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Think Ahead.

Almost everyone now has computerized control systems to maximize irrigation efficiency. Photo by Joel Jackson

# Wise Watering:

## MANAGING OUR MOST CRITICAL RESOURCE

#### By Joel Jackson, Editor

Once upon a time I remember the basic functions of golf course maintenance being described as a three-legged stool consisting of irrigation management, pest management and cultural programs. In today's world we would likely add business management to include personnel management, communications and financial accounting. Regardless of how you divide it up, managing the available water resources rises to the top of the list; for without an adequate water supply, the rest are all secondary.

The technology for delivering water effectively through our irrigation systems has improved and continues to improve from the pumping stations down to the very smallest nozzle on the golf course. Just as the hardware and software has improved, we must embrace these new tools and methods to maximize the irrigation system you manage to its peak efficiency. This might mean changing the way you used to do things. At the very least, physical changes and improvements to your irrigation system and your methods of calculating run times need to be considered.

This means that human beings end up running the show regardless of all the bells and whistles of technology. When it comes to the "capital improvements" line item in the maintenance budget, the economy has put a damper on most of the spending. Somewhere down the line, a program of irrigation-system improvements will need to enter the picture because the pressure on reducing water use for outdoor irrigation is mounting, and, while golf is a minority user of water overall, it is also a recreational activity and the majority of people don't consider it a priority at all.

RAIN BIRD

Dear

AIN BIRD

Overall we have a good story to tell about superintendents managing water. Unlike the typical residential "set and forget" mentality, superintendents monitor their irrigation use daily to produce acceptable playing conditions and healthy turf. Our challenge is to get even better at protecting our water resources. It will take serious efforts by each superintendent and golf course to find ways to improve efficiency and protect water resources.



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Warehouse Locations: Bowling Green | Delray Beach | Homestead Immokalee | Orlando Manufacturing Facilities: 8306 S. Orange Ave. | Orlando, FL 32809 7205 Highway 50 East | Groveland, FL 34736 What follows will be a series of tips and ideas to help each of us become even better water managers. Some will require an investment in capital dollars and others will involve changing methods of monitoring and managing run times and soil moisture.

#### Irrigation BMPs from the Golf BMP Manual

Use the lowest-quality water available for irrigation. Potential sources include reclaimed water and brackish water. Surface water sources: storm runoff retention, lakes, rivers, canals. All less quality than groundwater.

**Proper system design:** Golf course architects need to consider limiting water use for new courses or major renovations. The same is true when doing irrigation system upgrades.

**Pump systems:** Proper pressure regulation. Spacing of heads and nozzle selection to optimize distribution.

• Separate control capability for separate areas/conditions on the course. Slopes, roughs, putting surfaces (inners/outers), tee tops, etc.

- Individual head control around greens and when possible elsewhere.
- Separate zones for roughs where/when appropriate and practical.
- Scheduling using real-time conditions, such as weather measurements or soil moisture measurements.
- Maintenance program to correct broken/clogged heads and leaks on a routine basis.

#### **Irrigation Efficiency**

1. Hardware - spacing, nozzles, operating pressure

 Software - Scheduling, programming.
 Mapping soil moisture (in-ground sensors or handheld meters and making specific head/site adjustments. Use hand watering of hot spots.

For older systems with fewer bells and whistles - try to improve on amounts by not routinely setting on 5-, 10-, 15-, 20-minute settings. Back off a click or two and monitor results. Less run time, less water used or wasted and fewer dollars in energy costs.

#### The Survey Says

For some real-world feedback on irrigation systems I sent an 8 question survey to the FGCSA Board of Directors. Twelve members responded and here are the results:

**Source of irrigation water**: 6 used reclaimed water with a supplemental recharge well or a surface source backup. 5 used surface water, 3 had a back up source of reclaimed or a well. 1 course on a coastal barrier island uses potable water.

**Pump station:** 8 have VFD pumps to regulate pressure. 2 have Cla-valves and 1 has direct hookup to reclaimed pipeline.

**Control systems:** Not surprisingly all respondents have a computerized control system evenly divided between Rainbird and Toro. 1 reported a hydraulic vs electric system.

**Soil moisture monitoring**: 12 reported monitoring primarily using soil core/ pocket knife observations and 1 also used a soil moisture meter.

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Serving the Carolinas and Florida 800-626-1359 • FAX (941) 955-4690 www.golfag.com **Irrigation zones:** Everyone has separate zones for greens, tees, fairways and roughs to better allocate water use, especially during restriction cutbacks. Additional zones might include: chronic hot spots, driving range, range tee and range target greens, clubhouse, common areas, inner and outer greens heads, greens approaches, newly sodded areas and front and back 9 separations. **Emergency Shut Off:** All have high/low pressure shut off safeguards. 6 also have rain switch, and 3 can call in by phone and turn off the system.

Water Conservation methods: Everyone said they followed the majority of the following conservation methods, with only a couple stating that creating natural areas has not been a priority.

#### Water-saving methods

- Regular inspection for leaks and proper head/valve operation
- Install part circle heads where possible
- Install inner/outer heads around greens
- Reduce turf acreage and naturalize more areas on the course

- Use wetting agents and soil amendments to improve dry spots
- Constantly tweak run times by adjusting ET percentage depending on weather and observed conditions

#### THIS MEANS THAT HUMAN BEINGS END UP RUNNING THE SHOW REGARDLESS OF ALL THE BELLS AND WHISTLES OF TECHNOLOGY.

## Other methods and general comments:

- Installed smaller more efficient heads around tees and bunkers
- Installed smaller part circle heads in fairways and roughs for efficiency
- Incorporating more organic material in tee topdressing materials
- Installed mister heads on bunker faces with manual valve control

- By not overseeding this year we saved 12 million gallons of water
- Installed inner/outer heads around greens and saved 500,000 gallons of water
- During our Consumptive Use Permit renewal we showed a detailed report of resources spent trying to reduce consumption. This effort was well received by the Water Management District. Speaking of Water Management Districts, they are under the gun from both the governor and the public to operate more efficiently and uniformly. It is no easy task balancing the need for water by consumers and the utilities that deliver the water, and at the same time conserving existing water resources, developing potential new sources for future needs and protecting water quality.

The golf industry needs to make sure we expand and maintain good working relationships with the districts so they are confident that golf courses remain wise water users.



## USGA Regional Update:

# WINTER TRAFFIC CONTROL

Ropes and stakes are unpopular with golfers but effective at preventing turf damage like this. Photo by Joel Jackson

*By Todd Lowe, Senior Agronomist, Florida Region* 

The annual migration of northern golfers to our region has begun, and with it, an increase in the number of rounds has occurred. This increase in rounds happens at a time of the year when bermudagrass growth decreases, and these two factors combine for potential unsightly playing conditions.

Golfers are creatures of habit, often choosing the path of least resistance, and continual golfer traffic over the same area stresses turf conditions. The trodden grass blades are not readily replaced with new, green leaves, and this creates yellow-to-tan coloration in the affected areas. Eventually the soil becomes compacted and poor turf conditions occur. The following steps should be taken at this time to protect turf and improve golf course quality:

Be proactive with traffic diversion. Ropes and stakes are generally unfavorable with most members, but are very important for protecting turf. Some areas are more prone to traffic damage, like ingress/egress areas, particularly where bunkers or trees adjacent to cart paths funnel traffic into specific locations.

Implement a rotating "Resting Hole" program. This program allows one hole

per nine to recover each week from cart traffic, as it is restricted to cart paths only. In a typical program, holes #1 and #10 are deemed "earth path only" during week 1. Holes #2 and #11 are "cart path only" in week 2, and so on. Par-3 holes are automatically deemed "cart path only" and are skipped. Some fairways, like tight fairways or fairways stressed by nematodes, may require more frequent cart restriction, depending on turf recovery.

Supplemental soil cultivation practices. It is important to identify high-traffic areas and to core-aerate them prior to the season. Additional solid-tine aeration can be implemented as soil temperatures allow adequate turf recovery. Generally speaking, soil temperatures at a 4-inch depth above 65 degrees should be adequate to sustain bermudagrass recovery. Otherwise, aeration holes will be visible for longer periods.

Golf carts have become a standard feature on golf courses in our region, and dealing with traffic issues has become a necessary part of the game. Traffic control measures are also necessary to maintain good playing conditions in our region, especially during cooler months.

Source: Todd Lowe, tlowe@usga.org or 941-828-2625



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#### STEWARDSHIP

## FGCSA's Golf BMP Certification Program

#### By Joel Jackson, FGCSA Executive Director

In the turmoil and uncertainty of local fertilizer ordinance regulations the past few years, Matt Taylor, CGCS from the Royal Poinciana Club in Naples suggested that the FGCSA look into a Golf BMP certification program. The program is meant to especially document a superintendent's knowledge and expertise when applying fertilizers and pesticides. It will be more extensive than – but similar to – the Green Industry BMP certification program which gives landscapers in some cities and counties the ability to apply fertilizers during the infamous blackout periods by passing a GIBMP certification exam.

Some local governments exempted golf courses initially from the onerous and unfounded fertilizer blackout periods which generally covered a four-month period from July through October. However, the latest rounds of local rule making in Collier County and Vero Beach did not include those exceptions and superintendents had to fight to get recognition of the special nature of the golf course business and how consistent plant nutrition was a necessity.

Thus, the idea was born to create a Golf BMP training and examination program that would proactively show the Golf Industry intention to protect the environment and support sciencebased regulation. With the help of Mike Thomas of the FLDEP and Dr. Laurie Trenholm of the University of Florida, and the work of the FGCSA BMP Committee, the program has taken shape and we hope to roll out the initial schedule of presentations and examinations in early 2012. Additionally, we sought the official recognition of the program from the Dept. of Environmental Protection. Best Management Practices for the Enhancement of Environmental Quality Florida Golf Courses



*Certification in the Golf BMPs provides official documentation of your environmental stewardship.* 

We are pleased to share DEP's response to our request with this letter dated October 31, 2011 addressed to FGCSA President Mark Kann:

#### Dear Mr. Kann:

Thank you for your September 1, 2011, letter to The Florida Department of Environmental Protection (DEP). We are pleased that our long partnership with Florida's golf course industry has produced yet another milestone in publicprivate environmental stewardship.

We commended the Florida Golf Course Superintendents Association (FGCSA) on its new industry certification program in Best Management Practices (BMPs). DEP is encouraged that the FGCSA has made the "Green Industry BMPs" a prerequisite to this new, advanced level of certification. In doing so, the FGCSA has set a high standard for environmentally-sound management of one of Florida's most important industries. FGCSA's actions seek to comprehensively understand sustainable course management, and how those actions affect the surrounding environment and water resources.

For two decades, the FGCSA has been a true partner with DEP, promoting environmental stewardship and the development of BMPs for golf courses and urban landscapes. The assistance, cooperation, and expertise of our members had been instrumental in the development of DEP's 1995 and 2007 manuals addressing golf courses, the influential 1998 *Agrichemical Handling* manual, and the Green Industries BMP manuals for urban turf and landscape management outside the golf course. The FGCSA's support for these manuals, DEP's model ordinances and the Protection of Urban and Residential Environments and Water Act played a substantial role in the state's ability to address non point sources of pollution.

The Florida Golf Course BMP Certification Program for the Enhancement of Environmental Quality on Florida Golf Courses has been created with full cooperation and review of the University of Florida and DEP's technical staff. With your partnership, we are convinced this training and certification will be as comprehensive as the DEP manual on which it is based.

Again I commend the FGCSA on the excellent program developed for Florida's golf course industry. I hope this inspires the development of similar programs in other states.

Sincerely, Herschel T. Vinyard Jr Secretary

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#### AFTERWORDS

## FIELD OBSERVATIONS



*By Ralph K. Dain Jr., GCSAA Regional Representative Florida* 

About 30 minutes and 50 failed starting sentences have passed since I first sat down in front of the screen to write this update. Thank goodness I am not still typing this on my Smith-Corona SD300 from my college days. Don't even ask what model Joel used back in his day! I would have gone through a whole ream of paper and a couple of bottles of white-out.

Anyway, it's great to be back with my third installment of Field Observations. I am happy to report from my travels that more than a few members have relayed to me that golf rounds at their facilities have started out strong this season. I am also thrilled to report that water levels in course lakes in Southwest Florida have returned to the confines of their typical shorelines.

Switching to government relations, I want to highlight a few key components from the NPDES (National Pollution Discharge Elimination System) pesticide general permit that has been officially adopted by the Florida DEP. I have had a number of correspondences with superintendents around the state and realize there remains some ambiguity on how NPDES impacts operations at your facility.

Overall, the Florida DEP has attempted to keep the permitting burden to a minimum for pesticide applicators. The good news is golf course superintendents will NOT be required to file a Notice of Intent (NOI) to make aquatic applications, pay the permit fee (\$500 for 5 years), or complete a pesticide management discharge plan. Superintendents will be covered automatically under this plan and do not have to apply for the permit. Also, you will likely not receive any correspondence from the DEP regarding the NPDES General Permit.

During my chapter visits around the state, I have frequently mentioned our concern over the term "applied near water" in the permitting language and this impacted applications to turf adjacent to bodies of water. Fortunately the permit in Florida does not impact any terrestrial pesticide applications. However, there are clearly outlined

procedures in the Florida permit that need to be adhered to in the event that there is an adverse incident that impacts a body of water. I strongly advise you to familiarize yourself with these requirements. I have included a link to the NPDES Permit in Florida: http://www.dep.state.fl.us/water/ wastewater/iw/docs/62-621.300\_8e.pdf.

Again, overall the Florida DEP has done a nice job of keeping the impact of the NPDES permitting to a minimum. This has not been the case in other states as superintendents are required to submit an NOI to apply pesticides, produce a pesticide management discharge plan and pay the permitting fee. GCSAA continues to push for passage of HR 872 bill in the Senate which provides a legislative fix for NPDES permitting. We encourage you to utilize our Take Action resource on our website to reach out to your elected officials on this matter.

Unfortunately, in Florida the NPDES permitting does make it easier for individuals to file lawsuits claiming pesticide applications have been improperly discharged. There will most likely be challenges by environmental activist groups and the NPDES permitting process could lead down uncertain paths in the future.

For more information you may call me at 785-424-4306 or email to rdain@gcsaa.org.

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