

**VARIATION IN MARGINAL BRACT TRICHOMES
AMONG CONTRASTING COTTON CULTIVARS**
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Abstract

Cotton bracts (modified leaves surrounding the boll) may have trichomes on either the surface or margin. As has been shown for leaf hairs, cultivars with fewer trichomes on bract margins should produce cotton with less trash. Our objectives were to determine the variation over different plant positions and over time, and to determine the variation in marginal bract trichomes among cotton cultivars. For the first objective, bracts from tagged bolls from the top (5-6 nodes from apex), middle and bottom canopy of three cultivars (having contrasting leaf pubescence) were sampled over three dates (just after cutout then just prior to defoliation and harvest) at Marianna, AR in 2001 and 2002. Trichomes within the view of a dissecting scope were counted on each side of the center tooth of each bract, then expressed as number/cm. Marginal bract trichomes varied significantly between dates, cultivars and plant positions, but interactions of these factors were not significant. Density of marginal bract trichomes decreased as leaf pubescence rating decreased (less hairy leaf) and bracts became older (either later date or lower position on plant). Bracts may have maximum trichome number early in development, then become less dense due to increase in bract size and/or dehiscence of trichomes with time. For the second objective, bracts were sampled from selected cultivars at multiple locations of the Arkansas Cotton Variety Tests in 1999 through 2002. A significant location by cultivar interaction was found in 1999, but not in any of the other years. When a highly stressed, non-irrigated site was excluded from the 1999 data, the location by cultivar interaction was no longer significant. Smooth leaf cultivars tended to have ca. one-half as many marginal bract trichomes as did very hairy leaf cultivars. No cultivar or genotype in the Arkansas Cotton Variety Tests or Arkansas Cotton Breeding Program has been found to have smooth (no marginal trichomes) bracts. Significant variation for marginal bract trichomes within hairy leaf and within smooth leaf genotypes suggests that density of bract trichomes may be reduced irrespective of leaf pubescence. We conclude that marginal bract trichomes of genotypes may be characterized by sampling on one date at one location if bracts are sampled from a uniform plant position and highly stressed test sites are avoided. Marginal bract trichomes decline as cultivars become less hairy, and bracts age, but appear to be present on most, if not, all cotton genotypes. It may be possible to reduce marginal bract trichomes within both smooth and hairy leaf genotypes.