Short Staple Variety Demonstrations, Graham County, 1991

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Abstract

Weather played a major part in the production of cotton in the Safford valley in 1991. A cool spring and early summer slowed the development of cotton and gave an advantage to varieties that could produce quickly in the warm late summer months. Three Stoneville varieties came to the top of the test with Stoneville 506 producing the highest yield of over 4000 pounds of seed cotton per acre. The New Mexico acalas, 1517-91 and 1517-88 also produced well, and depending on the premium, could produce more income per acre than the top varieties. Fifteen varieties were tested at this site and all produced over 2 bales per acre.

Introduction

Several new varieties have become available that have a potential for production in the Safford valley. California Planting Cotton Seed Distributors' variety Prema did very well in 1990 (1) and they have two new varieties that produce better than Prema in the San Joaquin valley, these varieties are included in this test. Stoneville, Delta Pine, the New Mexico acala group and a couple of other cotton breeders all had new varieties worth looking at in the area. This test is a continuation of the variety screening research that has been carried out over the past several years.

Materials and Methods

The crops were grown with the cooperation Colvin Farms using their equipment and their normal cultural practices. The varieties were planted in two row plots in four replications. The varieties were harvested separately and weighed in the field using trailer scales. Subsamples were taken for lint analysis.
Plot size: Two 38 inch rows approximately one quarter mile long.

Location: Colvin Farms, Eden, AZ
Soil type: Grabe clay loam
Elevation: 2800 feet
Previous crop: Wheat and milo (double crop)
Planting date: 24 April 1991 Rate: 25
Herbicide: Caparol and treflan, preplant
Fertilizer: None
Irrigation: furrow irrigated, approximately 4 ac feet
Insecticide: None
Pix: 1/2 pint per acre
Defoliation: Sodium chlorate
Harvest: 1st Pick: 12 November 2nd Pick: 12 December
Plot size: Two 38 inch rows approximately one quarter mile long

Heat units during the growing season: 3589 (86/55 basis)*

* These heat units were calculated from AZMET data from the Safford Agricultural Center, starting with the day of planting and going until the killing frost on October 29th.. The heat units on the site in Eden would have been less than this.

Results and Discussion

1991 was a different sort of year in an average sort of way! The number of heat units received during the growing season was very comparable to those received in 1990 and a little bit less than were received in 1989, but they came in a different way. March was a cool, wet month which made it difficult for some to prepare their land for planting. Figure 1 and 2 in reference 2 show that parts of April and most of June were cooler than average which tended to slow the cotton plants development. July through October were warmer than usual, compensating for earlier losses. The test plots were managed in a manner that took advantage of the good parts of the season and cut the losses in the less than optimal times. This resulted in the best yields we have seen in this test in several years. Three Stoneville varieties, known to require shorter seasons than varieties like DP 90, were at the top of the list. Prema, which topped the trial in 1990, came in just below the middle of the pack and it was trailed by its two sister varieties. The New Mexico acalas, 1517-91 and 1517-88 showed well in the test. With any more than a 3 cent premium for the acalas over the Stoneville quality, the acalas would produce more income. It is ironic that even though this was not the best year for DP 90 in this location this year, that it yielded 148 pounds more seed cotton this year than in 1989 when it was the top variety in the test.

References

1. Clark, Lee J. and Ronald E. Cluff. 1991. Short Staple Variety Demonstrations, Graham County, 1990. Cotton, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-87, pp. 78-80.

2. Clark, Lee J. and Eddie W. Carpenter. Cotton Variety Trial, Safford Agricultural Center, 1991. Cotton, A College of Agriculture Report, The University of Arizona, Tucson, AZ. (In this volume).

Table 1. Yield and crop characteristics of short staple cotton varieties grown on the Colvin Farm in Eden, 1991.

Variety	SC[1] Yield	Percent 1st Pick	Plant[2] Height	Plant Population	Percent of DP 90
STV 506	4050 a[3]	96.4 bc	23.9 d	53525 ab	108.9
STV 907	3942 ab	94.2 e	27.6 b	44927 bc	106.0
STV 324	3899 abc	96.2 c	26.3 bcd	29020 e	104.8
1517-91	3854 abcd	96.7 ab	27.0 bc	42562 bc	103.6
1517-88	3790 abcd	96.6 bc	28.1 b	58684 a	101.9
DP 90	3719 abcde	93.1 f	32.6 a	44927 bc	100.0
DP 5415	3663 bcde	91.5 g	27.3 b	49441 abc	98.5
HS SAL 10	3618 bcdef	89.3 h	27.8 b	44282 bc	97.3
DP 5690	3570 cdef	94.4 e	33.0 a	43422 bc	96.0
PREMA	3515 def	96.8 ab	26.1 bcd	41058 cd	94.5
S 1001	3504 def	94.7 de	33.3 a	43207 bc	94.2
KC 311	3500 def	95.1 d	32.1 a	49656 abc	94.1
STV 453	3379 ef	97.2 a	24.1 cd	38263 cde	90.9
MAXXA	3276 fg	94.3 e	26.9 bc	44712 bc	88.1
ROYALE	3032 g	96.2 c	23.6 d	31814 de	81.5
Average	3621	94.8	28.0	43967	
LSD(05)	321.4	0.49	2.64	9889.8	
C.V.(%)	9.1	2.3	13.5	21.5	

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.