WITHIN-BOLL LINT YIELD COMPONENTS OF EXTRA LONG STAPLE UPLANDS

Kolbyn S. Joy
C. Wayne Smith
Steve Hague
Texas A&M
College Station, TX

Abstract

The value of a cotton crop is determined by its lint yield and fiber quality. At the most basic level, lint yield is determined by weight per unit length of fiber, length of fiber, number of fibers per seed, number of seeds per boll, and ultimately number of bolls per unit land area. Many of these components are interrelated with fiber quality parameters including fiber length, length uniformity, maturity, fineness, and strength. Previous studies have revealed a negative association between improved fiber length and strength with within-boll yield components. The Cotton Improvement Laboratory, Texas Agrilife Research Center, has developed Extra Long Staple (ELS) upland, *Gossypium hirsutum*, cottons whose fiber length is greater than or equal to that of American pima, *G. barbadense*, and has made meaningful progress in developing uplands with fiber strength equaling pima. The purpose of this study was to determine how the improved length of two of these ELS upland lines impacted within-boll yield components when compared with commercial checks. TAM B182-33 ELS and an unreleased sister-line, B182-34 ELS, along with commercial checks FiberMax 832, PSC 355, and Pima HTO were grown in College Station, TX in 2008 and 2009 in a randomized complete block design with three replications. Twenty-five first-position bolls were sampled from each plot from which fifty seeds were selected at random and hand-ginned. The lint from these fifty seeds was evaluated for AFIS fiber quality and the seed surface area determined using the WinSEEDLE system. Results will be presented.