the cleaning of the equipment has been extremely beneficial. The air allows us to clean sensitive areas of the equipment, such as electrical components, without the fear of causing

damage.

Using compressed air to clean the engine also will help extend the life of the machine. Severe damage could occur if cold water was constantly used to wash a hot engine. Also, if large deposits of clippings have accumulated on a machine, air can speed up the cleaning process by dispersing the clippings before using water. (If compressed air is supplied for operator use at the equipment wash area, be sure that signs are posted requiring that eye protection be worn.)

The wash pit is equipped with three



High-pressure water can invade seals and bearings causing damage and extra work for the mechanic staff

separate water outlets. The three outlets are equipped with a 1-inch hose. Using a 1-inch hose provides us with a high volume, low pressure water supply.

There are several advantages of using a high-volume, low-pressure water supply. First, the time it takes to clean the equipment is reduced. Second, the potential damage to an operation, or the painted surface of the equipment, is less than if a high pressure system was used. Finally, high-pressure water can invade seals and bearings causing damage and extra work for the mechanic staff.

One feature that I would definitely like to have, and would advise anyone considering a system like this to include, is a roof over the pad where the equipment is washed.

The roof would serve two purposes. First, it would create a more pleasant area for the operators to clean the equipment. The operators would most likely pay closer attention to the quality of job that they are performing, rather than rushing to get out of the sun.

Second, the roof would keep the operators dry so that they can clean the equipment in the rain. (The roof should have lightning protection on it for employee safety.) The roof would also keep heavy rains from forcing unnecessary water through the separation tank.

The final point I would like to make is that this system is not for use as a mix/load site or sprayer cleaning area. That should be a separate area, also with a method of containment. The water that

is emitted in mix/load operations should not be discharged, rather it is preferred that this water be recycled as a tank rinse or some other means of disposal on a turf area.

Conclusion

I am not inferring that the system we designed at Olde Florida is the only way to design an equipment wash area. What

works well for us might not work for you. Many people are trying to predict what the future local, state, and federal regulations are going to be. However, I feel that as professional turf managers, we should not simply ignore the problem. Rather, it is our duty to make the most environmentally, financial, and functional decision for our individual situation.

If You're Looking for Improved Pest Control . . . Du Cor has an Easier Solution!



New Du Cor LEMWET can help improve your pesticide spray application! LEMWET is a lemon extract attractant and surfactant for use with most pesticides. LEMWET attracts nearby pests to your spray. In addition, it's non-ionic surfactants improve spray penetration and bring your pesticide into close contact with pests!

For over 35 years, Du Cor has been coming up with products to fit our customers needs. From liquid micronutrients, humates and fertilizers, to specialty dyes, surfactants, odor counteractants and more, we take pride in finding special solutions that help our clients.

So if your looking for something special to attract a nuisance, or maybe just a different solution to help you grow, give Du Cor a call. We may already have just the solution you need!



Du Cor International Corporation

P.O. Box 593298, Orlando, Florida 32859
407-859-4390 or Toll Free 1-800-382-6735

Water Management at Golf Courses – Algae and Macrophytes

DR. MILES M. (BUD) SMART
PRINCIPAL ENVIRONMENTAL SCIENTIST
THE TURF SCIENCE GROUP, INC.
CARY, NC

DR. CHARLES H. PEACOCK
PROFESSOR CROP SCIENCE
NORTH CAROLINA STATE UNIVERSITY
RALEIGH, NC

Water management on a golf course is one of the significant keys to the success of course management. Properly managed water resources provide good quality irrigation water, aesthetically pleasing ponds and streams, appropriate stormwater treatment, and no offsite surface or ground water pollution problems.

Improperly or poorly managed water resources can cause great problems for the golf course; for example, poor quality irrigation water may injure or even kill greens, while pond algal blooms can cause aesthetic and odor problems. Understanding the ecology of aquatic plants, algae and macrophytes, as an important component of the golf course water resources is paramount to making certain they only positively impact the golf course environment.

Incorporation of aquatic management

Algae are particularly well adapted to take advantage of high nutrient concentrations (particularly phosphorus), warm water, and sunshine as they reproduce in exponential fashion.

strategies should be part of the courses overall environmental management program (Peacock and Smart 1995).

1.0 Algae and Aquatic Macrophytes. Aquatic algae are plants generally classified as either attached (periphyton) or free-floating (phytoplankton). Attached aquatic macrophytes are generally classified by their growth form - floating, emergent, and submergent. Each water body has algae and aquatic macrophytes that occur naturally.

Aquatic plants are an important component of the ecosystem. Like other plants they produce food through photosynthesis and are thus the base of the aquatic food chain, and they provide cover for animals. The algal community is comprised of many different types of algae that may change throughout the growing season. Some of the common groups include blue-green algae, green algae, dia-

Table 1. Mean and range of nutrient and chlorophyll concentrations associated with various water quality conditions (Modified from R.G. Wetzel, 1983).

Nutrient	Pristine Water (Oligotrophic)	Moderately Enriched (Mesotrophic)	Enriched (Eutrophic)	Highly Enriched (Hyper-eutrophic)
Total Phosphorus ($\mu\text{g/L}$ or ppb)	8.0 3.0-17.7	26.7 10.9-95.6	84.4 16-386	750-1200
Total Nitrogen ($\mu\text{g/L}$ or ppb)	661 301-1630	753 361-1387	1875 393-6100	— ^a
Chlorophyll a ($\mu\text{g/L}$ or ppb)	1.7 0.3-4.5	4.7 3-11	14.3 3-78	100-150

^a No Data

toms, dinoflagellates, and euglena. The body shapes of algae are highly varied and include unicellular, multicellular, colonial, and filamentous.

The distribution and abundance of algae and macrophytes in a water body is subject to considerable spatial and temporal variation. Among the many factors that determine their presence, distribution and density are light, temperature, water turbidity, water currents, hydraulic residence time, nutrient concentrations, nutrient loading from watersheds, water chemistry, water depth, sediment quality, herbivore grazing, and human activities. Aquatic sites are thus dynamic and responsive and as the availability and nature of the resources change, so will the species diversity and/or amounts of aquatic vegetation. However, at some point a healthy algal or macrophyte population may actually become an "algal

The result is an algal bloom, often distinguished by the "pea-soup" appearance of water that results from large quantities of algae.

bloom" or "weed infestation" that may impair the usefulness of a water body for its intended uses.

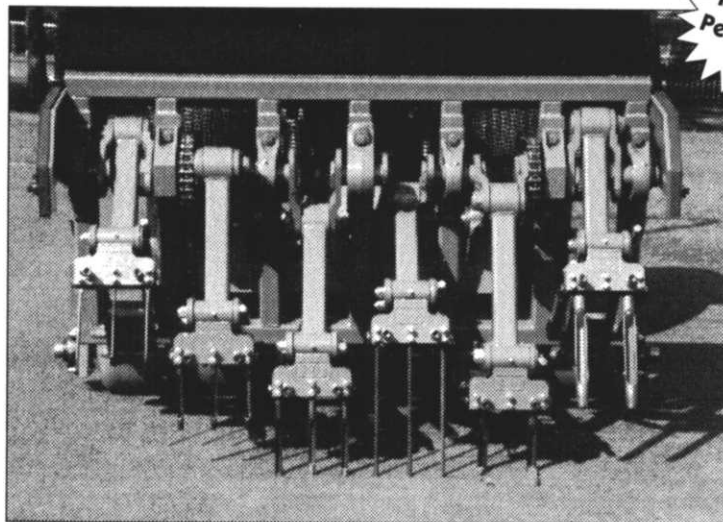
2.0 Aquatic Algae and Algal Blooms.

Although many factors influence the abundance of algae, algal blooms are most often associated with an increase in nutrients (primarily phosphorus and nitrogen) in the water. Through much research, phosphorus was identified as the critical element in causing algal blooms in water bodies (Vollenweider, 1971; Jones and Bachmann, 1976; Wetzel, 1983). Phosphorus is therefore generally considered the limiting nutrient in freshwater ecosystems; that is, phosphorus is a required nutrient for plant growth that is most often in short supply.

Algae are particularly well adapted to

THE SOIL RELIEVER

A Soil Aerator For The 90's And Beyond.....



- YES** – The Soil Reliever is a deep tine aerifier!
- YES** – The Soil Reliever can be used for any aerification task!
- YES** – The Soil Reliever will fit most tractors!
- YES** – The Soil Reliever is made in the U.S.A.!
- YES** – The Soil Reliever is built to last!
- YES** – The Soil Reliever is practically maintenance free!
- YES** – The Soil Reliever is proven!
- YES** – The Soil Reliever will give you a greater dollar value over all other types of aerifiers!

**BEFORE YOU BUY ANY AERIFIER –
LOOK AT THE SOIL RELIEVER &
COMPARE!**

Free Brochures and/or Video!

Financing and Contract Service Available

Turf Specialties, Inc.

Thomas St. Romain
1-800-752-5189
Florida Distributor



Table 2.

Effectiveness of herbicides for aquatic plant control in irrigation watersupplies (Langeland, 1994).
Effectiveness of control is as follows: * = Not recommended; F = Fair; G = Good; E=Excellent

Aquatic Plant	Diquat	2,4-D	Copper	Fluridone	Glyphosate
Floating Plants					
Duckweed	G	F	*	E	*
Watermeal	*	*	*	G	*
Alligatorweed	*	F	*	F	G
Submersed Plants					
Bladderwort	G	F	*	G	*
Brazilian elodea	E	*	F	G	*
Coontail	E	F	*	E	*
Hydrilla	E	*	F	E	*
Parrotsfeather	G	*	*	F	*
Pondweed	G	*	*	F	*
Slender naiad	E	*	*	E	*
Southern naiad	E	*	*	G	*
Spikerush	*	*	*	G	*
Variable leaf milfoil	G	E	*	G	*
Emersed Plants					
American lotus	*	G	*	G	G
Cattail	G	F	*	F	E
Fragrant waterlily	*	G	*	G	E
Rush	*	F	*	*	G
Spadderdock	*	F	*	G	E
Waterpennywort	F	G	*	*	E
Filamentous Algae	G	*	G	*	*

take advantage of high nutrient concentrations (particularly phosphorus), warm water, and sunshine as they reproduce in exponential fashion. The result is an algal bloom, often distinguished by the “pea-soup” appearance of water that results from large quantities of algae. Concentrations of nutrients and chlorophyll a associated with different levels of water

quality are given in Table 1 (Page 74). Chlorophyll a is used as a measure of the algal biomass in water.

Algal blooms cause many different problems. Two of the primary concerns on golf courses are aesthetics (looks bad and smells when they die) and die-off (die-off is when most of the algae die at nearly the same time). Die-off occurs for

many different environmental reasons (overcast skies reducing light intensities and a cold snap are among the two most common) and may also occur when chemicals are applied for algal control. A die-off is easily observed - one day the water is green, and the next day the water is brown. The intense green of the algal bloom is from the chlorophyll in the

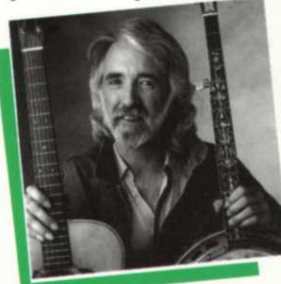
FLORIDA TURFGRASS ASSOCIATION

P R E S E N T S



Country Carnival

Including a live performance by
Grammy and Emmy-nominated recording artist



SPONSORED IN PART
BY:



JOHN MCEUEN

- 20 Years as leader of the Nitty Gritty Dirt Band
- 22 albums, 20 hit records, 4 Grammy nominations, 3 gold records, 2 CMA nominations
- "A thoroughly wacky and enjoyable performance."
- Washington Post
- "...Some of the most deft and impeccably tasteful music to come out of Nashville." - Chicago Tribune.

Don't miss this electrifying fusion of Folk, Rock and Country performed by the original "String Wizard"

REGISTER NOW!

43RD ANNUAL CONFERENCE & SHOW

THE LARGEST WARM SEASON TURF SHOW IN THE SOUTHEAST

SEPTEMBER 24-27, 1995

TAMPA CONVENTION CENTER
TAMPA, FLORIDA

FEATURING:

- MORE THAN 350 EXHIBITS FROM THE UNITED STATES, CANADA AND ENGLAND
- EDUCATIONAL SEMINARS COVERING INDUSTRY RESEARCH AND DEVELOPMENT
- MORE THAN 125,000 SQUARE FEET OF EXHIBIT SPACE

JOIN US FOR THE EDUCATION,
FELLOWSHIP AND FUN

CALL CHARALYN COLE TODAY
FOR MORE INFORMATION



P.O. BOX 948439
MAITLAND, FL 32794-8439
(407) 898-6721 OR (800) 882-6721

Table 3.

Waiting period in days before using water after application of herbicides for aquatic plant control.

Common name	Irrigation	Fish Consumption	Swimming
Copper Compounds	NR*	NR	NR
2,4-D	+	+	+
Diquat	14	NR	NR
Fluridone **	7-30	NR	NR
Glyphosate	NR	NR	NR

* NR = No Restrictions

** See label for specific information.

+ Water use restrictions vary by formulation and manufacturer. In general, if water is used for irrigating sensitive plants, 2, 4-D should not be used.

algae. The mass die-off of algae places a large oxygen demand on the water; that is, large amounts of dissolved oxygen are required to decompose the dead algae.

If oxygen demand is large enough, dissolved oxygen concentrations can fall to levels that cause changes in the biological and chemical characteristics of the water body.

Four mg/l of dissolved oxygen is generally the minimal amount of oxygen that is desirable for maintenance of aquatic life. Thus, if dissolved oxygen levels fall below this level aquatic biota may die (e.g., a fish kill may occur). In many states, 4.0 mg/l is the water quality criteria for warm water fisheries and 5.0 mg/l is the criteria for cold water fisheries. It is important to maintain these levels of oxygen in the water column. The lack of dissolved oxygen also sets in motion a series of chemical reactions that reduces water quality.

2.1 Prevention of Algal Blooms. The factors that control the abundance of algae, form the basis for managing them. Frequently, prevention of algal blooms requires controlling nutrient loadings to the water body. This means that sources of nutrients in the watershed or basin that have the potential of reaching the water must be controlled, or at least, reduced to the lowest quantities possible. The alternative to controlling nutrients

before they enter the water, is to undertake restoration of the water body after nutrients have reached levels great enough to cause blooms and water quality has deteriorated. Restoration is expensive and time consuming and includes not only controlling external nutrient loadings, but also internal nutrient cycling. The larger the water body, the greater the costs. Restoration generally requires years to successfully complete.

Prevention of algal blooms is the best approach to maintaining water quality, and prevention of algal blooms require reductions in nutrient supplies to the water.

Implementing Best Management Practices (BMPs) to control nutrient movement from the golf course and into surface waters is the most cost effective solution.

2.2 Controlling Algal Blooms. The best approach to maintaining water quality against algal blooms is prevention. Prevention is best because causes of algal blooms are addressed. However, in water bodies at golf courses algae must often be controlled. Controlling algae at a golf course is an ongoing effort. The presence of algae should be 'scouted' as part of the Integrated Pest Management (IPM) program at the golf course. Scouting should begin in early spring, as water is warming, and thorough records kept of the

time, location, and amount of algae observed. Obtaining and graphing water temperatures in each water body and noting when algae first appear is a simple but effective management tool. These records are a management tool and review of the records can indicate locations of problem areas on the golf course and suspected time of outbreak. Once known, BMPs can be implemented at the problem areas.

Chemical applications of copper sulfate materials are effective algicides (Table 2). Chemical treatment should begin as soon as algae are seen in the ponds. Applications are best for overall aquatic protection when they treat only approximately one-third (1/3) of a water body at a time. This is because chemical treatment resulting in algal die-off can cause oxygen to fall to very low levels and cause fish kills if treatment causes a die-off of an entire bloom. For small pond treatment, applications near the edge of the pond (approximately shore to 3 ft) are very effective control mechanisms.

3.0 Aquatic Macrophytes. Overabundant rooted or free-floating macrophytes can be a major nuisance to golf course water bodies. Macrophytes can interfere with irrigation intakes and detract from aesthetic values. They can also introduce significant quantities of nutrients and organic matter to the water, perhaps stimu-

lating algalblooms and increasing consumption of dissolved oxygen. Light and nutrients tend to be the dominant factors controlling distribution and abundance of macrophytes.

3.1 Aquatic Macrophyte Control.

Growth habit, proper identification of the plantspecies, the relative abundance, location within the lake, and age of infestation are important considerations when dealing with macrophyte control. These are important considerations because they may provide insight into the extent of the problem and how and when to proceed with control measures. Use of the site and fate of the water will determine if many of the chemical control alternatives can be considered. Time of year will determine how effective different treatment approaches will be.

There are a number of distinct strategies for aquatic weed control. These include the following:

(1) prevention - this could be a very

important consideration in the design and construction of new water bodies;

(2) mechanical - harvesting and removing, especially at critical developmental or reproductive stages could be considered;

(3) water management - such as seasonal drawdown, although this may have limited potential;

(4) chemical control - a variety of aquatic herbicides and algicides are available. However, various characteristics of these usually limit their use to specialized sites. Additionally, effects on nontarget species must be considered. Most of the limitations on chemical control are associated with the use or potential use of herbicide-exposed water;

(5) biological control - two biocontrols that directly attack or infest plants have found some success. The use of the South American alligator weed flea beetle and moths for control of alligator weed and the white amur ("grass carp"), a herbivo-

rous fish, which is very effective for submersed weeds such as hydrilla.

4.0 Chemical Control. Chemical control of aquatic algae and macrophytes can be considered for certain plant species under specific conditions. Information on the effectiveness of herbicides for aquatic weed control is included in Table 2 (Page 76). While each of the materials listed is legally labeled as an aquatic herbicide, specific restrictions may be imposed on each chemical or even by manufacturers on specific brand names. At all times, the label must be rigidly followed when using these materials. Additionally, even under specifically allowed and controlled conditions for application, restrictions on use of the water subsequent to application may apply. Examples of these restrictions are given in Table 3 (Page 78). However, additional or more specific information may be given on the product label.

Use of aquatic herbicides presents spe-

Storage Tanks from A to Z



Orchid Island G.C.

* *"Get a good, reputable tank company . . ."*

* *" . . . Knowledge and guidance ultimately saved me \$30,000."*

Scott Bell, Bent Pine G.C.

* *"First Rate. Couldn't have asked for more."*

Jack Orr, Orchid Island G.C.

- Underground Tank Removals
- Aboveground Tank Installations
- Remedial Actions
- Statewide Service

Brevard Oil Equipment, Inc.

1557 Cooling Avenue
Melbourne, Florida 32935

800-472-7670 • (407) 259-4181

"The Golf Course Specialists"

Use of aquatic herbicides presents specific questions about their impact on water quality

cific questions about their impact on water quality. These materials have been shown not to accumulate in living organism nor concentrate in the food chain (SJRWMD, 1989). Dissipation of these materials from photochemical reaction, microbial breakdown, and dilution is rapid.

The application rate of each of the herbicides used for aquatic weed control will vary depending on the amount of active ingredient required to effectively control the targeted weeds and the formulation. Lake volume is also another consideration. Applications are best when they treat only approximately one-third ($\frac{1}{3}$) of a water body at a time. For small pond treatment, applications near the edge of the pond (approximately shore to 3 ft.) are very effective control mechanisms.

With each herbicide information is available about use precautions and toxicological properties. Of primary concern is the effect of these materials on nontarget plants which may have been intentionally planted as wildlife habitat and the effect on nontarget wildlife. Effects on nontarget plants must be evaluated by a specialist in lake management who can accurately identify the vegetation and mechanism of action of the specific herbicide in question.

Each material listed in Table 2 will be discussed individually for effects on wildlife which inhabits or contact the aquatic environment. Data has been taken from the Herbicide Handbook of the Weed

Science Society of America (1989), Weed Control Manual (1992), Farm Chemicals Handbook (1995), and "Acute and Chronic Toxicity of 75 Pesticides to Various Animal Species" (Kenaga, 1979). Values are either for LD50 - the dose (quantity) of a substance that will be lethal to 50% of the organisms in a specific test situation expressed in weight of the chemical (mg) per unit of body weight (kg); or for LC50 - the concentration of a substance in water that will kill 50% of the organisms in a specific test situation.

Fluridone. At recommended application rates concentrations in the water would range from 0.08 to 0.5 ppm. This material has been shown to be nonhazardous to birds (bobwhite oral LD50 > 2000 mg/kg; bobwhite and mallard duck acute LC50 values are both > 5000 mg/kg of diet). Fish have excellent tolerance at these concentration with an LC50 of 11.7 ppm for rainbow trout, 14.3 ppm for bluegill, and 10 ppm for channel catfish. Aquatic invertebrates also exhibit tolerances above these levels with values for daphnids at 6.3 ppm and midges at 1.3 ppm. No observed effect concentrations are 0.5 ppm for catfish and 0.48 ppm for fathead minnows. Communities of phytoplankton, zooplankton, benthic invertebrate organisms, and fish are unaffected at sites treated with these formulations.

Glyphosate. At recommended application rates the concentrations in the lake water would range from 0.36 to 1.8 ppm. This material has been shown to be extremely safe to wildlife. The LD50 for bobwhite quail is > 3850 mg/kg. The tolerance levels as LC50s for aquatic species are as follows: trout, 86 ppm; bluegill, 120 ppm; Daphnia magna, 780 ppm; harlequin fish, 168 ppm. None of these organisms would be especially sensitive to this material at proper application rates.

2,4-D. At recommended application rates the concentrations in the lake water would range from 0.36 to 1.5 ppm. General toxicity to wildlife and fish indicates that at 100 ppm there would be some slight mortality for fingerling bream and largemouth bass. Toxicity to rabbits is in the range of 300 to 1000 mg/kg. Some formulations are more toxic to aquatic animals and should not be introduced into aquatic environments unless spe-

cifically recommended on the label. The concentrations which would be found in lakes treated with the proper formulation of this material would not present a toxicity concern.

Copper sulfate. Calculated concentrations of copper in the water range from 0.155 to 0.4 ppm depending on the formulation. Environmental guidelines list the hazard to fish at > 1 ppm for rainbow trout and 0.884 ppm for bluegills and > 1000 ppm for pheasant. At the recommended rates this material should not pose a problem to wildlife.

Diquat. At recommended application rates concentrations in the water would range from 0.36 to 1.5 ppm. It is known to be generally safe to wildlife and fish with the LD50 for mallards at 564 mg/kg and the LC50 for bobwhite quail at 2932 ppm, rainbow trout at > 10 ppm

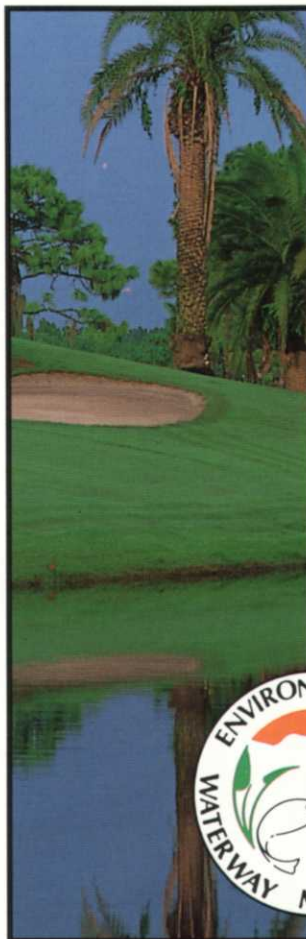
The goal of the golf course should be prevention of unwanted algal blooms and infestations

and Daphnia at 7.1 ppm. Lake water concentrations at recommended rates would pose no environmental threat based on these tolerances.

Although algae and aquatic macrophytes can be controlled in an effective manner, the goal of the golf course should be prevention of unwanted algal blooms and infestations. Prevention is the most cost effective and environmentally compatible management practice. This requires the implementation of well-designed environmental management program that includes Best Management Practices and Integrated Pest Management strategies for protection of natural resources at the course.

References

- Farm Chemicals Handbook* - Electronic Pesticide Dictionary. 1995. Meister Publishing Co., Willoughby, OH.
- Herbicide Handbook of the Weed*, Science Society of America. 1989. Champaign, IL.
- Jones, J.R. and R.W. Bachmann. 1976. *Prediction of phosphorus and chlorophyll levels in Lakes*. J Water Pollution Control Federation 48:21767-2182.
- Kenaga, E.E. 1979. "Acute and chronic toxicity of 75 pesticides to various animal species." *Down to Earth*, Vol. 35, No. 2:25-31.
- Langeland, K.A. 1994. "Weed control in irrigation water supplies." In *University of Florida's Pest Control Recommendations for Turfgrass Managers*, Publication SS-ORH-004. p. 44-46. L.B. McCarty (ed.). Cooperative Extension Service, IFAS, University of Florida, Gainesville, FL
- Peacock, C.H. and M.M. Smart. 1995. "IPM, Monitoring, and Management Plans - A Mandate for the Future." *USGA Green Section Record* 33:10-14.
- SJRWMD. 1989. "Aquatic plant management" St. Johns River Water Management District, Palatka, Fla.
- Vollenweider, R.A. 1971. "Fundamentals of the eutrophication of lakes and flowing waters, with particular reference to nitrogen and phosphorus as factors in eutrophication." *Organisation for Economic Co-Operation and Development*, Paris. 159 pages, 34 figures and appendix.
- Wetzel, R.G. 1983. *Limnology*. Second edition. Saunders and Co. 763 p.



Environmental Waterway Management... "Preserving Your Liquid Assets"

Golf Courses have Lakes, Ponds, Canals and Water Everywhere! Many of these water bodies are used for irrigation, fishing swimming, drainage or simply as hazards to the navigating Golfer on your course. If you allow Algae, Grasses and other noxious weeds to grow unchecked, they will rapidly take over your precious waterways. Don't allow your waterway problems to get you in over your head. Just call the experts at Environmental Waterway Management.



THE MASTER BLEND

**HAND-IN-HAND, LIQUID AG AND IT'S VALUED CUSTOMERS
CREATE POWERFUL ALLIANCES**

BY ESTABLISHING PERSONAL PARTNERSHIPS, LIQUID AG SYSTEMS, INC. STRIVES TO DEVELOP UNIQUE, ENVIRONMENTALLY-RESPONSIBLE METHODS FOR DELIVERING PLANT NUTRITION. STAY ON THE LEADING EDGE OF ENVIRO-AGRICULTURAL TECHNOLOGY.

OUR NEW ENVIRO-PRODUCTS:

- ENVIRO-SE
- ENVIRO-ZEST
- ENVIRO-PHOS
- ENVIRO-START
- ENVIRO-RESTORE
- ENVIRO-GREEN PREMIUM FERTILIZER



OTHER VALUABLE SERVICES

- Collaboration for nutritional programs
- Soil, water and tissue sampling/analysis
- Plant nutrition products through your irrigation systems
- Irrigation water treatment
- Environmentally sensitive alternatives for reducing harsh chemical use

Liquid Ag
Systems, inc.

1010 N. W. 15th Avenue
Pompano Beach, Florida 33069
(305) 971-0022 • (800) 432-2249 • Fax: (305) 977-0031

3281 Metro Parkway
Fort Myers, Florida 33916
(813) 332-5565 • Fax (813) 332-1319

The Florida Tour: Part 2

March Madness brings best out of Florida Superintendents, Golf Courses

Say "March Madness" to 90 percent of the population and they'll tell you it's all about the NCAA Basketball Tournament. Say it to golf course superintendents in Florida and they'll tell you it's the spring fling of the PGA Tour as it travels from Miami to Jacksonville. Here's part 2 of our coverage of the 1995 professional golf tournament sites in Florida.

Doral-Ryder Open

Doral is a name that is synonymous with great golf and a great golf course, but this year's Doral-Ryder Open showcased a golf course that was well beyond anyone's expectations. Thanks to Superintendent Pat McHugh, CGCS, and his staff, the Blue Monster was in the best shape that anyone has seen for many years, including myself, and I have been around Doral since 1979.

Pat, a 1977 graduate from Michigan State's turf program, made a bold decision this past winter to oversee the entire course for the first time. Pat's gamble paid off in a big way. With the cold, wet winter south Florida endured, the rye

grass overseed was the perfect vaccine for a predominantly Ormond bermudagrass course that may have suffered severely.

Pat is no stranger to the PGA Tour, having worked for the Tour for one year at the Tournament Players Club at Southwind, home of the Federal Express St. Jude Classic. Pat was working at Hunter's Run when he decided to accept the position as Director of Golf Maintenance at Doral.

Due to the Blue Monster's unique makeup of mostly Ormond turf, Pat's decision to overseed the entire course was based on the idea of trying to put its best foot forward. "We wanted to put a different touch on the place," McHugh said.

The 328 greens were seeded with a fescue and poa mix at about 24 pounds per 1,000 square feet, adding 2 to 3 pounds monthly. The tees were done with a 70-30 mix of rye and poa at 20 pounds per 1,000 square feet. Fairways and roughs were done with straight rye with rates of 400 pounds and 250 pounds per acre, respectively.

With a first time project came different work patterns that required the crew to establish new work habits and techniques. The tees were now being walked mowed, the roughs cut with rotaries and the fairways mowed, amazingly, with

triplex greens mowers. Because of the overseeding, the fairways were being mowed everyday to create that checkerboard pattern that everyone likes to see. It took eight machines 4 or 5 hours to mow them all. The greens are being cut at .141 mm to get them up to 11 on the stimp meter. Pat uses all liquid fertilizer on the greens so they can be maintained right up to tournament time. With the quality of the overseed, the greens should be spectacular, probably the best on tour.

The large amounts of rain experienced this winter may have been a blessing in disguise for the Blue Monster. Due to the timing of the rain and the overseeding, there have been no carts on the course's fairways since November, making them absolutely perfect. "We could be stronger looking, if not for the rain," McHugh said. This is hard to imagine, though.

With the Doral facility incorporating 81 holes, it is not hard to find men to supplement the 16 full-time crew members that work on the Blue Monster. This time of year is not easy on Pat and assistant Eric Von Hofen. The Doral staff is responsible for putting up the fencing and ropes around the course, leader boards and concession areas. The TV towers are left up year round so all they have to do is put the floors in. For weeks before the tournament, the crew will work 10- and 12-hour days preparing. During

the tournament, they will work split-shifts to get everything mowed and cleaned up after each round.

The Doral maintenance crew has traditionally enjoyed this time of year, but with about 70% of the crew being new, no one knows quite what to expect. Much time has been spent by Pat and Eric finding out who can operate what and where. On Saturday of tournament week, the crew will hold a large party and celebrate what will definitely be a successful event.

Pat has had some help, though. This past summer the PGA tour came down and helped to reshape some of the fairways. Tour Agronomist Jeff Haley comes in early to assist, and Hector Turf has donated some equipment to make life easier. Some of the equipment includes a lightweight mower, two 3100 greensmowers and four Toro 1000 walk mowers.

Kenneth Lee Dixon
Hollybrook CC

The Honda Classic

At Weston Hills, perfection is expected from the golf course, and the man entrusted with that job is Dan DuPree. Dan has represented himself well once again with an outstanding golf course that lives up to the grueling expectations of the PGA Tour and the membership.

I am a little ashamed to admit that this was my first visit to Arvida's beautiful facility at Weston. Being a fairly new course, Weston has some advantages that a lot of us do not. Dan gets to work with all new equipment, and plenty of it. Dan has a 21-person crew, expanded to 30 for the tournament, for an 18-hole facility that will soon be 36, as nine new holes have just opened.

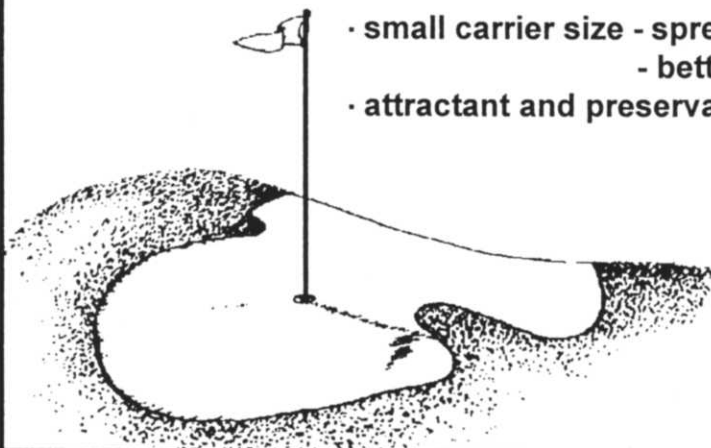
Dan, who graduated from Lake City in 1973, has been at Weston Hills for three years now. Before that, he served as superintendent at Broken Sound for eight years and, before that, eight years at The Diplomat. The Honda Classic is the first

PGA event that Dan has been associated with, but the experience has been a great one. "I really enjoy it. If you don't enjoy this time of year, you definitely don't need to be in this business," DuPree said.

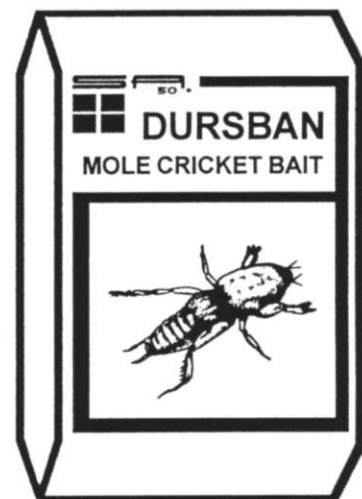
The course at Weston Hills is all bermuda with 419 on fairways, tees and roughs. The greens are Tifdwarf that have been overseeded with straight bent. The tees and fairways are cut at .375 mm, the roughs at 2.75 inches, and the greens at .141 mm. The greens should be more than adequate for the pros, with a stimpmeter reading of about 10-10.5.

The tour has some stringent demands, and the crew at Weston has been able to adapt to those demands. The fairways are being double cut everyday, and the greens walk mowed. Carts will be on "paths only" for a month before the tournament begins. An 1.25 inch step cut is cut around the fairways. The crew, which will pick up many overtime hours in the weeks prior to the tournament, will be working a split-shift during the tournament. The

GIVE MOLE CRICKETS WHAT THEY DESERVE... A LAST MEAL!



- small carrier size - spreads easily
- better coverage
- attractant and preservative added



MANUFACTURED BY:
SOUTHERN AGRICULTURAL INSECTICIDES, INC.
P. O. BOX 218 PALMETTO, FL 34220
FOR INFORMATION CALL: 1 - 800 - 477 - 3285

Professional Golf on Florida Courses



Photo by Dr. Rich Hurley

Nestle Invitational

Nick Faldo practices for the Nestle with help from his caddy, Fanny, and coach, David Leadbetter.



The Honda Classic

Superintendent Dan Dupree, left, and his assistant, Tim Sticco.



Nestle Invitational

Now that the Nestle is over, Bay Hill Superintendent Dwight Kummer has his hands full with new construction on the Charger Nine.



**Tournament Players
Championship**

Superintendent Fred Klauk coped with 48 mph winds at TPC at Sawgrass, which challenged his crew to have a firm and fast course.



LPGA Sprint Championship

Superintendent Mark Heater, left, and First Assistant Allison Reaves are all smiles after a successful tournament debut on the LPGA International Golf Course.

**GO AHEAD!
TAKE YOUR BEST SHOT
WITH STANDARD SAND.**

We produce sands especially for golf courses, following U.S.G.A.'s strictest guidelines. We service all of Florida and the Caribbean with:

- Greensmixes
- Greensmix Sands
- Topdressing Mixes
- Dry Sterilized and Screened Topdressing Sand
- White Trap Sand
- Nonwhite Trapsand
- U.S.G.A. Gravel
- Choker Sand

We designed the popular #37M trapsand. Please call us for a FREE load.



STANDARD

STANDARD SAND & SILICA COMPANY

For your specialty sand and gravel needs, call us toll-free today at: **1-800-475-SAND**

Distribution points: Jacksonville, Miami, West Palm Beach, Fort Lauderdale.

Meeting the challenging expectations...

crew will come in at 4:30 a.m. and work until about 9:00 a.m. They will come back at 4:00 p.m. and will work until they are finished. Jeff Haley, tour agronomist, and Vaughn Moise, tour advance man, have provided invaluable assistance for the preparation of the course.

Dan may get the credit, but he chooses not to accept it. He would rather give it to his assistant, Tim Sticco, and his crew. "I could not have done it without him," DuPree said of Tim.

Tim was at Weston for a year before Dan arrived, so he was able to have many of the things the PGA Tour expects done before they ever arrived. Dan thinks this tournament brings the members of his crew closer together. They like the tournament and seem to be geared up for it. "The crew is always the most important thing. Without them, I am nothing," DuPree said.

Dan has had help from other places as well. Hector turf has donated a Toro 5100 fairway mower. The Honda people have been a big help also. They put up all the ropes, bleachers and concession area, freeing Dan and his crew to do other things. With only 32,000 rounds a year, the course recovers well from the tournament. Weston is a beautiful facility, and everyone should take a trip there some time, whether it is to play or just to watch the tournament.

Kenneth Lee Dixon
Hollybrook CC

The Nestle Invitational

Bay Hill superintendent, Dwight Kummer, celebrated his fifth Nestle Invitational this year and he says, "It seems to be getting easier!" He also felt he had his best putting surfaces ever for this year's event. And the reason for those near perfect greens was also the source of his biggest headache during tournament preparations.

Four weeks out from the tournament Central Florida was hit with "a week of winter" which included 3-4 frosts back to back and a freeze thrown in for insult. For plant material enjoying an otherwise mild winter, it was devastating. Dwight de-

scribes the results, "We lost all of our blooming ornamentals and annuals which add so much color that time of year. We don't overseed the fairways and they went completely dormant. I have to give the crew a lot of credit. We logged the most overtime we ever had in order to clean up all the dead plant material and replace all the beds. And with a little luck and some ammonium sulfate we got the color back on the fairways. Even though that cold snap brought a lot of problems, I think it helped stop all bermuda competition on the greens and allowed us to manage straight poa greens for the tournament."

Dwight attributes one other practice to the continued improvement of the putting surfaces over the years since the course was rebuilt. Dwight said, "We have begun to deep drill our greens in August for our fall renovation. I firmly believe we are driving those roots down making for healthier turf, which has reduced spike marks during the tournament." The condition of this year's greens drew high praise from Dwight's boss, Arnold Palmer, who was calling them better than Augusta. And TV's guru of grain, Johnny Miller, was quoted as calling them "flawless" this year.

Dwight outlined his overseeding program as follows: Greens - Laser Poa trivialis is overseeded at the rate of 10 lbs. per 1,000 sq.ft. in early November. In mid-December additional Laser is added at the rate of 2-3 lbs. per 1,000 sq. ft.. This practice continues every 10-14 days until the desired density is achieved. This year a total of 20 lbs. per 1,000 sq. ft. was applied.

Roughs, tee slopes and greens slopes are overseeded with 100% Palmer II perennial ryegrass at the rate of 300 lbs per acre in mid-November. Since the fairways are not overseeded, Dwight needed a way to overcome the very slow healing divot scars incurred during the heavy winter play in the dormant bermudagrass. The solution that works for him is to topdress the divots with a sand-seed mix including Jamestown II chewings fescue. The fescue is non-aggressive, grows just fast enough to fill-in and blends well with the bermudagrass.

Bunker faces are another area that can be tough to manage. Dwight has found that Rebel Jr. tall fescue is more drought tolerant than ryegrass. By overseeding his bunkers at the rate of 10-15 lbs. per 1,000 sq. ft. with Rebel Jr., he has eliminated the need for hand watering these areas.

As for tournament week itself, it was pretty routine. There was a rain suspension on Saturday which required the staff to stay late to prepare the course for a 6 hole shotgun start on each nine at 7:00 am Sunday morning. And now Dwight and the Bay Hill staff can turn their attention to rebuilding the Charger Nine and remodeling the 16th hole on the Champion's course. Arnold wants to add a little more excitement to that gambling par five finishing hole. Congratulations to everyone at Bay Hill for another successful tournament. See you next year!

Contributions to this article by Dr. Richard H. Hurley, Loft Seed, Inc. and Joel D. Jackson, CGCS, Disney's Magnolia G.C.

The Tournament Players Championship: TPC at Sawgrass

As the PGA tour makes its final stop in its four-week sprint through Florida golf's "March Madness," the critical eyes of the golfing public and the players themselves are focused on the Tour's home course.

Since 1986, Fred Klauk has been meeting the challenge of preparing the Tournament Players Club at Sawgrass to satisfy the highest expectations on the tour.

From the record cold of 1990 to the record rains of 1994, the staff of the TPC is tested time and again. This year March did not go out like a lamb.

Following are Fred's capsule comments on the event:

"The 1995 Tournament Players Championship was both challenging and exciting. Very windy conditions (48 mph) prevailed the entire week causing the course to dry out rapidly and present some extremely difficult playing conditions.

...of the professional golf tour

Last year the course conditions were criticized as being too soft from the record rainfall in 1994. We were determined to keep the playing conditions firm in 1995.

The result was close to U. S. Open playing conditions, very firm and very fast. The winning score went from -24 in 1994 to -5 in 1995, which got very favorable responses from the media and spectators alike."

The LPGA Sprint Championship

Going into the LPGA members' first championship to be held at their brand new LPGA International Golf Club, Superintendent Mark Heater had two fears, rain and/or hot weather. The late spring dates in April could be disastrous on either count. On April 16th, one week before tournament week, the temperatures began climbing to summer-like numbers 90, 92, 93... Mark could imagine TV shots of dead ryegrass all over the

place. At 1 pm that Sunday, the watering began.

Mark said they pumped record gallons of effluent water each night for six nights plus the daytime syringing to cool the grass in the heat of the day. The downside to so much watering to save the overseeding was that the course is built on heavy soils. Heavy storms run off quickly, but the top quarter-inch can stay soft and hamper mowing. It was a no-win situation.

Finally, the heat wave subsided just in time for tournament week with high temperatures returning to low to mid 80s. Mark had also hedged his bets by spraying the fairways with Primo growth regulator in case he couldn't mow due to wet conditions.

By the end of the tournament, some ryegrass areas were getting "toasty," but the course only lost a few per cent of overseeding. After the tournament another heat wave hit and this time the rye said sayonara! Through it all the bent/

poa greens showed no signs of stress. Mark attributes that to the application of K-Power's 12-0-42 fertilizer at 1 lb. of Potassium per 1,000 square feet, three weeks before the event.

The tournament routine itself was a juggling act of men and equipment squeezed into a near impossible time frame. It took eight men walk mowing with spotlights on the putting and chipping greens and first holes front and back to stay ahead of the early morning 1 & 10 tee times. The 5:45 a.m. morning routine consisted of setting cups, walk mowing 24 greens (double cut), walk mowing the tournament tees because of signs immediately behind each tee, raking the bunkers and dragging the fairways.

At 4:00 p.m. the crew returned, working until dark to triplex mow the rest of the tees, mow the fairways, collars and approaches, mow the first cut of rough, double cut the greens again, and "brush drag" the bunkers. By the way, the greens average 7,000 square feet so it wasn't a

A Commitment to Quality



Nutri-Turf, Inc.

ONE OF THE ANHEUSER-BUSCH COMPANIES

Specializing in Bermudagrass

- Golf Course Quality (DNA Tested)
- Athletic Fields and Sports Complexes
- "Quickstand" Common
- Big Roll Sod for Fast, Economical Installations
- Greens Height Tifdwarf for Instant Playability
- Volume Discounts

**16163 LEM TURNER ROAD
JACKSONVILLE, FL 32218**

(904) 764-7100 • TOLL FREE: 1-800-329-TURF



Palm Beach Chapter spotters all geared up for the Senior PGA event at PGA National.



Central Florida Chapter volunteers gather before getting group assignments "inside the ropes" at the Nestle Invitational.

Inside the Ropes

Acting as the eyes and ears for NBC Sports, the FGCSA has been providing spotters and scorers for the television broadcasts of LPGA, Sr. PGA and PGA Tour events in Florida for several years now. It is a win-win situation for all involved. NBC gets golf knowledgeable people to report who's away, club selections, unusual shots, penalty situations and scores to the production trailer for relay to the announcers, and the FGCSA members get the best seat in the house inside the ropes following a group of players during competition. Additionally, the monies paid by NBC for these services is turned over to chapter scholarship and research funds. ↘

LPGA, from Page 87

walk in the park to stay ahead of golfers in the morning and trying to beat sundown each night.

Mark and assistants, Allison Reaves and Steve Kugler figure they began putting in 90 hour weeks a month out to make sure the new course would be ready. Including them, it is a 25 man operation with 18 crew members grooming the turf. There are 90 bunkers. Some of them rival the Mojave and Sahara in size. It took 4 mechanical sand rakes to rake them ahead of play each day. Mark said he had zero spare people, and on Saturday he found himself walk mowing greens to cover for a "no show" by a now former employee. There were three other saving graces that

Continued on Page 91

ALGAE ON TURFGRASS A PROBLEM?



TRY

TRIPLE ACTION 20

E.P.A. REGISTERED ALGAECIDE
AND FUNGICIDE FOR TURFGRASS

- EFFECTIVE ● ECONOMICAL
- CURATIVE ● BIODEGRADABLE

For a Free Sample Write or Call:



**PARKWAY
RESEARCH**

PARKWAY RESEARCH CORPORATION
1-800-256-FOOT
13802 Chrisman Rd. 713-442-9821
Houston, Texas 77039 FAX 713-590-3353



NEW PUTTING GREENS! PLAYABLE IN THREE WEEKS!

HAVERLAND BLACKROCK CORP.

The innovators in Golf Course Construction can rebuild and recontour your greens and have them back in play immediately!

THE

**BIG ROLL
SOD**

**LASER
GRADING**

PEOPLE

INSTALLATION:

Tees, Greens, Fairways, and Athletic Facilities

- USGA PUTTING GREEN RENOVATION ■



9819 STATE ROAD 7 • BOYNTON BEACH, FL 33437
(407) 369-7994 • FAX (407) 364-1118

Announcing

1995 *Florida Green* Photo Contest

With more than 1,000 golf courses in the state it's impossible to showcase each one of them. You can share a beautiful and/or unique part of your course by participating in our Inaugural *Florida Green* Photo contest.

Categories

- Category 1** **Wildlife on the Course:** includes, mammals, birds, reptiles, amphibians.
- Category 2** **Course Landscape**
- 2a:** **Formal Plantings:** includes annuals, shrubs, and trees
- 2b:** **Native Plantings:** includes aquatic vegetation, grasses, shrubs, trees and wildflowers.
- Category 3** **Scenic Hole Layout Shots:** includes sunrises, sunsets, frosts, storms and any other golf hole view.

Prizes

1st Place is \$100 and 2nd Place is \$50 in each category
Best Overall Photo \$200
All winning entries published in the Fall 1995 issue

Easy Rules

1. Color prints only. No slides.
2. Photo must be taken on an FGCSA member's course. Photo must be taken by an FGCSA member or a member of his staff.
3. Each photo shall be attached to a sheet of 8.5 x 11 legal paper. Line up the photo with the vertical and horizontal lines to square the photo on the page.
4. Attach the photo to the paper using a loop of masking tape on the back of the photo. A caption identifying the category, course and photographer should be typed or printed on the sheet of legal paper below the photo.
5. **Attach a label** to the back of the photo which identifies the category, course and photographer. **Do not write directly on back of photograph.**
6. Judging will be done by members of the FGCSA Board of Directors not participating in the contest.
7. No entries accepted after August 31, 1995.

Florida fuel tanks must be insured

BY SCOTT BELL

On January 1, 1995, all above ground fuel storage tanks were required to be insured. If you have above ground fuel storage tanks that hold over 550 gallons of fuel, then you are required to carry restoration insurance and third party liability coverage.

Restoration insurance will cover the costs (after a deductible) for clean up from a fuel spill. Those costs can include soil and water remediation, reporting and testing. The third-party liability covers you in the event that the contamination leaves your property and affects your neighbor's property.

The limits needed for tanks of 250,000 gallons or less are \$1 million per incident and \$2 million annual aggregate for facility clean up and third party liability coverage. With all of the remediation, testing and reporting, restoration costs can easily exceed \$100,000.

The law allows for a facility to self insure itself if it can meet certain criteria explained in 17-769.5000 FAC. A facility can purchase insurance from a private insurance company, or they can participate in the Florida Petroleum Liability and Restoration Insurance Program (FPLRIP). Information can be obtained by calling:

FPLRIP 1-800-475-4055
PLUS 1-800-866-4758
another insurance program

For more information, call the FL DEP at 904-488-0876. It should be noted that if you have below ground storage tanks, they should have already been insured, and if they are not, they should be insured as soon as possible.

LPGA Sprint Championship

from Page 89

made the operation possible: (1) Loaner equipment in the form of three walk mowers, a fairway mower, a Jake 3810 and a bunker rake, (2) They didn't have to mow the roughs after the first day of the week, and (3) Super volunteer, former superintendent, Gary Morgan who showed up every day to help drag fairways and rake bunkers.

Mark would like to acknowledge the training and experience he got by understudying Tom Alex at Grand Cypress. Mark said, "I set my benchmarks for excellence based on what I learned from Tom. I saw and learned what a golf course could be. Why would anyone strive for anything less? It is the model I use to compare results here at LPGA International."

With a clubhouse, resort, and homes to be built, Mark and company have a lot of work ahead. But for now, congratulations on an outstanding debut!

Joel D. Jackson, CGCS
 Disney's Magnolia G.C.

ELIMINATE HOT SPOTS

BEFORE AFTER

envirogenesis™

TurfBloom

TurfBloom creates a membrane barrier at the soil surface that inhibits water evaporation.

TurfBloom is ideal for areas with limited water supply or poor irrigation coverage.

TurfBloom is not a polymer and has no negative impact on soil.

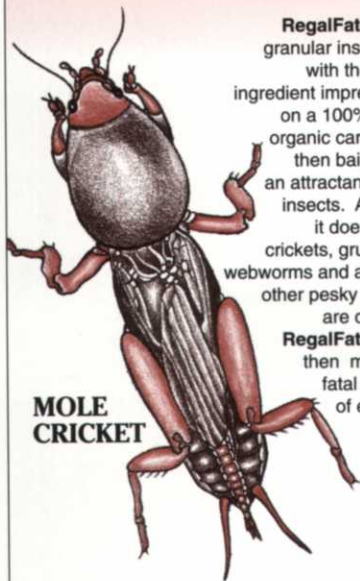
**Reduce Water Usage with
One Annual Treatment!**

Call Envirogenesis to place your order today:
1-800-814-1324

Envirogenesis, Inc. • 5712-K General Washington Drive • Alexandria, VA 22312
 703-941-3900 • FAX 703-941-1508

RegalFate™

THE FATAL ATTRACTION FOR INSECTS!



MOLE CRICKET

RegalFate™ is a granular insecticide with the active ingredient impregnated on a 100% edible organic carrier and then baited with an attractant to lure insects. And lure it does. Mole crickets, grubs, sod webworms and a host of other pesky insects are drawn to RegalFate™ and then make the fatal mistake of eating it.



SOD WEBWORM

RegalFate™ is many times more effective because the insect ingests it. Control by contact or vapor action is only partially as effective as the ingested toxicant. Spread the dry granular RegalFate™ for superior results.



Regal Chemical Company

P.O. BOX 900 / ALPHARETTA, GA 30239

PHONE 404-475-4837 / 800-621-5208

Will Research Dollars Become (Ex)Spendable?

BY SCOTT BELL

The state university system has been decimated by budget cutting and allocation realignment. While funding for prisons has risen from 2% of the state funding budget to 8%, the education funding has dropped from 12.5% in 1985 to 7.5% in 1995. Unfortunately, enrollment in both state universities and prisons has increased. In 1985, 60% of the education system funding came from state sales tax. Presently, 49% of the funding is coming from sales tax.

At the University of Florida in Gainesville, 29% of the funding comes from taxes and the lottery, while 71% comes from tuition, various funds, endowments, etc. University of Florida research funding only takes 22.5% of its funding from taxes and the lottery. IFAS relies on state funding for 56% of its \$163 million budget, and the research section relies on the state for 64% of its funding.

What does this have to do with golf course superintendents?

The state legislature has asked for a 25% savings in operating costs to give the money back for allocation to other areas. This request comes after a 1992 reduction in operating costs of 15%. Obviously the quality of the education would be the last thing that the legislature will want to cut since Florida students already rank below national averages in many standardized tests.

The main part of the budget cutting would happen in the university areas and particularly in research. While the universities can raise tuitions to make up shortfalls, and since they are less dependent on tax dollars than IFAS, the universities could survive this, although I'm sure that the quality of education would drop, and nobody wants that.

IFAS, on the other hand, could be severely hurt by a 25% budget cut. Anyone who has worked on the research committee or with the research green can tell you that IFAS is not rolling in money. IFAS has turned out internationally-known research in turf and ornamentals as well as in other areas such as agriculture, industry and business.

While all of this research has been generated, the IFAS operating costs have remained the same since 1980 and the faculty growth (number of positions) has remained the same. Close to home, the FGCSA has our research green at an IFAS facility and close friends like Elliott, Cisar, Giblin-Davis, Snyder and Busey all work at South Florida IFAS facilities. Our industry

has greatly benefited and will continue to benefit from the work done at the IFAS facilities.

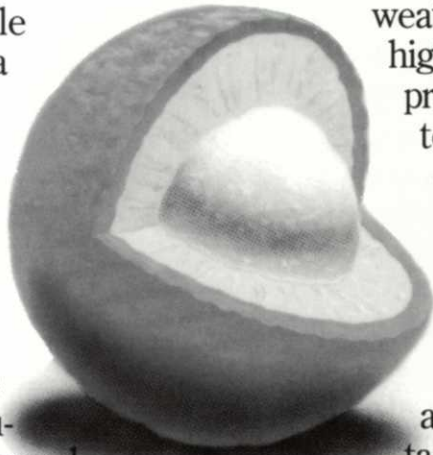
What can you do? Write to your state senators and representatives, who are listed in the beginning of the white pages in all phone books. Let them know that agribusinesses needs research to be done **in our state**. Let them know that you benefit from Florida research.

Anyone who has worked on the research committee or with the research green can tell you that IFAS is not rolling in money.

Write to your state senators and representatives... Let them know that you benefit from Florida research.

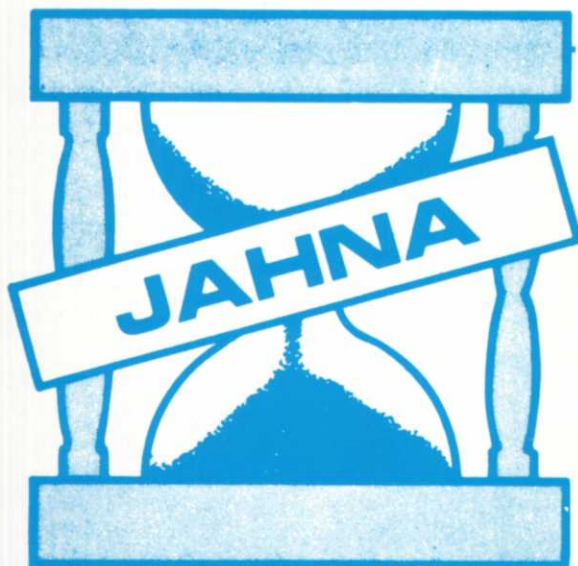
The Poly-S™ difference: a unique multiple coating system.

Each Poly-S™ particle is manufactured using a computer-controlled, two-tier coating process that allows nutrients to be released steadily and safely by controlled diffusion through the polymer coating. Thus the rate of release can be regulated over a pre-programmed period of time over a wide variety of



weather conditions — providing higher nitrogen analysis than SCU products with less sensitivity to temperature than fertilizers coated with polymer only.

It is the most efficient — and cost-effective — turf fertilizer technology ever developed. For more information about Poly-S fertilizers and their performance advantages, contact your Scott Tech Rep. Or call 1-800-543-0006.



Your Sand Man

Choker Sand • Greens Mix Sand • Pea Rock

White Trap Sand • Dolomite • Hi-Cal

Dry Sterilized Top Dressing Sand

All Sands meet U.S.G.A. Specs

E. R. JAHNA INDUSTRIES, Inc.

Lake Wales, FL 33859-0840 • (813) 676-9431

Trying to make intelligent decisions

Mark My Words



Mark Jarrell

Mark Jarrell, CGCS
Assistant Editor

At the Poa Annua board meeting, the FGCSA finally voted to approve funding for the DNA research proposal initially presented by IFAS last fall. This is a two-year, cutting-edge research project whose \$66,000 price tag will be jointly split between the FGCSA and the Florida Turfgrass Association.

My use of the word “finally” in no way implied that we’ve been dragging our feet on the matter, as some might conclude, but rather, suggests that a lot of deep thought and analysis by many busy people went into the decision to fund this project. Members of both FGCSA and FTGA should find comfort in the deep sense of fiscal responsibility and concern for our industry demonstrated by all those involved in this project from conception to initiation.

For those of you unfamiliar with this proposal and its attendant concerns and controversy, I’ll do my best to summarize:

I think we all would agree that one of the Florida golf and turf industry’s greatest problems is the lack of standards and quality controls in the sod and grassing business. All of us are painfully aware that specifying “Tifdwarf” or “Tifton 419” in a grassing contract is wasted ink, and visiting a field is wasted time.

The best quality control measures currently available are word of mouth and the individual integrity of the grassing contractors and sod producers.

Golf courses often spend millions of dollars during construction or renovation only to be disappointed with the quality and/or consistency of the turfgrass installed on their property. Even if initially satisfied, decline in quality and consistency due to the appearance of off-types is inevitable as time passes.

At this point in time, speculations about the origin of off-types are offered but conclusions are impossible, and answering this question is one of the main objectives of this project. Superintendents have been fired, grassing contractors have been sued, and fingers have been pointed in every direction seeking to assign blame and accountability for a problem that is truly a failing of our entire industry.

Though the problem has been with us for many years, a totally satisfactory solution could not be achieved using the standard morphological methods of identification and chromosome counts.

As Dr. Phil Busey puts it, “A deficiency or morphology is that the number of useful traits is few, while the number of possible variants is potentially large. It is difficult for morphology to represent the adaptive genetic diversity of bermudagrass, and to distinguish closely related genotypes. Small genetic differences can produce large morphological effects.”

In this project, morphology will be used as a preselection process to increase the chance of off-type detection and reduce the cost. Likewise with chromosome counts — costly DNA testing is unnecessary if you can screen out a selection based on chromosome numbers.

The intelligent and appropriate use of all these identification techniques will help build our necessary database, keep costs reasonable, allow for practical certification inspections, and give us the best chance of developing a reliable and repeatable positive identification procedure.

Notice that I said “give us the best chance” in the previous paragraph. Everyone needs to understand that there is a possibility, as there would be with any endeavor using new technology, that the project will not yield the results we are expecting.

Obviously, we think the risk worth taking, or we wouldn’t be putting up \$66,000. There is also the chance that everything works fine, but the conclusion reached is that off-types are caused by spontaneous mutations, in which case no practical solution for our problem is feasible, but at least we’ll know that and the finger pointing can stop.

Earlier in this article I used the word “controversy,” and the real controversy surrounding this project is the DNA technology. Some of the brightest minds within the field disagree on the best methods and techniques, so how can golf course superintendents make an intelligent decision?

Making our decision a little easier is

Reduce Watering.

the fact that our recently instituted certification program needs Florida data and validation, since it will be administered and conducted within the state of Florida. We will still utilize out-of-state expertise, such as Dr. David Huff of Penn State, author of most of the papers published on RAPD markers in turfgrasses, to help us achieve the desired results.

The two DNA technologies at the heart of the controversy are DNA Amplification Fingerprinting (DAF), currently utilized at the University of Tennessee, and Random Amplified Polymorphic DNA (RAPD), which is the method proposed by the University of Florida for this project.

Drs. Phil Busey, Al Dudeck, Charlie Guy, Terril Nell, and Nigel Harrison at the University of Florida, and Dr. David Huff at Penn State, feel the RAPDs technology offers the best chance of developing an efficient method of genetic fingerprinting bermudagrass cultivars.

RAPDs is cheaper and faster than other methods, doesn't use radioactive labeling, and works with easily extractable, small amounts of crude DNA. Up to 100 primers will be tested, giving a high degree of confidence in the results. The main concern with the RAPDs method, readily transferable results from one lab to another, will be addressed by replicating selected results between the two labs in Fort Lauderdale and Gainesville.

We are taking a giant step into the future for our industry. Fear of failure should be our last concern. Turfgrass certification needs the backbone this project can provide.

Kevin Downing, David Barnes, Mike Bailey, Paul Crawford, Jeff Hayden, the professors at the University of Florida, and many others, have worked long and hard to bring this project this far along, and it assumed that this two-year proposal is but the first step in a long, multi-year process. Results won't come quickly, and practical application even slower.

Of course, we could just hire a genetic engineer to develop a "bentudagrass," and forget all about these bermudagrasses and their problems, couldn't we?

Even if it doesn't rain, you'll reduce your turf's overall watering requirements and take care of those dry spot problems with **Hydretain**™ 77.

This unique liquid contains both the hygroscopic and humectant components needed to absorb and store moisture on plant roots and on soil particle surfaces. **Hydretain** penetrates the soil, and acts like a water magnet, holding moisture and keeping it available to your turf.

In addition to the benefits derived from a reduced watering schedule, you'll also see:

- Enhanced nutrient and pesticide efficiency
- Improved seed germination
- Elimination of trouble spots
- Reduced fungus, algae and disease problems
- Improved transplant establishment
- Reduced labor and watering costs

For more information about Hydretain, contact your local Terra retailer or call:

Terra Asgrow Florida
4144 Paul Buchman Highway
Plant City, FL 33565
(813) 752-1177



Available from your nearest Terra location.



Changes in Latitudes, Changes in Attitudes

Green Side Up



Joel D. Jackson

Joel D. Jackson, CGCS
Editor

Can you say globalization? Latitudes and longitudes shrink at the click of a computer mouse. I'm sitting in my home/office making hotel and airline reservations on my personal computer. I subscribe to America Online and I'm just a nanosecond away from webbing on the internet. I haven't even scratched the surface of the information highway that passes through my spare bedroom.

All that information won't necessarily help me groom a golf course better than someone who hasn't evolved into the computer age, but maybe I have a better feeling for what is driving the rapid cultural revolution in the global business world.

Streamlining, flattening, downsizing, out-sourcing, empowerment, accountability, performance development plans and leadership pathways are the buzzwords and passwords in the competitive marketplace of today. This is especially true for all corporate golf operations, and remember all you private clubs it is the world of many of your members.

We recognize that the role of the superintendent has changed over the past decade, and I'm here to tell you the pace of change is accelerating. It is not enough to be technically proficient in managing turf. In fact the word "manage" may be on an evolutionary dead end branch of the business tree.

We are increasingly called upon to be facilitators, coaches, leaders and communicators. Issues of loss prevention, environmental integrity, social awareness in areas of ADA, OSHA, and diversity propel us helter-skelter through a litigious society.

Amid all the clamor of rapid change and competition remains the demand

and expectation for the best possible playing conditions on the golf course.

And guess what? Mother nature doesn't care about nanoseconds, microchips and organizational initiatives! Spring will come when its good and ready, and maybe when your not! Turfgrass will recover and flourish when the conditions are ripe for growth. Not because we will it, but because the sunshine, water, soil temperatures and nutrients are present in the correct amounts at the appointed time.

What can be changed is how we deal with people internal and external to our operations. Breaking down old barriers and finding new ways to partner and cooperate for the success of the whole entity not just maintenance.

It will take hard work and soul searching to identify, measure, and solve old problems. Traditional mindsets will be assaulted and people will be moved out of comfort zones into the tumult of the competition for survival, personal and organizational.

Forces at work in this high-tech, fast paced world don't always realize that their meteoric flights are adjusted to the natural rhythms of the planet. It is the nature of man to explore the possibilities and we cannot remain immune to trying new things.

We are being asked to change old attitudes. However, those pursuing the cultural revolution must remember that nature can "cop an attitude" of its own and will have the final say and dictate a certain success rate based on its own terms.

Mankind is often reminded that nature must be respected and dealt with in all human endeavors.

Can you say NASA space shuttle and woodpecker?

BUILT TO LAST

DEPENDABILITY IS THE
CORNERSTONE OF OUR BUSINESS!



QUALITY. PERMANENCE. TIMELESSNESS.

THE NUCRANE FAMILY IS GRATEFUL TO REPRESENT JOHN DEERE AND OTHER FINE QUALITY PRODUCTS IN FLORIDA AND THE DESERT SOUTHWEST.

OUR SERVICE AND SUPPORT HAS EARNED US A LOYAL FOLLOWING OF THE BEST CUSTOMERS IN THE INDUSTRY.

CALL US. WE'LL BE THERE FOR YOU.

2020 SEABIRD WAY
RIVIERA BEACH, FL 33404
(407) 842-0440

417 CENTRAL PARK DR.
SANFORD, FL 32771
(407) 323-9555

11820 LACY LANE
FT. MYERS, FL 33912
(813) 275-4441

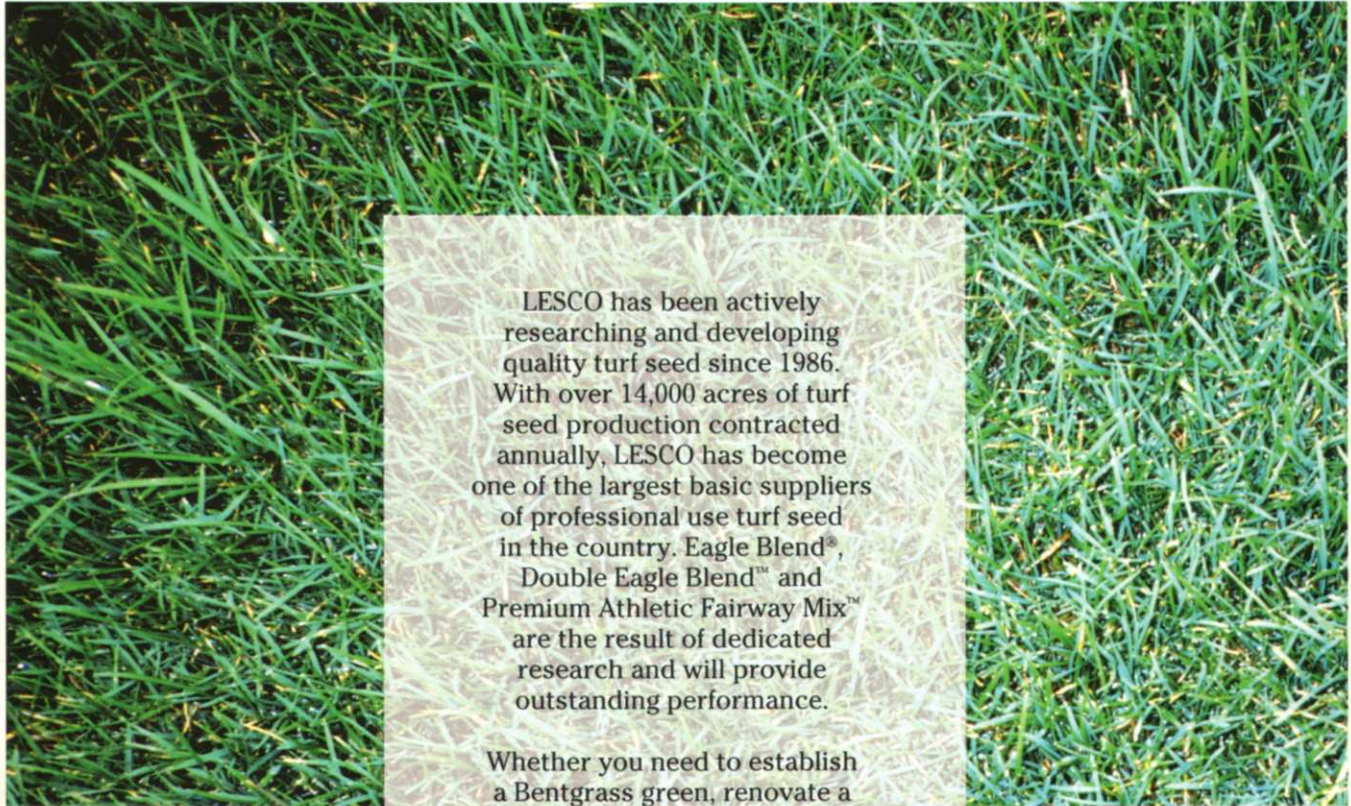
72104 CORPORATE WAY
THOUSAND PALMS, CA 92276
(619) 343-0270

3137 WEST POST RD.
LAS VEGAS, NV 89118
(702) 263-4512




NUCRANE MACHINERY

GROW WITH US™



LESCO has been actively researching and developing quality turf seed since 1986. With over 14,000 acres of turf seed production contracted annually, LESCO has become one of the largest basic suppliers of professional use turf seed in the country. Eagle Blend®, Double Eagle Blend™ and Premium Athletic Fairway Mix™ are the result of dedicated research and will provide outstanding performance.

Whether you need to establish a Bentgrass green, renovate a residential lawn, or overseed dormant Bermudagrass, LESCO has the seed product to fit your specific turf requirements. LESCO also offers a broad range of fertilizers, chemicals and equipment to meet virtually any turfgrass maintenance need.

For more details on LESCO seed products, contact your LESCO Sales Representative at (800) 321-5325

TranStar★™
INTERMEDIATE RYEGRASS

Excellent for overseeding dormant warm-season grasses and for temporary soil stabilization. This variety exhibits dark green color, moderate leaf texture, and reduced growth rate.

COMMANDER™
TURF-TYPE PERENNIAL RYEGRASS

A rich dark green variety with high endophyte content to fend off insects, and good disease resistance.

LEGACY™
turf-type perennial ryegrass

A dark green, dense variety with fine leaf texture, dwarf growth habit and high endophyte content. Tolerant of heat, drought, low mowing, insects and disease.

PROAm™
Poa trivialis

Exhibits a darker green color and dwarf growth habit that provides a dense, fine textured turf without excessive top growth.

ASSURE™
Turf-Type Perennial Ryegrass

Excellent dark green color, fine leaves, superior density, high endophyte content, providing insect and disease tolerance.

LESCO and Grow With Us are trademarks of LESCO, Inc.
Eagle Blend is a registered trademark of LESCO, Inc.
All other brandnames listed are trademarks of LESCO, Inc.

LESCO™