TITLE:

Dryland Commercial Sorghum Variety Trial at AG-CARES, Lamesa, TX, 1999

AUTHOR:

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METHODS AND PROCEDURES:

Soil Type:	Amarillo fine sandy loam
Planting:	June 21, 1999 on 40" rows
Previous Crop:	Cotton
Seeding Rate:	2.0 to 2.5 lbs./A
Plot Set-up:	Two strips per variety, approximately 800' long
Harvest Area:	Four sites, both rows 13' 1" long (two sites in each strip)
Fertilizer:	None
Herbicide:	?
Insecticide:	None
Rainfall:	See Lamesa area summary elsewhere in the AG-CARES report
Date Harvested:	October 20, 1999
Number of Entries:	21
Test Mean:	1590 lbs./A

RESULTS AND DISCUSSION:

The strip was planted at the suggestion of John Farris, CEA-Dawson Co., in keeping with previous dryland testing of commercial sorghum varieties on the southwest corner of the AG-CARES facility. These varieties, which were provided by Darrell Rosenow, are all medium-early to medium in maturity and were chosen to minimize duplication of genetic lines sold under different commercial names. For best indications of sorghum yields varieties should be tested over several years at more than one location.

Soil moisture was excellent at planting. After that, little rainfall was received. Germination and emergence were good for all varieties. Stands were better on the east end, and much of the crop on the west end failed to head. Varieties were high in their variability of production within the two-row strips. Hand-harvest was chosen at two perpendicular swaths across the strips where growth appeared relatively uniform. Samples were dried, then threshed in a small grain thresher at the Lubbock Center in early December. Plant populations were fairly consistent ranging mostly from 17,000 to 21,000 plants per acre in the harvested area. There was no correlation of plant population and yield. The plant population achieved, especially since the weather turned out so dry, was appropriate for this trial. General observations in 1999 for the Lynn-Dawson Co. area suggest that sorghum fields with plant populations with more than 25,000 to 30,000 plants per acre had trouble filling grain due to less moisture per plant.

Individual plot yields for many varieties ranged from less than 800 lbs./A to over 3,000 lbs./A, and the varietal means ranged from 818 lbs./A to 2013 lbs./A (Table 1). This variability was higher than normal for this trial, and no statistical significance was found in the mean differences.

Most of the 1999 varieties have been in previous dryland yield trials at AG-CARES. A summary of those varieties appearing in at least 2 of 3 trials since 1997 is reported in Table 2. One can clearly see that the

results for individual varieties are highly variable, for example, Mycogen 1506, did very poorly in 1997 and 1999, but in 1998 this variety was near the top in grain yield.

Looking Forward: Varietal selection can make a big difference in dryland sorghum yields. Seeding rates for dryland sorghum should be kept under 3 lbs./A—2 lbs./A is often enough. Seed costs per acre ($0.50-0.60/lb. at 2-3 lbs./A) among varieties are minimal, and should not be a factor in choosing a hybrid sorghum with better yield potential. Too often, dryland sorghum seeding rates are too high, and higher plant population sorghum crops cannot handle drought stress as well and will underyield lower plant population sorghum crops, often substantially.

Table 1. 1999 AG-CARES Commercial Sorghum Variety Trial.

Hybrid	Company	Grain color	Plant color	Test Wt. (Lbs./bu)	Plant population (plants/A)	Yield (Lbs./A)
9200Y	Richardson	Yellow	Purple	55.7	19477	2013
KS 585	Novartis	Red	Purple	56.2	21850	2003
697	Cargill	Red	Purple	51.2	18978	1880
DK40Y	Dekalb	Yellow	Purple	54.1	18853	1877
ATx399*Tx430	A&M Check	Red	Purple	51.2	18853	1826
DK41Y	Dekalb	Yellow	Purple	51.6	17979	1816
KS 524	Novartis	Red	Purple	53.0	19352	1762
627	Cargill	Red	Purple	53.8	19352	1749
6C69	NC+	Creme	Purple	56.9	14483	1740
271	NC+	Creme	Purple	55.2	15607	1672
8505	Pioneer	Red	Purple	54.1	19852	1569
647	Cargill	White	Purple	55.4	20976	1544
Seneca	Asgrow	Red	Purple	55.7	17979	1536
DK43A	Dekalb	Bronze	Purple	53.5	17729	1521
DK44	Dekalb	Bronze	Purple	54.0	17355	1511
737	Cargill	Red	Purple	53.1	21350	1501
Y363	NC+	Yellow	Purple	54.4	16606	1290
1506	Mycogen	Red	Purple	51.0	17854	1259
84G62	Pioneer	Red	Purple	55.0	20601	1255
7B29	NC+	Red	Purple	52.8	15607	1249
481	Texas Triumph	Red	Purple	43.2	19228	818

ANOVA: F = 1.049
P = 0.423

Average Yield (Lbs./A) 1590

No significant differences among means (see text note about variability).

Table 2. Yield summary of commercial sorghum varieties for three years, 1997-1999, at AG-CARES.

Hybrid	Company	Grain color	Plant color	1999 Yield (Lbs./A)	1998 Yield (Lbs./A)	1997 Yield (Lbs./A)
KS 585	Novartis	Red	Purple	2003	2818	3757
DK40Y	Dekalb	Yellow	Purple	1877	2880	3536
ATx399*Tx430	A&M Check	Red	Purple	1826	4305	
DK41Y	Dekalb	Yellow	Purple	1816		3128
KS 524	Novartis	Red	Purple	1762	3710	3939
627	Cargill	Red	Purple	1749	3500	3090
8505	Pioneer	Red	Purple	1569	2925	3826
647	Cargill	White	Purple	1544	3068	3386
Seneca	Asgrow	Red	Purple	1536	3388	3211
DK43A	Dekalb	Bronze	Purple	1521	4000	3259
DK44	Dekalb	Bronze	Purple	1511	3663	3953
737	Cargill	Red	Purple	1501	3718	4279
Y363	NC+	Yellow	Purple	1290	3493	
1506	Mycogen	Red	Purple	1259	4080	3055
		Average Yield (Lbs./A)		1590	3508	3529