County Extension Agent Turf News – Spring 2006

by

Dr. James McAfee, Dr. David Chalmers, Mr. Roger Havlak

Department of Soil and Crop Science

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Turfgrass Best Management in Drought

For most areas of the state, 2005 was one of the driest years on record. Even though some areas of the state recently have received some welcome rainfalls, forecasts are still for this drought condition to continue, at least until sometime in the summer months. Many cities and towns are already talking about going to phase III water restrictions shortly and possibly phase IV restriction within the next couple of months if adequate rainfall does not occur. Phase IV restrictions generally means no outdoor use of water. While there is not a lot homeowners can do to save their lawn if water becomes unavailable for use on landscapes, proper lawn management this spring until phase IV restrictions are put in place will have a major impact on how long the lawn can survive drought conditions. Listed below are some best management practices for managing turfgrasses in a law during drought conditions.

A. fertilization:

As long as water is available, apply the recommended rate of nitrogen for the turfgrass site. Do not apply excess nitrogen and create excess topgrowth in the turfgrass plants during the spring months. Creating excess topgrowth will affect the plants ability to develop a deep, extensive root system. For most turfgrasses, apply 0.5 to 1.0 pound of actual nitrogen per 1, 000 sq.ft. in the spring months. If lawn irrigation is severely restricted or completely turned off, then discontinue applying any more fertilizer, especially nitrogen, to the lawn. If a soil sample has not been taken, recommend the homeowner have the soil in their lawn tested to make sure there is adequate phosphorus and potassium to meet the plants needs. Potassium is a key nutrient in stress tolerance for turfgrass plants, including drought tolerance. If soil potassium levels are low, then apply a fertilizer in the spring that has both nitrogen and potassium in the fertilizer. For more information on proper spring timing of fertilizer application for your area, refer to publication " Lawn Fertilization for Texas Warm Season Grasses: Frequently Asked Questions (SCS-2005-15)" for more information. It is available at the following link:
http://aggie-turf.tamu.edu/answers4you/fertilization.htm

B. Mowing:

As long as the turfgrass plant is growing, then continue to mow. Make sure the lawn is mowed often enough to never remove more than 30 to 40% of the leaf blade. Removing excess leaf area will stress the turfgrass plants and thus make them less tolerant of drought conditions. If the grass stops growing due to drought conditions, then discontinue mowing the grass.

Slightly raising the mowing height will help reduce some stress on the turfgrass plants. However, raising the mowing height doesn't mean the turfgrass plants will use less water as some people believe. Listed below are recommended mowing heights for the different turfgrasses in home lawns during drought conditions.

Grass	Height (inches)
Common bermduagrass	2 to 2.5
Hybrid bermduagrass	1 to 1.5
St. Augustinegrass (sun)	3 to 3.5
St. Augustinegrass (shade)	3.5 to 4.0
Centipedegrass	1.5 to 2.0
Zoysiagrass (japonicas)	1.5 to 2.0
Buffalograss	2.0 to 3.0

C. Irrigation:

As long as water is available, continue to water the lawn. However, it is very important that supplemental water be applied wisely and not wasted. **Applying excess amounts of irrigation water in the spring will not mean the soil will hold water longer going into the summer months.** In fact, applying excess water to lawns in the spring will result in a turfgrass plant with a shortened, week root system going into the hot, dry summer months. Water the landscape as infrequently and deeply as possible. However, soil type and soil depth will often dictate how often landscapes need to be watered. As a general rule, apply 1.0 inch of water per week in the spring and fall months and 1.5 to 1.75 inches of water in the heat of summer if adequate rainfall does not occur. Note, a majority of warm season turfgrasses can survive with less.

Conduct an audit of the irrigation system to make sure it is working as efficiently as possible and to determine how much water the system is applying. First part of an audit is to inspect the irrigation system for any problems that would affect irrigation uniformity, such as broken sprinkler heads, heads not rotating, heads not popping up high enough and mis-aligned heads (heads not vertical). Fix any problems noted during the inspection. The second phase of an audit is to determine how fast the water is being applied (measured in inches per hour) and how uniformly the water is being applied (measured in percent). Listed below are the steps for conducting this part of an irrigation audit.

- place 5 to 6 straight edged cans (cat food, tuna, etc.) in one zone of the irrigation system. Note, the more cans you use, the more accurate the test.
- Turn that zone on and run it for a set period of time, say 30 minutes.
- Take a ruler and measure the depth of water in each can and record it.
- Calculate the average depth of water from all of the cans.
- Repeat this sequence for all zones.

Example: Five cans were used for zone 1 in the irrigation system. The amount of water found in the five cans was as follows: 0.5, 0.4, 0.6, 0.4 and 0.6. Add the depths together and then divide by the number of cans (five).

0.5 + 0.4 + 0.6 + 0.4 + 0.6 = 2.5 inches of water divided by 5 (cans) = 0.5 inches of water in 30 minutes or 1.0 inch of water per hour. This means zone 1 would need to be run for one hour each week in the spring and fall and approximately 1.5 to 1.75 hours in the heat of summer to apply the necessary amount of supplemental irrigation for healthy plant growth.

Do not apply irrigation water to run-off. Runoff wastes water. If run-off occurs before the required amount of water can be applied, then turn the irrigation system off and apply the rest of the water needed later in the week.

To determine the distribution value, compare average of lowest quarter of catch cans with the average for total catch cans. Listed below are the steps for calculating distribution uniformity using the lowest quarter method. Note, need at least 8 catch cans to obtain a distribution value. The more catch cans you use, the more accurate the distribution value. It is best to do this procedure in times of low wind (early morning).

Step 1. List catch can volumes (water depth in inches) from the smallest to largest depth collected.

Step 2. Calculate the average depth volume (inches) for the lowest quarter (one-fourth) of the catch cans, cans with the lowest water levels.

Step 3. Calculate the average volume level (inches) for all the catch cans.

Step 4. Divide the lower quarter volume average (inches) by the total water volume level average (inches) and then multiply by 100 to obtain the distribution value.

Formula: **DU** = 100 x (**V**lq ÷ **V**avg.)
DU = distribution uniformity.
Vlq = Volume average of lower quarter of total catch cans.
Vavg. = Volume of total catch cans divided by total number of catch cans.

Example: Calculate distribution value for following 8 catch can volumes:

Catch cans = .2 + .3 + .3 + .4 + .4 + .5 + .6 + .6

a. lowest quarter = .2 + .3 = .5 ÷ 2 = .25
b. total volume = 3.3 ÷ 8 = .41 inch
c. DU = 100 x (.25 ÷ .41) = 61% distribution uniformity