

**VARIATION IN LEAF AND BRACT
PUBESCENCE ON COTTON PLANTS
OF CONTRASTING CULTIVARS**

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Abstract

Leaf pubescence varies among cotton cultivars, but also on different leaves of an individual plant. Evaluation of this variation is needed to help establish the sampling procedures for the leaf pubescence rating system. The objectives of this study were to compare pubescence ratings of main-stem leaves located at differential sites on plants of contrasting cotton cultivars, and to determine variation in number of trichomes on main-stem leaves and margins of bracts for plants representing different leaf pubescence grades. Representative plants of five cultivars were selected from replicated tests at Stoneville, MS and at Marianna and Keiser, AR in 1995. Main-stem leaves at the top, middle, and bottom of plants were tagged and rated for abaxial pubescence sequentially in July, August, and September. Plants (2/grade) having leaf pubescence grades of 2, 4, 6, 8, and 9 were selected at Fayetteville, AR, on August 29-30, 1995. All main-stem leaves were removed, and node number from top of plant and trichomes/cm² were recorded. From the same plants, number of marginal trichomes/cm section of bracts of all squares and bolls was counted. A similar evaluation of change in leaf trichomes by main-stem node was conducted at the Stoneville, MS, on July 17, 1995. Within sampling dates, leaf pubescence grades were generally lower (i.e. less pubescent) as leaves aged. The subjective rating system had less variation within a sampling date than across dates. Across locations, ratings for the top leaf position varied relatively more than ratings at lower leaf positions. As indicated by negative slopes in the regression equations, number of trichomes on main-stem leaves declined from the terminal to the base of the plants within each leaf pubescence grade at Fayetteville. For each main-stem node from the plant terminal, a drop of 0.2, 2.1, 3.9, 8.9 and 17.3 trichomes/cm² was found for leaf pubescence grades 2, 4, 6, 8, and 9, respectively. Therefore, the amount of change in trichome number was directly proportional to trichome density. At Stoneville, a similar decline in trichome density from the top nodes was found for each cultivar. Number of marginal trichomes on bracts increased non-linearly as leaf pubescence grade increased. Marginal bract trichomes for leaf pubescence

grades 2 and 4 were equal and for grades 6 and 8 were equal. Leaf ratings should be made on fully expanded leaves in the middle of the plant canopy. Marginal bract trichomes may help explain variation in leaf grade indices.