

Keeping your lawn alive during drought

Homeowners know how important water is to maintaining healthy lawns. During times of drought, however, local water supplies can become so depleted that cities must enact drought contingency plans to conserve water. These plans approved by the state, set forth restrictions for water use based on water supply, lake levels and weather conditions. You can still keep your lawn in good condition even when water use is restricted.

For the overall health of a lawn, water infrequently and deeply enough to wet the soil to the recommended depth, usually 6 inches. This practice reduces disease, helps air to move to the plant roots and conserves water.

Below are some guiding principles for varying water restriction stages. Find the stage that is most like your situation and then see the suggestions for an appropriate lawn irrigation plan.

Irrigation and Management Tips for Twice a Week Watering Schedule

During designated watering times, apply enough water to wet the soil to a depth of 6 inches. Use the following steps to determine how long to water.

- Set five or six open-top cans randomly on the lawn (cans with short sides, such as tuna or cat food cans, work best).
- Turn the sprinkler or irrigation system on for 5 minutes.
- Measure and record the depth of water caught in each individual can.
- Calculate the average depth of water from all of the cans. For example, you have used five cans in your yard. The depths of water collected in the cans were as follows: 0.25 inch, 0.2 inch, 0.25 inch, 0.25 inch, and 0.3 inch. Add the depths together and then divide by the number of cans you used (five in this case).

$$0.25 \text{ inch} + 0.2 \text{ inch} + 0.25 \text{ inch} + 0.25 \text{ inch} + 0.3 \text{ inch} = 1.25 \text{ inches} \div 5 \text{ cans} = 0.25 \text{ inch of water in 5 minutes}$$

- Use a garden spade, soil probe or screw driver to determine how deeply the soil was wet during the 5-minute period. Push the probe into the soil. The probe will push easily through wet soil easily but less easily when it reaches dry soil. Measure the depth of the wet soil.
- Knowing how much water was applied in the 5-minute cycle and how deep that volume of water wet the soil, you can then determine how long the sprinkler must run to wet the soil to a depth of 6 inches.

In this example, the system put out .25 inch of water in 5 minutes, wetting the soil to a depth of 1.5 inches. Therefore, 1 inch of water will need to be applied to wet the soil to a depth of 6 inches, giving a total watering time of 20 minutes.

$$1.5 \text{ inches wet soil} = 0.25 \text{ inch of water in 5 minutes}$$
$$6 \text{ inches wet soil} = 1 \text{ inch of water in 20 minutes}$$

After you have adequately wet the soil, do not water again until the grass shows signs of drought stress. Symptoms of drought stress include grass leaves turning a dull, bluish color; leaf blades rolling or folding; and footprints that remain in the grass after you walk across the lawn. These symptoms may appear late in the day during a hot summer even when the soil is moist. Use the probe method to check for soil moisture. If the soil is dry, irrigation is justified.

Although drought symptoms generally will develop in 5 to 7 days, symptoms may occur in as little as 3 days or not for 15 days. Therefore, twice a week watering should not be a hardship and your grass quality should not suffer.

Run-off is a serious problem that wastes large amounts of water. Soil type and the application rate of the sprinkler system determine how quickly run-off will occur. If water is applied faster than water can seep into the soil, water will run off the lawn and be lost.

To Prevent Run-off

- Monitor the lawn for several irrigation cycles to spot water running onto sidewalks, streets or gutters.
- Note how long the sprinkler ran before water began to run off. Stop watering at that point to prevent water losses from run-off.
- Wait 30 minutes to 1 hour.
- Change your controller to run this shorter time.
- Continue to run the short cycles until enough water is applied to wet the soil 6 inches deep.

Other Considerations

- Mow your grass only often enough to remove no more than one-third of the leaf blade at any one time.
- Reduce the amount of fertilizer applied to keep nitrogen levels low.
- If soil is compacted, aeration of the lawn will significantly improve efficiency of water moving into the soil surface. This is best done in the spring.

Irrigation and Management Tips for Once a Week Watering Schedule

Use the same approach as was used for twice a week watering. If the soil is thoroughly wet to a depth of 6 inches with each watering cycle, the lawn should be able to go a week between irrigation cycles.

If necessary, use a hand-held hose to water areas that show drought stress symptoms before watering the whole lawn again. Check your yard for drought stress in the morning. High afternoon temperatures cause plants to show signs of stress (wilt, be off color, drop leaves and/or shrink) even if there is significant moisture in the soil. Once the sun sets, the lawn will recover and look normal; if in the morning the lawn looks like water is required, hand water only the affected areas.

If in doubt, use a long screw driver to test for moisture in the soil. The screwdriver will push easily into moist soil and will not push easily into dry soil. Make sure you thoroughly wet the soil to the appropriate depth.

Other Considerations

- Set your mower to the highest setting and mow less frequently. The taller grass will provide shade for the surface of the soil and roots.
- Do not fertilize your lawn. Keep nitrogen levels low to discourage extra growth.
- Use a shower or fan type nozzle on your hose to evenly disperse the water if hand watering.

Alternatives

- Water with a hose only those areas that are showing severe drought stress. Make sure that enough water is applied to effectively wet the soil. When puddling or run-off begins to occur, stop watering that particular area, wait 20 to 30 minutes and then resume watering. Continue this cycle until the soil is wet to the appropriate depth.
- You may want to stop watering the lawn altogether. Most warm-season turfgrass species can survive short periods of drought stress. When the grass is under severe drought stress, grass may go dormant but not die. Dormant grass will turn brown and may appear dead. Once watering or rain begins again, however, the grass will recover if the drought has not been too long. Recovery may take up to 3 months during the growing season. Grasses that can go dormant are buffalograss, *Zoysia japonica*, and bermudagrass. Other grass varieties are not as drought-tolerant, and they may die if they are deprived of water for an extended time.

You need to understand the strengths and weaknesses of your particular grass. (See Table). If the grass in your lawn goes dormant during drought, you could stop watering altogether. However, if your grass does not go dormant and must go without water suddenly due to restrictions for a long time, much of your lawn may die and need to be replaced.

Use a combination of the previous two techniques. Water only high priority areas and allow other areas to go dormant or die. If you use the back yard more than the front, it would be the high priority area. If a beautiful landscape is important to you, then the front yard might be the priority. This approach will allow you to maintain a green lawn in important areas of the yard and still save water.

Irrigation and Management Tips for No Landscape Watering

Buffalograss, bermudagrass and some of the zoysia varieties will probably survive without irrigation. These grasses will go dormant until the drought ends, at which time they should green up again.

Grass varieties such as St. Augustinegrass, centipedegrass, tall fescue, and some other species may be severely damaged or die during extended periods of drought. You may have to replant dead areas after the drought ends.

Rating for Drought Tolerance of Turfgrasses Used in Home Lawns

Grass Species	Tolerance Level	Comments
Buffalograss	High	Goes dormant and recovers well from drought stress
Bermudagrass	Medium-High	Goes dormant and recovers well from drought stress
Zoysiagrass (depends on variety)	Low-High	<i>Zoysia japonica</i> varieties such as Crown, JaMur and Palisades have high drought tolerance, while varieties like Meyer have poor drought tolerance. Most <i>Zoysia matrella</i> varieties such as Cavalier and Zeon have poor to medium drought tolerance
St. Augustinegrass	Medium	Moderate drought resistance from an extensive root system but poor ability to go dormant. Significant turfgrass loss during long drought periods. Note: The St. Augustinegrass variety Floratum has high drought tolerance but is limited to the southern portions of the state because of Floratum's poor cold tolerance
Centipedegrass	Medium	Moderate drought resistance from an extensive root system but poor ability to go dormant. Significant turfgrass loss during long drought periods.
Tall Fescue	Low-High	A cool-season grass. Significant turfgrass loss during long drought periods. In its area of adaption, tall fescue has medium drought tolerance. In Texas, its drought tolerance is low to medium.

Adapted from Extension Publication B-6126. Author James McAfee, Extension Turfgrass Specialist