



YARD

Watering Established Lawns

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by M. Gross and C.E. Swift¹

Quick Facts...

In Colorado, Kentucky bluegrass, tall fescue, and perennial ryegrass lawns must receive supplemental irrigation to survive.

Soil preparation is critical to the rooting depth and drought tolerance of turf.

Kentucky bluegrass lawns may require 2.5 inches of water or more per week during the heat of summer.

The best time of day to irrigate is between 10 p.m. and 6 a.m.

Lawns grown on sandy soil require more frequent irrigation applications (with less water per application) than lawns grown on clay soil.

To determine the most appropriate irrigation schedule for an established lawn consider the following: turf species; soil type; cutting height; potential disease and pest problems; local weather patterns; and microclimates (i.e., shade vs. full sun exposure; low vs. high areas of the yard). For example, a lawn cut at 3 inches holds water longer than a lawn cut at 2 inches; or lower areas of a lawn hold water longer than higher areas. A properly designed and installed automatic sprinkler system should be programmed to accommodate these specific lawn needs. Rain sensors are useful for residents who are unable to adjust automatic systems when rainfall occurs.

When designing an irrigation system and developing an irrigation schedule consider the presence of trees and shrubs in the lawn because they have roots in the turf area that compete for water and nutrients. Take care to avoid root damage when installing a sprinkler system in areas with established trees and shrubs. For more information see fact sheet 2.926, *Healthy Roots and Healthy Trees*.

A lawn's tolerance to drought is directly related to how well the soil was prepared prior to applying seed or sod. Heavily compacted soil that is low in organic matter does not facilitate deep, healthy root growth. Grass roots grow to their maximum depth in well-aerated soil containing four to five percent organic matter. A healthy, deep root system produces vigorous turf that is tolerant of drought and resistant to disease and insect pests.

In Colorado, cool season turfgrass such as bluegrass, fescue, perennial ryegrass, or bentgrass needs regular applications of water. And even though warm season grasses (blue grama and buffalograss) are known for their drought tolerance they too thrive with occasional watering. The condition of the grass and soil—not the number of days since watering—is the best guide to irrigation. If you water daily or every other day, just because water is available, it is a waste of water and can be detrimental to the lawn. Doing this can predispose the turf to disease. Watering too frequently causes root death of trees and shrubs in or near the turf area either from root rot disease or lack of oxygen in the soil.

Amount and Frequency of Application

The rule of thumb for watering an established lawn is, “water as deeply and as infrequently as possible.” Deep and infrequent irrigation stimulates root growth, resulting in healthy, drought tolerant, and pest resistant turf. While it's true that a deep, healthy root system produces vigorous turf, rooting depth is determined primarily by genetics and soil condition – not irrigation. Maximum rooting depth occurs when soil conditions allow the roots of a particular species (or variety) to reach their full potential. This is not achieved by proper irrigation alone; a combination of proper irrigation, proper fertility (see fact sheet 7.202,

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Lawn Care), and regular core aeration (once in spring and/or once in fall) maximizes rooting depth and overall turf vigor.

Amount

Apply 1 to 1.5 inches of water per irrigation. Determine how long this takes by setting several shallow containers (such as baking pans) in different areas of the lawn for thirty minutes while irrigating. Measure in inches the depth of water in the containers. The average depth of water in these containers multiplied by two is the inches of water per hour emitted by the sprinkler system.

Clay soils (which include most Colorado soils) have a much lower penetration rate than sandy soils; therefore, clay needs to be watered at a slower rate in order to avoid runoff and puddling. To avoid runoff from very heavy clay soil and/or a sloped lawn you can water for a short period, then stop and start back up again until 1 to 1.5 inches of water has accumulated. Most irrigation clocks permit this type of cycling feature. This cycle may be as short as 5 minutes. This is best determined by the appearance of water running off the area being irrigated.

Water pressure varies from one location to another thus the length of time a neighbor waters may not necessarily be appropriate for your lawn. Lawns also have different soil types which permit water infiltration at different rates. Experience will eventually turn this seemingly tedious process into one that is quick and second nature. The addition of a pressure regulator at the valve is required if misting of water occurs. Set the regulator at the pressure appropriate for the particular nozzle on that zone.

Frequency

Irrigate when the turf indicates water is needed. Look for signs of wilt, which often show up in the same location on the lawn time after time. Footprints or lawn mower tracks that remain at least one half hour after traffic has passed indicates irrigation is needed. Turf will also turn a shade of blue-gray when it is water stressed and in need of irrigation.

Do not irrigate again until you see signs of wilt. It's important that the soil profile dries somewhat between irrigation applications. Continually water-logged soils are deprived of oxygen which is required for proper root growth.

On very hot days turf may appear stressed even if the soil is wet. This is caused by heat stress and can be remedied by cooling off the turf by wetting it for 15 seconds or less. This technique is called syringing and is not the same as watering. The use of a Smart Controller[®] that uses local weather data to determine the watering requirement of the turf and other irrigated areas will ensure proper watering. These include the Smart Line Weathermatic[®] controller, the Hunter ET System[®] and the ET Manager system. Further information on these units and other smart controllers is available from your irrigation supply house or on the Internet. These units can reduce water use in the landscape by as much as 55 percent, without jeopardizing the beauty of the landscape.

Time of Day to Irrigate

The best time to irrigate your lawn is between 10 p.m. and 6 a.m. During this period it is generally cooler, less windy, and the humidity is higher so evaporation losses are less. Water pressure may also be higher at this time providing a more even spray distribution pattern.

Irrigating between 10 p.m. and 6 a.m. also overlaps with the turf's natural dew period. Most diseases of turf occur when grass blades are wet for longer than 14 consecutive hours. Watering before 10 p.m. or after 6 a.m. extends the natural wetness period and increases disease problems. Dew contains substances exuded from the plant tissue. These materials increase the growth of disease organisms.

Water applied between 10 p.m. and 6 a.m. dilutes these materials thus reducing the growth of turf disease organisms.

If it is not practical to water during this time period, another option is to water between 9 a.m. and 11 a.m., starting the irrigation after the dew has dried but before the winds begin. From a disease prevention perspective, irrigating anytime between 9 a.m. and 4 p.m. is fine (as long as the turf dries before the evening dew period sets in); however water loss from sun and wind will be greatest at this time.

Winter Watering

Winter watering may not be necessary for established lawns. However, lawns started within the last year are especially susceptible to winter desiccation injury and need supplemental winter irrigation. Areas of Colorado which experience open, dry winters are more susceptible to winter grass mites and desiccation if occasional winter irrigation is not applied. See fact sheet 7.211, *Winter Watering* for more information.

Additional Information

- Colorado State University Extension fact sheet 7.202, *Lawn Care*, www.ext.colostate.edu/pubs/garden/07202.html
- Watering Established Lawns in Western Colorado: Cool-season Grasses (Kentucky bluegrass, turf-type dwarf tall fescue and perennial ryegrass) <http://WesternSlopeGardening.org/lawnwat.html>
- Watering Turfgrass and Disease Potential: Leaf Wetness <http://WesternSlopeGardening.org/leafwet.html>
- Winter Watering, www.coopext.colostate.edu/TRA/PLANTS/wntrwtr.html
- Best Management Practices for Turf Irrigation: <http://WesternSlopeTurf.org>, under Irrigation

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