

Row Spacing and Stand Population Affect Grain Sorghum Yield

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Grain sorghum stand establishment is often a concern, especially under cool and wet growing conditions. A common question expressed by grain sorghum producers is “at what plant population should I begin to think about replanting my grain sorghum crop?” Unfortunately, there is not an explicit answer to that question. Several factors must be considered before making the decision to replant. These factors range from input cost to yield potential. It is therefore, critical to scout and assess the actual plant population that has been established before making any decision.

Materials and Methods:

Research was initiated at the Bradford Research and Extension Center in 2002 to quantify the effect of crop row spacing and plant population on grain sorghum yield. Grain sorghum variety KS 735 was planted on June 3rd. The experimental design was a randomized complete block factorial design with four replications. The factors were: three row spacings at (30, 15, and 7.5 inches) and five plant populations at (30,000; 60,000; 90,000; 120,000; and 150,000 plants per acre). Prior to planting, 130 pounds of nitrogen was surface applied. Phosphorus and potassium were applied according to soil test recommendations provided by the University of Missouri Soil and Plant Testing Laboratory. Grain sorghum yield was quantified at physiological maturity and was adjusted to 14% moisture.

Results and Discussion:

Averaged across all plant populations grain sorghum yield was 10% greater in the 7.5 inch row spacing than in either the 30 or 15 inch row spacings (Figure 1). Averaged across all row spacings grain sorghum yield did not differ among plant populations except at 30,000 plants per acre (Figure 2). Preliminary data indicates that in 2002 the 7.5 inch row spacing was optimal and that yield was stable at final stand populations of 60,000 plants or greater.

Figure 1. Effect of Inter-Row Spacing on Grain Sorghum Yield in 2002.

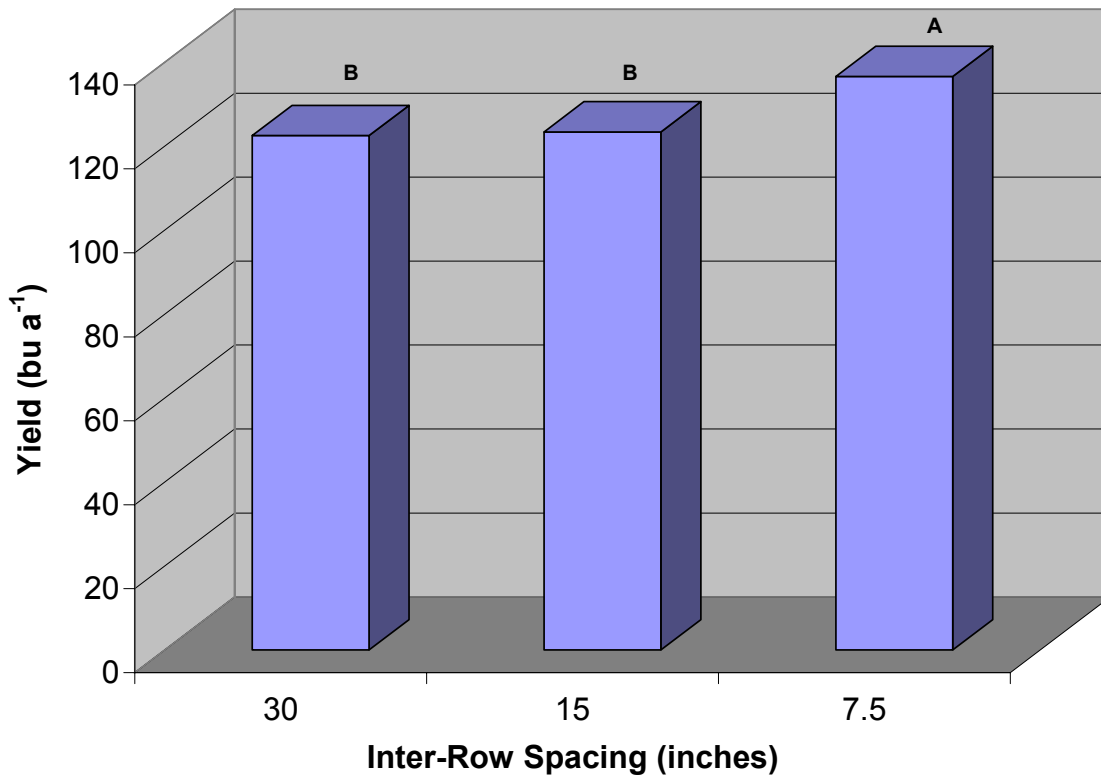


Figure 2. Effect of Grain Sorghum Stand Population on Yield in 2002.

