

# Dealing With Water Woes

BY LARRY AYLWARD, EDITOR

**T**im O'Neill is beaming because his life as a superintendent is about to make a sweeping change for the better. The certified superintendent's course, the Country Club of Darien (Conn.), is getting a new irrigation system.

Darien's previous 40-year-old irrigation system had 240 heads, and the new system has 1,200 heads. No longer will O'Neill and his crew have to haul hoses and sprinklers to certain areas not adequately watered by the old irrigation system. With the new system, O'Neill says the course has a water conservation plan to turn

From installing a new irrigation system to using surfactants, superintendents can cut down on water use

back, turn down and turn off certain heads to conserve water during specific times of the year.

"It's going to change this golf course and my life," says O'Neill, noting the course also installed a new pump station a few years ago. "It's going to allow us to use water more efficiently. We

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Certified superintendent Tim O'Neill can't wait for his course to finish installation of a new irrigation system.

COURTESY OF CC OF DARIEN



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should be able to use only the amount of water we absolutely need.”

You might think Connecticut is an oasis compared to some states, but it's not. About 18 months ago, O'Neill sought approval to expand his irrigation pond by 40 percent. He says his request came under tremendous scrutiny by local lawmakers but was eventually approved by them and is now being reviewed by the state. “It opened my eyes to the importance of water and how we use it,” O'Neill says.

O'Neill, who's been at the course 20 years, says the state is also cracking down on courses for not having water diversion permits, which are required in Connecticut if a course draws more than 50,000 gallons a day.

O'Neill says he wouldn't be surprised if more area courses aren't looking at installing new or upgrading existing irrigation systems. New irrigation systems have greatly improved the efficiency of water use, says Brian Vinchesi, president of Irrigation Consulting in Peperell, Mass.

The problem is at least 40 percent of U.S. golf courses have old irrigation systems that are wasting water. And “old” isn't necessarily 40 years like Darien's system. Any system installed before 1991 can be considered antiquated and inefficient, Vinchesi says, noting that irrigation technology changed dramatically in the early '90s.

Vinchesi and O'Neill realize many courses can't afford to fork out \$1 million to \$2 million for a new state-of-the-art irrigation system, but that doesn't mean older irrigation systems can't function properly with maintenance and updating of vital components, such as control systems and irrigation heads. “You can still enhance your existing system to make it more efficient,” O'Neill says, adding that the key is not to fall behind on maintenance.

### **Effluent is in, but ...**

Effluent water for golf course irrigation is a major trend in dry states such as Florida, Nevada and Arizona (*see sidebar*



Wetting agents and surfactants will help soil hold water better in root zones.

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on page 39). But effluent water will soon be in vogue in other states, thanks to an impending potable and freshwater shortage. “We're headed in the direction of using more effluent water,” says former superintendent George Frye Jr., now a water consultant in Kiawah Island, S.C.

As Frye points out, effluent water has an upside and downside, the latter meaning it can contain high levels of calcium magnesium carbonates, sodium and alkaline substances. He notes that suspended solids in effluent water can damage soil by plugging pore spaces.

It's vital that superintendents adjust agronomic practices to deal with the different types of effluent water, Frye says. “Superintendents have to design agronomic programs around their water quality, not their soil tests,” he adds.

Frye is a proponent of sulfur burners to produce sulfurous acid to reduce bicarbonates, sodium and alkaline in water and soil. He is a consultant for Aqua SO<sub>2</sub>, a Grass Valley, Calif.-based company that markets sulfur burners.

“Golf courses will be forced to deal

with more poor-quality water in the future,” Frye says. “So we're going to have to figure out how we can use poor-quality water and get the same results we were getting when we used good water at a low cost.”

Frye says sulfurous acid is a step in the right direction.

### **Not just for localized dry spot**

You thought wetting agents and surfactants could only help localized dry spot.

Stan Kostka, director of research and development for Cherry Hill, N.J.-based Aquatrols, points out that more superintendents claim surfactants and wetting agents have helped them cut down on water use. Turf treated with surfactants and wetting agents helps soil hold water better in root zones.

Aquatrols doesn't have formal information or statistics to market its products as “water saving,” but the company is gathering the information. “We want to be able to say that surfactants can allow superintendents to have more control of the water they apply so they can use

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it more efficiently," says Demie Moore, Aquatrols' director of communications.

Clint Smallridge, certified superintendent of Banyan GC in West Palm Beach, Fla., put wetting agents in an injection system on his irrigation pump. It helped him cut back on water — and his course was still in good, green shape.

"We get as much moisture out of a cup of water that we used to get out of a gallon [because of wetting agents]," Smallridge says. "Wetting agents are a thing of the future."

### Super turfs

Drought-resistant turfgrasses have helped superintendents decrease water use. Indeed, the turfgrasses are a godsend for many golf courses, but are they green and flush *enough* for picky golfers?

Ronny Duncan, professor of turf breeding at the University of Georgia, says turf scientists continue to improve the genetic components of drought-resistant turfgrasses so they are more efficient in water uptake. "There are about 1,000 genes involved with drought tolerance in turfgrass," Duncan says.

Seashore paspalum is another new

turfgrass that will help conserve potable and fresh water because it can be irrigated with alternative water sources, such as saltwater. Duncan, who has bred strains of seashore paspalum and is marketing the turf, stresses that the salts have to be constantly managed to prevent buildup in the soil. "You never get away from managing salts — before, during and after managing the grass," he adds.

Duncan would love to try and grow seashore paspalum in Boston or Cleveland, but the turf doesn't have the cold

**Hand-watering dry areas is better than turning on an irrigation system and watering areas that don't need moisture.**

hardiness of ryegrass. "We're not pushing it north of a general line from south of Raleigh, N.C., to Chattanooga, Tenn., to Little Rock, Ark., to Dallas to San Francisco," he adds.

### Desalinization?

In 1998, former U.S. Senator Paul Simon wrote, *Tapped Out: The Coming World Water Crisis and What We Can Do About It*. Simon advocated desalinization in the book.

Duncan, however, says desalinization is not the answer for the golf industry's water problems. It can cost about \$1.2 million to build a desalinization plant to provide water to one golf course, Duncan says. Since the plant is always running, a golf course's energy bill would increase dramatically.

Duncan also notes that getting rid of the concentrated salt collected from the water is not an easy task. "It's a very concentrated brine and getting rid of it is a challenge and requires special permits," he adds. ■

## Less Water, Better Turf

Even if it's left a little brown, turf experiences many benefits when it's left a little dry, according to the *Turfgrass Maintenance Reduction Handbook*:

- Better wear tolerance
- Fewer weeds
- Fewer diseases and insects
- Fewer clippings
- Better fertilizer and pesticide efficiency
- Less wastage for water overthrow
- Less thatch

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