

**A COMPARISON OF TRANSGENIC AND CONVENTIONAL CULTIVARS:  
(PART I) YIELD, HVI, AND AFIS**

**Philip J. Bauer**

**USDA-ARS**

**Florence, SC**

**David D. McAlister III**

**USDA-ARS-CQRS**

**Clemson, SC**

**Abstract**

Concerns have been raised about the effect of transgenic technology on cotton fiber quality. Our objective was to compare transgenic cultivars to their recurrent parents for yield and fiber properties. Cotton was planted at three planting dates (mid-April, early May, and mid-May) in 2000 and 2001 at Clemson University's Pee Dee Research and Education Center near Florence SC. Cultivars grown in the experiment were DPL 458, DPL 655, DPL 5415, and DPL 5690. DPL 458 and DPL 655 are transgenic cultivars that have genes for insect resistance (Bt) and Round-Up (glyphosate) herbicide resistance. The other two are conventional varieties. There was no difference in yield between the transgenic and conventional cultivars at any planting date in either year. The conventional cultivars had 0.5% higher lint percent than the transgenic cultivars (averaged over both years and all planting dates). For HVI fiber properties, the conventional cultivars had higher micronaire than the transgenic cultivars at the mid-April and mid-May planting dates in 2000, but cultivars did not differ for micronaire at the early-May planting date in 2000 or at any planting date in 2001. Averaged over years and planting dates, the transgenic cultivars had significantly higher fiber length (0.01 in) and fiber strength (0.2 gm/tex) but lower fiber length uniformity (0.2%) than the conventional cultivars. Cultivars types did not differ for HVI Rd or +b. There were no substantial differences between the transgenic and conventional cultivars for AFIS fiber quality measurements made on the raw cotton fiber and on slivers collected during carding and drawing. In summary, we found little difference between the transgenic and conventional cultivars for yield and fiber properties.