

Make Every Drop Count!

By Joel Jackson

At the 2009 National Golf Day visit to Washington, DC in May, the Allied Golf Associations presented the most recent data on the economic and environmental impacts of the nation's golf industry. Members told legislators that golf accounted for \$76 billion in revenues and 2 million jobs. Perhaps even more important in today's regional "water wars," the group noted that golf course irrigation accounts for only one-half of one percent of the water pumped in the United States. Yet the perception is perpetuated that golf courses are "big water users."

GCSAA also released the findings of the 2008 member needs assessment survey: 84 percent said their "top environmental topic of concern" is water efficiency techniques. When asked about priorities for funding by The Environmental Institute for Golf, 52 percent of respondents responded: "a template to develop water conservation plans." So even though actual golf water use is low compared to agriculture, public supply (indoor and outdoor uses), power generation, industry and business, we are still searching for better ways to manage our water resources in terms of

quantity and quality.

The South Florida Water Management District has asked the Florida GCSA to help draft and conduct a survey to detail the ways golf courses in its district efficiently manage water use. If you're in that WMD, please make it priority to participate. We are always looking for ways to showcase our environmental stewardship and this will be a good way to get some positive publicity about golf course management.

The following comments from your peers include new design, renovation projects and daily operation.

STEVE KELLER, JULIETTE FALLS CC

The design of Juliette Falls incorporated more than 30 stormwater retention areas, including three lined lakes, waterfall features, and several miles of underground storm piping to collect rainfall and stormwater runoff for use as irrigation and reduction on the dependence on groundwater.

The landscape palette is nearly all native species requiring no irrigation after establishment. The irrigation system was designed so each sprinkler can be controlled individually, making adjustments daily to prescribe irrigation for specific turf areas and plant

material. Each planted tree, bush and shrub was installed with low-flow bubblers to ensure plant survival until established.

During the recent drought, we limited the water on plant material to one time per week with individual plants receiving about 1 gallon of water as needed. These bubblers can be adjusted to match irrigation to each plant's needs.

We look at water use like balancing a checkbook; knowing what you have in the bank and making it work for you through the year. A little left over is always nice.

We did not overseed last winter and recorded 33 heavy frost and one period below 32 for 15 hours, which burned everything back. We estimated saving upwards of \$100,000 and nearly 25 million gallons of water.

STEVE PEARSON, CGCS, THE FALLS CC

We had a hydraulic Toro Vari-time system for the first 11 years at our club. In 1998 we upgraded to the Toro SitePro computer software with Osmac satellites using hydraulic/electric solenoids. We have saved at least 15 percent in our water use and most years when we aren't in a drought, we are saving 30-35 percent.

Individual sprinkler run-times have

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Cisco Navas (Cypress Woods Golf and CC), Greg Kriesch (Heritage Palms Golf and CC), Sean Anderson (Card Sound Golf Club) and others like Greg Pheneger at Johns Island Golf Club all have made conscious efforts to do what it takes to maximize the efficiency of their water use by utilizing this state of the art soil monitoring system. The system works by burying unique sensors in the ground that transmit real time measurements of soil moisture (volumetric water content), salinity (dS/m) and temperature (°F) with precision to above ground communication routers. A series of routers



make up a wireless mesh communication system so that any number of sensors and routers can be installed at a property to communicate with each other. All of the communication is directed to a gateway router that transmits the data to the secure UgMO™ server. The user can then see the data and interpretation of that data in real time from any internet browser source.

Carmen Magro, CGCS
VP of Agronomy
Advanced Sensor Technology, Inc.

taken out a lot of wasted water. We use different run times for at least 20 specific programs and then we use a percentage of that run-time for each sprinkler. Over time we have been able to fine tune our system to get even better control and use less water.

In the summer of 2007 we totally redesigned our greens complexes and were able to again refine our system by putting in more than 100 new heads so that we have in-board and outboard sprinklers around the greens. Each sprinkler's arc is adjusted to attain proper coverage without overwatering. We are covered wall-to-wall with 813 sprinklers throughout the course.

We equipped some small landscape areas with drip irrigation even though those areas didn't really use a lot of water to begin with. But by doing so we still saved water.

We have done a lot more hand watering of greens since our 2007 conversion especially with the change from



Superintendent Todd Draffen checks green's head for proper operation, and using native plant material (in the background) reduces irrigated acres on the course. Photo by Joel Jackson.

Tifdwarf to Mini-Verde. By watering only the "hot spots" we put the water exactly where it is needed.

Greens and tees get monthly spray applications of wetting agents; all areas

get additional year-round wetting-agent coverage through our fertigation system. Not only have we reduced water use, but I have seen a real reduction of dry areas since we have been on a regu-



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lar wetting-agent program. On severe dry spots we apply granular wetting agents and we also apply wetting agents while hand watering.

We hope to convert some out-of-play areas to a naturalized look which would save additional water.

BILL DAVIDSON, CC OF NAPLES

During the summer of 2009, the Country Club of Naples, built in 1964, underwent a major renovation. Most importantly, a focus was placed on increasing the irrigation and drainage efficiencies. The recent dramatic increase in the cost of water was one factor that triggered the project. We needed to reduce the irrigated area and increase the application efficiency!

The first step was to discuss our concerns and issues with our architect, Gordy Lewis. Because the course was a parkland style, Gordy was able to eliminate 32 sprinkler heads through creative design.

Another major consideration was application efficiency. Prior to the renovation, all fairway and rough heads were paired, with multiple holes being controlled from one satellite. In discussions with our irrigation vendor regarding converting to single head control, they estimated that an efficiency increase of 30-50 percent could be realized.

Conversion would mean an additional capital investment in hardware, but the return on investment would be realized in 10 years or less. During reconstruction of the course, eight additional satellites were installed and all heads were separated into single head control for maximum control potential.

Another part of the irrigation plan was to address poor sprinkler head placement around the greens. All of the greens had dedicated greens and slope heads, but most of the greens complexes only had three heads to water the putting surface, causing a lot of water to be applied to non-target areas. Again,

the irrigation distributor was asked for advice on correct head placement and nozzle sizing for each green.

We learned that, prior to the renovation, all the greens heads had much larger nozzles in them than required. This meant that a tremendous amount of water was being applied outside the target area. So all green diameters were measured and the correct nozzles were installed. The cost to replace the nozzles to increase water application efficiency was well worth it in water savings.

AND NOW FOR SOME QUICK TIPS:

1. Make sure your wet well is clean and you have no debris in your lines or heads – Mike Radford, MRI, Inc., Cape Coral.
2. Verify proper nozzle size for each head location.
3. Adjust computer ET values to adjust run times based on actual head location – mound, fairway, rough, etc.
4. Create programs to address dry



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spots, mounds, low areas, greens, tees, etc.

5. Consider manually knocking a minute or two off computer-generated run times to save water.

6. Monitor and note stations where time can be reduced without sacrificing turf quality or playability.

7. Investigate alternative sources of water to reduce dependence on wells – reclaimed water, storm water, surface

water and horizontal wells. If considering switching to seashore paspalum turf you may be able to tap into a brackish water aquifer.

8. Invest in a water audit to maximize system efficiency.

9. Experiment with self-imposed restrictions on water use to test the limits of your turf before you are forced to cut back. Try the practice range or a rough. By learning how to “harden off”

the turf you can prepare the course to better withstand mandatory watering restriction.

10. Consider using moisture retaining soil amendments on hot spots.

11. Install high/low pressure cutoff switches and remote soil moisture sensors.

12. Communicate and document what you are doing to conserve water.

SUPER TIP

Going for the Green

By Darren J. Davis

“Going green” has become a popular, feel-good catch phrase, but “going green” can often cost lots of green, thus deterring the effort. At Olde Florida we have always adhered to the legal recycling requirements with the proper disposal/recycling of used oil, batteries and tires. In Collier County, business recycling of paper, plastic, cardboard etc. comes at a cost.

Recently my equipment manager attended a Turf Equipment Service Technicians Association meeting and the Collier County recycling coordinator, the guest speaker, provided take-home materials that outlined tips for going green. After reviewing the materials with key staffers, we determined that we could

institute several programs that would be beneficial to the environment and remain cost-neutral.

Our initial efforts included eliminating plastic silverware and Styrofoam cups in the breakroom, saving over \$1,400 annually and reducing waste.

According to invoices, we had been spending at least \$1,100 a year on paper towels in the golf course operation facility. The three towel dispensers were replaced with electric hand dryers. I had not been a fan of electric hand dryers

but the Exlerator brand units we purchased are exceptional. They provide excellent air velocity with minimal electricity. The units will pay for themselves in a little more than a year.

We also initiated club-wide collection and recycling of plastic containers and cardboard. Most of the plastic is from the water bottles we supply golfers, but containers were also placed in the kitchen and the golf course operations facility.

Cardboard boxes are also collected from all departments and placed in a 2-yard recycling bin. Collier County provided a list of licensed recycling vendors, and after research by my office manager, the fee we pay for three 96-gallon plastic recycling bins and one 2-yard cardboard bin is \$112 a month. To recover the additional cost of those recycling bins we can now reduce the size of our existing waste dumpster from 8-yard to 4-yard which will result in a monthly saving of \$123.00.



Electric hand dryers (top left) save Olde Florida \$1100 on paper towels annually; dumpster and water bins are a cost-neutral way to “go greener.” “Plastic Only” containers save labor costs to sort waste.

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