



Super Saver

Retrofitting irrigation nozzles not only saves water, but courses are learning it can have a dramatic impact on reducing water costs, too.

With U.S. golf courses using upwards of an estimated 476 billion gallons of water each year, management companies like American Golf Corp. are taking the lead in implementing innovative conservation strategies.

American Golf, based in Santa Monica, Calif., operates more than 110 private, resort and public courses across the country, with 60 in the drought-prone

“golden” state of California.

One water-saving strategy that’s delivered measurable results is American Golf’s ongoing switch-out of plastic rotor nozzles to solid metal nozzles.

Just during the last three years, American Golf has retrofitted more than 20,000 nozzles on nearly 20 southern California courses with an estimated annual water savings of at least five percent per year.

With a typical southern California course using more than 100 million gallons annually, a five percent savings translates to five to 10 million fewer gallons per course – or hundreds of millions less for American Golf.

REBATES FOR SWITCH-OUTS

Driving the nozzle retrofit effort is the powerful Metropolitan Water District of Southern California (19 million customers), which has been offering rebates to courses in key counties for every set of Profile nozzles they install. Referring to them as “high-efficiency nozzles,” MWD only accepts field-proven Profile nozzles in the rebate program.

“At American Golf we are committed to being good environmental stewards and to finding new ways to reduce water consumption,” says Scott Bourgeois,

American Golf’s southern California director of maintenance.

“The MWD rebate program has been an excellent opportunity to participate in a beneficial partnership to help achieve water conservation goals,” he says.

An obvious byproduct of the program from a customer perspective, says Bourgeois, is improved turf conditions through Distribution Uniformity, which enhances playing conditions.

DU rate is typically a barometer of turf condition and indicates whether a sprinkler is delivering uniform irrigation coverage. A low DU rate of 0.55 or less indicates that coverage is inconsistent, resulting in dry spots, donuts or over-watered areas. A high DU rate of 0.80 or better shows that irrigation is uniform, resulting in healthier turf and improved appearance. With a





Using retrofit irrigation nozzles not only provides better coverage distribution uniformity for turf, it actually saves the course money in energy costs. American Golf courses using retrofitted nozzles in the last three years had an annual water savings of at least five percent per year.

higher DU rate, sprinklers can be programmed for shorter run times, saving water and energy.

In just the last three years, numerous public and private courses in southern California have used the rebate program, “Save Water – Save a Buck.”

ANNUAL SAVINGS

In promoting the program, MWD estimates that installing “high efficiency” Profile metal nozzles can result in annual water savings of up to 6.5 percent.

“Mostly used on golf courses and other open landscapes for long-range and close-in watering, high-efficiency nozzle retrofits provide a healthier and greener turf with improved water distribution,” according to www.mwdsaveabuck.com. “These nozzles also save water, save energy and result in lower

maintenance costs.”

Made by Underhill International of Lake Forest, Calif., Profile are the only nozzles approved by MWD for rebates on large rotary golf course sprinklers.

The MWD program was implemented following a comprehensive study on Profile nozzle performance conducted by Dr. David Zoldoske at the Center for Irrigation Technology (CIT), California State University, Fresno.

After two years of rigorous testing at five representative California courses, CIT concluded that Profile metal nozzles retrofitted to Rain Bird or Toro golf rotors performed with consistently higher Distribution Uniformity. Each course in the study saved about 6 million gallons annually with the Profile nozzles.

One of the keenest observers of golf irrigation practices is Brian Vinchesi, president of Irrigation Consulting Inc. of Pepperell, Mass., and Huntersville, N.C.

Vinchesi became acquainted with Profile nozzles through both the CIT study and cross-country business travel, talking with superintendents who had installed the solid metal nozzles.

“What sets Profile nozzles apart is they are essentially ‘custom made’ for the industry’s most

popular golf heads,” he says.

“They’re not a product that can be mass produced and still perform at the same level of consistency. The precision required for uniform coverage is better accomplished by a smaller manufacturer with good quality control,” he says.

In surveying irrigation systems at hundreds of courses in the U.S., Vinchesi concluded that older sprinklers deliver very poor Distribution Uniformity (DU), which is only minimally improved with maintenance.

PRACTICAL AND INEXPENSIVE SOLUTION

Sprinkler heads manufactured in the 1980s and 1990s were, in fact, never designed to deliver optimum DU, he says, as water use was not an issue.

The options for superintendents have been limited up to now. Typically, courses either replaced the internal mechanisms or the entire head, or resorted to daily hand-watering of dry patches during the summer.

“However, in this current economic climate, Profile metal nozzles have become a practical and relatively inexpensive solution to improving Distribution Uniformity without the expense

of replacing a golf sprinkler or its internal mechanism,” Vinchesi says.

That’s exactly what Superintendent Logan Spurlock had in mind when he retrofitted the entire Jack Nicklaus-designed Sherwood Country Club in Thousand Oaks, Calif., with metal nozzles.

Although Rain Bird 700 Series rotors were installed in 2005, loose impediments, such as sand, were restricting flow through the nozzles, resulting in uneven water distribution. Nozzle clean-outs were becoming a routine.

The course, situated in a picturesque area north of Los Angeles, was once a popular location for early Hollywood adventure films. The original “Robin Hood” was filmed on what is now Sherwood’s front nine. Because of the movie, the area became known as “Sherwood Forest.”

Each December the course hosts the PGA Chevron World Challenge, benefiting the Tiger Woods Foundation.

After prepping the course for the 2009 tournament and battling the clogged nozzles, Spurlock looked for a better way.

Networking with fellow superintendents, he investigated Profile nozzles and learned his course qualified for the MWD

retrofit rebates. He ordered a sample set and after testing them on a fairway, Spurlock and his crew were convinced.

“The nozzles totally lived up to our expectations,” he says.

“We decided to do a major switch-out and within three months our irrigation crew changed more than 500 heads, working on three to four fairways a day,” he says. “It was a hectic pace, but worth it. Right away, we could see better DU from close-in coverage out to the furthest reach of each head.”

CONSERVATION AND WATER MONITORING

Spurlock has a mixed bag of water sources: 50 percent reclaimed, 25 percent well and 25 percent potable, only used on the greens.

“Even with our multiple water resources, conservation is a still a concern,” he says.

Before installing the Profile nozzles, he ran the irrigation system for extra minutes to green up the course. Now he has shortened run times for a more efficient schedule and has implemented “cycle and soak” programs



Profile retrofit nozzles have tiny notches pressed into the nozzle face along the stainless steel insert. The notches strip away a small amount of water from the main stream, dropping it closer to the sprinkler head, spreading the stream more uniformly.

for healthier root growth and less run-off.

Even while courses are enacting water conservation measures and adjusting scheduling, Vinchesi warns water monitoring by state and local water districts may be on the horizon.

“In areas of the country, especially in the west, there is no requirement to measure or

report how much water a golf course is using,” he says.

“In most eastern states, however, to pull water from the ground or from surface water, a water withdrawal permit is required. These permits are usually for diversions of 100,000 gallons or more on an average daily basis, which an irrigated golf course easily exceeds,” he adds. “Measuring and monitoring your water use is also the responsible thing to do. If your water usage jumps up or your water use significantly decrease, it’s a sign that something in the irrigation system has changed. So monitoring water use can be a troubleshooting tool, as well.”

By anticipating coming trends in golf course water management, superintendents who implement conservation strategies now will be better able to work with new mandates while still maintaining “fast and firm” championship courses. **GCI**

Nancy Hardwick is head of Hardwick Creative Services in Encinitas, Calif.

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