

Short Staple Variety Trial, Cochise County, 1991

Lee J. Clark

Abstract

Three new California acala varieties are evaluated in this field trial along with nine New Mexico acalas. The highest yielding variety was New Mexico's 1517-88 with a yield of 2.8 bales per acre. California's MAXXA came in number 3, but not very far behind, yieldwise. Nazas 77, a rust resistant variety from Mexico, was evaluated in a second trial at this same location. Rust was not a problem at this site in 1991 so its rust-resistance could not be evaluated, but it yielded within 5% of the yield of 1517-88.

Introduction

Three new acala varieties from California, two new varieties from New Mexico, two hybrids from ChemBred, a rust resistant variety from Mexico and a new short season delta-type variety from Delta Pine had not been tested before in the area. This trial includes these and some of the old standby varieties. The trial is broken into three parts, the main being an evaluation of 12 acala type varieties, the next part evaluating Nazas 77, the Mexican rust-resistant variety against the standard New Mexico variety, 1517-88, and ChemBred's acala CB 1135. A new New Mexico storm resistant variety, 1517-SR3, Delta Pine's new DP 5415 and ChemBred's CB 219 were planted in a non-replicated observation.

Materials and Methods

This trial was on the Noel Curry farm in Cochise county, using his equipment and cultural practices.

ELEVATION: 4300 feet above sea level

SOIL TYPE: Clay loam

PREVIOUS CROP: Cotton

PLANTING DATE: 12 April 1991 RATE: 24 lbs/ac

REPLICATIONS: 2, 4 and 1

HERBICIDE: Treflan

FERTILIZER: 200 lbs of 10-34-0 preplant and 250 lbs of UN32 later

IRRIGATION: Furrow irrigated, watered up and approximately 10 irrigations

FUNGICIDE: 3 applications of Manzate for rust control

OTHER CHEMICALS: 2 applications of PIX (4 oz. and 6 oz.)

HARVEST: First pick: 26 October

Second pick: 21 November

Three separate trials or observations were made at this site in 1991. The first was a replicated acala variety trial with 12 varieties and two replications. The second was on one side of the field with short rows where no fungicide applications were made. This test was to evaluate Nazas 77 (a rust resistant cultivar from

Mexico) against 1517-88, the standard variety. A third cultivar, CB 1135, an acala-type hybrid from ChemBred, was also evaluated under these conditions. The third part, an observation without replications, was adjacent to the second part in short rows. Another ChemBred hybrid, a new storm resistant acala from New Mexico and a new short season delta type cotton from Delta Pine were observed.

The varieties were planted on dry beds with a John Deere plate-type planter and were watered up after planting. Plots were treated throughout the year by the farmers normal cultural practices. Plots were weighed separately using electronic weighing pads under the cotton wagon. Samples were taken to determine lint quality and percent lint turnout. These samples (ca. 4 pounds) will be ginned on a 20 saw gin at the Maricopa Agricultural Center and lint turnouts and HVI classification will be determined.

Results and Discussion

Results of the acala variety trial are found in Table 1. New Mexico's 1517-88 has been tested at this location over the past 4 years (1,2,3) and this is the second year that it has produced the highest seed cotton yield. Yields were higher than in 1990 and nearly as good as in 1989 where the top variety yielded over 3 bales per acre. The lint yield of 1517-88 this year, using a 33% turnout, is 1378 pounds per acre or 2.8 bales per acre. MAXXA, PREMA and ROYALE were seen in the tests for the first time this year and performed quite well. MAXXA was the top yielder of the trio and showed maturity and height characteristics very similar to 1517-88. Acala B510 is still not a released variety from New Mexico State University but has done well in our tests in Greenlee county as well as in this test in 1989 (3).

Using the percent first pick as an indicator, 1517-88 matured ahead of the average in the test as was seen in 1990 as well. The crop was picked a few days earlier than in the previous years and the average percent first pick was lower than usual. A hard frost came three days after the first picking which terminated the cotton's productivity for the year. Plant heights were shorter than any of the past years, this is probably due to the two applications of PIX.

Table 2 shows the results of the three varieties that were not sprayed with fungicide to protect the plants from cotton rust. There is over 900 pounds per acre difference between the yields of 1517-88 in Table 1 and Table 2. The only intentional difference between the two plots was the fungicide treatment. Unintentionally, however, the short rows received less water than the main part of the field. Since there was little rust infection in this field this year, it is felt that the yield differences were due to irrigation, not rust. The trial did indicate the ability of CB 1135 to yield in the area and indicated that Nazas 77 yields about 5% less than 1517-88 under these conditions. Both varieties should be evaluated again.

The observations in Table 3 are very preliminary. They were planted on short rows that didn't get as much water as the rest of the field. Still, these varieties may have a difficult time competing with the other varieties in the tests.

References

1. Clark, Lee J. and Eric Schwennesen. 1991. Short Staple Variety Trial, Cochise County, 1990. Cotton, A College of Agriculture Report, The University of Arizona, Tucson. Series P-87, pp. 81-2.
2. Clark, Lee J. and Eric Schwennesen. 1990. Short Staple Variety Trial, Cochise County, 1989. Cotton, A College of Agriculture Report, The University of Arizona, Tucson. Series P-81, pp. 73-4.
3. Clark, Lee J. and Eric Schwennesen. 1989. Short Staple Variety Trial, Cochise County, 1988. Cotton, A College of Agriculture Report, The University of Arizona, Tucson. Series P-77, pp. 130-3.

Table 1. Yield and crop characteristics of acala cotton varieties grown on the Noel Curry farm in Cochise, 1991.

Variety	SC ¹ Yield	Percent 1st Pick	Plant ² Height	Plant Population	Percent of 1517-88
1517-88	4176 a	81.4 ab	24.5 b	97114 a	100.0
Acala B510	4147 a	79.9 ab	27.2 ab	65801 bc	99.3
MAXXA	4049 a	81.3 ab	24.5 b	62171 bc	96.9
Acala 6685	4043 a	72.3 cd	28.0 ab	43111 c	96.8
1517-SR1	3980 ab	83.1 a	25.0 ab	63986 bc	95.3
PREMA	3978 ab	74.4 cd	25.5 ab	57633 bc	95.2
1517-77BR	3920 ab	82.3 ab	27.0 ab	76239 ab	93.9
1517-SR2	3719 ab	77.2 bc	28.0 ab	63986 bc	89.0
1517-75	3700 ab	70.7 d	29.3 ab	79869 ab	88.6
ROYALE	3558 ab	73.0 cd	30.5 a	57633 bc	85.2
1517-V	3534 ab	72.4 cd	29.8 ab	61717 bc	84.6
1517-91	3240 b	74.0 cd	24.5 b	65801 bc	77.6
Average	3836.9	76.8	27.0	66255	
LSD(05)	669.8	4.75	5.38	24830	
C.V.(%)	13.6	6.14	10.27	23.8	

1. Seed cotton yields in pounds per acre.

2. Plant height in inches.

3. Values within a column followed by the same letter are not significantly different at the 5% level of probability using the Duncan multiple range test.

Table 2. Yield and crop characteristics of three short staple cotton varieties where no rust fungicide was applied, grown on the Noel Curry farm in Cochise, 1991.

Variety	SC ¹ Yield	Percent 1st Pick	Plant ² Height	Plant Population	Percent of 1517-88
CB 1135	3478 a	75.1 a	29.1 b	32901 c	107.0
1517-88	3252 a	74.7 ab	30.0 b	74877 a	100.0
Nazas 77	3076 a	70.3 b	35.5 a	58767 b	94.6
Average	3268.4	73.4	31.5	55515	
LSD(05)	500.5	4.6	4.9	10589	
C.V.(%)	8.9	4.2	13.1	34.0	

1. Seed cotton yields in pounds per acre.

2. Plant height in inches.

3. Values within a column followed by the same letter are not significantly different at the 5% level of probability using the Duncan multiple range test.

Table 3. Non-replicated observations on three short staple cotton varieties where no rust fungicide was applied, grown on the Noel Curry farm in Cochise, 1991.

Variety	SC ¹ Yield	Percent 1st Pick	Plant ² Height	Plant Population
CB 219	2940	70.2	32.0	91668
1517-SR3	2550	68.8	27.0	65348
DP 5415	2421	54.3	32.5	101652

1. Seed cotton yields in pounds per acre.
2. Plant height in inches.