EFFECTS OF PLANT PUBESCENCE ON SPINNING PERFORMANCE IN UPLAND EXTRA LONG STAPLE COTTON

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Abstract

Upland cotton (*Gossypium hirsutum*) is characterized by wide variation in trichome density or pubescence. Smooth leaved cultivars are often preferred, in part because leaf pubescence increases the amount of leaf trash in ginned cotton, lowering lint grade. The effects of leaf pubescence on fiber and yarn properties are not well described. The objective of this study was to evaluate the effects of plant pubescence among Upland extra long staple (ELS) lines developed at the Cotton Improvement Laboratory (CIL), Texas A&M University Agrilife Research, on fiber quality and spinning performance. Two ELS genotypes differing in pubescence, TAM A-106-15 ELS (TAM A106, smooth) and TAM B182-33 ELS (TAM B182, hairy), along with FiberMax 832LL (FM 832) and DP HTO Pima were planted in Weslaco, TX in 2009 and 2010 as a randomized complete block design with four replications and were evaluated for HVI and AFIS fiber properties and yarn performance. A mini-spinning protocol was used to produce 40 count (14.8 tex), carded yarn from each genotype. Regarding fiber properties, TAM A106 had greater fiber elongation (HVI) and immature fiber content (AFIS) than TAM B182. The yarn properties also differed between the smooth and hairy ELS lines, with TAM A106 having greater yarn elongation and more yarn imperfections, whereas TAM B182 had a greater yarn tenacity. The differences in fiber and yarn properties between the ELS lines were not attributable to leaf pubescence. It is more likely that the difference in yarn quality, specifically yarn imperfections, between ELS lines was attributable to higher immature fiber content in the smooth ELS line, TAM A106.