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Cooperative Extension

Water-efficient Lawn Irrigation for Properties at Lake Tahoe

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The primary objective of a water-efficient landscape is to keep plants healthy with a minimum amount of water. Overwatering can contribute to weed invasion and disease problems. It also wastes water, and it can cause fertilizers to be leached down below turf roots or carried off the property by water runoff. Frequent monitoring of lawn and drip irrigation systems is important to make certain they are working properly and supplying the right amount of water to plants.

While large lawns are not recommended at Lake Tahoe, small practical turf areas within 30 feet of structures can provide landscape benefits. The important thing is to manage the turf properly. Start by finding out how much water your turf needs. Water applied to lawns over the growing season should replace water taken up by the grass roots and lost to evaporation. Less water will be required in the spring and fall, while more will be required during the heat of the summer. The table at right tells how much water turf needs at Lake Tahoe at

different times during the growing season. By testing your sprinkler system, you can determine how long it takes to deliver 1/2 inch of water to your lawn. Only irrigate for that amount of time two days a week in spring and fall, and three days a week during summer, according to the instructions just below the table.

An important principle for irrigating home landscapes at Tahoe is to add water slowly, allowing it to penetrate throughout the root zone. This helps prevent the problem of water runoff. According to the Natural Resources Conservation Service, most of Tahoe's soils can hold only 1/2 to 3/4 of an inch of water in the top 12 inches of soil. If

ponding or runoff occurs before you have applied 1/2 inch of water, program your system for "cycle-and-soak" watering. Turn each valve "on" until ponding or runoff begins and then "off" for a couple of hours, and then "on" again for the same amount of time as before. Continue the "on-off" cycle until you have applied approximately 1/2 inch of water. The wait time is very important. It allows the water to move through the soil profile before more is added. This prevents runoff and allows for deeper watering, which encourages deeper rooting of your grass. Deeply rooted turfgrass is less susceptible to water stress and to invasion by weeds.

Inches of Water Used Each Week by Turfgrass at Lake Tahoe

	Apr	May	Jun	Jul	Aug	Sep	Oct
Weekly	0.98	1.18	1.45	1.60	1.50	1.12	0.96

To set your irrigation controller to apply the amounts of water in this table, measure how long it takes your sprinkler system to apply **1/2 inch of water**, then **water your lawn for that amount of time**:

- Two times per week beginning in April and mid-September.
- Three times per week, where needed, June through mid-September.

To determine if enough water is getting to your turfgrass roots, you can push a soil probe or a long screwdriver down into the soil. The depth of water infiltration one hour after irrigation should be 6 to 8 inches. You should be able to push the screwdriver that far down without much effort. A sign that your turf may not be getting enough water is that the grass doesn't spring back up after being stepped on. It may also have a dull gray-green appearance. Water stress can make the lawn more susceptible to insect and weed pressure.

Good watering and lawn-care tips

- Delay spring watering until just before your spring fertilization in late April or May.
- Water early in the morning, preferably before 8 a.m.
- Know your public utility district restrictions for watering landscapes.
- Keep your irrigation schedule flexible for periods of rain or excessive heat.
- Use automatic controllers to conserve water.
- Install lawn sprinklers so they will

spray water to the adjacent heads with good "head-to-head" coverage (100 percent overlap).

- Adjust spray patterns so minimal water is falling onto hardscapes, such as pavement.
- Core aerate your lawn at least once annually to improve water infiltration and reduce runoff.

Improve the efficiency of your irrigation system

Many homeowners waste water outdoors because they don't monitor and maintain their irrigation systems on a monthly basis during the growing season. A water-efficient landscape is low maintenance, but not no maintenance. It is common for irrigation spray heads to break, for hose connections to leak, and for drip emitters to clog up and stop working. If your irrigation lines or spray heads leak, you will obviously waste water until the leak is discovered and repaired. On the other hand, a spray head that stops working or doesn't apply water uniformly may waste even more water. When some parts of the lawn receive less water than others, the turf in those areas will become stressed and turn brown (Figure 1). Many homeowners mistakenly increase the total irrigation time until the brown spots

recover. Unfortunately, the rest of the lawn could receive two or three times as much water as needed in such situations.



Figure 1. Brown spots in the lawn often indicate that a sprinkler is broken or clogged. Fix that rather than increasing the irrigation time.

To improve irrigation efficiency, repair or replace broken, worn, clogged or leaking spray heads. In addition, check for spray heads that water the driveway, walls, sidewalk or street. Readjust spray heads so they water your plants, not the pavement. The next step is to do a water audit or hire a professional to perform one for you. Some public utility districts offer free audits.

A water audit allows you to learn how long it takes your system to deliver 1/2 inch of water to your lawn. Place 10 to 15 straight-sided cans or other cylindrical containers randomly around your yard, and run the sprinklers until most cans contain 1/2 inch of water (Figure 2).



Be sure to mark on a rough landscape map all places that have 50 percent more or 50 percent less than 1/2 inch of water in the can. The spray heads in these areas need adjustment or possibly repair by a professional. Next, make a note of how much time it took to accumulate 1/2 inch of water in most cans, and program that time into your irrigation controller using the information in the table on Page 1. For example, if it takes 30 minutes of irrigation to apply 1/2 inch of water, you could program the controller for three 10-minute “on” cycles two or three days per week, depending on the month.



Figure 2. By performing a water audit on your lawn, you find areas that are not receiving enough water, so sprinklers in these areas can be repaired. You also find out how long it takes to deliver 1/2 inch of water.

A note on water restrictions

Water restrictions may be enforced during the dry summer months. It is important to follow the guidelines established for your area. Regulations in California can be obtained from the South Tahoe Public Utility District, <http://www.stpud.us>; or the North Lake Tahoe Public Utility District, www.northlaketahoe.net. In Nevada, contact your local water supplier or <http://www.tahoeh2o.org>. In Incline Village, see <http://ivgid.org/conservation/water>.

Use appropriate turf areas at Tahoe

Lake Tahoe residents are encouraged to use turf in appropriate ways, such as for recreation, entertaining or as a play area for children. Instead of a turf lawn covering the whole property, a practical turf area could be a small oasis near the home’s entrance (Figure 3) or an extension of open space next to a deck. Turfgrass planted within 30 feet of structures helps create fire defensible space. Avoid planting turfgrass on steep

slopes. Instead, use ground covers or erosion-control grasses that don’t require mowing. Maximum water conservation is achieved when lawns are irrigated separately from trees and shrubs according to the guidelines in this fact sheet.



Figure 3. Small, practical turf areas are recommended at Lake Tahoe rather than large lawns.

Hydrozones

Ideally, your irrigation system should be designed so that separate valves irrigate plants in each hydrozone (areas where the plants have similar water needs). The valves for turf are set for two or three cycles per week. Valves for established trees and shrubs are usually set for once per week. This allows for deep watering with a drip system placed



around the drip line of each tree or shrub. The drip line is located beneath the outer edge of the plant's canopy—not near the trunk or stem. Drip systems for beds of vegetables also need their own irrigation valves.

Fertilize with care

Please refer to the companion fact sheet, *Use Fertilizers Sparingly on Lawns at Lake Tahoe*, for specific information on fertilizing your landscape properly. It is important to

use care when fertilizing your lawn so that you are not polluting ground water or contributing to the decline in Lake Tahoe's water clarity. Apply fertilizer only twice per year, in spring and fall, and then sparingly—at about one-half to three-quarters of the recommended rate found on the label. Be sure to water slowly following the application, using the "cycle-and-soak" method described above. Watering moves the fertilizer into the root zone of the soil so the plant can use it. Without water, the fertilizer can burn the leaf blades

wherever it comes in contact.

Note: Never fertilize in the shorezone or near a stream.



Figure 4. Never fertilize near stream environment zones (SEZ).

For more information

Home Landscaping Guide for Lake Tahoe and Vicinity. <http://www.unce.unr.edu/publications/files/nr/2006/eb0601.pdf>

How to Install Residential Scale BMPs at Lake Tahoe. <http://www.unce.unr.edu/publications/files/nr/2011/cm1102.pdf>

Landscape Watering by the Numbers. <http://wateruseitwisely.com/region/arizona/100-ways-to-conserve/outdoor-tips/water-guides/Landscape-Watering-Guide.pdf>

Use Fertilizers Sparingly on Lawns at Lake Tahoe. Fact Sheet-13-37.

Water Conservation by Calibration of Irrigation Systems. <http://www.unce.unr.edu/publications/files/nr/2004/SP0410.pdf>



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