

# 5 ways

to better manage  
your water

Ideas big and small to help you save water and, potentially, money.

BY MARISA PALMIERI



# SMART IRRIGATION

## 1. GET LOW

Low-volume emitters, or microsprinklers, are a tool that International Golf Maintenance's desert-climate courses are using to improve conditions and save water.

"We battle bad wind in the desert," says Steve Gano, vice president of operations for the ChampionsGate, Fla.-based contract maintenance firm. "Even at night, the winds can be so bad that we battle dry spots in the summers."

Rather than overwatering or hand-watering the localized dry spots, IGM facilities use sets of low-volume emitters, which are typically made up of strings of 10 heads with about 10 feet of hose between them.

"They sit low to the ground – they're only 18 inches tall – so wind doesn't affect them," Gano says.

In addition to preventing drift and evaporation, the emitters prevent runoff, which is inevitable when turf managers attempt to treat small dry spots (like a 10- by 10-foot area), with a typical irrigation head that may have a 75-foot radius.

Though Darin Pakkala, director of golf course maintenance for IGM at ViewPoint Golf Resort in Mesa, Ariz., hasn't calculated the short-term water savings, he says he's certain he's saving water.

"Going off the basis that we're running the emitters that put out about 12 gallons an hour vs. a head that puts out more than 24 gallons a minute, we're saving water," he says.

Use of the emitters combined with other

management practices have helped ViewPoint reduce its annual water use from about 450 acre feet to about 330 acre feet per year (more than 39 million gallons) since Pakkala joined the staff three years ago.

Pakkala keeps one set of emitters for every few holes. The maintenance staff moves them to various dry spots twice in a typical day.

"They're very easy to move, you can grab them and drive them to the next location, or sometimes you don't even have to drive," he says. "I'm able to move about six of them in 20 minutes tops, including getting them set-up."

Pakkala and other IGM superintendents fabricate the emitters in-house, purchasing the parts from irrigation distributors for between \$50 to \$250 per set (depending on the set's size).

Gano points out that the emitter sets are also good tools for leaching salts and establishing seed or sod.

Plus, they can be used during golf play because they're so low to the ground.

"Golfers aren't bothered by them at all," Pakkala says. "If there's wind, you're not getting any drift because the water's going right to the turf."

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**The top three water conservation methods superintendents use are wetting agents (92%), hand-watering (78%) and keeping turfgrass drier (69%).\***



## 2. WET IT RIGHT

Sometimes saving water is just about saving water.

But sometimes it's about a lot more – like improving course conditions and conserving labor.

At the private, 18-hole South Hills Golf & Country Club in Fond du Lac, Wis., Jim Van Herwynen, CGCS, has found a way to do all three with the help of his wetting agent program.

Since implementing the program about four years ago, the facility has not had to tap into the city water supply, which it had been spending about \$8,000 a year to use.

Though Van Herwynen estimates he spends \$8,000 to \$9,000 on wetting agents each year, he says the program saves him additional dollars in labor and has improved course conditions.

"Turf conditions are far better than they used to be," he says. "Everything's more consistent and uniform."

This region of Wisconsin is so wet from the snow melt-off in the spring; plus, the area's heavy clay soil retains that moisture, which means Van Herwynen risks not being able to get



*\*Source: GCSAA and the Environmental Institute for Golf's "Water Use and Conservation on U.S. Golf Courses" report.*



the heavy machines out on the golf course without damaging the turf.

After years of trial and error, he's devised a plan where he injects Dispatch into the irrigation pipes as he's starting up the system. The first application goes out with the initial irrigation test.

"Doing this helps us move the water through the soil profile in the spring so we can actually get our machines out there," he says, noting he injects Dispatch throughout the spring until about Memorial Day weekend.

In the fall, Van Herwynen does a double application of Dispatch via injection on back to back nights just before he blows out the irrigation system. Again, the goal is to help water move through the soil profile so the crews can get the equipment out faster in the spring.

In the summer Van Herwynen makes an application of Lesco-Flo at 12 ounces per 1,000 square feet to fairways, intermediate rough, green surrounds and tees. He prefers

to apply the product in the rain. The goal of this step in the program is to keep the heavy clay soil from going dry.

"The problem in our region is extremes — it's either too wet or too dry," he says. "So we've combated that with penetrants in the beginning and end of the season and a true wetting agent in the summer."

On the native push-up greens that have five decades worth of sand topdressing, Van Herwynen applies 5 to 6 ounces of Revolutions once a month starting the third week in April and running through September. He tries to time those applications when it's going to rain, or he'll water them in with 3/10 inch of water that night.

The biggest benefit of the greens wetting agent program is preventing the need for hand-watering — which hasn't taken place at South Hills in more than four years.

Before that, in the summer it wasn't uncommon for three crew members to hand-water tees, collars and surrounds every other

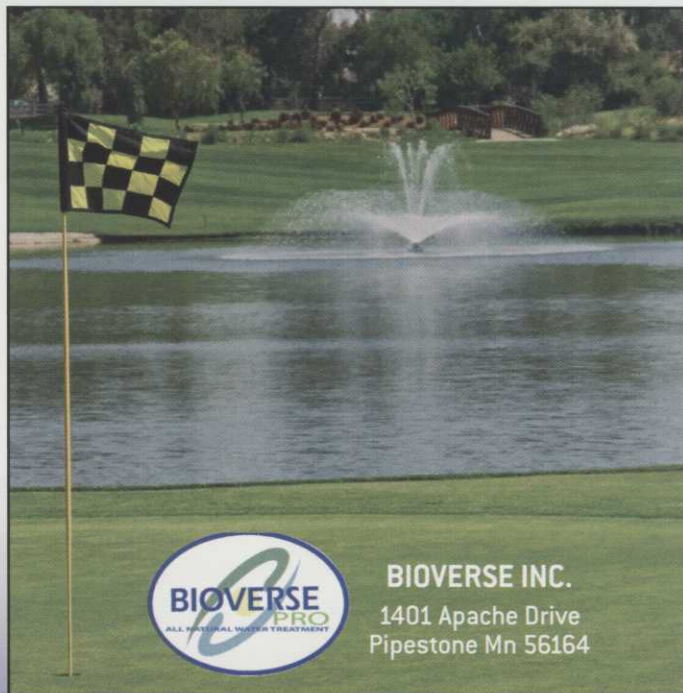
day for six hours a day.

Now that Van Herwynen is down to a crew of 12 after peaking at 18 in 2002, saved labor hours are a boon as budgets get tighter. Those hours can go towards other tasks that were neglected in the past.

"Our landscaping and detail work is much better," he says. "We have time to do those things now. We're slowing decreasing our staff size to become more efficient and we're using wetting agents to help us out."

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**Approximately 46 percent of 18-hole golf facilities treat their irrigation water or distribute products via their irrigation system. The most common products distributed through the irrigation system are wetting agents (34 percent) and fertilizer (23 percent). More than 70 percent of 18-hole golf facilities with maintenance budgets less than \$500,000 do not treat irrigation water or deliver products through their irrigation system.\***

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## SMART IRRIGATION

### 3. LOOK FOR LITTLE THINGS

A water conservation strategy with many little components can do a lot of good. That's the philosophy at American Golf Corp., the Santa Monica, Calif.-based company that manages 110 golf facilities in the U.S. With many of its facilities located in the Southwest, mandatory water reductions are a reality.

"Not being proactive and just becoming a victim of the circumstances is not an option for us," says Scott Bourgeois, director of maintenance for Southern California.

American Golf's comprehensive strategy to minimize water consumption includes many components, all of which are tailored to each specific operation.

Some of the tactics include: aggressive cultural practices, including verticutting and aerification to improve water penetration; being choosy about turf types (favoring drought-tolerant, warm-season varieties); minimizing or eliminating overseeding on

some properties; and looking for spots to further cutback on irrigation, including slopes, landscape beds and deep rough areas. Also, employees are careful when it comes to cleanup — they clean golf cars with air hoses and by wiping them down vs. using water. They use backpack blowers instead of hoses to tidy up hardscape areas.

Irrigation system components, of course, play a role. American Golf is retrofitting irrigation heads on about 20 of its courses to FCI Profile nozzles, which are eligible for a Metropolitan Water District of Southern California rebate program. FCI nozzles are metal nozzles with stainless steel orifices, designed to improve distribution uniformity.

Bourgeois estimates a 5 percent water reduction per course because of the nozzle upgrades. The company has used these nozzles over the years, but recently committed to converting more facilities to them



as increasing drought conditions and water restrictions have put pressure on the golf business and large-volume water users.

"When a course is applying 300,000 gallons to over 650,000 gallons a night to irrigate the entire course during the warmer months of the year, saving 5 percent to 20 percent with a comprehensive water reduction strategy can really help the cause and help protect this precious and limited supply," Bourgeois says.

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## SMART IRRIGATION

### 4. KEEP IT DRY AND AERIFY

Managing turf in Las Vegas is like growing grass on the moon with bad water, or so says John Pollok, director of golf course maintenance for Spanish Trail Country Club in Las Vegas.

He's been overseeing maintenance of the private club's 27-holes since last July, after managing the grow-in of a renovated nine holes last spring. Though the new nine has a recently installed Toro/Rain Bird hybrid irrigation system that's already helping save water, part of Pollok's job is to evaluate the water use on the other 18 holes.

A combination of leveling all the irrigation heads, upgrading 20-plus-year-old nozzles and reprogramming the irrigation systems to run with a crop coefficient of 1.1 vs. 1.5 has saved an average of 10 million gallons of water per month.

"That's substantial when you're paying \$700 per acre foot," he says. "All of these things add up to savings. I like to keep a little drier golf course than most."

Spanish Hills will spend more than \$1.2 million on this year on water expenses.

All of the water is reclaimed, which means the maintenance staff battles high pH, bicarbonate and sodium levels, which is a recipe for poor water and nutrient retention.

To mitigate these factors, Pollok aerifies with a Soil Reliever, then topdresses with a 90/10 mix of sand and Dakota Peat, then



makes a pass with a Toro OnePass to process the cores and mix in the topdressing material. Finally crews drag the surface to work the organic matter back into the soil.

The results of the aerification and topdressing program have been good so far, Pollok says, though he says it'll be three to five years before it fully pays off.

"We're seeing a flush of growth after we aerify, which is a product of opening up the soil and getting the air and organic matter down there to retain nitrogen and moisture," he says.

Pollok doesn't just rely on observations to ensure his programs are working, though. He conducts quarterly soil and water tests through consultant Corey Angelo, who works with Brookside Laboratories.

"We base our entire fertility program around our soil test," Pollok says. "Prices of fertilizers have gone up. If I'm putting on a product our soils don't need, that's money wasted. And since our water is not the best, we want to make sure we're documenting what's in it, because that dictates a lot of what we do as well."

But just because his water quality is not the best, that doesn't mean Pollok is not interested in saving it.

"We turf managers need to make sure our irrigation systems are working as efficiently as possible," Pollok says. "The added tools of aerifying, deep-tining and adding organic matter are only going to make matters better."

More than half of the 18-hole golf facilities in the Southwest, Southeast and upper West/Mountain regions have had their irrigation water analyzed since 2003. Golf facilities with more holes, higher budgets and private facilities are more likely to test the quality of their irrigation water.\*

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## 5. MAKE ROOM FOR MONITORS

Though only 3 percent of golf courses use soil-moisture sensors to schedule their irrigation systems, according to GCSAA research, superintendents who use the technology say it's an area of opportunity for saving water, thanks to recent product improvements, increased drought conditions and a focus on water conservation across the nation.

Golf course superintendents with soil-monitoring technology say they'll cut an average of 10 percent of their typical water use, according to a May 20 New York Times article. Depending on the volume used and cost of water, the systems can pay for themselves within the first year. The Times reported that an Advanced Sensor Technology subsurface system including 18 wireless sensors, 3 routers and gateways, software and help from an agronomy support staff, would cost slightly more than \$11,000.

Shawn Emerson, the superintendent

at Scottsdale, Ariz.'s Desert Mountain Golf Club, which has six courses and 500 acres of turf, told the Times the facility would save more than 100 million gallons of effluent water for the year. That equates to between 18 million and 20 million gallons per course and, based on current prices, about \$130,000 in savings.

The Card Sound Golf Club in the Florida Keys installed wireless sensors in April, the Times reported. The facility's high salt content recycled water requires superintendent Sean Anderson to regularly flush his greens with fresh water. Before the club installed sensors, he used about 150,000 gallons every two weeks.

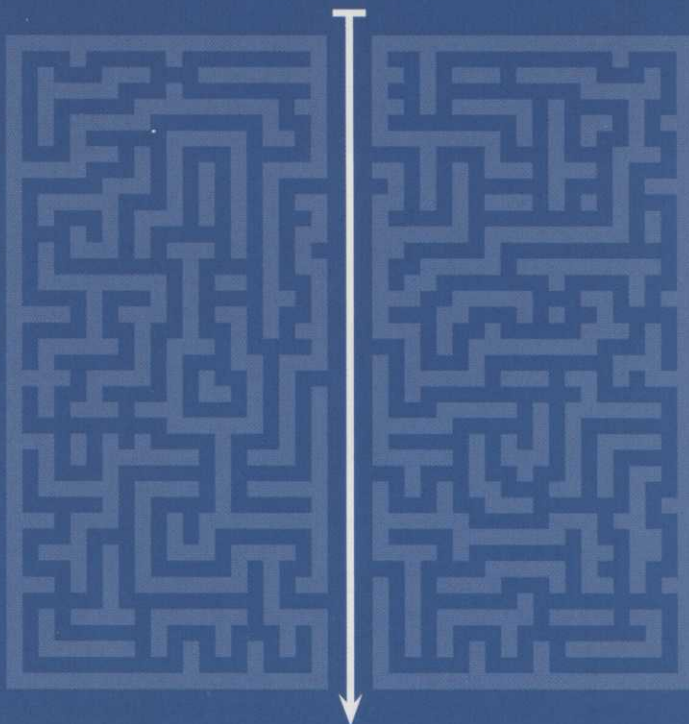
"We have actually cut in half the amount



of water we were using," he told the Times. "To me, it sort of shows that the sky is the limit with this technology." GCI

**Approximately 3 percent of golf facilities use soil-moisture sensors to aid in irrigation scheduling.\***

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