

Water Management for Your Home & Community



Craig R. Miller
Water Conservation Specialist
Parker Water & Sanitation District

WHERE DOES THE WATER COME FROM?

- ❖ An acre-foot of water is approximately 326,000 gallons of water. This is equivalent to one foot of water on top of a football field (not including the end zones). A family of four uses about 1/2 to 2/3 of an acre-foot of water per year.
- ❖ Denver Basin aquifers (Dawson, Denver, Arapahoe, Laramie-Fox Hills) contain an estimated total of 467 million acre-feet of water, 269 million of which are recoverable. These 269 million acre-feet of water are more than 1,000 times the water in the Dillon Reservoir.

WHY SHOULD YOU CONSERVE WATER?

- ❖ Across the country, our growing population is putting stress on available water supplies. Between 1950 and 2000, the U.S. population nearly doubled. However, in that same period, public demand for water more than tripled!
- ❖ Americans now use an average of 100 gallons of water each day—enough to fill 1,600 drinking glasses! This increased demand has put additional stress on water supplies and distribution systems, threatening both human health and the environment.
- ❖ There's a reason that water has become a national priority. A recent government survey showed at least 36 states are anticipating local, regional, or statewide water shortages by 2013.

WE TEND TO OVERWATER

- ❖ More than half the water used between May and October is used for landscape irrigation.
- ❖ Based on community water use figures, 40% to 50% of that landscape irrigation water is wasted!

EXPECTATIONS FOR BLUEGRASS IN COLORADO

- ❖ Bluegrass does NOT require heavy irrigation – water use depends on expectations.
- ❖ Good performance spring and fall, and when weather is cool and rainy.
- ❖ Expect brown spots and discoloration during the heat of summer!
 - This is especially true if your irrigation efficiency is poor, or soil preparation is inadequate (typical in our landscapes).

IRRIGATION EFFICIENCY

- ❖ Match irrigation application to soil type and root depth. Avoid applying more water than can be contained in the root zone. **Never water when the soil is wet!**
- ❖ Irrigate according to the requirements of the plants.

- ❖ The duration and frequency of irrigation needs to be modified based on evapotranspiration (ET) rates. Apply only enough irrigation to replace water lost by ET.
- ❖ Water lawns and shrub beds/perennial beds separately. (These should be on different irrigation zones.)
- ❖ Water trees and shrubs, which have deeper root systems, longer and less frequently than shallow rooted plants.
- ❖ Do not over water - most established vegetation does not require more than one inch per week depending on the season and rainfall. Plants will develop deeper roots and ultimately require less watering when not over-watered.
- ❖ Watering too frequently may promote some diseases in the landscape.
- ❖ Distribution Uniformity
 - How evenly your irrigation system applies water
 - Poor uniformity = excessively wet or dry areas
- ❖ “Head-to-head” Coverage – the water from one sprinkler goes all the way to the next sprinkler.

PROGRAMMING YOUR IRRIGATION SYSTEM

- ❖ So where do you begin?
 - *Pick a random number between 10 and 20 minutes for the run time, then “set it and forget it”?*
 - *Set your schedule the same as your neighbors, since his lawn is nice and green?*
 - *Rely on previously unknown amazing psychic power to create a schedule for you?*

THE FOOTPRINT TEST

- ❖ The easiest way to determine if your lawn needs water is the simple footprint rebound test. If the plants immediately rebound (upright themselves) after a firm step of the foot, then the plants are not under stress from lack of water.
- ❖ If, however, the grass lays flat and does not recover quickly, it’s probably time to water your lawn.

OTHER CONSIDERATIONS

- ❖ Soak Cycles?
 - Most compacted/clay soils can’t absorb water as quickly as sprinklers apply it.
 - Typical Front Range clay soils = ¼” per hour
 - If applying more than ¼ inch:
 - Multiple short runs an hour apart
 - Soak Cycles also most appropriate for slopes
- ❖ Watering time?
 - Night / early morning (9 PM to 6 AM)
 - Reduced evaporation
 - Less wind
 - Avoids hours of peak water demand

SO WHAT CAN YOU DO?

- ❖ Aerate the lawn in the **spring** and again in the **fall** to obtain these benefits:
 - Improved water penetration into compacted soils and through thatch and mat layers.
 - Compacted soil is loosened, increasing the availability of water and nutrients.
 - Enhanced soil oxygen levels, which stimulates root growth and the activity of thatch-decomposing organisms.
 - Enhanced turfgrass shoot and root development.
 - Reduced water runoff.
 - Increased turf drought tolerance.
- ❖ Check thatch depth occasionally to determine the need for corrective procedures. More than ½" will be problematic.
- ❖ Make sure aeration plugs are at least 2" to 3" in length for best results (the longer the plug, the better!).
- ❖ A core-type aerator can remove up to 10% of the thatch in a lawn if enough passes are made to result in 2" spacing between holes
- ❖ Use core-type aerators to loosen the soil, rather than spike-type aerators, which compact it.
- ❖ A properly fertilized lawn requires less water. Applying more fertilizer than is needed can deplete other nutrients and cause deficiencies.
 - Adding excess may adversely affect the availability of other nutrients that were previously in sufficient supply.
- ❖ Nutrient-stressed plants with deficiencies are more susceptible to insect and disease problems, as well as drought stress.
- ❖ Ideally, conduct a soil test to determine the nutrient needs of your turf by sending a soil sample to a reputable soil-testing laboratory.
- ❖ Generally, for low-maintenance bluegrass lawns (common throughout Colorado), apply one pound of actual nitrogen per 1,000 sq. ft. in the fall (October) and fertilize lightly (one-half pound of N/1,000 sq. ft.) in the late spring (@ Memorial Day) and again in early summer (@July 4th).
 - 20-10-10 fertilizer contains 20% nitrogen (N)
 - A bag that weighs 25 pounds would contain 5 pounds of N
 - Applied to 5,000 square feet of turf = 1 pound of actual N/1000 sq. ft.
 - Half the bag would provide ½ pound of N/1000 sq. ft.
- ❖ Mow the lawn no lower than 2 ½ inches (3" to 4" better!).
 - The higher the lawn is mown, the deeper the roots (as long as the soil was prepared deeply).
 - Sharpen your mower blades regularly!
- ❖ Practicing the following guidelines can decrease water use by up to 30% over the watering season:
 - Wait to activate your sprinkler system as late into the season as possible depending on the weather. Late May is usually a good time to start up your system.
 - Starting later encourages grass roots to seek water and grow deeper. When hot, dry summer days arrive, the deeper root system means the grass can go longer between

waterings. Watering a lawn on a frequent shallow basis results in the death of deep roots, increasing the need to water.

- Set the controller to water only half the amount your landscape will typically need in July. Consider decreasing the number of days in half and not the time per zone.
 - As an example, if you typically are running your irrigation for 10 minutes per zone every 3rd day in July, set the controller to run 10 minutes per zone every 6th day in spring and fall. This way, the water applied always goes to the same depth, keeping the depth of your turf roots consistent throughout the year.
- ❖ Rain shut-off sensor
 - Simple inexpensive retrofit – wired and wireless models.
 - ❖ ET Based Smart Controllers
 - Controllers are automatically reprogrammed daily to replace only that water that has been lost through ET (evapo-transpiration).
 - Stand alone models with on-site weather stations
 - Subscription service models
 - ❖ Xeriscape
 - It is NOT rocks and cactus!
 - The right to xeriscape is protected by Colorado State law
 - Colorado Senate Bill 100 (SB 100) passed in 2005
 - *Any section of a restrictive covenant that prohibits or limits xeriscape, prohibits or limits the installation or use of drought-tolerant vegetative landscapes, or requires cultivated vegetation to consist exclusively or primarily of turf grass is hereby declared contrary to public policy and, on that basis, that section of the covenant shall be unenforceable.*
 - Town of Parker Municipal Code, Chapter 6.05
 - *Any restrictive covenant or any amendment to a restrictive covenant that becomes effective on or after April 1, 2003, and that requires cultivated vegetation on property maintained by an individual property owner, shall not specify that any portion of the vegetation must be turf grass.*
 - ❖ Replace turf with xeric groundcovers, such as snow-in summer, creeping phlox, candy tuft, Turkish veronica, ice plant, thyme, buffalo grass or blue grama