

**SYSTEMS COMPARISON:
STAPLE, BUCTRIL, ROUNDUP**

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Abstract

Weed control systems in cotton have changed since the introduction of Staple and Buctril or Roundup in genetically engineered varieties. In 1998 a small plot test was conducted to evaluate specific weed control programs and cultural practices associated with cotton varieties that can be used with these herbicides. Production costs, yield and fiber quality were compared to estimate income differences among the systems.

All of the herbicides were applied on a 19 inch band on 38 inch rows except Roundup which was broadcast. All of the plots received an application of Bladex + MSMA at 1 + 1 qt/A under the cotton and between the rows with a hooded sprayer. The Staple system used DPL 33B, Trifluralin PPI at 0.75 pt/A, Cotoran and Staple PRE at 0.8 pt/A + 0.15 oz/A, and Staple POST at 0.6 oz/A. The Buctril system used Stoneville 4740, Staple PRE at 0.15 oz/A, and Buctril POST at 0.75 pt/A. The Roundup system used DPL 458 and Roundup POST at 1.5 pt/A. Seeding rate was adjusted to seed size to equalize the cost of the Bt technology fee. DPL 33B and DPL 458 required two applications of Pix totaling 20 oz/A to reduce plant height. The cotton was machine picked eighteen days after defoliation, and grab samples were ginned with a small laboratory gin to determine turnout and generate samples for classing by USDA.

Weed control was adequate to protect yield with all of the herbicide programs, although there were some differences noted with certain species. End of season control ratings for entireleaf and pitted morningglory were 90, 100 and 82% for Staple, Buctril and Roundup, respectively. Prickly sida control was 91, 95 and 93%, respectively. Yellow nutsedge control was 95, 22 and 85%, respectively.

Seed cotton yield was 3,183, 3,062 and 2,867 lb/A for DPL 33B (Staple), Stoneville 4740 (Buctril), and DPL 458 (Roundup), respectively. Seed cotton yield was not statistically different at $P = 0.05$. Stoneville 4740 had significantly higher gin turnout compared to DPL 33B or DPL 458. Gin turnout was 40.7, 38.3 and 38.6%, respectively. Lint yield was not statistically different among

the varieties. Lint yield was 1,219, 1,245, and 1,106 lb/A for DPL 33B, Stoneville 4740, and DPL 458.

Cotton fiber quality and loan value was significantly lower for Stoneville 4740 versus DPL 33B or DPL 458. Statistical differences were observed in color grade and micronaire. Although not statistically lower, leaf grades for Stoneville 4740 had an impact on reducing the loan value. Classing data from each individual plot was used to determine the loan value based on the 1998 Commodity Credit Corporation chart for Greenwood, MS and equivalent locations. DPL 33B had a average loan value of 44.275 cents per pound, Stoneville 4740 was 38.000 and DPL 458 was 45.512.

Prices for factors that were associated with the different systems were obtained from a local chemical dealer. Prices were: trifluralin \$19.50/gal, Cotoran \$32.90/gal, Buctril \$110.00/gal, Roundup \$47.00/gal, Staple \$21.00/oz, Pix \$96/gal, BXN technology fee \$8.00/A (not charged in 1998, but used in following cost assumption), Roundup Ready technology fee \$9.00/A. The Staple system had associated costs of \$35.87/A, Buctril \$22.52/A and Roundup \$32.81/A.

Net differences in income per acre were determined by multiplying lint yield by loan value then subtracting production costs. DPL 33B and the associated Staple program had greater income than Stoneville 4740 with the Buctril program or DPL 458 with the Roundup program, \$53.26 and \$33.29/A, respectively.

It is important to note that these data are from one years testing. This type of test needs to be conducted over several years and locations. These data do indicate that variety selection is one of the most important considerations in cotton production. In some situations weed control problems may be more important than fiber quality. If weed control is not a primary factor, a variety with fiber quality issues must have yield advantages that offset reduced value due to poor fiber quality. Other agronomic considerations like days to maturity may also be important. Stoneville 4740 is at shorter season variety than DPL 33B and may require less insecticide applications, thus reducing production costs.