



Texas Agricultural Extension Service

The Texas A&M University System

Grain Sorghum and Mid-Season N Fertilizer

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Many of the grain sorghum acres on the South Plains were planted after the rain stopped in June. In some cases sorghum was planted after damaged cotton. The standard nitrogen (N) recommendation for grain sorghum in Texas is 2 pounds per acre of elemental N for each 100 lbs. per acre of grain production expected. Thus a 4,000 lb. grain yield would need about 80 lbs. of N per acre. That includes both soil and fertilizer N. Nitrogen is by far the most important nutrient for sorghum to maximize sorghum production. Nitrogen is normally used by plants for chlorophyll and protein production, which in turn is used in formation of new plant cells. The seed also stores N to enable early growth after germination. Almost 60% of the N absorbed by the sorghum plant may be found in the grain at harvest. For maximum yields relative to the available water, N should not be lacking or grain development will be reduced.

For some late-planted sorghum production (emerged June 25 or later), it is not too late to make limited side-dress N applications, which should be made by about 3 weeks after emergence. Sorghum re-planted on cotton ground that received N may not need additional N, and knifing in N to buster-planted sorghum is more difficult to place for ready access by the roots. Later applications more than 3 weeks after emergence risk excessive pruning of feeder roots, but more importantly, developmental potential of the grain head is determined 30 (short maturity) to 40 days (long maturity) after emergence. This time frame, when growing point differentiation occurs, is about 1/3 of the way between germination and physiological maturity for most varieties. Growing point differentiation is when the first of three components of yield potential in sorghum is determined, that is, the number of spikelets which can bear grain is set. Good N fertility (and water!) prior to differentiation will enable the plant to set more spikelets. Nitrogen stress during this period will greatly influence yield. The two other components of yield potential in sorghum occur at flowering (seed number) and grain filling (seed size). If irrigating, be sure to begin watering in the boot stage just ahead of head exersion and flowering.

Under center pivot irrigation, N fertilizer may be applied several times during the early part of the growing season. Because N is relatively mobile in the soil, N fertilizer placement is not as critical for N as it is for most other nutrients. Producers with late-planted sorghum and good moisture have a good opportunity to recoup N fertilizer and application costs in higher yield. Consider the yield potential of each field and set your sites accordingly for possible N fertilizer applications if the sorghum is still a week or more from growing point differentiation. If you are unsure about the length of maturity of your particular sorghum variety consult your seed dealer for help in determining when growing point differentiation may occur.