

# Grain Sorghum Variety Trial in Greenlee County, 2000

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## **Abstract**

*Four mid- to full-seasoned grain sorghum hybrids were compared in a replicated trial planted on the Jones farm in the Duncan-Virden valley. Dekalb 66 was the highest yielding variety with a yield over 7000 pounds per acre.*

## **Introduction**

Grain sorghum is a minor crop in southeastern Arizona, but still justifies a review of available varieties every once in a while. The last sorghum varietal evaluations in Greenlee County were conducted in 1990 and 1991. DeKalb 66 was introduced to the area in 1991 when DeKalb announced that the area favorite, DK 69, had been discontinued. DK 66 produced a higher yield than DK 69 in that study (1) and has been the area favorite ever since. One of the end users of the grain sorghum had observed that DK 66 was more difficult to process than some other varieties that they were receiving, so this study was conducted to see how a couple of the other varieties would compare in yield.

## **Materials and Methods**

Four mid-to full-seasoned grain sorghum varieties were planted on the Jones Farm toward the top end of the Duncan-Virden valley. The trial was a large plot, replicated study which was planted, cultivated and harvested with the cooperators equipment using their cultural practices. A crop history of the field is listed below:

### ***Crop History -***

Elevation: 3600 feet above sea level  
Soil type: Glendale silty clay loam  
Previous crop: Cotton  
Planting date: 23 May 2000                      Rate: 8 pounds per acre  
Herbicide: Banvel  
Fertilizer: 150 pounds/ac 18-46-0 applied at planting and 200 pounds of NH<sub>3</sub> side dressed later  
Insecticides: For Greenbug control  
Irrigation: Furrow  
Plot size: 4-36" rows ~770 feet long  
Experimental design: Randomized complete block design with 4 replications  
Harvest date: 20 December 2000

Individual plots were harvested with a Case-IH combine and weighed in the field using electronic weigh scales. Samples were taken to determine moisture and bushel weights. Plant measurements were taken in the field immediately prior to harvest.

## Results and Discussion

The trial was planted in mid May, after the cotton was planted and watered up, and got off to a good start. Climatic and cultural conditions were not optimal and the overall yields were much lower than in the previous studies (1,2). Results of the trial are tabulated in Table 1.

DeKalb 66 was the leading variety with a yield 1000 pounds per acre greater than the next variety. It is considered a mid-full season variety. The number 2 variety, KS 735 (Novartis) is a mid-season variety. The percent moisture difference between these two varieties indicates that KS 735 matured quicker than the other varieties in the study. DK 66 was by far the tallest variety in the study and had larger (heavier) heads than the other varieties. This latter characteristic was the major factor in its increased yield. Lodging was not a problem in the study.

Since the plants tiller profusely, it is difficult to tell how many plants there were per acre, so a head count was substituted for the traditional stand count. Head weights were then calculated from the head counts and yield. There was no significant correlation between heads per acre and yield but a very high correlation between head weight and yield.

A study on ease of processing these varieties was not performed because of the magnitude of yield differences.

## References

1. Clark, L.J. 1992. Grain sorghum variety trials in Greenlee county, 1991. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-92, pp. 48-50.
2. Clark, Lee. 1991. Grain sorghum variety trials in Greenlee county, 1990. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-90, pp. 99-101.

**Table 1. Grain sorghum yields and agronomic variables from variety trial conducted on the Jones farm in Virden, NM, 2000.**

Variety	Yield (lbs/ac) @14.4% M	Percent Moisture	Bushel Weight	Plant Height	Heads per acre	Weight per head
DK 66	7006.5 a <sup>1</sup>	11.33 a	58.3 a	58.0 a	51954.4 a	0.142725 a
KS 735	6006.2 b	10.95 a	55.6 b	46.8 c	58533.8 a	0.102875 b
Car X24062	5319.1 b	11.68 a	58.3 a	50.8 b	53315.6 a	0.100125 bc
Pio 84G62	3364.2 c	11.35 a	56.1 b	45.6 c	54450.0 a	0.063125 c
Average	5424.0	11.33	57.1	50.3	54563.4	0.102213
LSD(05)	444.8	1.20	1.27	2.55	14710.5	0.037794
CV(%)	8.96	6.61	1.39	3.17	16.85	23.116

1. Values in the same column followed by the same letter are not significantly different at the 95% level of confidence using the Duncan' Multiple Range test.