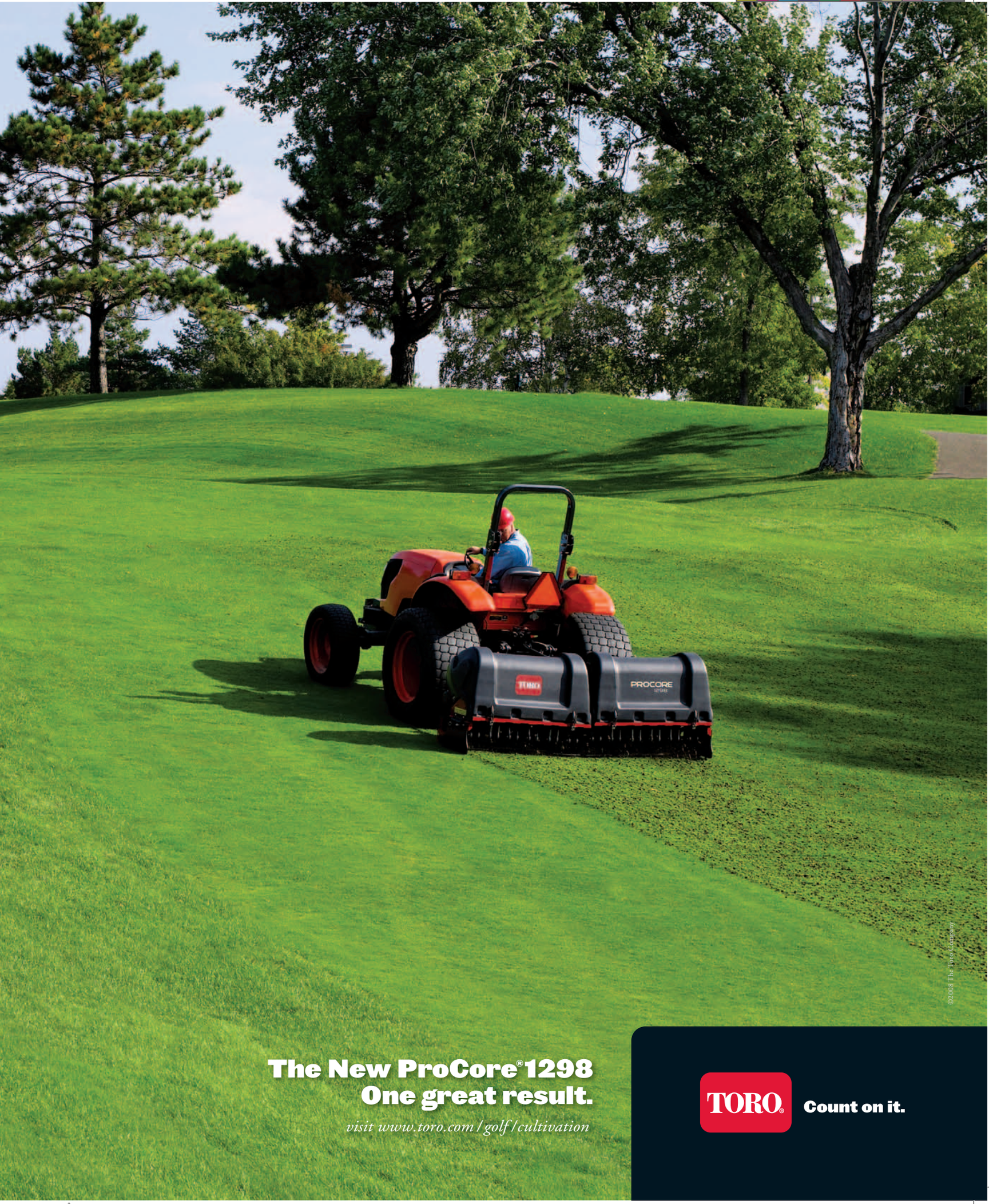

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and professional things that helped me become a better manager and asset to my club.

"Regarding the role of superintendents, we definitely have to be more visible. We need to speak up for what we need and present our message in an organized and businesslike manner. We need to stay up on technology so we can offer the best advice and practical solutions to improve the management of the course. We need to be a reliable, trusted source and resource for the club.

I think I have built up a sound level of trust with the members so that when I make a proposal or respond to questions they know that my information is reliable and credible."

"The timing of our long range planning and the renovations we will be making in 2009 is fortunate. I explained to the members how the access to methyl bromide to fumigate and re-grass the greens is rapidly dwindling. We will be refurbishing our maintenance facility to house the expansion of our crew size and new equipment that they have invested in. With our water source secure and our infrastructure improvements we can deliver proper conditioning of the golf course which remains the primary asset for attracting members."

Neff explained that the club itself is transitioning from a "golf only" facility to more of a total family-oriented experience as the times change. Now that the golf course is secure, long range plans for improvements to the club house and amenities will go forward on a practical timetable.

By taking care of the basics and keeping the club in a strong progressive position, I predict that Timuquana will be around a long time thanks to planning ahead and keeping pace with our changing times.

By volunteering to serve on the boards of the local and state I saw how leading superintendents conducted themselves, led meetings, presented ideas and handled situations. The bottom line is that I learned technical and professional things that helped me become a better manager and asset to my club.

TIMUQUANA COUNTRY CLUB

CONGRATULATIONS

to Chris Neff and his club

for being selected by the North Florida GCSA

as the Spring 2008 Florida Green Cover Story.

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Can You Make Do With Less?

When Todd Draffen was at Old Collier he routinely checked the operation of the inner and outer heads around the greens with a remote controller. Photo by Joel Jackson

If you are on a golf course in the South Florida Water Management District and have a Consumptive Use Permit to pump ground or surface water for your irrigation, you have been forced to reduce your monthly consumption by 45 percent under the current Phase 3 Emergency Drought Order.

Courses that are using reclaimed effluent water are currently under no such restriction, but the possibility of placing restrictions on all water sources is being discussed as more municipalities seek to provide more reclaimed water for homeowner irrigation and take outside watering off of public-supply potable water. Courses using brackish water from the Lower Hawthorne aquifer on the West Coast and the Floridan on the east coast had to file variance to continue to pump adequate amounts of water.

Look for new course designs to have fewer irrigated turf acres overall and to use alternative water sources rather than the freshwater aquifers. There will also be a push for existing golf courses to reduce irrigated out-of-play areas and convert them to more Florida-friendly plants which will require just enough extra water to get started and then exist on natural rainfall.

There will likely also be a push to get courses with older systems to modernize and upgrade systems to be more efficient. Hopefully, there may be some grant money available to help cash-strapped courses or perhaps tax rebates or other incentives to help courses modernize their systems.

Efficiency begins with the irrigation-system design that provides for optimum operating pressure throughout the course. More efficiency is attained in many cases by having more but smaller part-circle heads to deliver the water where it is needed. A good example is inner and outer heads around a green, so that the intensely managed putting surface can be watered as needed while the taller turf on the slopes can be watered less frequently. The old design of full circle heads watering both slope and putting surface is a prime example of inefficiency in today's water-conscious world.

While efficiency and conservation should be goals of all water users indoors and outdoors, golf is one of the most visible, at least in media and public's perception.

I could counter that, while golf courses turn off their irrigation systems when it rains because too much water affects turf health and playing conditions, what is visible to me are the homeowner and municipal irrigation systems that run during and after rains. And the broken heads in these systems go unrepaired for days or weeks, while on a golf course inspection, repairs and timing adjustments are made daily.

Regardless of perception, the reality is that all water users – golf included – will be asked to get by on less water in the future. Bob Randquist, CGCS at the Boca Rio G.C. told me that last year when Phase 3 was in effect, he had to modify his approach to irrigation management and get more creative in how and where he applied the reduced amount of water he had to work with.

He kept his members well informed

of the trade-offs as he had to make sure he kept the greens and tees well irrigated for survival and perhaps let the roughs and fairways go into drought-survival mode. This meant discoloration and yellowing on parts of the golf course. Randquist tried to keep rotating modest amounts to water to the roughs to keep areas from dying out completely, which could result in costly turf replacement.

Speaking of money and economics, the public – and sometimes even our regulators – forget that the golf industry is a major contributor to the state's economy, especially during the busy winter tourist season. The most recent economic impact study revealed that golf was a $4.4 billion industry employing about the same number of people as the state's theme and amusement parks. Higher property taxes for homes located on or near golf courses is a significant revenue source for local governments.

Environmentally speaking, golf courses serve as open-space, rainfall-recharge areas for the water table, absorbing four times as much water than they use for irrigation. It has been estimated that 2,500 square feet of healthy turfgrass produces enough oxygen for a family of four. That means that 100 acres of maintained turf for an average course provides oxygen for about 7,000 people. Besides being an efficient stormwater and dust filter, temperature moderator and erosion control, healthy turfgrass on the fairways and roughs acts as a "carbon sink," sequestering carbon dioxide from the atmosphere, helping to mitigate global warming concerns.

According to repeated Florida Water Use studies by the U.S. Geological Survey, golf courses are calculated to be using only 3 percent of the water statewide. Recently the South Florida Water Management District announced that golf used only 2.3 percent in its district. Golf courses make pretty positive contributions to the state's environment and economy for being a relatively small user.

Currently each district has its own set of criteria for drought restrictions. Since district boundaries cut across many political boundaries like city limits and counties, there are often two sets of restrictions within the same political jurisdiction. As the concerns over water supplies continue the water management districts may be considering standardizing water restriction guidelines on a more statewide basis.

Be sure you are discussing this issue with your owners and golfers. Good communication is a necessity. Next, read about how Terry Wood altered his irrigation practices to cope with the Phase 3 restriction to the Naples National Golf Club. Maybe there will be some tips and ideas you can use to help you do more with less water.

Hand watering is very labor intensive and disruptive to the normal work schedule, but it is the most efficient way to deliver the scarce water supply to fairway dry areas to keep from losing turfgrass. Photo by Joel Jackson.

Naples National Golf Club Deals with 2007-2008 Water-Use Restrictions

By Terry Wood

In April 2007 when SFWMD imposed Phase 2 water restrictions, we were concerned because we pump the most water in May. Summer rains begin in June.

Our irrigation source is 16 acres of lakes with five 40-foot recharge wells cased to 20 feet. We may recharge our lakes only by an amount equal to our withdrawals. The water is improved with acid-injection products. Reclaimed water is not available to us at this time.

We survived by increasing the use of wetting agents through the irrigation system and applying extra surfactants to mounds and other hot spots. Hot-spot irrigation was limited to the driest areas. We were able to perform our basic summer maintenance without any major problems.

The summer rains did not show up until July and our previous nine months showed a deficit of 15 inches of rainfall as compared to an average for that time of year.

We are essentially a drainage easement for Naples Heritage, the adjacent golf course, and we typically take on a lot of water in summer. Because of the rainfall deficit, the normal flooding of the non-turf areas did not happen and the upcoming season looked bleak, especially if we went to Phase 3 restrictions, which did take effect Jan. 15.

Concern increased when we realized, through the Blainey-Criddle model, how little water was going to be available December through February. During a meeting with my green committee chairman, we recommended that the membership be notified of the water restrictions by e-mail

We have a weekly e-mail update from all departments to inform the membership what is scheduled for the upcoming week. We started by reviewing the summer projects and briefly introducing the water restrictions. Then, every three to four weeks we reviewed the previous month's report and offered insights on the effects of the drought, Blainey-Criddle, Lake Okeechobee water levels, and our daily water allotment compared to daily average over the last five years.

The e-mails are informative and not overly technical. We included a list of courses with reclaimed water and information on alternative water sources and approximate costs for those projects.

We have only 50 acres of turf and no residential development. Everything is mowed at fairway height or less, so our 70 million gallons per year seems a little paltry compared to the typical course of 100 or more acres that has a combined permit for the common areas, residential and golf course.

We have two quick-coupling valves at each green and tee complex as well as three or four along each fairway. We typically had six or seven workers hand-watering tees, greens and surrounds and, for a time, that was all the water we had. Hand-watering could amount to

The Naples National course is designed with minimal irrigated turf acreage, but Superintendent Terry Woods still doesn't have enough water allocated for use during the dry winter season. The pasaplum tee tops seen here are holding up, but the bermuda fairways are in drought stress. Photo by Joel Jackson

150-200 man hours per week.

During the last two weeks of January, we were allocated only 40,000 gallons per day based on the Blainey-Criddle allocation model. With weekly reporting being required by SFWMD, we had to evaluate our daily water use closely because a full cycle through the sprinkler system on our 2.5 acres of Champion greens is about 21,000 gallons and our 4.5 acres of Seashore paspalum tees requires 70,000. When we run fairways also, the total cycle uses 330,000 gallons.

Fortunately, we have individual head control with our computerized irrigation system. This allows us to adjust each sprinkler's time to suit the area it covers. We have written programs for individual fairways as well as two hot-spot programs: one includes about 75 percent of the fairway heads and the second about 50. With the computer we have the ability to estimate the gallons required for the scheduled program, which helps us determine what we can water for the week.

The monthly allotment is broken down into weekly amounts, then daily, to make the best use of each gallon. Each Monday we plan our irrigation schedule based on projected temperature, wind, and rainfall. Applications of fertilizer, surfactants, and other plant protectants also are considered.

Most days we hand-water greens, tees, collars, approaches, green surrounds and, depending on the water availability, fairway hot spots.

Our staff knows how to look for slight variations in turf color, and how to use moisture meters as well as soil probes to determine where to water. Periodically, we include wetting agent tablets in the hand watering regimen to supplement some of the moisture-retaining or -penetrating products. Most of the hand watering is concentrated on the perimeters and high mounds of greens, tees, and fairways.

Overall the membership has been very understanding and supportive. I am amazed that the vast majority is very pleased with conditions. I never thought I would hear the words "brown is good". Hallelujah!

USGA UPDATE

Dealing with Winter Conditioning, Consequences of Water Restrictions

By John Foy and Todd Lowe

The Florida winter golf season is in full swing, and courses are hosting peak seasonal play, although many courses are reporting fewer rounds relative to the past couple of years. There is intense competition to attract and retain members, and, naturally, without a full membership, operating costs must be reduced. The current economic slowdown is definitely impacting golf operations throughout the state.

The mild winter temperatures have prevailed, and throughout the central and southern part of the state, bermudagrass and seashore paspalum have maintained a green color character and some growth. The mild temperatures have been a positive since overseeding results have been less than satisfactory at many facilities and concerns about pending irrigation restrictions caused others not to overseed at all.

At least along the lower east coast, timely and adequate rainfall has softened the impact of mandated Phase III water use restrictions. During my TAS visits in early March, golf course superintendents are providing appropriate and good quality overall conditioning for daily play.

In contrast, at courses with moderate to heavy daily play, typical wintertime cart-traffic wear and damage is apparent. Golfers complain about tight fairway lies, loss of definition between the fairway and rough cuts, and clumpy and inconsistent rough.

At courses through the middle of the state, and along the west coast where a moderate to severe drought has persisted, cart traffic wear and damage has been greatly exacerbated. Over the years, the importance of proper preparations during the late summer and early fall, along with aggressive cart traffic management, have been stressed for minimizing damage and surviving early winter season play in the best possible condition. The goal at courses in central to south Florida is to survive until early to mid-March when sustained growth and recovery begins in response to increasing day length and temperatures.

Water efficient design. Smaller part-circle heads deliver the water only to the turfgrass on this tee surrounded by a naturalized unirrigated area. Photo by Joel Jackson

For the 2008 winter golf season, there also is tremendous concern about what lies ahead. As we move through the spring, increasing day length and temperatures result in a corresponding increase in turfgrass water-use rates and irrigation needs.

For courses in the South Florida Water Management District, the Phase III water-use restrictions require a 45 percent reduction in pumping allocations, which presents a challenging, but manageable, situation.

A big problem arises because the reductions are based on a monthly predictive calculation, and, at many facilities, it has been determined that allocations are actually 60 to 70 percent less than actual irrigation use, based on the past five-year averages during February, March and April. If timely and adequate rainfall does not occur during this three-month period, many courses will have to limit supplemental irrigation to greens and tees, and significant portions of the fairways and roughs will go into drought stress. While bermudagrass and seashore paspalum have good drought tolerance, a much greater impact beyond off-color turf will be experienced.

Florida Region Web updates have offered drought management tips, such as raising heights of cut and mowing less frequently. At this point, however, while no doubt unpopular with golfers, an extremely proactive and aggressive cart-traffic-management program is needed. Along with strictly enforced cart-usage polices, directional control devices need to be put into place before excessive wear and damage occurs.

Some golf courses are lucky enough to have an unrestricted irrigation water source available such as recycled water. At these facilities it will be possible to maintain an overall uniform green color, which will only create more problems at facilities that must manage with a restricted water source. There is no doubt that abundant summertime rains will recur in Florida, but golfers need to accept that water conservation and use restrictions will be a fact of life in Florida.

Desperate Times Desperate Measures

If desperate times call for desperate measures, then these must be desperate times for some water-management districts. It was mentioned recently that the Southwest Florida Water Management District will be implementing Phase III irrigation restrictions beginning in January. The supposed objective for Phase III water restrictions is

a 45 percent reduction; the supposed objective for Phase II restrictions is a 30 percent reduction, when actual irrigation allotments for many courses revealed nearly 70% reductions compared to previous years. Many courses are quite frantic over the outcome of the upcoming Phase III restrictions and how this will affect playing conditions and turf health.

The following are my observations of the restrictions and how golf course maintenance programs in Florida are impacted:

Phase I (*15% reduction*) - Most bermudagrass playing surfaces can be irrigated as necessary to provide acceptable turf quality. Roughs become off-color and localized dry spots occur at times, but no change in maintenance is necessary.

Phase II (*30% reduction*) - Primary play areas (greens, tees, fairways) are kept alive and generally green in color. Regular wetting-agent treatments are necessary to reduce the severity of localized dry spots. Increased mowing heights and decreased mowing frequency are necessary to improve rooting and increase the turf's ability to take up water. Plant growth regulators also have shown some benefit in drought tolerance and can be applied on a regular basis. Cart traffic management is vital as the turf begins to lose color.

Phase III (*45% reduction*) - Phase III will cause severe loss of turf color. Progression of brown conditions will begin from the outer roughs and work their way into primary playing areas. Since only a small percentage of water is allotted compared to previous years, greens and tees should be kept alive and the remaining water delivered to fairway landing areas when available.

Healthy bermudagrass is quite drought tolerant and courses should do everything possible to maintain healthy turf conditions.

It is important to restrict traffic as much as possible. Clubs should divert traffic away from areas that appear stressed and off-color, as the additional stress can kill turf. Eventually, it may be necessary to completely restrict cart traffic to cart paths and designated areas. Some areas may die off from drought accompanied by other stresses like shade, nematodes and traffic. These may need to be re-grassed in late spring, if irrigation restrictions are lifted at that time.

Having an efficient irrigation system and design allows golf course superintendents to conserve water and apply it exactly where it is needed. It may be time to have your system audited by a professional irrigation consultant. If restrictions become a normal part of golf course maintenance in the future, it may also be necessary to consider decreasing irrigated bermudagrass turf acreage by installing or enlarging natural areas or utilizing drought-tolerant bahiagrass in outer rough areas.

Jack Harrell named to Environmental Institute's Council

Jack R. Harrell, Jr., CEO of Harrell's Fertilizer, Inc.of Lakeland, has been named to the Advisory Council for The Environmental Institute for Golf.

The leading producer of quality custom-blended fertilizers and a distributor of chemicals and grass seed for the golf course, sports turf, lawn and ornamental and horticulture industries, the company's production of fertilizer exceeds 75,000 tons annually. Harrell's is the exclusive eastern formulator and a leading world distributor of Polyon Technology.

Harrell is the 15th member to join the Advisory Council headed by World Golf Hall of Fame member Greg Norman.

"Jack will bring a new and unique perspective to this group," said Norman, chairman and CEO of Great White Shark Enterprises. "He is a well respected entrepreneur with a wealth of knowledge and experience that has already been of great benefit to The Institute."

The Advisory Council provides guidance to The Institute's board of trustees in the areas of outreach, fundraising and strategic planning. The members were selected to enhance The Institute's ability to cultivate relationships with current and potential donors, as well as communicate the importance of the work conducted by The Institute.

The Environmental Institute for Golf, the philanthropic organization of the Golf Course Superintendents Association of America, is a collaborative effort of the environmental and golf communities, dedicated to strengthening the compatibility of golf with the natural environment. The Institute concentrates on delivering programs and services involving research, education and outreach that communicate the best management practices of environmental stewardship on the golf course.

Jack R. Harrell, Jr.

In addition to Norman and Harrell, other members of the advisory council include ClubCorp USA Inc; Tom Crow, founder of Cobra Golf and a retired trustee for The Institute; Dana Garmany, chairman and CEO of Troon Golf; and R.D. Hubbard, owner of Bighorn Golf Club in Palm Desert, Calif.