

Test 3 Varieties of Cotton

Cotton Experiments Develop New Strains
Showing Considerable Promise in State

By E. H. Pressley

Three new varieties of short-staple cotton, developed by the Plant Breeding Department, have been taken into the pure seed program under the names Acala 28, Acala 33, and Acala 44.

A foundation field of 80 acres of Acala 44 was grown in 1948 on the Midvale Farms south of Tucson. Approximately 25 tons of foundation seed were produced for distribution. Of this amount, 21 tons have been set aside for the production of registered and certified seed in 1949.

Acala 44 was developed from a cross between Santan Acala and New Mexico 1517. It has matured slightly earlier than Santan, and has given higher yields. In plant type it is very similar to other varieties of Acala. The bolls are large and fairly storm resistant, and the percentage of lint is high. The two-year average for staple length from plots at three locations each year was 1-1/16 inches.

Acala 28 and Acala 33 were developed by backcrossing Santan on the first generation of the cross Santan X New Mexico 1517. The plants of both varieties are Acala in type but differ considerably in size. Acala 28 has the largest and strongest plant of the three new varieties, and 33 the smallest.

Acala 28 matures at about the same time as Santan or slightly later. It has given the highest yield of lint per acre of any variety tested. The bolls are large. They open well and fluff out nicely, but are not quite as storm-resistant as 44. The picking quality is good to excellent, and the percentage of lint is high. The staple length has averaged 1-1/16 inches during the last two years.

A foundation field of approximately five acres was grown near Litchfield in 1948 from which foundation seed was obtained. Between 500 and 1,000 acres will be grown in that area in 1949 for the production of registered seed.

Acala 33 is a much earlier variety than either of the others and has a much smaller plant. It begins fruiting at about the same time as the other varieties, but at a more rapid rate, and under normal conditions it stops fruiting earlier. It has yielded about the same amount of lint per acre as Santan. The bolls are smaller than those of the other two varieties and are more sharply pointed. The percentage of lint is lower also, but the staple length is the same—1-1/16 inches.

From the standpoint of yield, Acala 33 showed up particularly well on the Mesa Farm in both 1947 and 1948. This probably was due to its earliness and a shortage of water, as the other varieties did much better at Sacaton and Casa Grande where more water was available. Work is being continued with Acala 33 because it is an early variety and produces a smaller-than-average plant. Due to this small plant, the variety may be better suited to mechanical harvesting than the others. Its earliness also may be an advantage on soils having root rot, in localities short of water, and at eleva-

tions where the growing season is relatively short.

A foundation field of three or four acres was grown on the Continental ranch in 1948. Two hundred acres which should be eligible for registration will be grown at the same location in 1949.

Three spinning tests were made on each variety in 1947 and again in 1948. A difference in yield of lint per acre of 36 pounds is highly significant. Acala 44 averaged 68 pounds of lint per acre more than Santan did, and the Acala 28 averaged 108 pounds more. There was no significant difference between Acala 33 and Santan.

The new varieties produced yarns significantly stronger than Santan yarn. There also were fewer neps in the card web, while the picker and card waste ranged from approximately the same as Santan to nearly one percent less. Yarn appearance was nearly one grade better for the new varieties.

These new varieties are not tolerant to verticillium wilt. There is no wilt on the Salt River Valley Experiment Farm at Mesa where all of the work was done. Under these conditions there was no opportunity to select for wilt tolerance.

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PARENT SEED FIELD OF ACALA 44 GROWN ON THE CAMPBELL AVENUE FARM AT TUCSON IN 1948.

