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H₂O, NO...NOT AGAIN

What more is there to say about water? We know that we need it, that there's not enough of it, that our profession depends on it, and that we get charged for it so it has tremendous impact on owners, members, and golfers.

Why don't I like water? Because as important as it is to what we do, it is fickle.

When there's too much water, a golf course becomes too wet, creating a fertile breeding environment for insects and diseases.

Ask Matt Schaffer, the superintendent at Merion, if he's a fan of water. After seven inches of rain fell during the week of the U.S. Open, probably not. I'm fairly sure Matt and his crew didn't sleep much that week, working non-stop to save the course.

When there's not enough water, turf won't grow, bare patches of dirt are unsightly and hard to play from, and golfers complain that they want Augusta – not Arizona desert. Those of us in charge of keeping courses playable prefer to keep golf courses a little dry, so they are healthier while actually aiding golfers who benefit from a playing field that is "firm and fast." I don't think we've done a very good job explaining that truth to golfers. But even if we did, it takes just one freak storm (a more and more common occurrence these days) to wash that philosophy down the drain.

No matter what we do, no matter how much planning and preparation, ultimately we are all victims of water. Watch the news and you're guaranteed to see back-to-back stories about floods in one part of the country while other areas parch. The recent rash of tornadoes doesn't help, nor do the ongoing battles with farmers, environmentalists, government agencies, and amateur gardeners.

There is only one thing we can all

agree upon regarding water: There's not enough of it to go around. As natural resources go, it is most important. And most in trouble.

I also don't like water hazards, especially when they're on the right side of a course because I occasionally fade the ball. Okay, that's a little

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personal, but most golfers regularly fade – make that slice – the ball, and seeing water down the right side of a hole is frightening.

But you know what I really don't like about water? How much we talk about it. I'm tired of the conversation, of the hand wringing, of having to explain to those same owners, members, and golfers that water is mostly out of our control.

And yet we have to keep telling them, again and again, just how important water is. Educating the golf audience about water's uses and abuses is one of our most critical tasks. Just because you and I know that water is our most valuable resource does not mean everyone does. So keep saying it. Keep talking about water. And keep educating yourself on better ways to live with water where you are, whether it's in short supply or overabundance.

Here are a few ideas for superintendents everywhere to better manage the water they have.

Take the guesswork out of your water use. As management consultant Peter Drucker said about the business world, "If you cannot measure it, you cannot manage it." Those words are especially relevant to water. Measure what you use, factoring in ET and rainfall. Keep a record of use in inches

per acre, including a calculation of the actual annual percentage of ET replacement.

Keeping accurate records may save you someday when asked to prove if your course is as efficient as our industry claims. In my travels around the country working with courses

and superintendents in different climate zones, I'm amazed how many courses irrigating with groundwater and surface water don't keep accurate measurements of their water use or only meter at their water source. That's just not good enough, and at the risk of trying to be funny, someday that lack of evidence will leave you high and dry.

When you do keep records, remember to account for lake, pond, or water feature evaporation. Water features generally evaporate at almost the same rate as turf covering the same area (factors affecting evaporation include climate, wind, temperature, and lake depth). If you're not sure about evaporation rates, hire an expert to help.

If you're drawing water from an aquifer large or small, you need to be concerned with groundwater overdraft and subsidence. Once settling from subsidence occurs, that storage space is gone forever.

I know you probably don't want to attend any more conferences, but I've been to a number of irrigation and water-management meetings lately and a prime topic is long-term groundwater management. I guarantee the golf industry will be in the middle of this discussion very soon.

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To understand the sort of issues we'll be dealing with, check out this study of subsidence in California's Coachella Valley (Enter on.doi.gov/145fYKX into your browser to read this study). The end result was a \$50 million pipeline that brings additional surface water from the Colorado River to Coachella Valley, the region that includes Palm Springs. The water comes into a reclamation plant where it's blended with recycled water to meet the summer demands of up to 50 golf courses that draw on the aquifer.

Another term splashed about at water conferences is "direct potable reuse." The availability of recycled water for irrigation may decline as new methods of treatment allow for more recycled water to go safely back into the water system for drinking. Here's an example from Texas (Enter nyti.ms/WTx8IF into your browser) and a demonstration project in San Diego (Enter bit.ly/bHkurf into your browser).

A leading irrigation consultant told me that such projects are, "a double-edged sword because yes, they increase supply, but advanced treatment means higher water rates for the membrane (reverse osmosis) operation and brine disposal infrastructure and operating costs. This process is just starting to gain traction in the industry."

All of which means that while you also might not like water, you need to know about it. Down to the last drop.

Okay. So what do I like about water?

I like that it comes in three forms: frozen, liquid, or gas.

That three-quarters of the earth's surface is covered in water, and that we are trying to find safe ways to harness its power.

In frozen form, it's ideal for skating, a key element of my second favorite sport – hockey, and the perfect complement to my post-round Grey Goose and tonic.

I like showering after a long day on the golf course, and especially at great clubs like Riviera, Merion, and Pine Valley where the showerheads are big and fully pressured.

One more thing to like about water: It keeps us healthy. Remember to stay hydrated, and to make sure your staff drinks enough water, too. Unlike golf courses, for us there is almost no such thing as too much water. **GCI**

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have a tremendous influence on irrigation decisions – we water smarter.

We tend to focus on applying water to golf courses to even out precipitation. But in a year like this, drainage systems can be important to good golf turf. During this year's Memorial Tournament, Jack Nicklaus was discussing a drainage project and concluded with, "Drier golf courses are more fun to play." He's right.

Water is obviously the most important factor in manag-

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sand topdressing, and the unorthodox use of the fairway rollers as a squeegee allowed the native soil golf course to bounce back from several inches of rain in just a day or two. It's important to point out these results didn't happen overnight. Many years of modified cultural practices were used in advance of the championship to ensure the course was playable if and when a major storm hit.

The bottom line? Many things can impact the playability and health of your golf course, and irrigation/moisture management is high on that list. While some of these practices can have a quick impact on moisture management, others require long-term planning and implementation before the practices pay off.

While we continue to increase our use of scientific instruments to help determine irrigation inputs, the overall process will continue to remain more of an art than an exact science. The turfgrass managers that fine tune irrigation and moisture management are usually the ones that make it through the most difficult of conditions. The superintendents who figure out how to combine the art with the science will likely continue to have the most success. **GCI**

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At the same time, irrigation and water management issues were taking 80 percent of Eric's time. With the new system, irrigation materials and labor repair costs dropped to \$2,500 annually and hand-watering hours dipped to 500 hours (50 percent less). The greens are now hand watered, which they were not previously, and accounts for the majority of the hand watering. This decrease in labor has allowed the staff to concentrate on other course improvements.

The new irrigation system has greatly improved the consistency of the course playability, not only on a hole-to-hole basis, but from a month-to-month basis throughout the golf season. It has also been a major factor in the aesthetics of this link-style course allowing it to be dry where and when it is supposed to be, which has brought out the original design intent. **GCI**

ing a golf course. Turf cannot live with either too little or too much. And water has become a national concern in the most recent decades. When I look back to watching my grandfather use a forked stick to dowse for spring water on his farm, to contemporary golf course irrigation considerations, I really do feel my age. That perspective, however, leads me to have a lot of confidence that our golf turf industry will continue the innovation needed to carefully use this precious national resource. **GCI**