



20 Water Conservation Ideas

By David Johnson

As a horticulturist and irrigation contractor, I witnessed firsthand the staggering amount of water wasted every day in an effort to maintain an attractive landscape. As a member of the green industry, I understand completely my obligation to promote water conservation, as it is the lifeblood of our industry. As a business owner, I see the business opportunity available to promote water-efficient products and techniques. As a human being, I feel the responsibility to educate people and to encourage everyone to do their small part to help conserve this valuable resource.

Over-watering is not only a waste of a valuable resource; it is bad for the environment and detrimental to the health of the landscape. Excessive watering leaches costly fertilizers and pesticides from plants and soil and washes them into our waterways and environment, where they can have disastrous results. Too much water in the landscape cuts off oxygen to plant roots promotes fungus and rot and adversely impacts the health and appearance of the entire landscape.

Below are 20 proven ways to conserve water in the landscape. These are some of the recommendations we make daily to encourage water conservation. Each of these ideas presents an opportunity to conserve water and to impact the bottom line of your business. In an effort to cut water consumption, rebates are currently being offered by many municipalities and water purveyors to help cover the costs of these improvements.

1: Sensors:

At a minimum, all irrigation systems should have a working rain sensor to suspend watering in the event of rain. Rain sensors are so effective at saving water that they are required by law in many states. Soil moisture probes are an excellent way to shut off the irrigation system when there is sufficient moisture present in the soil. Wind sensors are available to prevent watering above a specified wind speed to minimize water lost to wind drift.

2: Turf and Plants:

Turf and non-turf areas should always be separated into different zones for efficient watering. Lawns usually require more water than established plantings. If turf and other plant material are irrigated on the same zone, then most of the water applied to the non-turf areas is wasted when the system runs long enough to get sufficient water to the turf. This is an important concept to understand in terms of water conservation and one that is often ignored by irrigation contractors in an effort to cut costs to secure a contract.

3: Emission Devices:

Water is applied by rotary heads, spray heads, drip emitters, bubblers or micro-sprays. Each of these devices applies water at a different rate, so if they are mixed on the same zone it is almost impossible to get even coverage throughout the zone. Mixed application devices on a single zone are a common problem encountered in the irrigation industry and are often the result of not understanding precipitation rates.

4: Seasonal Adjust:

Watering run times should be adjusted frequently to provide for different watering needs throughout the year as dictated by the growing season and the weather. Decrease the run times during periods of rain and cool weather. Increase the run times during dry periods and for hotter weather. The seasonal-adjust setting available on most irrigation controllers allows the user to increase or decrease all of the zone run times very easily as a percentage in one simple step.

5: Smart Controllers:

One of irrigation's newest innovations, the smart controller, uses weather data to calculate the amount of water lost from the soil through evaporation and from the plants through transpiration. These new controllers adjust the zone run times automatically every day based on local environmental conditions such as humidity, rainfall, wind, temperature and solar radiation. Studies have repeatedly shown that the use of smart controllers can result in water savings of 30 to 60 percent. These new controllers are irrigation's ultimate water conservation tool.

6: Audit:

Have an audit performed to measure the precise water application rate and uniformity of its distribution for each zone on an irrigation system. These measurements, coupled with other site information such as exposure, soil type(s) and plant varieties, allow a base run time to be calculated for each zone to apply the proper amount of water. The result is a precise watering schedule with little waste, and a healthier landscape.

7: Operating Pressure:

Adjust the operating pressure on each irrigation zone to the optimum pressure as recommended by the manufacturer to prevent water losses through misting at each head. High pressure causes misting at the nozzle and much of this fine spray is carried off by the wind and lost. To observe this problem, look for a cloud of fog around each head when the system is running. Pressure regulating valves and sprinklers can be added to eliminate this problem.

8: Microclimates:

Consider the different microclimates on a site when designing an irrigation system, or scheduling it to run. Turf in full sun requires more water than turf growing in shade and plants growing in shade require even less water than grass in the same environment. Buildings and pavement can reflect and hold heat generated by the sun. South and west-facing slopes in full sun dry faster than north and east-facing slopes. If turf in full sun and turf in shade are mixed on the same irrigation zone, the shady turf will be over-watered when the system is run long enough to meet the needs of the turf in full sun. All of these factors and more can have a dramatic effect on the amount of water needed to maintain a healthy landscape.

9: Maintenance:

Keeping an irrigation system in good working condition is one of the best ways to minimize the inefficient use of water in the landscape. Heads should be adjusted to prevent overspray onto pavement and other hard surfaces. All of the heads need to be kept straight and at the right height to water efficiently. Vegetation should be cleared from around heads to minimize interference with the spray pattern. Broken leads, malfunctioning valves, leaking seals and breaks in the piping all need to be identified and repaired to maximize the use of water.

10: Low Volume:

When designing a new irrigation system, or retrofitting an existing one, consider using micro-spray or drip irrigation to irrigate non-turf plantings. Both of these methods deliver the water near the root zone and right to the plant. This minimizes wind drift and eliminates the problem of water not reaching its intended target due to plant foliage blocking the spray. Each of these systems allows the designer to tailor the amount of water delivered to each plant to meet its individual needs.

11: Water Correctly:

Irrigating at night reduces water loss through evaporation and wind. When watering, apply only enough water to rewet the root zone and allow the soil to dry out between watering. This encourages a deep root system and more drought-tolerant plants. Soil type, microclimate and plant species should always be considered when setting up an irrigation schedule for a particular property. Consult your local extension agency for recommendations if you are not sure.

12: Cycle and Soak:

Many irrigation controllers offer a cycle and soak setting that applies the water in several shorter cycles, allowing it to soak in between cycles. This minimizes the amount of water lost due to runoff. This can also be accomplished through the use of multiple start times. Soil composition, infiltration rate and head type should all be considered when determining if cycle and soak is necessary.

13: Master Valve:

Mainline breaks and malfunctioning zone valves are major contributors to wasted water. Installing a master valve at the water source can reduce water loss by either of these causes. A master valve shuts off the water supply to an irrigation system when not in use and automatically turns the water back on when the system is set to run. When a master valve is used, the system should be inspected frequently for leaks.

14: Matched Precipitation Rates:

Enough water needs to be applied on each zone to keep the plants in the area of poorest coverage alive. This means that over-watering occurs on every zone. Most spray nozzles have matched precipitation rates to help achieve even coverage. The correct rotary head nozzles need to be selected for uniform coverage. A full-circle head should apply four times as much water as a quarter-circle head and half-circle heads should apply twice as much water.

15: Multiple Programs:

When possible, use the multiple program capability of most irrigation controllers to set up different watering schedules to meet the individual needs of each zone. For example, turf zones that require twice weekly irrigation could run on program A, shrub plantings could be watered once each week on program B and annual flowers could run daily on program C. If all zones are run on the same program to meet the needs of the annual flowers, then water is being wasted on all of the other zones.

16: Rotary Spray Nozzles:

In recent years, the use of rotary spray nozzles has increased dramatically due to their efficiency and excellent distribution uniformity. These nozzles are available from several manufacturers and can also be used in small areas in windy sites to help overcome the problems associated with spray heads in windy conditions.

17: Monitor Flo:

Many manufacturers offer controllers that can be connected to a flow meter to monitor the rate of water flow on an irrigation system. These controllers have the ability to close a master valve or turn a zone off when a high or low flow situation is detected. Depending on the manufacturer, some controllers will even notify you via email or a page that a problem was encountered. This can save many thousands of gallons of water in the case of mainline breaks.

18: Filter:

Installing a filter at the water source can prevent contaminants from entering the system that can cause problems and result in wasted water. Debris can get into a valve and prevent it from closing, thus allowing that zone to run for hours before someone can turn the water off and repair the problem. Plugged nozzles can have a very dramatic impact on distribution uniformity as can debris in a rotor that prevents it from rotating.

19: Xeriscape:

The use of native and drought-tolerant plants can dramatically impact the amount of water needed to maintain a healthy landscape. Mulching plant beds with a heavy layer of mulch, particularly wood mulch, will help retain the moisture in the soil and reduce the amount of water needed for the landscape plantings to flourish.

20: Rainwater:

Many homeowners are using rain barrels to collect rainwater for use in pots and small gardens. There are many large storage systems currently coming to market that will make it possible to irrigate larger sites with stored rainwater.

Pumping from storm-water retention ponds can be an excellent source of irrigation water, and can reduce the amount of potable water consumed for irrigation purposes. When possible, consider directing the outflow from downspouts to turf areas rather than storm sewers.

There are many other ways to reduce the amount of water necessary to maintain a healthy landscape. I would encourage everyone in the green industry to look for additional ways to conserve water and to keep up with current technology to help make every drop count.

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