

TITLE:

Dryland Sorghum-Cotton Rotation and Dryland Sorghum Seeding Rate, AG-CARES, Lamesa, TX, 2002

AUTHORS:

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METHODS AND PROCEDURES:

Soil Type: Amarillo fine sandy loam
Planting: Sorghum, June 28, 2001 on 40" rows; Cotton, June 6, 2002
Previous Crop: 2:1 rotation of cotton:sorghum, with continuous cotton for comparison
Seeding Rate: Sorghum seeding rate: low, ~26,000 seeds/acre with vacuum planter (about 1.6 lbs./acre, a seeding rate appropriate for the low moisture conditions at the time of planting, or 1 seed per 6"); high, ~51,000 seeds/A
Sorghum hybrid: Sorghum Partners (formerly Novartis) KS 585
Plot Set-up: The site is arranged in twelve 32-row strips, each ~850' long; sorghum:cotton rotation is maintained on a permanent basis, with three additional strips continuous cotton
Harvest Area: Sorghum only; test strips 8 rows wide, ~850' long
Fertilizer: None
Herbicide: Sorghum, atrazine; cotton, Treflan
Insecticide: None
Rainfall: See Lamesa area summary elsewhere in the AG-CARES report, 3.77" during physiological growth for sorghum" for June 28-Oct. 25th
Date Harvested: November 26, 2002

RESULTS AND DISCUSSION:

The dryland site at AGCARES has been maintained in a 2:1 cotton:sorghum rotation since 2000. Thus each year three strips of sorghum, 32 rows wide are planted after cotton (and likewise cotton after sorghum). We also have three strips of continuous cotton in order to evaluate dryland continuous cotton yields vs. cotton after sorghum. Again in 2002, as in 2001, the cotton failed and was zeroed for crop insurance. Instead of collecting the payment and thus being required to destroy the cotton, we left the cotton in the hopes that weather might turn favorable to that we could justify 2003 crop rotation yields. Weather did not cooperate for the cotton.

Thus we focused the comparison between the low sorghum seeding rate appropriate for the conditions (26,000 seeds/A) vs. a sorghum seeding rate at twice the seed drop (51,000 seeds/A), a rate that many producers use for dryland sorghum.

Table 1. Sorghum yield response to seeding rate at AGCARES, Lamesa, TX, in 2002 (statistical comparison using a paired t-test, 0.10).

Sorghum Seed Rate	Approx. Seeds/A	Approx. Plants/A	Strip 1 (Lbs./A)	Strip 2 (Lbs./A)	Strip 3 (Lbs./A)	Avg. Yield (Lbs./A)^
Low	26,000	21,700	1717	1762	1940	1806 a
High	51,000	40,400	1566	1290	1765	1560 a
					P-Value	0.1234
^Letters in the same column are not significantly different at 0.10.						

In the Texas South Plains when good soil moisture exists for dryland sorghum, the maximum dryland seeding rate recommended by Texas Cooperative Extension is 30,000-35,000 seeds/A (check your seed size and don't rely on "pounds per acre"). This is a seeding rate that is economically and agronomically sound for the conditions under which the goal is to make a crop. Thus the targeted seeding rate in this trial was reduced due to dry conditions, especially in the top 12 inches.

Using a paired t-test, yields were not statistically significantly different, but note that in each strip the harvest area (~0.55 acre) the yield was higher for the lower seeding rate. Should the yield difference observed be real, the net return of the lower seeding rate over the high seeding rate (economic yield difference less seeding rate cost differential) would be \$12.00/A (using a sorghum price of \$4.10/cwt and seed cost at \$1.20 per pound).

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For further information on grain sorghum production in the Texas South Plains contact your Extension agent, Calvin Trostle, or the Texas A&M—Lubbock website at <http://lubbock.tamu.edu>