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.

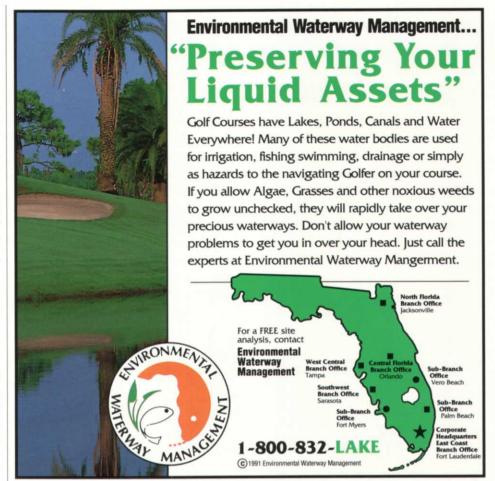
Langeland, K.A. 1994. "Weed control in irrigation water supplies." In University of Florida's Pest Control Recommendations for Turfgrass Managers, Publication SS-ORH-004. p. 44-46. L.B. McCarty (ed.). Cooperative Extension Service, IFAS, University of Florida, Gainesville, FL

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.





AND-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



ENVIRO-PRODUCTSTM



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

3281 Metro Parkway

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

1010 N. W. 15th Avenue

Pompano Beach, Florida 33069 (305) 971-0022 • (800) 432-2249 • Fax: (305) 977-0031

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 overseed 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 stimpmeter. 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

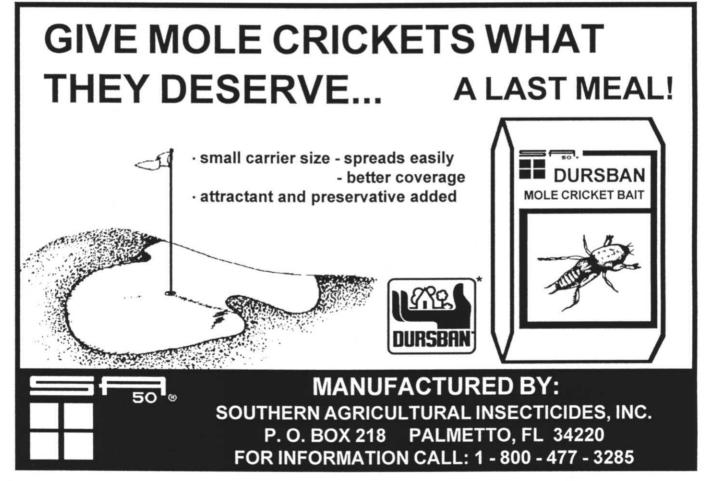
At Weston Hills, perfection is expected from the golf course, and the man entrusted with that job is Dan DuPree. Dan has represented himself well once again with an outstanding golf course that lives up to the grueling expectations of the PGA Tour and the membership.

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

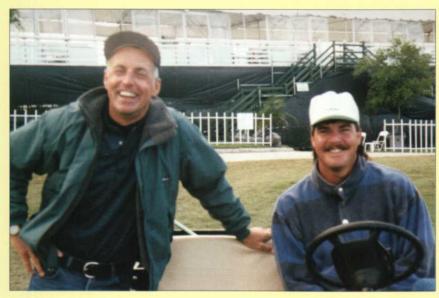


Professional Golf on Florida Courses

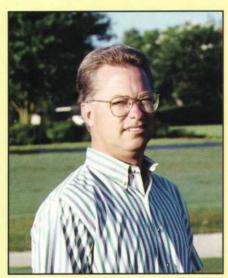


Nestle Invitational
Nick Faldo practices for the Nestle with help from his caddy, Fanny, and coach, David Leadbetter.

Photo by Dr. Rich Hurley
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.





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 describes 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-agressive, 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 disasterous 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 down side 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 greeens 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 winwin 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 relav 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 beagn 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 meachnical 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 CORPORATION

1-800-256-FOOT

13802 Chrisman Rd.

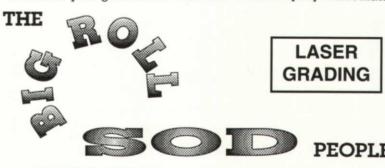
713-442-9821 FAX 713-590-3353

Houston, Texas 77039



HAVERLAND BLACKROCK CORP.

The innovators in Golf Course Construction can rebuild and recontour your greens and have them back in play immediately!



INSTALLATION:

Tees, Greens, Fairways, and Athletic Facilities

■ USGA PUTTING GREEN RENOVATION ■



GOLF CONST.

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 8.5×11 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.