

Methods for Creating a Drought Tolerant Lawn

From a report by Area Extension Horticulture Agents, Grand Junction, CO

- **Aerate the lawn several times a year; aeration should be done in the spring and again in the fall.**

Aerating the lawn is beneficial for many reasons, including:

- Improving water penetration into compacted soils and through thatch and mat layers.
- Improving fertilizer movement to the turf roots.
- Allowing greater levels of oxygen to reach the soil in exchange for carbon dioxide and other gases.
- Enhancing turfgrass shoot and root development.
- Reducing water runoff (runoff from turf areas may carry pesticide residues and fertilizers into neighboring storm drains and streams causing pollution problems).

- **Use the type of aerator that removes a core of soil.**

- Aerators can be rented from local rental companies. Commercial lawn care companies also aerate lawns; prices vary. The spike-type aerators that push a large solid spike into the soil increase compaction in heavy clay soils. Aerating should loosen the soil, rather than compact it further.

- **Check irrigation systems – hoses and sprinkler problems can waste water.**

- Spring is a great time to check your irrigation system for consistency, uneven water coverage, and leaks. Place straight sided tuna-like cans or glasses in the area to be irrigated. Turn the sprinkler system on for a set length of time and measure the amount of water collected in the containers during that time.
- Using containers to measure the amount of water applied will help you decide how long to water and to pinpoint any variation in water distribution in the irrigated area. Plugged heads, improper spacing of sprinkler heads, etc., can be identified and subsequently corrected by using this method.
- The amount of water applied and the depth of water penetration should be rechecked occasionally during the summer months to avoid problems that develop from clogged or twisted heads. Reset or clean heads as necessary.

- **If establishing a new lawn, prepare the soil properly; this will increase rooting depth and spread and increase drought tolerance of the grass.**

- Proper soil preparation means the addition of organic matter and tilling the soil as deep as possible. Add 3.75 to 6 cubic yards of a decomposed organic matter per 1000 square foot area of lawn. Use a coarse – not a fine – material. While root depth is controlled in part by genetics, the depth of soil preparation determines the ultimate rooting depth. Tall fescue will develop roots below 12 inches if the soil is properly prepared. Shallow soil preparation causes shallow roots. The deeper the roots, the more drought tolerant the grass will be.

- **This is not the time to expand the lawn; replace areas that are difficult to water sufficiently.**
 - Because of the probability of limited water supplies, reconsider any intentions to put in more lawn space. Small grass areas (turf islands) that are difficult to water, and the parts of your lawn that are not doing well may be candidates for change. Consider transforming these areas into rock or cactus gardens. Always consider the use of xeric trees, shrubs and perennials (plants that are drought resistant or require less water) when planning new garden areas.
 - There is a great selection of xeric and native plants compiled by local nurseries and on the web. Talk with successful xeriscapers in your town.

- **Allow Kentucky bluegrass to go dormant in the heat of summer.**
 - Kentucky bluegrass can be allowed to go “warm season dormant” without permanent and excessive injury if healthy.
 - When the heat of the summer hits, low root turf, like Kentucky bluegrass, requires an inappropriate amount of water to sustain its green. If possible, replace your grass areas with a deep root fescue blend that will tolerate our region’s low water supply and heat. And remember, Kentucky bluegrass may recover even after 9 months without water.
 - If you are not sure what grass is in your lawn, take a sample to the Blaine County Extension office for identification.

- **Delay watering in the spring; base the first watering on soil moisture content.**
 - Spring is the time of maximum nutrient uptake. Watering too early in the spring cools the soil and reduces nutrient uptake. This stresses the grass and makes it more susceptible to insect and disease problems. Early spring watering can also saturate the soil, reducing the oxygen available to deeper roots, which results in the death of these deep roots. The loss of deep roots increases the grass’s susceptibility to drought stress, and increases the need for more frequent waterings.
 - Check the moisture content of the soil with a trowel or shovel to a depth of 3.75 to 4 inches. If the soil is dry at that depth, water. If the soil is moist, delay watering.

- **Prevent weeds from taking over drought-stressed turf area.**
 - Weeds always seem to thrive regardless of the conditions. Do not allow uncontrolled weeds to overtake the lawn or garden. Apply the proper methods necessary to prevent weed growth. Scythe is a botanical herbicide used to spot-treat weeds.

- **Water deep but only as needed; avoid frequent shallow waterings.**

The frequency of irrigation to turf areas should be based on the condition of the grass. When turfgrass requires water it will:

 - Turn darker than normal (it appears as if a shadow is cast on the lawn).
 - Not spring back when walked on (depressions left by footprints do not bounce

back).

- Prevent the blade of a screwdriver or other such implement from penetrating into the soil any deeper than two inches.

These drought symptoms can appear in patches or over the complete turf area. When only small areas exhibit drought stress, water only those areas that need to be irrigated. Watering the complete lawn when only a small area requires water, or watering too frequently, results in shallow roots, increased susceptibility to drought (especially during the hot and dry days of July and August), and increased susceptibility to Melting-out Disease (Leaf-spot Disease).

- Turf on a shallow soil will require more frequent irrigation than in well maintained soils. Soils should always be amended with a good quality organic matter such as compost, composted horse manure, or composted chopped straw or hay. This will help hold the soil moisture and reduce the need for frequent irrigation.

- **Water at night to reduce water loss from evaporation.**

- Watering during the heat of the day can result in excessive levels of evaporation. Watering during the night reduces problems with turf diseases and reduces the amount of water lost from evaporation making the irrigation more efficient.
- The most efficient and ideal time to irrigate turfgrass is between midnight and 6 a.m. Such timing, however, is difficult for all but those gardeners with an automatic sprinkler system. Gardeners not wishing to spend their night hours watering should consider watering during the early and late hours of the day, before 10 a.m. and after 5 p.m.. For further information on watering lawns, go to: lawnwat.html

- **Don't water during windy times; save water by watering in calm weather.**

- Watering when it is windy results in loss of water through evaporation. Wind will also divert the water resulting in some areas getting much more water than others, and leaving dry spots.

- **Conduct a soil test to determine the nutrient needs; a properly fertilized lawn requires less water.**

- Applying more fertilizer than is needed can deplete other nutrients and cause deficiencies. The amount of nutrients needed is specific. Excessive quantities of nutrients are often as detrimental as deficiencies. Adding an excess may adversely affect the availability of other nutrients that were previously in sufficient supply. For example, adding too much phosphorus may result in a deficiency of available iron both within the soil and within plants grown in the soil. Nutrient-stressed plants with deficiencies are more susceptible to insect and disease problems as well as drought stress.
- To determine what nutrients are needed, a soil test should be conducted by a reputable soil testing laboratory. For more information on soil testing go to: soiltest.html

- **Fertilize lightly in spring and apply a heavy application of nitrogen fertilizer only in the fall.**
 - The soil in our area is often heavy in clay and cannot deal with a great deal of fertilizer. Fertilizers (commercial and manure) deposit a salt to your lawn and will require constant watering to flush the salt away from your grass roots.
 - Always have your soil checked to determine what and how much fertilizer you will need before any applications and ask your landscaper to do the same.
 - Nitrogen fertilizer stimulates growth and increases the need for more water. Apply no more than 1/2 pound of nitrogen per 1000 square foot of lawn area in the spring.
 - Lawn fertilizers are typically labeled with directions on how to set various types of lawn fertilizer spreaders so that one pound of nitrogen is applied per one-thousand square foot area of turf. Reduce the fertilizer setting by one-half to apply a half pound of nitrogen.

- **Mow the lawn at a height of 2 1/2 to 3.75 inches; mowing shorter results in shorter roots.**
 - Mowing the lawn short results in short roots. The higher the lawn is mown, the deeper the roots (as long as the soil was prepared deep. If the turf is maintained at 2.5 inches, cut the grass by the time it reaches a height of 3.75 inches; if the grass is maintained at a height of 3.75 inches, mow by the time the grass is 4.5 inches high.

- **Mow the lawn often enough so no more than 1/3 of the blade is removed at each cutting.**
 - Removing more than 1/3 of the grass blade can cause root death. When roots die, more frequent applications of water will be required to keep the grass alive during the heat of summer.

- **Monitor the lawn weekly for problems; correct problems as they surface.**
 - Carefully inspect your lawn at least weekly for disease and insect pests. During a year of potential high stress from drought this becomes even more important. Early detection and control of problems is essential.