

The plots were picked using the cooperators' equipment and plots from 2 reps were weighed together using a boll buggy equipped with load cells. Ten boll samples were taken from each plot prior to harvest to determine boll weights. These samples were ginned to determine percent lint turnout and the lint was sent to the classing office for HVI analysis.

Results and Discussion

Weather conditions were slightly below normal for cotton stand establishment in 2002, followed by a fairly normal growing season. The yield limiting factor was probably the near frost that occurred on the 4th of October. The crop was not completely made but the low temperature essentially shut down the cotton plants. The number of heat units were less than in 2001 (reference 2).

Table 1 contains the yield and other agronomic values from the varieties studied on the Schmidt farm. Yields were reduced greatly compared to the previous year (1), this being a combination of weather conditions and management practices. The newest Acala variety from the New Mexico cotton breeding program, 1517-99, produced the highest yield, which was statistically higher than all the other varieties. FiberMax 989 R, the leader of the previous year's trials was in the middle of the pack this year. Nova, a new CPCSD acala and 1517-95 yielded essentially the same but Nova had higher valued fiber. Riata and FM 991 R had the lowest yields in the study, but were among the best in lint quality. Riata apparently has smaller seeds than most varieties and produces the highest percent lint turnout, but lacking in seedling vigor since the plant population was the lowest in the trial. This factor may have been limiting to yield. It fared slightly better in the sister trial grown in Virden (3) and deserves further studies especially because of its high lint quality and its roundup resistant trait.

Table 2 continued with agronomic values measured or calculated from plants at the time of harvest. The number of nodes per plant were lower than the previous year as were the HNRs, but bolls were set on lower branches. 1517-99, the highest yielding variety, started fruiting 2 nodes lower than the average variety, it also had node numbers greater than most varieties. Boll weights averaged slightly higher than last year with Riata having the heaviest bolls. Similar to last year, DP 451 BR had the smallest bolls.

Table 3 contains HVI values for all varieties tested at this site. The fiber lengths were a bit disappointing with only 5 of the 12 varieties exceeding 1.1 inches in length. The average length was less than last year, but individually, two of the varieties produced 1.17 inch fiber. The highest and the lowest yielding varieties (1517-99 and FM 991 R) produced the best quality lint with the 2 CPCSD varieties (Nova and Riata) producing the next best fibers.

References

1. Clark, L.J. and E.R. Norton. 2002. Short staple variety trial in Cochise county, 2001. Cotton, A College of Agriculture and Life Sciences Report, The University of Arizona, Tucson, AZ. Series P-130, pp. 81-85.
2. Brown, P. et.al. AZMET weather system. <http://ag.arizona.edu/azmet/>
3. Clark, L.J. and E.R. Norton. 2003. Short staple variety trial in Virden, NM, 2002. In this publication.

Acknowledgment

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Table 1. Lint yield and other agronomic values from Upland/Acala variety trial in Kansas Settlement, AZ, 2002.

| Variety | Lint Yield (lb/acre) | Value ² (\$/acre) | % Lint Turnout | Plant Height (inches) | Plants per Acre |
|------------|----------------------|------------------------------|----------------|-----------------------|-----------------|
| 1517-99 | 789 a ¹ | \$430.79 | 34.9 cd | 24.3 a | 40838 abc |
| Nova | 679 b | \$368.36 | 35.5 bcd | 23.3 ab | 45375 abc |
| 1517-95 | 675 b | \$358.76 | 33.4 de | 24.5 a | 31763 bc |
| ST 4892 BR | 663 b | \$287.74 | 37.2 ab | 24.8 a | 44468 abc |
| DP 436 BR | 649 b | \$346.24 | 32.0 e | 19.8 b | 51728 ab |
| DP 451 BR | 639 bc | \$309.92 | 32.2 e | 22.5 ab | 46283 abc |
| FM 989 R | 624 bc | \$329.16 | 34.8 cd | 26.3 a | 45375 abc |
| SG 215 BR | 608 bcd | \$300.96 | 35.8 abc | 23.0 ab | 37208 abc |
| ST 4793 R | 576 cd | \$304.13 | 35.7 abc | 23.0 ab | 51728 ab |
| AG 3601 | 549 d | \$287.13 | 32.5 e | 24.3 a | 41745 abc |
| Riata | 547 d | \$294.83 | 37.9 a | 26.0 a | 25410 c |
| FM 991 R | 544 d | \$298.38 | 34.7 cd | 24.0 ab | 58080 a |
| Average | 628.6 | \$326.37 | 34.7 | 23.8 | 43333.1 |
| LSD(05) | 71.2 | -- | 2.2 | 4.4 | 24481.5 |
| CV(%) | 5.1 | -- | 2.9 | 8.4 | 25.7 |

1. Values, within a column, followed by the same letter are not significantly different at the 95% level of confidence using Duncan's multiple range test.

2. Values in dollars per acre using the lint values per pound found in Table 3.

Table 2. Plant mapping data and boll weights from Upland/Acala variety trial in Kansas Settlement, AZ, 2002.

| Variety | Nodes | HNR | FFB | Boll Weight |
|------------|----------------------|---------|---------|-------------|
| 1517-99 | 17.3 ab ¹ | 1.41 ab | 4.75 b | 5.0 cd |
| Nova | 17.5 ab | 1.33 b | 5.75 ab | 5.5 bc |
| 1517-95 | 17.0 ab | 1.44 ab | 7.00 ab | 5.7 a |
| ST 4892 BR | 17.0 ab | 1.45 ab | 7.75 a | 5.3 bcd |
| DP 436 BR | 15.8 bc | 1.26 b | 5.75 ab | 5.3 bcd |
| DP 451 BR | 14.3 c | 1.58 a | 7.00 ab | 4.6 e |
| FM 989 R | 19.3 a | 1.36 ab | 8.50 a | 5.2 bcd |
| SG 215 BR | 16.0 bc | 1.44 ab | 8.00 a | 5.3 bc |
| ST 4793 R | 15.8 bc | 1.46 ab | 7.00 ab | 4.9 de |
| AG 3601 | 17.3 ab | 1.41ab | 6.25 ab | 5.1 cd |
| Riata | 16.5 bc | 1.58 a | 6.75 ab | 5.8 a |
| FM 991 R | 16.5 bc | 1.46 ab | 7.75 a | 4.9 cde |
| Average | 16.7 | 1.43 | 6.85 | 5.2 |
| LSD(05) | 2.5 | 0.24 | 2.9 | 0.4 |
| CV(%) | 6.8 | 7.6 | 19.4 | 3.5 |

1. Values, within a column, followed by the same letter are not significantly different at the 95% level of confidence using Duncan's multiple range test.

Table 3. HVI data from Upland/Acala variety trial in Kansas Settlement, AZ, 2002.

| Variety | Color Grade | Leaf Grade | Mike | Length | Staple | Strength | Uniformity | HVI Trash | HVI Color | Color | | Lint Value ¢/lb ¹ |
|------------|-------------|------------|------|--------|--------|----------|------------|-----------|-----------|-------|----|---------------------------------|
| | | | | | | | | | | RD | +B | |
| 1517-99 | 11 | 2 | 44 | 117 | 37 | 34.0 | 84 | 1 | 11-1 | 83 | 92 | 54.60 |
| Nova | 21 | 2 | 45 | 111 | 36 | 31.7 | 84 | 2 | 21-1 | 80 | 91 | 54.25 |
| 1517-95 | 21 | 2 | 50 | 109 | 35 | 30.0 | 84 | 2 | 21-1 | 80 | 89 | 53.15 |
| ST 4892 BR | 11 | 1 | 49 | 104 | 33 | 26.3 | 84 | 1 | 11-4 | 79 | 98 | 43.40 |
| DP 436 BR | 11 | 2 | 49 | 111 | 36 | 26.6 | 85 | 1 | 11-1 | 83 | 85 | 53.35 |
| DP 451 BR | 11 | 2 | 45 | 107 | 34 | 23.9 | 82 | 1 | 11-1 | 82 | 87 | 48.50 |
| FM 989 R | 11 | 1 | 41 | 108 | 35 | 28.5 | 80 | 2 | 11-2 | 83 | 80 | 52.75 |
| SG 215 BR | 11 | 1 | 46 | 107 | 34 | 25.9 | 85 | 1 | 11-2 | 80 | 93 | 49.50 |
| ST 4793 R | 21 | 3 | 49 | 108 | 35 | 29.5 | 83 | 3 | 21-1 | 79 | 92 | 52.80 |
| AC 3601 | 11 | 2 | 44 | 108 | 35 | 28.4 | 83 | 1 | 11-2 | 80 | 93 | 52.30 |
| Riata | 11 | 2 | 43 | 111 | 36 | 30.0 | 83 | 2 | 11-2 | 82 | 85 | 53.90 |
| FM 991 R | 11 | 1 | 41 | 117 | 37 | 32.2 | 84 | 1 | 11-1 | 83 | 82 | 54.85 |
| Average | -- | 1.8 | 45.5 | 109.8 | 35.3 | 28.9 | 83.4 | 1.5 | -- | 81 | 89 | 51.95 |

1. Estimated lint value per pound using 45¢ per pound as an average upland cotton lint value then applying premiums and discounts listed for the Desert Southwest on the USDA AMS website on March 3rd, 2005553.