

[Home](#) » [Volume 11 / 2007](#) »

Visual Ratings and Relationships of Trichomes on Bracts, Leaves, and Stems of Upland Cotton

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Reduction of trichome density on various organs of cotton (*Gossypium hirsutum* L.) plants may enhance the ability to clean seedcotton and lint. Visual ratings of trichomes could facilitate characterization of genotypes and selection for specific types of pubescence. The objectives of this study were to determine if trichomes on leaves, stems, and bracts can be effectively characterized by visual ratings and to determine the relationships of trichome density on abaxial leaf surfaces, leaf margins, stems, and bract margins. Random plants from segregating populations were selected from plantings at Keiser, AR, in 2001 and 2002. Visual ratings from 1 (glabrous) to 7 (very hairy) were made in the field on a mid-canopy, first-position leaf and bract, and a stem about five nodes from plant apex. Trichome density associated with each organ was then determined and regressed against the visual ratings. Significant correlations between visual ratings and trichome densities indicated that trichome density on abaxial leaves, stems, and bract margins can be visually rated. With established standards and a wide range of variation, ratings of abaxial leaf trichomes were more effective than ratings of trichomes on stems or bract margins. Densities of trichomes on abaxial surfaces and margins of leaves were not correlated. All other correlations were significant, but the low coefficients suggest that the traits have some degree of independence. It may be possible to genetically reduce the degree of marginal bract pubescence of cultivars while still retaining higher degrees of pubescence on leaves and stems.