

COTTON FIBER MATURITY VARIATIONS ASSOCIATED WITH BOLL LOCATION

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Abstract

Fiber quality is altered by climatic and non climatic factors. Fruiting location maps of cotton plants have been used to describe variability of quality within plants. Fiber quality maps have been constructed at the field level. This research was undertaken to determine within plant fiber maturity variability across a field. The study was conducted in a 16.3 acre field near Crowville, LA. Sampling sites were located on two east-west transects on Loring silt loam. Each transect had 12 sampling points spaced 23 rows apart. Plants from one meter of row constituted a sampling site. Bolls were mapped and individually ginned on a laboratory roller gin. Fiber samples from individual bolls were analyzed using the Zellweger Advanced Fiber Information System (AFIS). Micronafis is the AFIS analogue of micronaire. After fiber analysis, mean micronafis values were obtained from bolls at fruiting position 1 (FP1) nodes 5-8, FP1 nodes 9-12, FP1 node 13 and above, all FP2, all FP3 and above, and monopodial bolls. In 1998 and 1999, fiber micronafis values at the plant level were similar across boll locations. For some transect sites micronafis values for FP3 and monopodial bolls exceeded 5.0. Standard deviations were large and the range of values for FP3 bolls was from 4.0 to 6.0 and 4.8 to 6.3 in 1998 and 1999, respectively. For some transect sites mean micronafis values for all bolls at all locations were lower than for other transect sites. Strategies for managing high micronafis/ micronaire cotton must incorporate some method for reducing overall maturity or decreasing the maturity in FP3 and monopodial bolls.