

TITLE:

Guar Varieties and P Fertility at AGCARES, Lamesa, TX, 2001-2003

AUTHORS:

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METHODS AND PROCEDURES:

Soil Type: Amarillo fine sandy loam
 Planting: Guar, June 12, 2003 on 40" rows
 Previous Crop: Cotton
 Seeding Rate: Guar, 80,000 seeds/acre with vacuum planter (~6.5 lbs./A)
 Plot Set-up: Four replicated strips, test area per variety 4 rows X 75'
 Harvest Area: 2 rows X 25' (Frio experimental 2 rows X 12')
 Fertilizer: Treatments included 30 lbs. P₂O₅/A applied as 10-34-0 band (rolling coulters, 5" off top of bed) applied in April
 Herbicide: 1.5 pt Treflan
 Insecticide: None
 Rainfall: See summary in AG-CARES report, 1.6" for June 3-9 prior to planting; 4.4" from June 12 to October 1 (period of physiological growth)
 Date Harvested: December 17, 2003

RESULTS AND DISCUSSION:

This concludes the third year of guar variety and P fertility testing at AGCARES. Test weight of the 2003 crop is not yet complete. Guar was seeded 1.25" deep on June 12 into good moisture. Frio is an experimental guar variety obtained from Dr. Justin Tuggle, CropDocs Consulting, Brownfield, TX, and it was seeded at a rate of ~5 lbs./A due to limited seed whereas all other varieties were approximately 6.5 lbs./A. Santa Cruz stand was lower in part due to seed that had Texas Dept. of Agriculture germination of only 62%. Harvest was delayed well into December (~4 weeks) due to the late killing frost at Lamesa.

2003	2003 Yield (Lbs./A)^	2003 Plants per acre^	2001-2003 Avg. Yield (Lbs./A)^&
Table 1: Guar Variety & Treatment			
Frio	873 a	31,000 b	
Kinman + Sono Ag. 'Vigro' seed inoculant	824 ab	54,400 a	
Lewis	721 abc	48,100 a	698
Kinman + Urbana 'Rhizo Stick' Rhizobium inoculant	681 bc	51,300 a	
Santa Cruz	650 c	38,200 b	
Kinman + 30 lbs./A P2O5	630 c	52,600 a	695
Kinman	612 c	51,300 a	711
Lewis + 30 lbs./A P2O5	611 c	50,600 a	642
Mean	700	47,200	687
P-Value (P)	0.0478	<0.0001	Not
Fisher's PLSD (0.10)	153	9600	yet
Coeff. of Variation, CV (%)	20.9	19.4	calculated

^Means in the same column followed by the same letter are not significantly different at 0.10.

In our first evaluation of Frio, yields were strong relative to Kinman and Lewis. Frio was tested at Lubbock (irrigated and dryland), Dumas (irrigated), and Peco (irrigated) although results are not yet tabulated. Kinman and Lewis yields have not been noticeably different from each other during Texas A&M testing in the South Plains since 1999. Plant populations were adequate compared to about 80,000 seed dropped per acre per variety.

2001-2003 Results in Review.

The table below highlights a summary of yields and P fertility testing for Kinman and Esser. Although the legume guar might be expected to respond to P fertility, we have seen no indication that preplant sidedress P applications are enhancing yield, especially in these dry summers.

Costs and net return on variable costs: At \$12.50-14.25/cwt. (contracted with West Texas Guar, Brownfield, TX), the average return per acre has ranged from \$24 to \$78 over the past three years before fixed costs are assessed. Keep in mind that in 2 of 3 years cotton failed and was not worth harvesting (2001, 2002). The single largest item figured into the variable costs is the use of a custom guar harvester and his combine at \$25/A.

Table 2: 3-Year Economic Summary of Guar for AGCARES, Lamesa, TX

	2001	2002	2003
Average trial yield (lbs./A)	549	875	700
Avg. rainfall during growth (in.)	2.3"	3.7"	4.4"
Contract price (\$/cwt, Brownfield)	\$14.25	\$14.00	\$12.50
Gross return	\$78.25	\$122.50	\$87.50
Variable costs of production	\$54.25	\$56.30	\$54.75
Return before fixed costs	\$24.00	\$78.25	\$32.75

Rhizobium seedbox inoculant for guar, 2002-2003. Seed was inoculated with Urbana Laboratories (now Becker Underwood) seedbox guar inoculant ‘RhizoStick’ at the double rate of 1 pouch for 50 lbs. of seed. No significant nodulation of any kind was observed, typical of observations since 2000 with seedbox *Rhizobium* inoculants of any kind. This year we also tested Sono Ag. (Plainview, TX) ‘Vigro’ seed inoculant. This product touts microbial activity and alludes to fixation, but does not specify guar-specific *Rhizobium* inoculation. Rather it claims that it can inoculate a wide range of crops. Results here suggest that the product may have favorable activity, but the generic nature and ‘one-size-fits-all’ advertising of the product suggests that it may be too general of a product to offer any advantage. No *Rhizobium* nodulation was observed with this product on guar at either AGCARES or Western Peanut Growers Assn. Research Farm in Gaines Co. Other test sites at Pecos, Lubbock, Dumas have yet to be calculated. Due to the high CV at this location I would not be confident of differences in the product without evidence from other trial sites.

For more information about guar check with your local Extension office, Calvin Trostle, or the Texas A&M—Lubbock website at <http://lubbock.tamu.edu>