

Texas A&M AgriLife Research provides the following list of irrigation management recommendations to manage water limited supplies with input from the Lower Rio Grande Valley Water District Managers' Association:

1. **Agricultural producers** should take advantage of this drought period to level their land if it is not leveled. The land that is already leveled should be retouched to improve efficiencies.
2. Farmers should buy flow-meters and measure their water, so they have records on how much is being applied per irrigation, and should have rain gauges to keep track how much rainfall they are receiving on their farms.
3. Farmers with more area should reduce irrigated area and give priority to perennial crops such as sugarcane, citrus, and grapes. Sugarcane is very sensitive to water shortages, while citrus and grapes have low to medium sensitivity.
4. Farmers should plant more water resistant crops such as **dry-land sorghum, dry-land cotton, and sunflower**. If rains received in the next season and irrigation districts can allocate more water. Then irrigation should be applied.
5. **Corn, melons, onions and cabbage** have medium to high sensitivity to water stress. It is preferable to not stress these crops.
6. For **cotton** is important to maintain adequate soil water during germination and establishment. An irrigation will be necessary if not enough moisture is available to establish the crop and obtain good stand. If water for an additional irrigation is available later on, it should be applied during the onset of flowering to peak flowering. Irrigation should be targeted on this stage.
7. **Maize** is relatively tolerant to water deficits during the vegetative and ripening periods. The greatest decrease of yields is caused by deficits during the flowering periods (tasselling and silking). Therefore, it is important to target irrigation during flowering and if extra-irrigation is available, it is recommended to apply water during yield formation.
8. **Soybeans** require adequate water during germination. The periods more sensitive to water stress are flowering and pod formation.
9. *Citrus* that have water stress, have retarded growth, leaves curl and drop, young fruits fall, and fruits that mature are deficient in juice and quality. The most critical growth stage period for water stress in citrus is during flowering, and then during fruit set. Water deficits during fruit set can cause fruit drop.
10. Reduce tillage can be helpful to store moisture in the soil. Leaving some stubble and crop residue will help reduce evaporation and will prevent runoff in case of rain..
11. Pastures can be stressed more. It is imperative that land should be leveled to irrigate pastures.
12. It is important to avoid runoff. Furrows should be blocked at the lower end. Irrigation needs to be supervised to avoid spills and runoff.
13. Irrigators should use flexible plastic pipes and gated pipes to irrigate.
14. In furrow irrigation, some strategies to increase uniformity and reduce deep percolation losses are: irrigate alternate rows, irrigate the tractor wheel rows, irrigate with surge irrigation. It will be also a good strategy to use packers and smothers on the rows to advance the water faster to the end of the row. It is important to have a good flow-rate per furrow to advance water as fast as possible in the row without eroding the soil. A small flow-rate will increase percolation at the upstream end, and will lixiviate fertilizer.

15. In furrow irrigation, some strategies to reduce runoff are: decrease the wetting length of the rows, block the rows at the lower end, and supervise irrigation closely to avoid runoff.
16. In many situations if there is good soil moisture at planting, irrigation can be delayed. At physiological maturity irrigation can be terminated without affecting crop yields.

For more information, please contact Dr. Juan Enciso (email: j-enciso@tamu.edu)