



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.

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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 Okechobee 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 pasapalum 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!



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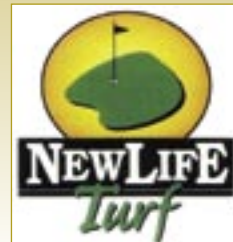
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