

## Water conservation

In some areas of the United States, factors such as rapid population growth and long-term drought are putting severe pressure on already depleted water supplies. In order to avoid further depletion, local governments often try to restrict water use. Golf courses, because of their highly visible irrigation practices, are an easy target for such restrictions. Regardless of whether restrictions are already in place, it is essential to use every drop wisely.

Water quantity, however, is only part of the water challenge: Water quality is also important. Efforts to help protect current water resources from contamination are a top priority.

Golf course superintendents are working to keep water sources clean.

- Superintendents decide which areas, such as the rough, can be replaced with drought-tolerant plant materials and develop long-range landscape plans that cluster plantings according to their water needs.
- Superintendents must decide on proper irrigation amounts and irrigation intervals. This is probably the most difficult task in managing water. Previous recommendations maintained that irrigating deeply and infrequently would encourage plant root development. However, research has shown that in the semiarid West, turf quality is better when watering is done frequently and lightly. This practice is known as deficit irrigation. Superintendents must consider the type of soil, species and ET rate for the best possible conservation method and use accurate timing methods to control the frequency and duration of water. It is also important to find and fix leaks in the irrigation system quickly and cap sprinkler heads in nonpriority watering areas.
- Water leaves turf by evaporation from the soil or by transpiration -- the process by which the plant cools itself and removes waste products from the plant tissue. The entire operation is called evapotranspiration (ET). The ultimate management goal is to achieve the lowest ET rate possible in order to make the best use of the irrigation water. It is vital to consider soil and species when deciding to replace turf.
- Some superintendents use sophisticated computerized irrigation systems and monitor the weather through on-site weather stations to make sure the course is not watered right before it rains.
- Superintendents can also use water-retaining agents in the root zone. Polymers are sponge-like granules made of synthetic material or starch that can absorb large amounts of liquid. They then contract and release the stored water into the soil. In this way, polymers can reduce the amount of water lost through percolation and evaporation, thus reducing irrigation requirements. In addition, they dissolve nutrients and absorb herbicides and pesticides. Polymers can be expensive and difficult to inject into the soil. However, as their use becomes more widespread, polymers will probably play an important role in future turf management.

Properly treated effluent water can be an excellent source of water for irrigating golf courses.

Effluent water (treated wastewater) has been used for irrigation purposes for about 30 years in some areas of the country. Effluent costs less than potable water and has several positive attributes:

- Effluent water contains nutrients that can be used by the turfgrass plant.
- Turfgrass has the ability to use large quantities of organic waste that many other plants cannot withstand.
- Turf can utilize effluent water that might otherwise be wasted. Food crops may not use effluent water because of the chance of contamination in the human food supply.

The following is a list of simple conservation efforts your golf course superintendent may already have implemented.

- Reading water meters monthly to monitor the success of water conservation efforts. Comparing usage to the same period last year. Weather variances can greatly affect the results of such comparisons and should be given consideration.
- Watering at night or in the early morning when wind and evaporation are lowest.
- Washing all equipment and machinery by using a hose with a shutoff nozzle, and soap and water from a bucket.
- In the clubhouse, checking for plumbing leaks and malfunctions and turning off any unnecessary flows.

Golf course superintendents are working to do their part in conserving water resources. If you have any questions about the water management practices on the golf course where you play, please contact your superintendent