

# Water Power

Despite the hefty investment, a new irrigation system could pay dividends like a blue-chip stock

**I**t's understandable if you get jittery before asking the boss to splurge for a new irrigation system. After all, we're talking up to a million bucks or more, probably the most money you'll ever request unless you decide the maintenance facility needs an original Monet to spruce up the place.

James Nicol, certified superintendent for Hazeltine National GC in Chaska, Minn., jokes that he prayed for a drought before approaching his boss about buying a new irrigation system. Seriously though, Nicol had a good reason to ask the course owner to spend major bucks on this improvement.

"We want to hold major championships at our course," he says.

If you want a prestigious tournament, you had better maintain an esteemed course.

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BY LARRY AYLWARD, MANAGING EDITOR







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## Water Power

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That means your operation should feature technologically advanced equipment, such as a state-of-the-art, computer-driven irrigation system.

In the summer of 1998, Hazeltine replaced its 35-year-old irrigation system, a single-row design with about 390 sprinkler heads, with a new \$1 million setup primarily consisting of three rows and about 1,400 sprinkler heads. Incidentally, Hazeltine is hosting the 2002 PGA Championship.

"If you want to run in those circles, you had better be able to provide the product," Nicol says. "Our previous irrigation system wouldn't allow us to do that."

Even if you're not hosting a Major, there are other reasons to purchase a new irrigation system. Yes, it's a major expense, but a new system can help a golf course save money in the long run, notes Rod McWhirter, national specifications manager for Rain Bird.

If a course has an old system, it may have an outdated pump station and control system, which uses considerable electricity. Newer irrigation systems feature more effective equipment that spray as much water as older systems but in a faster, more efficient way, thereby cutting down on electricity use, McWhirter says.

A modern, well-designed irrigation system also provides better uniformity of coverage in flat and high areas, he notes, adding that some irrigation systems can also be used for fertigation and application of selected chemicals.

In a day when competition is as fierce as the Army-Navy football rivalry, a new irrigation system can help a golf course gain an edge on the competition down the street. Most of the newly built and renovated courses are daily-fee and high-end operations competing for golfers who expect Augusta-like playing conditions. Properly maintaining a course, therefore, is vital to bottom-line business success, experts say.

"Fertilizing, overseeding and mowing is important," says Don Bulmer, golf sales manager for the Toro Co.'s Irrigation Division. "But irrigation keeps everything going."

### How much?

A new irrigation system includes a pump station, mainline pipe, lateral pipe, sprinkler heads, satellite control boxes and handheld radio capability. It costs \$700 to \$800 per sprinkler head, including installation, Bulmer estimates. For a course with 1,000 sprinkler heads, the system would cost \$700,000 to \$800,000, not including the pump house.

Nicol says Hazeltine could have spent more than \$1 million on

**A modern, well-designed irrigation system provides better uniformity of coverage in flat and high areas.**

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its system, which was considerable. He advises others not to be thrifty unless they're concerned about bottom lines.

"We used quality materials and a quality contractor," he adds. "We purchased the latest and greatest equipment as far as a controller, central unit and computer. It doesn't pay to be cheap, especially when you want to host championships."

But many people, especially members, become tightwads when it comes to purchasing a new irrigation system, says Brian Maloy, a USGA agronomist in Carrollton, Texas. "Most people start coughing when it comes to spending more than a few thousand dollars," he adds.

Something buried underground is out of sight and mind to members, Maloy says, even though it's paramount to the operation. "Probably the most difficult challenge that superintendents face is trying to convince membership that an irrigation system is the most important thing in their arsenal to provide great playing quality," he says.

Maloy, who covers Texas, Oklahoma, Arkansas, Louisiana and New Mexico, says up to 70 percent of the golf courses he sees are functioning with outdated irrigation systems. What's an antiquated system? A single-row design without wall-to-wall coverage, Maloy says. "There are a lot of isolated wet and dry areas because of this system," he adds.

## DROUGHT BUSTERS

**In dry times, superintendents can find an oasis of comfort in high-tech irrigation systems to help keep their golf courses green and playable**

Art Eichas, superintendent at Ridgemont CC in Rochester, N.Y., summed up the general feeling among golf maintenance professionals about a drought that occurred last summer.

"It scares you to death," he says. "When you look at the course, you can actually see the brown coming."

Eichas certainly wasn't the only worried superintendent in the Mid-Atlantic and Northeast, where dry weather persisted through August. Mandatory water restrictions across the region had superintendents scrambling to find ways, not simply to keep their courses green, but to keep them playable.

"We were in a drought from the end of May into September," notes Bob Miller, superintendent at En-Joie GC in Endicott, N.Y. "We didn't get any rain until Hurricane Floyd came along and decided to give us a dose. No one was in good shape all year in terms of water availability."

Judging from their experience this summer, Eichas and Miller agree on one thing: If there's no water, golf courses will suffer. Both superintendents believe there are ways that can help courses cope with water shortages, however.



Hazeltine's old irrigation system was built with the course in 1963. Over the years, fairway designs had changed, but the irrigation was never updated. When Hazeltine was awarded the PGA two years ago, Nicol knew a new irrigation system was essential.

"We needed to establish a severe rough," he says. "We wouldn't be able to do that if there was a drought."

Also, because the old pipe was contaminated with asbestos, Nicol didn't want his crew members trying to repair cracks in it.

The decision to purchase a new system may come down to whether or not a superintendent wants to keep spending money to fix an old system, McWhirter notes.

"If a course has a 20-year-old system, the superintendent is probably spending a lot of money to maintain it," he says. "That's money down the drain."

## The consulting factor

If you've convinced your boss to purchase an irrigation system, you may want to hire a consultant.

"An irrigation consultant tells you what you need, and you tell him what you can afford," Maloy says. "Then he tries to marry the two."

Irrigation consultants have been around for about 30 years, Bulmer says, but they have become popular in the last 10 years. There are about 65 U.S. consultants, and some have formed their own

## Irrigation answers

"Technological advances in irrigation central control systems give courses the ability to use water efficiently and effectively," says Eichas, whose course uses a Rain Bird decoder system and Nimbus central control. He believes that moderately dry conditions are preferable to overly wet conditions when you add a good irrigation system to the equation.

"Too much water is a worse situation," he adds. "In severely dry conditions, central control technology gives a golf course a chance by putting down just enough water to keep the grass alive. This technology not only makes irrigation easier, it makes irrigation more efficient."

Rod McWhirter, national specifications manager for Rain Bird Sales/Golf Division, explains that superintendents need to maximize the water they have available when it's in short supply. "The latest central control systems utilize a weather station, which allows the system to put down an exact amount of water," he adds.

An important advancement in central control technology is the use of

evapotranspiration-based watering. Through a weather station located on the course, irrigation control systems can actually track the exact amount of water lost on the course each day and use that information to create a watering schedule, which only replaces the amount lost. According to McWhirter, an irrigation system with this technology can automatically adjust sprinkler run times to apply only what was lost in 24 hours. "In the end, these systems make water conservation convenient," he says.



association, the American Society of Irrigation Consultants. ASIC's mission "is to enhance the role of the independent professional irrigation consultant as the unbiased advocate of the client."

David Beck, who operates an irrigation consulting business in Boise, Idaho, says his job is to help superintendents and other course personnel design and update irrigation systems. He provides bid documents, but not installation. He rarely endorses a supplier.

"I put a golf course in the position to get the best system for the best price," he says.

Beck says 75 percent of his work is replacing existing irrigation systems that are 25 to 30 years old. He's paid 3 percent to 5 percent of the total project cost.

Hazeltine hired a consultant to help with its design, and Nicol says it was money well spent.

"The consultant did a lot of work and took the pressure off me as far as design and pipe fitting," he says. "He was a great conduit between myself and the contractor."

Beck says most superintendents don't know all there is to know about irrigation systems. "They're familiar with the maintenance of systems, but they're not familiar with hydraulics, pipe fluid mechanics and electrical power requirements," he adds.

One of the worst things that could happen is if a golf course spends between \$500,000 and \$1.5 million on an irrigation system and something goes wrong, Beck says, adding that after-service is a

vital component of the purchasing process, whether it's from the consultant or manufacturer's distributor.

"I provide the assurance that I will be there at the end of the construction process to make sure a superintendent understands how to use a system," Beck notes.

Nicol says availability of personnel is the most important part of after-service. For instance, Nicol had a slight problem with his new irrigation's system pump station after it was installed. But a distributor representative came to the course to solve the problem the day it was reported.

Distributors can't afford to be lax in their efforts to provide excellent overall service. Competition is intense among the few suppliers, Bulmer says. "We're selling products at a lower margin than we ever have," he adds.

But business, despite low margins, is also healthy. That has to do with the state of the golf course industry, which is booming in new course development and renovations.

Bulmer expects business to thrive until new course construction, which comprises about 45 percent of Toro's business, begins to slow in the next 12 to 18 months.

McWhirter predicts that irrigation system replacement will remain steady for the near future.

"At least half the courses in the United States have systems that are 15 years or older," he adds. ■

While En-Joie GC never endured a mandatory restriction, the municipal course drastically curbed its consumption of city water as a courtesy, Miller says.

"I was able to call the city's water superintendent and tell him exactly how much we needed to use each night," says Miller. "When you have the ability to determine exactly how much water you will need to use, it's helpful in this type of situation."

While Eichas believes ET-based watering is the key for eliminating over-watering, he likes the fact that advanced systems give superintendents the ability to tailor the watering schedule.

"I get out on the course every day to see what's going on," he says. "We're located on an old lake bed, so we have anything from gravel to clay to sand soil to work with. It's important for me to go out and see how things look and make adjustments as needed."

In a drought, the ability to tailor a water schedule can mean the difference between getting by with available water and running out in midseason.

"Instead of watering for 15 minutes and putting down a quarter inch, I can go out and take a look at what's happening and make a slight adjustment in a matter of minutes," says Miller, whose course hosts the PGA Tour's B.C. Open. "I can drop the system down to eight minutes, put down half the water and possibly get the same results because I know exactly how much that area needs."

#### Design considerations

McWhirter says that central control systems can't conserve water without a well-designed irrigation system. "If you have an older system in terms of sprinkler heads and piping and you've upgraded it with a newer control system, it won't compensate for poorly spaced or inadequately spaced sprinklers," he says.

McWhirter says systems installed in the last five to eight years probably have newer sprinkler technology as well as advanced central control systems. Systems with more sprinklers spaced closer together will have better watering uniformity and greater ability to pinpoint watering.

"Irrigation design consultants and manufacturers have been preaching the importance of a good system design for water conservation for years," McWhirter says. "We now use smaller sprinklers, zone them specifically, and let the environmental conditions determine how long they run. That wasn't typical 10 or 15 years ago."

He compares a well-designed irrigation system to a well-designed lighting system. A ballroom, for example, won't have one big light in the middle of the room. Rather, the room will be illuminated by various specialized lights — around the edge of the room, recessed in the ceiling and over a stage. Golf course irrigation systems aim for the same type of specialized design to assure uniform coverage and minimal wasted water.

Eichas and Miller believe that advanced irrigation systems are vital to cope with water shortages and for furthering environmental stewardship, but they also believe expectations for course conditions are sometimes unrealistic. They point out that technology can only ensure that existing resources are used efficiently. Beyond that, they say it's out of their control.

"Golf is an outdoor game, played on an outdoor surface," Miller says. "Everyone should know that you can't fight Mother Nature because eventually she is going to win."

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*Editor's note: Jason Schmaderer, the author of this story, is a public relations writer in the turf maintenance industry who's based in Lincoln, Neb.*