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Smart irrigation saves water and money

By Susan Donaldson
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It's hot, dry and the lovely rains that nourished our plants in June have ended. Is your lawn starting to look stressed? Are your water bills constantly increasing? Lawn irrigation often is the biggest water user in the landscape, and sprinkler irrigation is notoriously inefficient, with as much as

50 percent of the water evaporating in the air or blowing onto impervious surfaces. Despite how often we water the pavement, I have yet to see it grow. And the most common problems with lawns that we see at Cooperative Extension are a failure to irrigate evenly and in the appropriate amount. I guess that's why July has been designated as "Smart Irrigation Month" by the Irrigation Association.

If your water comes from a municipal provider, not only do you pay for the lost water, but some of it might run off and carry pollutants into storm-drain systems, which are linked to our waterways. And since the water must be treated to Safe Drinking Water Standards, municipal suppliers must charge enough for the water to cover their costs.

In the Truckee Meadows, local ordinances require that you water your lawn on assigned days based on your address (even addresses water on Wednesdays and Saturdays, odd addresses on Thursdays and Sundays, commercial users on Tuesday and Fridays). They also prohibit watering between 1 and 5 p.m., and when conditions are windy (which is most of the summer in Nevada). When was the last time you shut off your system because the wind was blowing the water off the lawn?

The restriction on watering days is meant to help water-treatment plants anticipate and meet daily demand. Unfortunately, it does not necessarily result in water savings, since there are no restrictions on the amount of water used on your assigned days. There are a number of things you can do to keep the water on your landscape and decrease water waste that don't cost a penny. And, becoming a smart irrigator means that your landscape will become healthier, and your pocketbook will benefit.

Many systems suffer from one or more common problems:

- Poor installation and design. The sprinkler heads don't have enough overlap to provide even water delivery. One hundred percent overlap is recommended. Do a can test to determine evenness of delivery as well as delivery rates. Alternatively, system water pressure may be too low or too high to allow the system to operate correctly. Popups are designed to work correctly at a maximum water pressure of 30 psi, but many systems run at 80 to 110 psi. The high pressure causes the water to mist, and much of it evaporates before it reaches the plants. If your pressure is high, install a pressure-reducing valve downstream from your backflow preventer.

- Plants that are inappropriate for the site, or plants within one irrigation zone that have differing water requirements. You wind up applying more water than needed for some plants, or not enough for others. Cluster plants with similar water needs together, so you can assign them to the same zone on your irrigation system.

- Failure to inspect and maintain the system regularly. Look for system leaks, flooded valve boxes, leaking backflow valves or sprinkler heads that are clogged, broken, misdirected, or sunken and fix them.

- Failure to adjust your system according to the change in water demand by season. One of the biggest mistakes home irrigators make is to set the system in the spring, and then ignore it until it's time to shut it down. The amount applied stays the same, despite the fact that the weather changes and plant water needs vary.

We measure plant water use by determining evapotranspiration (ET), or the amount of water that evaporates from the soil and is lost from plant leaves each day. ET varies with temperature, humidity, sunlight, wind speed, type of vegetation, etc. For July, the historic weekly ET demand averages about 1.8 inches, meaning you need to apply that amount of water each week to replace the water used by the plants and evaporated from the soil. Apply half on each of your two watering days, or about an inch of water each day, in several short cycles to avoid runoff.

While using ET sounds very complicated, we've made it simple by collecting data at a network of weather stations in the Reno area, and doing the calculations for you. Go to www.washoeet.dri.edu for a simple graphic showing how long you should water your lawn on your next watering day, based on the type of sprinkler heads you have. Of course, this is just an estimate, and you'll need to monitor your lawn's performance to determine whether you need to adjust amounts for your specific site conditions. You also need to adjust your irrigation controller on a regular basis to maximize irrigation efficiency.

If you prefer a more high-tech, automated approach, consider installing a "smart" ET controller that automatically adjusts the system according to seasonal demand. The addition of a rain sensor allows real-time changes to the system.

Sometimes simple changes can have a big effect on system performance. For example, changing your sprinkler heads from the typical popups to the newer MP Rotator or other similar products that deliver greater uniformity and coarser sprays can reduce water use by as much as 30 percent. Simply unscrew the old heads and screw in the new heads -- it's that simple. You CAN have a green lawn and use less water -- just be a smart irrigator.

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Additional Facts

TIPS FOR WATERING EFFICIENTLY

SHORT CYCLES: Water your lawn in three to five short cycles. Your goal is to soak the ground deeply without allowing the water to run off the site. Deep watering encourages strong, healthy roots.

COOL IT: Water when temperatures are cooler to minimize evaporation.

AVOID WIND: Don't water when it's windy. Set your system to water during the early morning hours. You'll have the best chance of avoiding winds, and it's the coolest part of the day.

BE SITE-SPECIFIC: If an area needs a bit of extra water, don't run the entire system -- use a hose and nozzle, and just apply water to that section.
