

BY LARRY AYLWARD, EDITOR IN CHIEF

Water Works

To understand the in and outs of your **irrigation system** is to be an expert in water management

Do you know what makes your golf course's irrigation system tick? Do you know the inner workings of the pump station, the routing of the water distribution lines and the location of every sprinkler head?

You should know the function of your irrigation system as well as Eric Clapton knows the frets on his guitar if you expect to be an expert in water management, says Mark Clark, certified superintendent of Troon Golf & Country Club in Scottsdale, Ariz. And to be an expert in water management is to be an efficient user of water. Simply put, when you know your irrigation system, you know where you might be wasting water.

Troon plans to invest \$1.3 million in a new

irrigation system in 2009. For now, though, Clark says he's striving to keep up with the Joneses by using his course's 20-year-old irrigation as system efficiently as possible. But the fact that he's educated himself about the system helps him keep pace.

"We're just trying to keep up with the guys down the street who have brand-new technology," Clark says. "I have to work a little harder, but at the end of month we're not using any more water than some of the courses with new systems. In the end, the biggest trick is to understand the equipment you have and make it work."

You can't learn the workings of an irrigation system overnight, however. It takes several months with superintendents taking time to learn things daily — and not necessarily by reading manuals.



"What better way to intimately know your golf course than go out and touch every sprinkler head and measure the spacing between every head," Clark says.

Speaking of sprinkler heads, Clark says they are vital to minimizing water use.

"That's really where the rubber meets the road," he says. "The more efficient the sprinkler head, the less water you're going to use, period."

Nozzles are also important. The more meticulously manufactured they are, the more accurate applications they make, which leads to more uniform playing conditions, says Jim Barrett, a Roseland, N.J.-based irrigation consultant and president of James Barrett Associates.

"And that's what this is all about. The bottom line is more uniform playing conditions for golfers," Barrett says.

At Newton Country Club in Andover Twp., N.J., superintendent Les Carpenter has brought his course's older irrigation system up to date with new nozzle technology. Carpenter says a new dual nozzle on the market features a 180-degree head that has benefited the irrigation system greatly. The nozzles can be set to water greens and the banks behind the greens — but at different amounts, which is the key.

"You can set up the nozzles so the ones in the rear are putting out 40 gallons a minute and the ones in the front are only putting out 20 gallons a minute," Carpenter says. "And they'll go 180 degrees back and forth. It's a new technology to help older courses with block systems use the existing heads around

their greens more efficiently."

Barrett says the irrigation segment of the golf course maintenance industry acknowledges that it needs to make equipment improvements to save water. He cites manufacturers improvements in nozzle design and water-pressure combinations as examples.

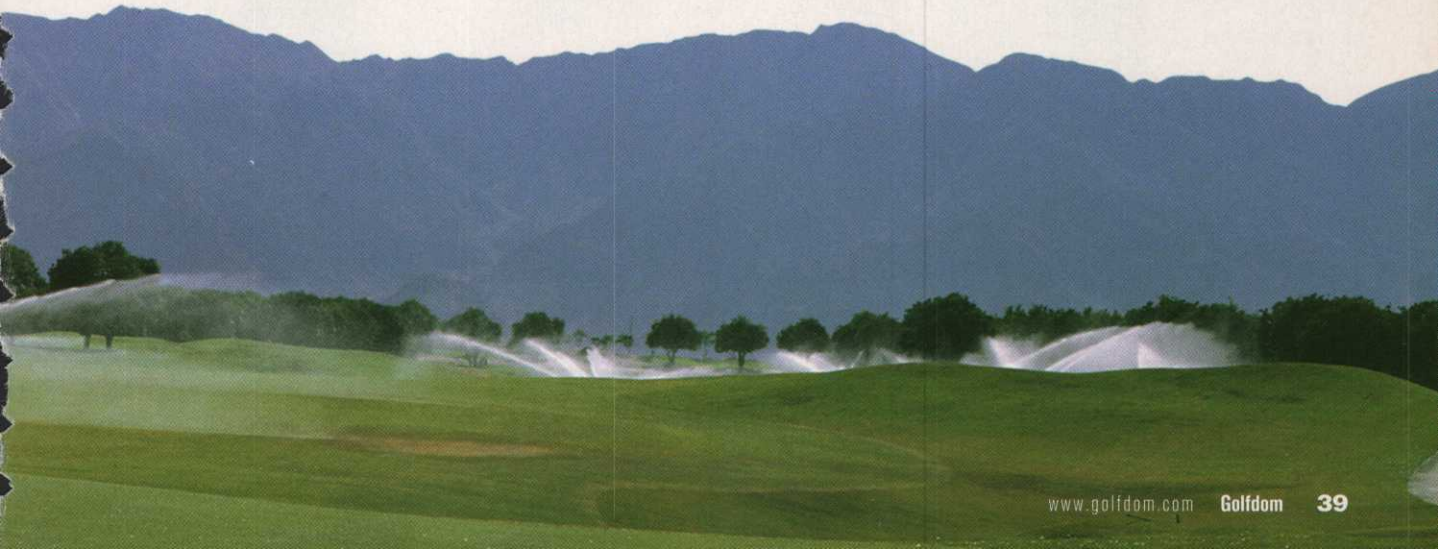
"Everybody's goal is to minimize the waste of water," Barrett says. "I don't think we can eliminate the waste. Until we invent sprinklers that aren't circular, there's always going to be a certain amount of unevenness in the overlap patterns. We always strive for the best uniformity, but nobody has ever gotten there, and I don't think anybody ever will. But we can get closer and closer as we get better with the products and better with the application of the products."

It's not a booming part of his business, but Barrett says superintendents and others in the golf course maintenance field are asking his advice on how to minimize water use. Basically, he talks to them about using surfactants, installing more efficient aftermarket nozzles on sprinkler heads, putting in sensors and conducting irrigation audits.

Carpenter says surfactants, which he uses on greens, tees and dry areas of fairway areas, have helped him minimize water use. He says his course's budget doesn't allow him to use surfactants generously, so he tries to get the best results from what he can use. He makes one application across the course in the spring. He then augments almost every pesticide spray on the course with small amounts of surfactants.

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More superintendents are also implementing no-mow zones at their courses to reduce water use as well as maintenance. Carpenter has implemented several acres of no-mow zones at Newton. The strategy has not only helped save money on water and fuel formerly spent to maintain the areas, it has provided the course with an

environmental haven for more wildlife.

But Barrett notes that not all golfers are enthralled with an increase in unmaintained turf and that superintendents must be careful where they implement such areas on courses. Golfers don't want more places to lose their balls.

Carpenter and his crew also hand water frequently to minimize water use. Hand watering usually equates to labor intensive, but Carpenter insists it's not in

this case. When it's August and the weather is hot and the turf has gone into summer dormancy, Carpenter says his crew members have more time to hand water because they're not mowing four times a week.

In the heat of the

desert, Clark has all the water he wants to irrigate at Troon because his course uses nearly 100 percent effluent. But that doesn't mean Clark is not trying to minimize water use like Carpenter.

"The problem is the effluent is very expensive," Clark says. "So the primary reason to minimize water use here is cost."

Also to save water in the West, Clark and his staff spray out ryegrass with an herbicide in mid-May instead of watering it to keep it alive. Clark's theory is to let the bermudagrass come in as soon as the weather heats up. Before, he'd try to keep the ryegrass green as long as possible by over-watering it and letting the bermudagrass grow in slowly.

"Once the bermudagrass is in full, we can go three days without watering it," Clark says. "In the summer we're saving 15 percent to 20 percent of the water we would normally use in the summer by trying to keep the ryegrass alive." ■



Superintendent Les Carpenter has implemented several programs at Newton Country Club to minimize water use.

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