Short Staple Variety Demonstration, Graham County, 1986

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ABSTRACT

Two short staple variety trials were held in Graham county, one toward the west end of the valley (Eden), and one in the center of the valley (Thatcher), both with 15 varieties. Delta Pine 90 was the highest yielding variety at both locations, with yields of 1,386 pounds of lint per acre at Thatcher and 1,123 pounds at Eden. Two new varieties, Northrup King 111 and BR 110, show some promise in the area, with yields close to that of Delta Pine 90. Lint quality and grade are listed for each variety.

INTRODUCTION

An abundance of new varieties of short staple cotton were available in 1986, with potential applicability to Graham County. Many of these varieties were tested again in 1987, along with another new entry, BR 110, to aid area farmers in their decision about which variety would bring greatest economical return.

MATERIALS, METHODS AND DATA

The crops were grown with cooperating farmers according to their normal cropping procedures.

CROP HISTORY

LOCATION 1:	Thatcher
COOPERATOR:	Dennis Layton
SOIL TYPE:	Pima clay loam ELEVATION: 2900 feet
PREVIOUS CROP:	Cotton
PLANTING:	Date: 16 April 1987 Rate: 28 lbs/ac in 38" rows
REPLICATIONS:	Four
HERBICIDE:	None
FERTILIZER:	125 units of N
IRRIGATION:	Pre-irrigation + 6 irrigations (4 ac ft)
INSECTICIDE:	3 applications of cymbush
PIX:	One pint applied
DEFOLIATION:	Sodium chlorate
HARVEST:	First pick: 15 October
	Second pick: 9 November
PLOT SIZE:	Two row plots approximately one quarter mile long per replication.

Table 1. Cotton Yields, Lint Turnouts, % First Pick and Plant Heights on Short Staple Cotton Varieties in Thatcher, Graham County, 1987.

VARIETY	LINT* YIELD	% LINT TURNOUT	PERCENT 1ST PK	PLANT** HEIGHT	GRADE	STAPLE LENGTH	MIC
Delta Pine 90	1386 a	37.8	85.9	35.8	31	36	4.0
Northrup King 111	1309 ab	36.5	85.8	34.3	31	35	4.2
BR 110	1235 b	35.5	81.8	32.1	31	36	4.0
Delta Pine 77	1206 b	34.5	68.9	34.6	31	36	3.7
Germains GC 510	1064 c	36.0	69.5	33.0	31	37	4.5
Germains GC 365	1012 cd	33.6	78.4	35.9	41	37	4.1
Acala 1517-SR1	1012 cd	31.0	83.9	33.5	41	38	3.9
DES 119	926 de	34.9	89.0	26.9	41	36	4.2
Sun Valley 13	906 de	33.2	83.9	31.8	31	36	4.0
Acala 1517-75	902 de	32.9	79.9	34.9	41	37	4.6
Stoneville 112	844 e	35.0	87.4	29.1	41	34	3.7
Northrup King KC380	821 e	35.8	89.6	29.6	40	35	4.1
Stoneville 506	809 e	36.5	87.4	29.8	41	35	3.9
New Mexico Hybrid	661 f	25.3	66.6	34.3	52	41	4.1
Arizona 107	411 g	32.1	91.9	20.9	40	35	3.7

* Lint yields are in pounds per acre, values followed by the same letter are not significantly different at the 5% level using the Student-Newman-Kuels method.
** Plant heights are in inches.

CROP HISTORY

LOCATION 2:	Eden
COOPERATOR:	Colvin Farms
SOIL TYPE:	Grabe clay loam ELEVATION: 2800 feet
PREVIOUS CROP:	Wheat and milo, 450 units of N were applied
PLANTING:	Date: 20 April 1986 Rate: 30 lbs/ac in 38" row
REPLICATIONS:	Four
HERBICIDE:	Treflan and caparol
FERTILIZER:	None
IRRIGATION:	Pre-irrigation + 4 irrigations (40 ac in)
DEFOLIATION:	Sodium chlorate + accelerate
HARVEST:	First pick: 4 Nov
	Second pick: 30 Nov

Table 2. Cotton Yields, Lint Turnouts, % First Pick and Plant Heights on Short Staple Cotton Varieties in Eden, Graham County, 1987.

VARIETY	LINT* YIELD	% LINT TURNOUT	PERCENT 1ST PK	PLANT** HEIGHT	GRADE	STAPLE LENGTH	MIC
Delta Pine 90	1123 a	35.9	93.5	36.1	31	36	3.8
Northrup King 111	1056 a	34.0	91.6	37.5	31	37	3.7
Delta Pine 77	1035 a	34.8	88.4	35.6	31	36	3.7
BR 110	1027 a	33.5	90.5	37.1	42	36	3.4
Sun Valley 13	859 b	37.0	92.2	33.0	51	37	3.7
Stoneville 112	833 bc	34.0	92.8	30.5	41	36	3.9
DES 119	814 bc	33.9	94.5	30.1	50	36	4.0
Sun Valley 93	807 bc	32.5	92.3	34.4	41	37	3.8
Acala 1517-SR1	763 bc	32.8	92.4	33.1	41	37	4.0
Acala 1517-75	756 bc	32.7	91.8	34.0	41	37	3.5
Germains GC 365	744 bc	32.4	88.6	41.0	42	36	4.0
Germains GC 510	723 bc	35.7	89.6	31.9	41	36	4.1
Stoneville 506	718 bc	32.0	90.7	31.0	50	35	3.8
Northrup King KC380	688 cd	36.5	93.5	32.0	51	36	3.4
New Mexico Hybrid	599 cd	27.8	87.4	36.9	52	35	4.1

* Lint yields are in pounds per acre, values followed by the same letter are not significantly different at the 5% level using the Student-Newman-Kuels method.
** Plant heights are in inches.

DISCUSSION

The yields at the Thatcher location are very similar to the results in 1986, with the top five varieties of 1986 all listed in the top six varieties in 1987. BR 110 (a new variety developed by Desert Cotton Research) was the extra variety in 1987. The order of the top-yielders changed slightly; Delta Pine 90 was at the top after being third the previous year, and Northrup King 111 became second, instead of first as it had been the year before.

The yields in Eden were very different from 1986. The medium maturity varieties, which were the top-yielders last year, were in the bottom half of the table this year. The long- season varieties, such as Delta Pine

90, were in the top this year; last year, they were in the bottom half of the table. The difference was the season. The first killing frost in 1987 was the second week in November, valley-wide; in 1986, the first killing frost occurred in Safford on November 8th and in Eden around the 21st of October. The extra length of season this year favored the longer season varieties. The cold spring was another weather factor that interacted with the varieties in 1987. The overnight low on May 28th was 44° F, the lowest temperature ever recorded on that date for the weather station at Safford.

A newcomer, BR 110, came in third in Thatcher and fourth in Eden. It appears to have a fiber quality much like Delta Pine 90, even though the grade was lower in Eden. Northrup King 111, has yield, plant height, fiber quality and maturity that are very similar to Delta Pine 90; however, NK111 is very distinguishabled at harvest; it is very showy and looks as though every boll on the plant is open. Actually, NK111 had as strong a second pick as Delta Pine 90. Delta Pine 77 (the new name for Delta Pine 775) produced a good yield, but too much of it was in the second pick. Its longer season could be a disappointment in a short year.

Demand for the finer fiber of the 1517 acalas has been expressed in premiums for the lint, ranging from 4 to 10 cents per pound. If we assume a value of 75 cents per pound for the 1517 acalas and 68 cents per pound for the other varieties, the gross income per acre would be $942 for Delta Pine 90 and $759 for Acala 1517-SR1 in Thatcher; and $763 for Delta Pine 90 and $572 for Acala in Eden. The differences of nearly $200 per acre indicates that these 1517 varieties cannot compete with Delta Pine 90 in this area. Other 1517 varieties in various stages of testing, such as 1517-88 and B510, may yield more than 75 and SR1. These should be evaluated next year.