

# Water Conservation Strategies For Florida Golf Courses

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Water or rather the lack of water is a pressing concern throughout Florida. The South Florida Water Management District officials say we are experiencing a one in 700 year drought, one of the most severe droughts yet in Florida. As a result, water storage in many surface and ground reservoirs is at all time lows in parts of Florida. If the lack of rainfall is not enough of a problem, residents' demands for water continue to increase.

Without significant amounts of rainfall this summer and fall, severe restrictions on water use for landscape irrigation are likely to be imposed during the winter of 1981-82. Golf courses are the number one target for irrigation curtailment by water management districts. The general public perceives golf turf irrigation as a non-essential use of water even though residential irrigation is far more wasteful and uses much more water than golf courses.

Unless the usual rainfall pattern during the fall months changes radically, the outlook for turf irrigation is bleak for the coming year. To have your golf course survive with little or no water, it is essential that action be taken immediately. The turf must be conditioned and priorities established for water use on the golf course.

## Conditioning The Turf

Bermudagrass can survive drought remarkably well if the turf is conditioned or hardened-off. The secret to drought conditioning a turf is to grow a good root system. All phases of turf management are involved in this process.

The height of cut should be increased on all turf areas and especially on those areas that will not receive any supplemental irrigation. Greater leaf area for photosynthesis will produce more carbohydrates for plant growth including root systems. The higher the height of cut the deeper and more extensive the root system.

Irrigation practices for fairways should be modified so that water is applied only when signs of stress or wilt occur. On tees and greens, water should be applied when there is a loss of turgidity in the leaves, but before noticeable wilt occurs. Limiting the frequency of irrigation encourages a deeper root system. The amount of water applied at any one time should correspond only to the amount needed to wet the rootzone. These practices provide a good mixture of water oxygen in the soil for deep root growth.

Potassium and micronutrients should be applied on a regular basis. Nitrogen should be withheld on fairways. On greens and tees, apply only enough nitrogen to promote some growth for protection against wear.

Pest control is equally important as other management practices in preparing for drought. Nematode control and application of pesticides for insect control need to be accomplished BEFORE water is limiting so the turf has every opportunity to develop a deep root system.

## Setting Water Use Priorities

When faced with water use restrictions it is important to have a list of water use priorities for your golf course. The first step in developing this list is to calibrate the irrigation system of the entire golf course, not just the greens. A superintendent should know the irrigation rate in inches per hour for all areas of his course. Do not forget about the areas around the clubhouse and entrance way. Next, calculate the number of gallons of water it takes for a normal irrigation of the greens, tees, fairways, fairway approaches, rough, and other turf areas. Now make the list of priorities for water, usually greens are at the top and rough areas are the bottom. Determine the percentage of the total irrigation water to each of these areas. It may be surprising that you could shut-off irrigation on the rough areas and the fairway approaches and still provide normal

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## CALIBRATION OF IRRIGATION SYSTEM

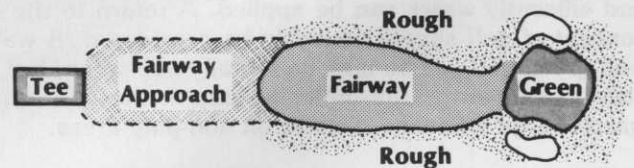


Figure 1. Calibrate the irrigation system on the entire golf course for inches per hour, and number of gallons of water applied to each area of the golf course. Use this information to set water use priorities.

## Water Conservation

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amounts of water to the rest of the golf course with 25 percent water restriction. Under more severe water restrictions, decisions on what areas to irrigate can be still made more logically with a set of priorities.

It is important that the list of water use priorities be made with the greens committee based on the superintendents recommendations. This process keeps the members involved in decisions that affect their golf course. Communication with the membership is vital, especially if the golf course appearance changes from lush green to brown turf.

### GOLF COURSE IRRIGATION SYSTEM

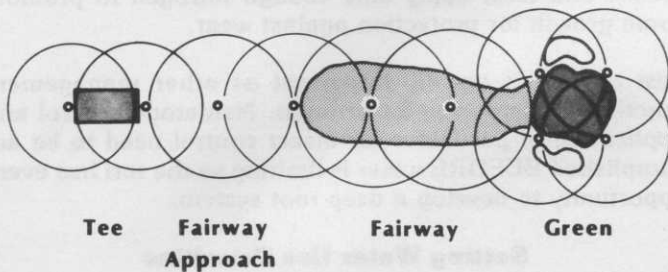


Figure 2. A typical golf course irrigation system. Note the large amount of non-playing areas under irrigation.

#### Long Term Strategies

Water use restrictions are likely to be with us for the foreseeable future. Current irrigation rates of 700,000 to 1,000,000 gallons of water per night on the typical 18 hole golf course are coming to an end. Whether restrictions stem from the lack of rainfall or the continual population growth and demand, the days of unlimited irrigation are over. The water management districts are going to allocate water first for residential use, then for agriculture which produces a food crop and far down the list will be golf courses and landscape irrigation.

The time is now to plan for survival of golf courses in the future. Evaluation of current golf course irrigation systems is one approach in order to determine just how judiciously and efficiently water can be applied. A return to the links concept of golf should seriously be considered. A wall-to-wall green golf course may be visually appealing, but does little to encourage the duffer to stay in the fairway, and wastes large amounts of water on non-play areas.

The greatest future hope for providing water to golf courses in Florida is sewage effluent. It is an untapped resource. Urban areas produce billions of gallons of effluent every day, and precious little is used for turf irrigation. The major obstacle to the use of sewage effluent in Florida is public opinion. The turf industry needs to lobby with state and local governments to change existing laws and ordinances

that prohibit use of sewage effluent for irrigation. Only then will we be assured of continuing to have the number and quality of golf courses that are famous in Florida. ■

### MODIFIED IRRIGATION SYSTEM

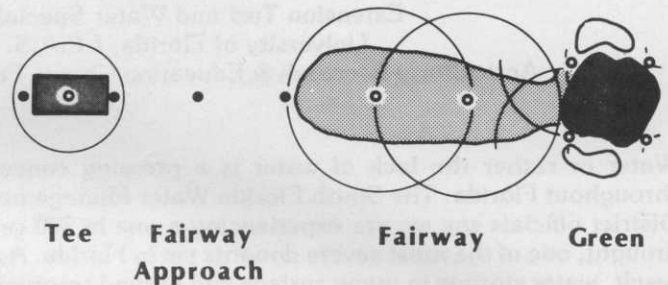


Figure 3. A modified golf course irrigation system for water conservation. The tee area is irrigated with one small head. Irrigation in the fairway approach has been eliminated. Sprinkler heads on the green have been converted to part-circle. Fairway irrigation could also be reduced by one head or more depending on the length of the hole and the need to conserve water.

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