DROUGHT ADVISORY

EB0684

Lawns and Other Turf

In many areas of the state this year, water supplies will be low and in some areas they may be extremely low. Lawns and turfgrasses will be placed low in the list of priorities with regard to essential water uses. All is not gloomy, however, since grass plants can survive on a minimum amount of water. When water supplies are plentiful, most people overwater lawns. It is **never** wise to use more water than is needed to moisten the soil to the depth of the root zone.

Turfgrass roots generally do not go down more than 10–12 inches. Over 80% of the roots are usually in the top 2–4 inches of soil. Although there are few deep roots, these deep roots are a survival mechanism during periods of low soil moisture. When all available water is used from the surface 6 inches, a few deep roots can continue to provide enough moisture to keep the plant from dying. Since few roots occupy these deeper soil zones, water is used more slowly. This means that a little water in this zone will last much longer than it would at the surface.

Recommendations for Limited Watering

If some water is available for turfgrass irrigation, apply it carefully.

1. **Moisten the entire root zone.** Before watering examine the soil with a soil probe, shovel, or even a sharp knife. Cut a core down to 6 inches. If soil moisture is present, reduce the amount of water applied. Replace only the amount that has been used. If the entire soil profile is dry, make a complete watering.

   Examine the soil 8–12 hours after sprinkling to see if the entire root zone is wet. All excess surface water should have drained to the lowest depths of the soil profile in this time. This is the only way to determine proper water use, due to variations in soil textures and turfgrass conditions. Apply water in this manner as long as supplies are available for this use.

2. **Make all the water available to the plant.** Turf with built-up thatch, compacted soils, heavy soils, and slopes will not accept water rapidly, so much of the water will run off and not be effective. Dethatch the turf and aerate if soil condition warrants it. Watering is generally more efficient if water is applied only a few minutes at a time and then applied again as often as needed to completely moisten the root zone. For example, it's more efficient to apply 1 inch of water in four sprinklings of 1/4 inch each than to apply the entire amount at one time in the same day. The turf should not be irrigated again for several days. The frequency will depend on weather conditions and the availability of water for turf irrigation. Using wetting agents or surfactants helps matted or thatchy lawns accept water more rapidly. These materials are available from most garden stores.

If No Water Is Available for Lawns

Under conditions of prolonged drought, it may be possible that no water would be available for turfgrass areas, which would include home lawns, parks, cemeteries, golf courses, and other areas. You should start planning now to manage the grass without supplemental water in the late spring or summer.

1. **Remove thatch from the turf and aerate, if inspection of the site indicates a need.** Thatch is the dead, matted layer of stems and roots above the surface of the soil. The thatch layer keeps water from moving into the soil. It also traps water and holds it, where it evaporates instead of being used by the plant. There should be about 1/2 inch of thatch on the surface. If there is more than 1/2 inch of thatch, remove the excess, so any rain that does fall will be more apt to reach the deeper root zone. Thatch can best be removed by raking using a dethatcher from a rental company or attachments available for your lawn mower. If water is in short supply so that turf can not fill in again before water

rationing begins, then wait and dethatch the lawn in the fall when ample water is available. Aerating, or pulling soil cores from a lawn, can help eliminate soil compaction. Make sure the soil is moist before you aerate the lawn in order to get better penetration of the tines. Aeration will help oxygen and water move down into the root zone, to help develop a stronger root system for the turfgrass before the lawn is allowed to go dormant. Cores from adequately draining soil types can remain on the lawn to break down and work into the thatch layer.

2. **Reduce fertilizer applications.** Fertilizer can be applied in the spring if there is enough rainfall to maintain good growth of turfgrass. If rains continue to come, fertilizer applications can continue as long as there is ample soil moisture. Once the soil moisture begins to deplete, apply no further fertilizers. Fertilizers applied to dry turf will either not be activated or will create further damage, since the fertilizer will concentrate at the surface rather than being diluted and carried into the soil. This would result in fertilizer burn and accentuate drought injury.
3. **Increase the mowing height.** Root growth is usually proportional to the top growth of turfgrasses. If grasses are mowed short, the root system is generally shallow. This theory works up to approximately 2 inches of mowing height west of the Cascades and 3 inches east of the Cascades. This increased height is not an insulating factor but allows the plant to develop a deeper root system. Higher mowing on a continual basis will result in greater thatch formation, particularly with bentgrass and fescue lawns.
4. **Control all weeds in the lawn area.** Weeds such as dandelion, false dandelion, and plantain are deep rooted. They may exhaust deep profile water which may be needed to keep the grass plant alive. Weeds should be removed no later than May 1 to keep them from using the much needed soil moisture.
5. **If some water becomes available during the summer, thoroughly wet the lawn down to the deepest roots.** Even if there is no rainfall between May and October, grasses will survive if they are thoroughly wet two or three times during this period. The deeper roots will bring up sufficient moisture to keep the crowns of the grass plant alive.

If no water is available, many grass plants probably will not survive. You will have no way of knowing until the fall rains return or until irrigation water becomes available. You can test the viability of the grass by removing a large plug (4–8 inches across and 6 inches deep). Place it in a pot and water it for a few days to see if it will revive. If it does not, you can assume the entire plant is dead. In this case, remove all dead grass and thatch down to the soil level. Reseed the entire area no later than October 25 in western Washington and, with adequate water availability, September 15 in eastern Washington.

In some cases, this may be the excuse we need to renovate an old lawn or other turfgrass area that has a poor surface, high weed infestation, or many incompatible grass strains in one area. This could be your chance to start anew in the fall. Fall reseeding is most apt to be successful in western Washington. Without irrigation or adequate precipitation, lawn reseeding in eastern Washington should probably not be attempted in the fall. By the time one can expect additional water in eastern Washington, it may be too late in the fall to expect germination and establishment.

Watering Limited Areas

Very expensive areas such as golf course putting greens must receive at least limited amounts of water to keep them alive. It takes approximately one year to produce a putting green of useful quality. If the grass dies, it will be necessary to remove the entire surface and reseed or resod the area. This will cause not only a great expense but also a tremendous loss of revenue to public and privately owned golf courses. An 18-hole course usually has only about 2–$2^1/_2$ acres of putting green and by conserving or eliminating water on the remainder of the course, we should be able to scrape up enough water to keep putting greens alive. If the surface 2–3 inches receives water, the green will survive since close mowing results in a shallow root system. Only small amounts of water at any one time would be required to keep the green alive.

By Roy L. Goss, WSU Extension agronomist emeritus, Washington State University, Puyallup Research and Extension Center. Revised by Gwen K. Stahnke, Ph.D., WSU Extension agronomist; and Eric D. Miltner, Ph.D., WSU research agronomist, Washington State University, Puyallup Research and Extension Center. For further information, visit http://www.puyallup.wsu.edu/turf/ and click on "Extension."

Issued by Washington State University Cooperative Extension and the U.S. Department of Agriculture in furtherance of the Acts of May 8 and June 30, 1914. Cooperative Extension programs and policies are consistent with federal and state laws and regulations on nondiscrimination regarding race, sex, religion, age, color, creed, national or ethnic origin; physical, mental or sensory disability; marital status, sexual orientation, and status as a Vietnam-era or disabled veteran. Evidence of noncompliance may be reported through your local Cooperative Extension office. Trade names have been used to simplify information; no endorsement is intended. Revised October 2006. Subject codes 373 and 254. EB0684