



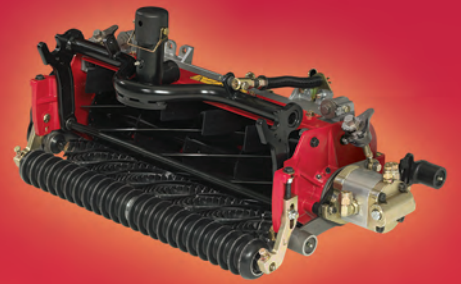
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Taking Stock on Florida Disease Problems

Compiled By Joel Jackson

Based on some of the comments from superintendents and university turf pathologists, disease incidents appear to be on the rise on our turf-grasses just as we are making gains in cold tolerance, lower nitrogen requirements and better drought tolerance. (See the "Top 10 Diseases" article in the Fall 2007 *Florida Green*.) So we asked Florida superintendents to address some turf disease management questions:

- Because of more intense management, are we stressing turf into disease syndromes that were not problems in the past?

- How has your fungicide program changed in the past few years? Describe products used, rates, timing and frequency and preventive and curative approaches.

- Fairy ring management. When is it occurring? Where is it occurring? How are you treating it?

- Have you used and are you aware of the UF/IFAS Rapid Diagnostic Service?

WALT DISNEY WORLD

I think we are stressing turf and making it more disease prone. At times the cut is lowered just because a competitive course is maintaining a lower height. Often raising HOC is frowned upon even though it is the best solution to overcoming stressed conditions. We don't do any planned preventive fungicide applications. If disease conditions are present then we do make an application. Normally, the disease conditions result from turf stress or foul weather conditions with high humidity.

When algae outbreaks occur, usually during wet periods with lack of sunlight, we use Daconil-Zn® at 5 quarts per acre.

Our overall fungicide program has remained about the same over the past few years and we have seen more pythium activity. Those greens maintained with a higher cut did better than those stressed with a lower cut.



Fairy Ring disease outbreaks are common on putting surfaces. Photo by Joel Jackson.

FAIRY RING

Had a lot of activity for the last two years on TifDwarf greens (four of the 20 at LBV). It was very obvious May through October until we seeded. It seemed to show the worst after a rain when the green was starting to dry enough to run the irrigation back in the auto phase.

The four greens that were a problem received almost daily irrigation (5-10 minutes) while the remaining greens received no water for a couple of more days after the rain.

ProStar® in a drench solution was the only cure we found. Our treatments were done using ProStar 1 lb. / 150 gal. water with 1 qt. Lesco Wet® and using the entire 150 gallons on a green.

We tried watering before, spraying, then watering again but got better results with the drench. The drench method was very slow, but did work. Also utilized a drench with Lesco Wet tabs about every two weeks

LBV greens were replaced this summer with TifEagle and no fairy ring has appeared as of yet. We did remove 4 inches of mix and replaced with new greens mix (This did completely remove the organic layer that was at 3-1/2 – 4 in. depth)

Haven't used the Rapid Diagnostic Service as of yet. I was aware of the service.

Scott Welder, GCS
Lake Buena Vista Club

SOUTHWEST FLORIDA

I don't think we are more stressed because of more intense management – I think some of the more intense management is actually better for the grass. Granted the lower heights of cut are a stress factor but the increased fertilization, fertigation, topdressing, grooming and verticutting is actually providing a healthier environment for growing.

My fungicide program has not changed much over the past couple of years – I try to rotate systemic and contact every two to three weeks – if anything, I have been able to stretch the windows out due to the drier weather we have experienced.

Last year brought us a couple of periods of intense disease pressure that were totally weather related and Dec. 19 was a big one. We had leafspot in areas in the roughs (cut at 1-1/2 inches, no stress there) and as a result I used more contact fungicide than normal and had more frequent intervals on the applications.

When I first got to Quail Creek we had fairy ring on two greens. A sound agronomic program eliminated the rings after the first aeration and we have not seen any since. I have seen it once or twice on a couple of tees but a Prostar application cleared it right up.

Regarding the Diagnostic Service, I haven't sent in a sample yet. I haven't

seen the need to do that a whole bunch so far. Most of the disease issues down here in Naples seem to be *helminthosporium*, or *bipolaris cynodon* I think they call it now, and I don't need a lab to spot that.

*David Fenton, GCS
Quail Creek C.C.*

I don't believe we are over-stressing our turf. However, I have had more disease incidents on the paspalum than I had on bermudagrass. We are mowing at lower height, but the patch diseases are in the rough as much as in the shorter-mowed turf.

Our disease management programs have changed. We are spraying a preventive on the greens on a monthly basis. We typically spray a group-11 type fungicide. If we have a problem on the fairways, I have curatively sprayed all fairways with a Mancozeb type fungicide. Proper irrigation management is the absolute key to disease management in the fall and winter.

Fortunately we have had very little fairy ring, thank God.

I am aware of the Rapid Diagnostic Service. We do have a microscope and so far I have been able to identify most of our problems.

*Scott Hamm, CGCS
The Colony Golf & Bay Club*

We could be stressing the turf, but we try to limit the stress only to certain special occasions such as tournaments. At the same time we are fertilizing them with more Mn, Ca, K and Fe..

Our program has not changed a lot through the years. We use Chlorothalonil, Thiophanate methyl, Iprodione, Heritage, Disarm and Insignia. We mostly are curative, except in the summer month we do so some preventive. Rates are usually in the high end of the spectrum, we try not to spray very often so we go for the 14- to 21-day interval. You could say we spray once a month.

We do not have much of a fairy ring problem. We did have it quite severe in the greens in the summer of 2005 and 2006, it probably was due to the regrassing of the greens in the

summer of 2004. In the greens we used aeration and fungicides – Prostar and Heritage. We have a few areas in the golf course like fairway and rough, we mainly aerate and add a wetting agent.

Yes, we are aware of the Diagnostic Service and we use them.

Some of the things we do to manage disease occurrence: we maintain a healthy plant by a strong fertilization program. We have reduced nitrogen application and added more potash, calcium and minors. We hydroject often, we also keep a close eye in the irrigation so we do not over water.

*Ricardo Uriarte
Assistant Superintendent
Old Collier Golf Club*

CENTRAL FLORIDA

Here at the UF Plant Science Research and Education Unit, we have a unique setting for disease to occur. With more than 10 different species and 30 different cultivars, we cover the field in possibilities. With the variety of turf, we also have a variety of pathogens hanging around. One species may be more tolerant to one disease, but may also possess a pathogen that will create disease in another turf species.

Then there are always a few fungicide trials ongoing throughout the year. Some of these projects let disease occur naturally, but others are inoculated directly. We take preventive measures to decrease the spread of disease, but often we come up on the short end. In addition to fungicide experiments, we also have other trials that stress the turf and create more disease-favorable conditions.

Over the last year or so, we tried to reduce our mowing times and reduce the hours on our equipment. One shortcut we took, which proved to a mistake, was to blow off the mower reels rather than wash them. Blowing them off took less time and there were more sites in which this could be done. However, we learned that simply blowing off the clippings would not sanitize our mowers nor prevent the spread of disease.

Dealing with bermudagrass for

most of my career, I was not exposed to the wide spectrum of diseases on other turf species, except for St. Augustinegrass. I mostly dealt with dollar spot, fairy ring, Pythium, among a few others. Over the last year or so, I have seen those plus quite a few more. We have incurred Fusarium, Bipolaris, Curvularia, Rhizoctonia in almost every fashion, and the latest new kid on the block, Bostulum, which exhibits dollarspot-like symptoms. The bad news is that there has been very little shown to treat this one.

There is one big positive dealing with this situation. It helps to have a highly qualified plant pathologist working close by. Dr. Phil Harmon visits the plots on a weekly basis, either taking ratings of his projects or applying treatments to them. He has seen a lot more than I have around the state, so I usually point out some questionable areas and get his diagnosis. I have stumped him a few times, but after looking at samples, he lets me know what I am dealing with rather quickly.

Even with following Best Management Practices to the best of my ability, it is becoming increasingly necessary to establish a preventive fungicide program. Being on a tight budget, we have tried a curative approach and seen it fail. We actually spend less money on a preventive program over a curative program due to smaller application rates. We still keep an eye on environmental conditions and avoid unnecessary treatments when we can. There are simply too many factors that encourage disease for us to battle on the curative program.

*Mark Kann
Coordinator of Research Programs
UF Plant Science Center, Citra*

Fairy Ring is our biggest disease problem. It is usually an issue in the spring, but we are seeing some in the fall as you will notice on a few greens during the FGCSA Golf Championship. A drench with a wetting agent like Cascade® and applications of Pro Star® seem always to take care of it.

*Ward Pepperman, GCS
Southern Dunes Golf Club*

SUPER TIP

Every Drop Counts

By Darren J. Davis

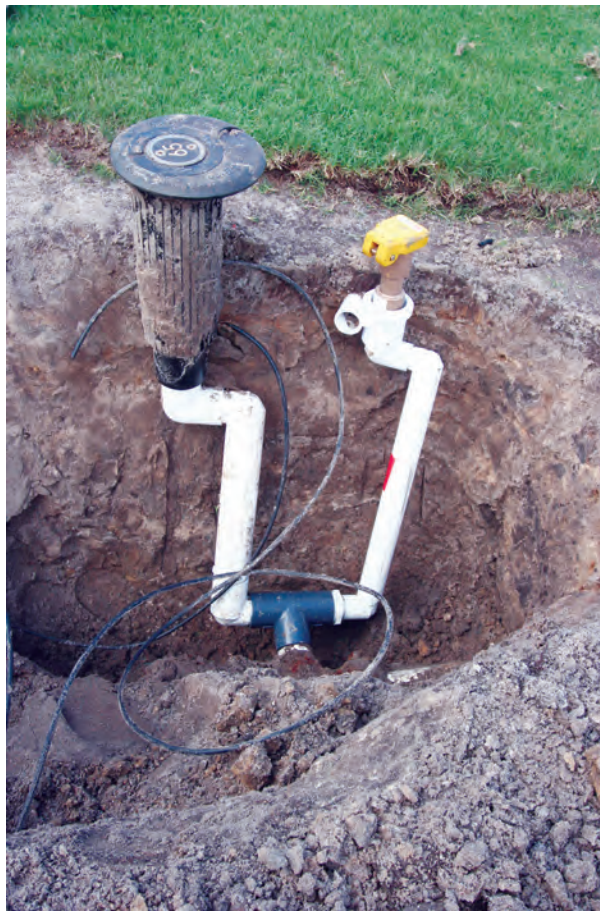
Conservation is not a new concept for golf course superintendents; however, with current water restrictions affecting a vast majority of Florida golf courses the phrase, “every drop counts” has definitely taken on added meaning. The Super Tip offered below details a project that was undertaken at Olde Florida Golf Club during the summer of 2007 in anticipation of additional restrictions being placed on irrigation water use.

When installed in 1992, the computerized irrigation system at Olde Florida was fairly “state of the art”. However, even with the significantly modern technology available at that time, it was decided to install 100 quick-coupling valves to provide supplemental irrigation water on tees and greens. During the dry winter golfing season, these quick-coupling valves enable us to maintain a more consistent playing surface than if overhead irrigation was solely utilized. An additional important benefit of the quick coupling valves is a significant reduction in water usage.

Through the years we have expanded our hand-watering practices to include areas in the fairways and rough. However, with a hydraulically-controlled, dual-head fairway-and-rough irrigation system, the process of tapping into irrigation heads with hoses is very time consuming. Additional quick coupling valves were in order and John Leibold, president of Leibold Irrigation provided me with a technique which we utilized to install an additional 100 quick coupling valves to the fairways and rough. While the total quantity we decided to install may

seem daunting to some, the process described below can be employed to quickly and inexpensively add quick coupling valves in quantities as little as one at a time.

For ease of installation, the additional quick couplers were all installed at existing irrigation heads. After the turf surrounding the



Adding strategically located quick couplers offers efficient hand watering option to drought prone turf areas. Photo by Darren Davis.

irrigation head was stripped and the soil removed the following steps were undertaken:

The top of the existing swing joint was unscrewed from the lower ninety degree fitting.

The lower ninety degree fitting was then unscrewed from the 1-inch male-

by-male nipple that attached the swing joint to the service tee.

Note: To avoid potential problems the male-by-male nipple originally screwed into the service tee remained untouched throughout the process.

With the existing swing joint removed (with the exception of the male-by-male fitting), a 1-in. Lasco

315-psi-rated, acme-thread double swing tee was installed on the 1-in. fitting extruding from the service tee.

The lower 90-degree fitting from the original swing joint was then installed on one side of the new Lasco fitting.

A (new) male, acme-by-acme nipple was then screwed into the lower 90-degree fitting.

The top of the original swing joint was then screwed onto this new nipple.

With the original swing joint and irrigation head reattached, the next step was to install a new quick coupler swing joint on the opposite side of the Double Swing Tee. The first step in the quick coupler swing-joint installation was to remove the lower male acme-by-acme nipple from the new swing joint and install it into the available side of the double swing tee.

Next the lower 90-degree fitting from the quick coupler swing joint was removed from the swing joint and screwed onto the nipple that was just installed on the swing tee.

Finally, the new quick coupler swing joint was screwed onto the installed 90-degree fitting.

Note: all fittings were screwed snug and then backed off one turn.

After all connections had been made the swing joints were correctly positioned, the soil and sod was replaced.



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A Brief History of the Turf Equipment Program at Lake City Community College

By John R. Piersol

The Associate in Science degree Golf Course Operations and Landscape Technology programs started on the campus of Lake City Community College in 1967. By the early 1970s, there was concern among leaders in the golf industry about the increasing sophistication of golf course equipment and the lack of specifically trained golf course mechanics.

Dr. Gene Nutter, the first director of the Golf Course Operations and Landscape Technology programs, worked with industry to establish an Industry Advisory Committee for what was then called Golf Course Mechanics Technology. The first curriculum was developed with direct input from industry.

Dr. Nutter's description of the program to the curriculum committee on the LCCC campus accompanies this story.

This background information from Dr. Nutter written in 1973 is very interesting as the need for trained equipment managers has increased tremendously, but the supply, even after about 35 years has not increased. Also, interesting are the 1973 statistics, and equipment costs, and salaries.

The Golf Course Mechanics Technology program started in fall 1973. Steve Bolton, a local small-engine shop owner, was the first instructor. In 1975, a retired Navy chief petty officer, Ed Combest, joined the faculty as the instructor, and the program began to make a major move toward shop management and preventive maintenance which Ed had learned well from his Navy career in aviation and ground support equipment mechanics. Ed was also a master at training young people, another skill he developed in the Navy as an instructor and leader.

From 1975 until 1988, the program

was in an old wood-framed building on campus. It was not much to look at, but Ed had it as neat, clean, and organized as one could get the small space. There clearly was a need for a larger, more modern facility. With industry and legislative help, state money was budgeted for the first facility in the state developed specifically for golf course mechanics and — most believed — the nation. The program moved into the new 15,000 square foot building in 1988.

In the mid- to late 1970s, the one-year program in golf course mechanics became a mandatory part of the Golf Course Operations program making in a three-year curriculum. This increased the total number of students in golf course mechanics to 35-40, requiring more sections of classes and more instructors. The faculty team increased to three full-time instructors: Combest, Jim Lones, and BJ Cannon, all retired military.

The golf industry has always been heavily involved in the program going back to 1973 with the advisory committee, and Combest immediately solicited its support in 1975. It was important for the students to see and work on specific golf turf equipment. Ed worked with the distributors and manufactures to expand the equipment loan program so that students could be introduced to more equipment from the major manufacturers. The equipment loans have continued so that today the program receives annual loans of turf equipment, grinders, lifts, and more valued at easily \$300,000.

Going back to the late 1970s and 1980s, there was a push to recruit more golf course mechanics. The student numbers in the program were good because all golf students had to take the mechanics module, but the program was only graduating five to ten technicians. Interestingly, this problem still exists today, even though numerous recruiting efforts have been tried over the past 25-



John Piersol, director of the Golf/Landscape/Forestry programs at Lake City Community College.

plus years.

Today the mechanics program is called Turf Equipment Management. The students can go one year and get an Applied Technology Diploma in Turf Equipment Technology and go to work or go to school for a second year of general education and business courses and receive an Associate in Science degree in Turf Equipment Management. Most students do the one-year program and go to work, and some work towards the AS degree while they are working.

Recruiting students for turf equipment is still a major problem even though the job market is excellent. It is common for LCCC to receive 40 to 50 job offers for five to ten students. Lack of career awareness is the problem.

There is a need for golf course superintendents to get involved in local high schools and bring principals, counselors, teachers, and students to a modern, organized golf course maintenance facility loaded with over a million dollars worth of equipment. This would be a tremendous community service, and it would introduce students to a career in turf equipment about which they know nothing. We hope that organizations like the International Golf Course Equipment Managers Association, working in conjunction with local, state, and national superintendents' associations, will develop career awareness programs for high school students. Introducing young people to this career is critical to the future of the golf industry.

Need for Golf Course Mechanics Technology Program Identified in 1971, Met in 1973

(Original Program Announcement of 1973)

Golf Course Mechanics Technology is a new one-year credit-hour program to be offered in Golf and Landscape Operations Department, scheduled to begin fall 1973. It will be a unique program in the turf industry in the United States.

The need for this specialized program has been projected by the State Department of Education Advisory Committee for the Turf Industry since 1971 in their State Manpower Profile Study. They suggest it be located at this college because of the logical tie-in with the existing program in Golf Course Operations, now a proven program known nationally.

Based on the above endorsement, the recommendations of an Advisory Committee for Golf Course Mechanics and further personal contacts with the golf course industry in Florida, the Southeast and the nation, need for this specialized curriculum more that justifies its earliest possible commencement.

OBJECTIVE OF NEW PROGRAM

The objective of this program is to train golf course mechanics whose duties combine mechanics technology, shop management and in some cases supervisory responsibilities. In the golf course table of organization the mechanic is directly responsible to the golf course superintendent (who is trained in our Golf Course Operations program).

PROGRAM JUSTIFICATION

In Florida alone it has been estimated by leaders in the golf course equipment industry that sales and service of golf course equipment exceed \$10 million annually. This is increasing rapidly with the expanding number of golf courses (increased from 125 in 1953 to over 500 in 1973).

As the volume of golf course equipment increases, so does its complexity and sophistication. Not only does the volume of equipment sales increase due to the expanding number of golf courses, but also due to the increasing expenditure per course. The high costs and shortage of labor has forced increased mechanization and today the equipment inventory on a modern 18-hole golf course facility may vary between \$75,000 and \$100,000. Many of the golf courses in Florida and the Southeast are multi-course complexes in which the value of the equipment would be much higher.

In order to maintain this increasing volume and complexity of equipment requires a mechanically oriented specialist who is familiar with golf course

operations and the specialized type of equipment used thereon. Thus, he must be trained differently from the typical automotive mechanic. To my knowledge there is no such training program anywhere in the United States. Therefore, in exploratory discussions, both the golf course superintendents and the equipment industry (manufacturers, distributors, and service specialists) have enthusiastically encouraged the development of this new program in Golf Course Mechanics Technology as an adjunct to our school of Golf Course Operations.

In addition to golf courses, graduates of the proposed curriculum will be in demand by the commercial elements of the industry (dealer and distributor sales and service) and will be better trained than any other available manpower for other facilities in the environmental industry who use much of the same types of equipment including landscape construction and maintenance firms, parks, sod farms, etc.

A further need for this training program is increased by the impact of OSHA (the Federal Occupation Safety and Health Act) regulations which are demanding modernization of all shop facilities in the golf course and landscape industries. In many cases this calls for a better trained mechanic than currently employed and currently available.

It is estimated by industry leaders that once the program is established, the market for this highly specialized technician will easily absorb 25-30 graduates per year. They further estimate that starting and benefit salary ranges for successful graduates will be between \$7,500 and \$8,500 per year with an increased earnings potential of \$10,000 to \$12,000.

ADVISORY COMMITTEE

Anticipating the development of this new program, an industry task force was selected in 1972 by the State Advisory Committee to explore the job requirements for modern golf course mechanic and shop operations. From this a list of job skills was developed as the starting point for curriculum development. A preliminary curriculum was presented to the State Advisory Committee and after review was endorsed in principal with recommendations that the new program be developed through proper channels at Lake City Community College.

In March, President (Herbert) Phillips appointed an official Advisory Committee for the proposed program in Golf Course Mechanics Technology, comprised of the original task force plus additional leaders in the golf course equipment industry throughout the Southeast. The first meeting of this committee was held March 23, 1973.

USGA UPDATE FLORIDA REGION

Irrigation Restrictions Should Be Firm But Fair

By Todd Lowe

For the past month I have been contacted by a number of Southwest Florida superintendents anxious about irrigation water allotments for the upcoming winter season. I was not overly concerned at first since these golf courses were supposedly being restricted by only 30 percent of their normal allotment. Healthy bermudagrass can withstand such reductions and just turns off-color (brown) during drought stress.

However, closer evaluation of actual water allotments for the upcoming months revealed that irrigation restrictions are much more harsh.

The superintendent at a non-overseeded 27-hole facility (160 acres) I recently visited remarked that their monthly allotments for January,

February, and March will be 5.2 million gallons, 6.2 million gallons, and 13.4 million gallons, respectively. Average water use on this golf course during the past five years has been 15.1 million gallons in January, 16.6 million gallons in February, and 23.7 million gallons in March. This change equates to a reduction of more than 60 percent for these months! Harsh restrictions will not only cause brown playing conditions, but will significantly impact long-term golf course health, and, most likely, cause some turf loss during the annual dry season.

This is especially disappointing considering golf courses utilize only 2 percent of the water supply in Florida, while home lawns utilize up to 15 percent. It is frustrating when we drive through our neighborhoods and see lush green yards that are over-irrigated, while golf courses suffer.

Many Florida golf courses provide an added environmental benefit by utilizing treated wastewater for irrigation; but not all golf courses have access to treated or recycled water. As a result, golf courses with recycled water will receive more water during the upcoming months and will remain greener. Unfortunately, it is difficult to explain this fact when golfers begin to play other courses and start to compare playing conditions.

The problem with the Modified Blaney-Criddle water-reduction model currently used is that it uses an equation that is less regionally sensitive in regards to water requirements of bermudagrass on golf courses. This model tends to under-allocate water in the dry winter and spring and over-allocate water in the rainy season.

The water management districts have worked with golf courses in the past and I am hopeful that they will utilize updated prediction models developed by university professors to better predict actual water requirements. Otherwise, superintendents will have barely enough water to maintain putting greens, teeing grounds, and landing areas on fairways without supplemental rainfall.

In a regional update from April 2007 (www.usga.org/turf/regional_updates/regional_reports/florida/04-23-2007.html), John Foy mentioned several important cultural practices for dealing with drought conditions. These are excellent guidelines to implement at this time. If restrictions worsen, your course may need to plan for additional projects. Such projects will cause a major strain on capital improvement budgets, so stay tuned and we will keep you posted as we learn more about this important situation.

Editor's Note: For those who are interested, here is the full citation for the Modified Blaney-Criddle Method: **Blaney, H. F. and W. D. Criddle. 1950. Determining water requirements in irrigated areas from climatological data. U.S.D.A. Soil Conservation Service Tech. Pub. 96**



Golf course irrigation is professionally managed and only consumes around 3 percent of the fresh water used annually in Florida. Photo by Joel Jackson.

GCSAA's Environmental Study Goes to Phase Four

GCSAA has announced that beginning in January 2008 it will conduct a national survey of golf courses focusing on pesticide use.

The survey is part of a multi-year, first-of-its-kind project being undertaken by GCSAA that will evaluate the environmental performance of golf courses. To date, GCSAA member and non-member superintendents have participated in three phases of the survey focusing on the physical profile of a golf facility; water use and conservation; and nutrient (fertilizer) use. The last phase of the survey to be issued in 2009 will examine maintenance practices on golf courses. The entire data set will establish a baseline for comparison when the surveys are replicated in the future.

The pesticide survey will be

conducted through March 15. As in the past, those superintendents with an e-mail address registered with GCSAA will receive an invitation to participate online. The others will be contacted via regular mail with a hard-copy survey or instructions on how to complete it online. Input will be sought on product use and integrated plant management programs. Funding for the first four phases have come from The Environmental Institute for Golf, thanks in part to a grant from The Toro Foundation.

"We are appreciative of the participation we have received in the first three phases," GCSAA Director of Research Clark Throssell, Ph.D., said. "This survey will be slightly more entailed, so I encourage superintendents to organize their 2007 records before they begin the process. This is an extremely important project, one which will benefit GCSAA, its members and the game. I cannot stress

how important it is for superintendents to participate."

The online survey has been constructed in a manner so that members can complete it in stages rather than in one setting. Participants will need to remember a password they have created in order to return to the survey. GCSAA members completing the survey will receive .25 service points and all participants will be registered in drawings for various prizes. A VISA gift card of \$250 will be awarded to one individual in each of the seven agronomic regions. A grand prize of a flat panel, LCD, HD television will be awarded as well.

The Golf Course Environmental Profile project is designed to collect information that will allow superintendents and other facility personnel to become better managers, help them operate more efficiently and lead to GCSAA developing more valuable programs and services. Such



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Aloysia virgata

Common Name: Almond Bush

Zones: North, Central & South



Mature Height and Spread: Generally 6 x 8-ft. mounding shrub

Classification: Small Tree or Large Shrub

Landscape Use: Specimen and butterfly attractor

Characteristics: This fragrant, vigorous, drought-tolerant, upright-growing tree/shrub form South America produces finger-like spiked clusters of small, white almond-scented flowers on slightly weeping branches. With an extended bloom period this shrub can be pruned up to form a tree. For a full plant with denser growth, prune between bloom cycles. In North Florida this plant may die down and quickly regrows as a tall shrub.

Propagation: By cuttings from stem or semi-hardwood

information will include details about playing surfaces, natural resources, environmental stewardship efforts and maintenance practices on the golf course. Results from each phase will first appear in a peer-reviewed scientific journal, then in *Golf Course Management*, the association's monthly publication, then will be widely distributed.

Two Florida Turf Students Get GCSAA Scholarships

The Golf Course Superintendents Association of America (GCSAA) has awarded scholarship money to 16 college students as part of the GCSAA Scholars Program administered by GCSAA's philanthropic organization, The Environmental Institute for Golf. Jonathan Chase Webb (University of Florida) and Nathaniel Watkin (Lake City Community College) each were awarded stipends ranging from \$1,250 to \$2,500.

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