TITLE:

Cotton Variety Performance as Affected by Irrigation Levels at AG-CARES, Lamesa, TX, 2003

AUTHORS:

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MATERIALS AND METHODS:

Plot Size:	8 rows x 500' L
Planting Date:	May 7
Varieties:	Paymaster 2280 BR
	Fiber Max 989 BR
	Stoneville 5559 BR
	DeltaPine 555 BR
Herbicides:	Prowl - 3 pt.
	Roundup Weather Max - 22 pt
Fertilizer:	90-50-0
Irrigations:	Base=8.8" applied
	Low = 6.6" (-25%)
	High = 11.0" (+25%)
Harvest Date:	October 14

RESULTS AND DISCUSSION:

Three longer-season “picker” type varieties were compared to a stripper variety (PM 2280BR) under 3 irrigation levels. At the base irrigation level, yields ranged from 817 to 1231 lb lint/A. Yields increased to 933-1487 lb/A at the highest (+25%) irrigation compared to 652-1031 at the low (-25%) irrigation level. Higher yields were produced at each irrigation with FM 989BR, ST 5599BR, and DPL 555BR compared to the stripper variety PM 2280BR. ST 5599BR was the only picker variety to yield higher at the increased irrigation level. Both FM 989BR and DPL 555BR produced similar yields at the base irrigation and +25% irrigation level. A trend toward higher loan value (due to longer staple lengths) resulted with the +25% irrigation treatments. Highest gross returns ($759/A) were achieved with ST 5599BR at the +25% irrigation level. Growth data, yield, loan values and gross returns/A are summarized in Table 1.

Both ST 5599BR and DPL 555BR were later fruiting, with <25% open bolls on September 15 compared to 60-70% open bolls with PM 2280BR. The late August and September rains, combined with above average heat unit accumulations in early October favored the later varieties. Although FM 989BR was not as high yielding as the other picker varieties, it has yielded extremely well in many locations, producing 2000+ lb lint/A in a test at Helms Farm site in Hale County in 2003. This test will be repeated in 2004.

Table 1. Cotton variety performance as affected by irrigation levels at AG-CARES, Lamesa, TX 2003.

Variety	Irrigation Level[1/]	Open Boll Percent		Turnout Percent	Yield LB/A	Loan Value	Gross Returns
		Sept. 15	Sept. 22	Oct. 14			$/A
1 Water 1 - PM 2280BR	Low (-25%)	68.0 a	81.0 a	26.90 f	652.7 g	49.52 d	323.03 h
2 Water 1 - FM 989BR	Low (-25%)	41.0 bcd	75.0 a	30.90 c	858.7 f	49.75 d	427.19 g
3 Water 1 - ST 5599BR	Low (-25%)	25.0 de	41.3 b	31.60 c	1076.7 d	49.75 d	535.87 def
4 Water 1 - DP 555BR	Low (-25%)	19.0 e	48.3 b	34.27 a	1031.3 de	49.58 d	511.53 ef
5 Water 2 - PM 2280BR	Base	70.0 a	84.0 a	28.67 e	817.7 f	49.48 d	404.58 g
6 Water 2 - FM 989BR	Base	42.0 bc	77.3 a	30.90 c	1094.0 cd	50.35 d	550.83 de
7 Water 2 - ST 5599BR	Base	23.7 e	54.7 b	31.57 c	1271.7 b	46.45 e	590.69 cd
8 Water 2 - DP 555BR	Base	27.0 cde	45.3 b	33.27 b	1231.3 bc	52.23 bc	642.85 bc
9 Water 3 - PM 2280BR	High (+25%)	66.7 a	82.0 a	29.37 de	933.7 ed	50.80 cd	473.52 fg
10 Water 3 - FM 989BR	High (+25%)	49.0 b	73.7 a	29.77 d	1039.7 de	54.00 a	451.43 de
11 Water 3 - ST 5599BR	High (+25%)	14.0 e	42.7 b	31.40 c	1487.0 a	51.08 cd	759.39 a
12 Water 3 - DP 555BR	High (+25%)	20.3 e	43.3 b	34.30 a	1283.0 b	53.40 ab	685.12 b
SD (P=.05)		16.90	18.37	0.91	138.94	1.66	73.61
Standard Deviation		9.98	10.85	0.54	82.05	0.98	43.47
CV		25.72	17.39	1.72	7.71	1.94	8.0

[1/] Base=8.8" applied; Low = 6.6 (-25%); High = 11.0 (+25%).