



Less is More

Superintendents downsize water consumption by upgrading efficiency

By John Walsh

Irrigation is an important issue to many golf course superintendents, even in areas where high-quality water is plentiful and restrictions are nonexistent. In states such as Arizona, Florida and Georgia, regulations and restrictions can result in less-than-desirable water quality at reduced quantities, making it difficult to grow healthy turfgrass. But throughout the country, diligent superintendents are working to irrigate more effectively and efficiently.

INTRODUCING BROWN

At the private California Golf Club of San Francisco, golf course superintendent Tom Bastis doesn't pay for water. He does, however, pay to pump it from two wells that sit on property.

"Other courses in the area pay half a million dollars or more annually for water," says Bastis, who grows fine fescue in the rough, colonial bentgrass and fine fescue on the tees and fairways, and A-1/A-4 bentgrass on the greens.

Despite not having to pay for the water, which is high in bicarbonates and has a pH level of 7.7, pressure to restrict its usage comes from Bastis, who operates within a \$1.6-million maintenance budget.

"Nobody is looking at how much we pull out of our wells," he says. "Yet, 30 minutes away in the East Bay, there's water rationing."

There used to be three other clubs – San Francisco Golf Club, The Olympic Club and Lake Merced Golf Club – tapping into the same aquifer as California Golf Club, but these facilities pulled out and are paying for reclaimed water, which is better saltwise

than the water Bastis uses.

"I'd consider buying reclaimed water," he says. "It puts the golf course in a better light. The resources are getting taxed, and sooner or later someone is going to come and tell us to get off the drinking water. But right now, they're just asking what we're using."

As part of a recent course restoration, Bastis changed all the grass types to those that are more drought tolerant because he's trying to dry out the golf course. He also increased the native areas on the course from 20 acres to 55 acres.

"We're trying to change and evolve," he says. "We're predominantly *Poa* in this area. We're introducing brown to the course in the fairways partly because we don't want to create that much thatch and growth. This course is about players, not green grass everywhere."

Bastis is using water more efficiently, partly because of an irrigation renovation that increased the size of the pump station, which, in turn, decreases overall watering time.

Also, subsurface drip irrigation, which was installed around all 144 bunkers, and closer

irrigation-head spacings – 5 feet closer, from 65 feet to 60 feet apart, because the course is impacted highly by wind – contribute to irrigation efficiency.

AN UPGRADED SYSTEM

Dennis Fitzwater isn't facing any water issues or regulations, but the golf course superintendent at the private 18-hole Corning Country Club in New York is still trying to use water more efficiently.

With a budget of \$440,000, Fitzwater grows bentgrass/*Poa annua* greens, tees and fairways, and bluegrass/ryegrass rough. The average rainfall in Corning has been below normal during the past few years, but nowhere near drought conditions, Fitzwater says, adding that any change in the use of water will be driven by the Chesapeake and Delaware water system. Located in the Susquehanna watershed, Corning's water

source comes from two ground wells from which Fitzwater pumps directly.

"It's not a big difference compared to those who have ponds, but the disadvantage is that I can't see the water level," he says. "Still, I don't have to deal with evaporation. I don't worry about whether the wells are going dry. I just pay to pump the water."

There are several parts of Fitzwater's irrigation system that improve water efficiency:

- Variable frequency pumps, which have drive motors that eliminate water hammer and control the flow of gallons per minute.
- Upgraded computer programs that pinpoint where to apply water, allowing for individual head control, convenient scheduling, nighttime watering and labor reduction.
- Sensors that turn off the system when it rains.

Fitzwater's irrigation software is 2 years old, but the irrigation system itself is 9 years old. He can't justify replacing all the heads, but any replacement to the system always incorporates the newest technology.

"We maintain firm, quality conditions," he says. "We push water to the fullest extent. I've never heard about the course being not green enough or lush enough. Our members understand the water issue."

The water Fitzwater uses to irrigate Corning is high in pH and salts. To combat that, he uses soil amendments and plans to add a synthetic acid injection system, which will lower pH and bicarbonate levels and reduce the need for surfactants and amendments.

WETTING AGENT MAN

Much like Fitzwater, Jason Regan isn't facing stringent water-use regulations, but water efficiency is something he tries to improve. The golf course superintendent at the private,

"We push water to the fullest extent. I've never heard about the course being not green enough or lush enough." - DENNIS FITZWATER

18-hole Selma Country Club in Alabama maintains Tifdwarf Bermudagrass greens and 419 Bermudagrass tees and fairways with a maintenance budget of \$320,000.

However, the club installed a new Toro irrigation system in 2000. Since then, Regan has seen improved turfgrass health. The double-row irrigation now in the fairways used to be single row.

"It's like night and day," he says about the improved turfgrass conditions.

Regan has no irrigation in the rough and says it will take another five years to irrigate the entire course. Improvements to the club

At California Golf Club of San Francisco, the pressure to use water more efficiently is internal from superintendent Tom Bastis. Photo: California Golf Club of San Francisco

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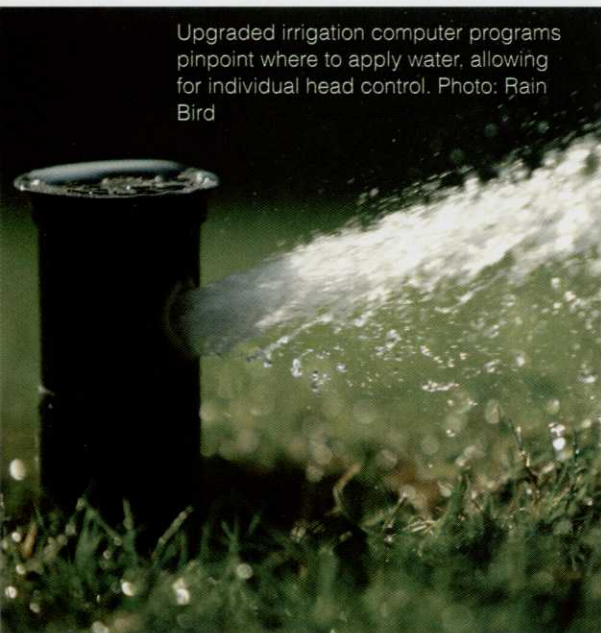
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Upgraded irrigation computer programs pinpoint where to apply water, allowing for individual head control. Photo: Rain Bird



are financed by the 415 members, a steady decline from 480 when Regan arrived 10 years ago.

Still, as long as the course has access to quality water, it's in good shape, Regan says. The club's water source is an artesian well on property.

"Rainfall this year has been better than the past two years," he says. "We never got into a situation like Birmingham did with extreme drought and water restrictions on home lawns."

To help improve water efficiency last year, Regan started a wetting agent program that included injecting Dispatch into the irrigation system. He bought two 55-gallon drums of Dispatch, which helped reduce irrigation water by 30 percent.

"During the peak of summer, I watered every night," he says. "With the wetting agent, I went back to irrigating every other night."

Regan has been spraying Dispatch and Revolution on greens and using Aqueduct with his drench application. He's using only Dispatch on the rest of the course, but because Regan's budget was cut, he can't afford to inject Dispatch into the irrigation system this year.

While concerns about water use have been expressed in the area, it's nothing to worry about, Regan says.

"Some citizens inquire about where the irrigation water for the golf course is coming from," he says. "They thought it was city water. It's not really an issue."

NOZZLE CHANGE

Water isn't a big issue at the private, 18-hole Twin Lakes Golf Club in Carmel, Ind., either. Last year was a dry season, but not droughty, says John Westermeier, CGCS. But while conditions weren't as severe as they could have been, the dry season caused him to look at the club's irrigation system.

"I came here in 1985, when we didn't have any fairway irrigation and were using hoses to water the greens and tees," says Westermeier, who maintains the course with a \$400,000 budget. "From 1986 to 1988, we had an irrigation system installed, but it wasn't a top-of-the line system."

Through the spring of this year, Carmel has had above average rainfall, so Westermeier didn't have to use the irrigation system

until early June. The water he uses to irrigate the golf course comes from nine interconnected lakes, which are on the course and fed from underground wells. He pumps from two of the lakes.

During the renovation that took place in the late '80s, Toro 670 heads were installed. But the heads have a coverage weakness: They neglect the turf 10 to 20 feet around the head, Westermeier says. He read comments about FCI nozzles being good replacements for the old Toro 670 heads. Hoping he'd found a solution, he bought two dozen nozzles and installed them. In a few days, he saw the difference the new heads made.

"Toro's new products are fantastic, but they're expensive," he says. "We had money that was budgeted for trees, but after getting approval from the owner, I bought 75 more FCI nozzles, which took care of all my fairways except one."

Since using the new nozzles, Westermeier has reduced his irrigation run times by 20 percent, but he says he can't quantify the dollar amount saved. He also estimates he'll save 20 percent on the electricity to run the system, too. With an older irrigation system, it takes 13.5 hours to water the entire golf course.

"The nozzles will pay for themselves in a year, if it's dry," he says.

Westermeier views the nozzle changes as a temporary situation. In five years, he plans to replace the irrigation system's drives and heads. And because FCI doesn't offer replacements for the Toro 630 heads around the greens, Westermeier will replace them with 830s or 860s.

Twin Lakes' single-row irrigation system is dated, so Westermeier doesn't have computer controls. Until the irrigation system is upgraded in five years, the system will be controlled with hydraulics. Westermeier plans to upgrade the pump station first this fall.

"The cost to renovate has to come out of the operation expense," he says, adding the course has operated profitably for 23 years. "The irrigation upgrade sell is easy because we don't have member equity. Having a single owner streamlines everything."

Westermeier is in the same boat as many other superintendents.

"We're all trying to use resources more efficiently," he says. **GCI**

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