

USE OF Q-SCORE IN A COTTON BREEDING AND VARIETY TESTING PROGRAM

Freddie Bourland
University of Arkansas, NEREC
Keiser, AR
Don Jones
Cotton Incorporated
Cary, NC
Robert Hogan
Texas Agri-Life Extension
Fort Stockton, TX
Ed Barnes
Cotton Incorporated
Cary, NC

Abstract

A numerical index that incorporates weighted values of multiple fiber measurements, such as Q-score, can be very helpful in cotton breeding and variety testing programs. The objective of this paper is to illustrate the use of Q-score in cotton breeding and variety testing. Fiber properties (weights) for Q-score calculations that we currently use include fiber length (50%), micronaire (25%), length uniformity index (15%), and strength (10%). Data for 16 cultivars at four sites over three years indicated that Q-score values were relatively consistent over years and sites. Q-score was also found to be normally distributed in data extracted from the 2005-2008 Arkansas cotton breeding trials. This distribution facilitates subsequent selection and development of superior cotton lines. These results indicate that Q-score may assist with characterizing fiber quality into a single score, which then facilitates identifying lines that possess both high yield and high fiber quality. However, application of Q-score is limited because relative weights of four fiber traits are subjectively assigned, and measurement of trash and color are not included.