

**RELATIONSHIPS BETWEEN MATURITY AND  
FIBER PROPERTIES FOR COTTON CULTIVARS  
IN ARKANSAS**

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**Abstract**

An optimum combination of high yield, early maturation, and good fiber quality is essential for efficient production of cotton in the Mid-South. This study was conducted to compare fruiting and maturity patterns of cotton cultivars with contrasting maturities and then relate these patterns to timing of physiological cutout (maturity), lint yield, and fiber properties. Six cultivars including Tamcot HQ95 and Paymaster HS200 (very early maturing); Deltapine 20 and Sure-Grow 125 (early maturing); and Hyperformer HS46 and Stoneville LA887 (late maturing) were evaluated over three locations in Arkansas in 1994 and 1995, producing six different growth environments. Maturity was evaluated by monitoring the main-stem nodal and fruiting development using SquareMap and nodes-above-white-flower (NAWF) procedures as outlined by the COTMAN program developed at the University of Arkansas. From these data, growth curves for each cultivar were produced and the number of days from planting to physiological cutout (NAWF=5) were calculated. These results were then related to fiber properties and yield. Because of environmental stresses, growth patterns were inconsistent across environments, but the general expectations of relative maturity among cultivars were found. Correlation analysis indicated that over all cultivars, later maturity was related to lower lint yield and had weak relations to higher strength and lower uniformity. It was also found that higher lint yield was related to lower fiber elongation, longer fibers, and greater length uniformity. Over cultivars, the later maturing types tended to have lower micronaire, higher strength, and longer length. Also, across environments and cultivars, micronaire tended to increase and strength declined as lint yields increased.