

THIRSTY TURF

A short course in water conservation.

by RON DODSON

IT'S A beautiful spring morning. Water cascades across green fairways and putting greens. To some, this is a beautiful sight indicative of the best efforts to ensure an enjoyable game of golf on the very best-kept turf. To other observers, it is the most visible evidence of environmental irresponsibility — spraying water over roughly 100 in-play acres on every golf course all across the country so that a few people can chase a little white ball. They consider it a waste of a critical natural resource that is needed for drinking, growing food, and providing

one of the most basic elements of life on this planet.

Of all the environmental issues facing golf, water is very near the top of the list in most places around the country because *it is* a basic requirement of life. Every living thing — plants, humans, wildlife — needs its fair share in order to survive. Even though water often is considered a *renewable* resource, its use on golf courses is viewed by many as unnecessary and wasteful.

The fact of the matter is that many of us do waste water. How many times

have you seen sprinkler systems running while it's raining? How about irrigation systems shooting water onto roadways, cart paths, or into water features? To people who are concerned about golf and its effect on the environment, these sights send cold chills down the spine. This apparent disregard for the responsible use of water clearly does not project a positive image for golf, but nonetheless, I see these and other equally wasteful practices frequently. On the other hand, I have also seen many golf courses that use water very efficiently and also use

By using part-circle heads around lake banks, only turf areas are watered. Irrigating only in-play areas of the golf course and not water features or naturalized areas can greatly reduce water use at a course.





Establishing native vegetation in out-of-play areas conserves water and reduces pesticide use.

recycled water. These courses serve as buffers against other types of land use activities that might negatively impact the quality of water. So what can you do? How can a golf course demonstrate its commitment to responsible water use and establish a more active role in water conservation efforts?

From a golf course perspective, using water effectively and efficiently can be approached from two angles: **Plant Selection and Management** and **Building Infrastructure**.

Plant Selection and Management

It should be obvious to anyone that the game of golf is played on living plants. From an environmental perspective it is extremely important that appropriate plants be chosen and then planted in the correct locations. To minimize water use, it's important for golf course land managers to judiciously integrate low-water-use native vegetation — ground covers, grasses, and other plants — into the landscape. The

challenge for the land manager is how to strike a balance between playing the game in a reasonable amount of time and not losing an unreasonable number of golf balls in tall grasses, roughs, and other non-play areas. The best approach is to target and carefully assess specific areas for naturalizing, and work slowly over a period of time to integrate native vegetation where it is most natural.

Also think about high-stress areas — steep slopes where golfers have a tendency to walk all of the time and wear out the turf, and areas where people tend to drive golf carts over and over again. These activities wear out the turf, calling for re-establishment and increased water use. Proper plant selection and traffic control play critical roles in managing these high-stress areas.

Selecting the appropriate type of turfgrass for the ecological region in which the course is located is also a critical decision. If you attempt to

grow a warm-season grass in a cool-season zone or grow any kind of turfgrass in an area that really wants to be a forest floor, you will have to create an artificial environment that will require all kinds of work, and yes, extra water. When in doubt, the USGA's Turf Advisory Service is a great resource for help in selecting low-maintenance, disease-resistant turfgrasses that ultimately will require less water to maintain.

Once you've started to naturalize the course and have selected the most appropriate turfgrasses for the ecological region, it's time to really focus on the irrigation system. It should be putting water where you need it, when you need it, and in the amount and rate that the targeted plants require. No more, no less. Check to make sure your irrigation system is really focusing on watering only those limited areas that really require watering. Remember, too, that irrigation is one of the most visible activities to the surrounding

community. Be careful not to reinforce their perception that golf courses waste extraordinary amounts of water.

Building Infrastructure

Water can also be efficiently utilized around and inside the buildings associated with the course. Around the buildings, use appropriate, native landscaping materials that not only benefit butterflies and hummingbirds, but require less water to maintain than some of the showy, heat-intolerant selections. Set an example for your members by installing low-flow toilets and water-restrictor shower and sink heads in the clubhouse and the maintenance facility. Let your members know that you've made a commitment to the environment by using water responsibly.

Do yourself, the environment, and the game of golf a favor by doing your own simple water conservation audit. It's not that hard and it doesn't take that much time. Find out how much water you're using and how much you're paying for it now. Then, look around the course, do a tour of your buildings, and see if you can find ways of reducing water use without impacting the business or the game. After a year goes by, check your water bills again and compare them. Many courses have done this and are amazed at the savings. Finally, don't forget to publicize your good efforts — the financial savings, the maintenance savings, the human resource savings, and most important of all, the benefit to the environment!

In the Spotlight

Olde Florida Club: A Fully Certified Audubon Cooperative Sanctuary. A

private course located in Naples, Florida, the Olde Florida Club has worked hard to conserve water both on and off the course. A state-of-the-art irrigation system is just the beginning. As Darren Davis, superintendent of the Olde Florida Club, states, the irrigation system is "only pieces of hardware that can be seen from the surface. Also important are the design, proper placement, and maintenance of components under the surface." Focusing on proper pipe sizes and irrigation heads is critical to an efficient irrigation system. The irrigation pipes at the Olde Florida Club are laid in a loop system that allows all areas of the course to be watered from two directions, furthering irrigation efficiency and turf health.

At Olde Florida, the irrigation system is hooked into a weather station that provides temperature, humidity, wind speed and direction, and solar radiation, which are used to calculate evapotranspiration (ET) rates. Golf Link, a satellite/computer Doppler Weather Radar System, is also used to determine when storms will be in the area, with an accuracy of plus or minus 15 minutes. Watering at less than 100% of the ET rate further maintains turf health and reduces water used at the course.

Other measures that have been used to help reduce water use include converting some areas of bermudagrass to the more drought-tolerant cordgrass, using compressed air at the wash pit to lessen water used during the cleaning of equipment, installing water-saving toilets, not irrigating native areas or water features, and using mulch and native plants for landscaping.

Egypt Valley Country Club: A Fully Certified Audubon Cooperative Sanctuary. Located in Ada, Michigan, Egypt Valley Country Club has done an incredible job of conserving water, with a yearly reduction of about nine million gallons. By keeping careful watch over course watering needs using weather data, a soil probe, and turf color, the different areas of the course are only watered on an as-needed basis. Water is further conserved by the use of drought-tolerant turf species and watering at less than 100% the ET rate. Jeffrey Holmes, Egypt Valley's superintendent, and Craig Hoffman, the assistant superintendent, have also reduced irrigated turf by naturalizing areas, using mulch produced on-site around landscaping, hand watering during high-evaporation periods, and irrigating at night when evaporation is at its lowest.

Village Links of Glen Ellyn: A Fully Certified Audubon Cooperative Sanctuary. This public course provides a wonderful example of an integrated water conservation plan. Located in Glen Ellyn, Illinois, this 235-acre course has successfully demonstrated a 32% reduction in water use. One factor in this reduction is the extensive naturalizing that has been done at the course. Fairway coverage was reduced from 62 to 42 acres, and more than 40 acres of the course were restored to native grassland and prairie habitat. Timothy Kelly, Village Links of Glen Ellyn's superintendent, and Chris Pekarek, assistant superintendent, have been maintaining water usage and rainfall records since 1977. The golf course itself is a designated flood detention area, and storm water runoff collected in course ponds is often used for irrigation. A system of valves allows transfer of water between ponds. Recently they adjusted the lake overflow structure to reduce well use and increase the use of recaptured and recycled water. In addition, testing sprinklers and repairing them in a timely manner, prioritizing water areas and hand watering during drought, and mulching and using drip irrigation in landscaped areas have all contributed to the Village Links of Glen Ellyn's successful water conservation program.

Allowing natural vegetation, including tall grasses, shrubs, and trees to flourish in out-of-play areas along the number four fairway of Egypt Valley's Ridge Course reduces the amount of turf that needs to be irrigated.



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