Water Management

Water is a limited resource in Texas. During droughts, water supplies can become so depleted cities are required to initiate rationing programs. Homeowners must learn to manage their lawn irrigation during the different stages of water rationing. Following is a list of rationing stages from the many different programs in use throughout the state. Each water district adopts a rationing policy based on it's individual situation. Most rationing programs, however, are very similar.

Water Rationing Stages

STAGE I

Usage of water for outdoor purposes such as lawns, gardens, car washing, etc. will be restricted to one of the following:

- Alternate Day Use Customers with even-numbered addresses may water outdoors on even-numbered days and customers with odd-numbered addresses may water outdoors on odd-numbered days. (When there are no addresses, North and West sides of streets even days; South and East sides of streets: odd days.)
- Restricted Hours of Use Outside watering is allowed daily only during periods defined by your water district.
- Every Five Day Use Customers whose addresses end in 0 and 1 may use water outdoors on the 1st day of the month; 2 and 3 - on the 2nd; 4 and 5 - 3rd; 6 and 7 - 4th; 8 and 9 - 5th; 0 and 1 - 6th.... and so on. The utility will provide a calendar noting the respective watering days and the order should remain consecutive as new months begin.

Things To Know:

During Stage 1, homeowners should maintain a deep infrequent irrigation schedule. This approach is best for the overall health of the lawn, regardless of the water status. It reduces disease, helps insure good air movement down to the root system, and conserves water.

During the designated times, apply enough water to adequately wet the soil to a depth of 6 inches. Use the following steps to determine how long you need to run your irrigation system.

- Set out 5-6 open-top cans randomly on the lawn (tuna and cat food cans work best because they have short sides).
- Turn the sprinkler head or system on for 30 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, if you used five cans in your yard and the depth of water collected was 0.5"(1/2"), 0.4", 0.6", 0.4", 0.6". Add the depths together and then divide by the number of cans you used (5 in this case). 0.5"+0.4"+0.6"+0.4"+0.6"= 2.5" / 5 cans = 0.5" of water in 30 minutes.
- Use a garden spade to determine how deep the soil was wet during the 30 minute watering. Push the spade into the soil. It will push through the wet soil easily, but will become difficult when it reaches dry soil. Measure the depth of the wet soil.
- When you know how much water was applied in a 30 minute cycle and how deep that volume of water wet the soil, it is easy to determine how long the sprinkler head must run to adequately wet the soil to a depth of 6 inches. Example: The system put out ½ inch of water in 30 minutes wetting the soil to a depth of 3 inches. Therefore, 1 inch of water will need to be applied to wet the soil to a depth of 6 inches giving a run time of 1 hour.

  3" wet soil = ½"of water = 30 minutes
  6" wet soil = 1"of water = 1 hour

After you have adequately wet the soil, do not irrigate again until the grass needs it. Drought stress symptoms will develop when the lawn needs watering. Symptoms include grass leaves turning a dull, bluish color, leaf blades rolling or folding, and footprints persisting for an extended period of time after walking across the lawn. In most cases, drought symptoms will usually develop within 5 to 7 days. Under stage I rationing, turfgrass quality should not drop.

Run-off can be a serious problem leading to significant water waste. Soil type and the application rate of the sprinkler system determine how quickly run-off will occur. If water is applied faster than it can move down into the soil, it can run off the site of application and be lost. Special attention must be paid to eliminate this type of water waste. To Prevent Run-off:

- Monitor the lawn during the course of several irrigation cycles looking for water running onto sidewalks, streets or gutters.
- Note how long the sprinkler was run prior to run-off. This is the new maximum run time for any one irrigation cycle that will prevent water losses due to run-off.
- Allow the soil surface to dry (30 minutes to 1 hour).
- Change your irrigation timer to the new shorter time and begin watering again.
- Continue this cycle until enough water has been applied to wet the soil six inches deep.

Other Considerations:

Continue an as needed mowing schedule, remembering to mow often enough to

remove no more than 1/3 of the leaf blade at any one time.

Reduce your fertility program, keeping nitrogen levels low.

STAGE II

Use of water for outdoor purposes such as lawns, gardens, car washing, etc. will be restricted to once a week. Weekly rationing based on home address. Watering with a hand-held hose with manual valve is permitted only after 8:00 p.m. and before 10:00 a.m.

Things To Know:

The same approach can be used in Stage II as in Stage I. 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 those areas that show drought stress symptoms before the next allotted irrigation date. Make sure the soil is thoroughly wet to the appropriate depth.

Other considerations:

Continue mowing as needed.

Reduce your fertility program, keeping nitrogen levels low.

Use a shower or fan type nozzle on your hose to help evenly disperse the water.

STAGE III

All outdoor water usage is prohibited except by hand held hoses with manual valves. Water usage for live-stock is exempt.

Things To Know:

Irrigation during Stage III becomes more difficult. Continue following a deep irrigation program to help maintain a healthy root system. However, most homeowners do not have the time or patience to hand-water the lawn to a depth that is beneficial to the grass. Consider adopting one of the following approaches during Stage III water rationing.

1. Water only areas that are showing severe drought stress with a hose. Make sure that enough water is applied to effectively wet the soil. When puddling or run-off begins, stop watering that particular area, let the surface dry and then resume watering. Continue this cycle until the soil is wet to the appropriate depth. Use a sharp spade to help determine the depth of water penetration. Those areas should not be watered again until drought stress symptoms appear again. This will be a time intensive approach, requiring daily attention. Time and lawn size will determine whether it is a viable option.

2. If time and patience are a limitation, or the lawn is too large, you may want to stop watering the lawn all together. Before using this approach, there are a few things to consider. Most warm-season turfgrass species have the ability to survive short periods of drought stress. When grass is under severe drought stress, it may go dormant. Dormant grass will be brown and may appear dead. Once watering or rain begins again, grasses will recover, assuming the drought has not been too severe. Recovery will be

slow and may take up to three months during the growing season. Grasses that are able to go dormant during drought are buffalograss, Zoysia japonica, and bermudagrasses. Other species do not possess this type of drought tolerance mechanism. Significant turfgrass loss can occur if these species are allowed to experience severe drought stress for an extended period of time. Understand the strengths and weaknesses of your particular turfgrass species (See Grass Species Table). If the grass in your lawn possesses a strong dormancy mechanism, consider eliminating irrigation. However, if your grass does not have a strong dormancy mechanism, and is allowed to experience long periods of drought stress, a significant amount of your lawn may die and need to be replaced.

3. Water only high priority areas and allow other areas to go dormant or die. High priority areas are determined by each individuals specific needs and preferences. If the back yard is utilized more than the front, it would be the high priority area. If an aesthetically pleasing landscape is important, then portions of the front yard might be priority. This approach will allow the homeowner to maintain green turfgrass only in important areas of the yard, saving water and time.

Other considerations:

Continue an as needed mowing schedule were no more than 1/3 of the leaf blade is removed at any one time.

Eliminate fertilizer applications at this time.

Use a shower or fan type nozzle on your hose to help disperse the water when hand watering.

STAGE IV

All outdoor water usage is prohibited; livestock may be exempted by the utility.

Things To Know:

This stage is quite easy – do not water the lawn. Buffalograss, bermudagrass and some of the zoysiagrass varieties will probably survive under no irrigation. They will eventually go into a dormant state until the drought stress is eliminated, at which time they will come out of dormancy. Depending on the duration of the drought conditions and the depth of the root zone, survival rates should be high for these three species. St. Augustinegrass, Seashore paspalum, Centipedegrass, Tall Fescue and some other grass species may be severly injured or die if exposed to extended periods of drought. Dead areas may be seeded, sodded, plugged or sprigged after drought conditions end. The best method of establishment will be determined by the species and variety of selected turfgrass.

Other considerations:

Continue mowing as needed, removing no more than 1/3 of the leaf blade at one time.

Stop any fertility program, until drought restrictions are lifted.

Grass Species Table

Grass Species	Level of	Comments

	Tolerance	
Buffalograss	High	Very good dormancy mechanism with excellent recovery potential from drought induced dormancy.
Bermudagrass	Medium - High	Good dormancy mechanism with very good recovery potential from drought induced dormancy.
Zoysiagrass	Low - High	Some Zoysia japonica varieties (El Toro, Palisades) show very good (some varieties) (Variety Dependent) dormancy mechanisms with a high drought recovery capability. However, most Zoysia matrella varieties (Emerald, Cavalier) have poor dormancy mechanisms and will experience significant turfgrass loss during long droughts. Contact your local County Extension Agent if you have questions concerning your particular variety.
St. Augustinegrass	Medium	Moderate drought resistance due to an extensive, deep root system, but poor dormancy mechanisms. Significant turfgrass loss during long drought periods.
Centipedegrass	Medium	Moderate drought resistance due to an extensive, deep root system, but poor dormancy mechanisms. Significant turfgrass loss during long drought periods.
Tall Fescue	Low - High	A cool-season grass. Level of drought tolerance is variety dependent. (Variety Dependent) Drought resistant varieties possess deep root systems, but have poor dormancy mechanisms. Significant turfgrass loss during long drought periods. Contact your local County Extension Agent if you have questions concerning your particular variety.

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