FIBER DEVELOPMENT POTENTIAL IS RELATED TO SEED LOCATION WITHIN A BOLL, BOLL LOCATION AND BOLL LOAD

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Abstract

Cotton (*Gossypium hirsutum* L.) fiber development potential is set by genotype and manipulated by the environment. Boll location and number reflect environmental inputs. Additionally, development of seeds within a boll may be influenced by competition between seeds. Cotton (DPL 51, 1995; NuCOTN 33B, 1996 and PM 1330 BG/RR, 1997) was grown under rainfed conditions at Perthshire Farms, Gunnison, MS. Prior to defoliation, plants were harvested from the field and mapped. In 1997 plants were collected early at 10-20% open bolls. Fiber samples were analyzed using AFIS. Fiber samples (1997) were taken from seeds located near the apex, middle and pedicel regions of first position bolls. Fiber samples in 1995 and 1996 were taken from seeds in the middle of all bolls. Plant maps for DPL 51 revealed that 51% of the bolls were at FP1, 22% at FP2, 15% and FP>2 and 12% were vegetative. For NuCOTN 33B, 60% of the bolls were FP1, 20% were FP2, 6% were FP>2 and 14% were vegetative. For PM 1330 BG/RR 54% of the bolls were FP1, 19% were FP2, 8% were FP>2 and 19% were vegetative. No significant differences were found in fiber length and micronafis values when compared across seed locations although mean micronafis values were higher for pedicel region seeds at nodes 6-11 (PM 1330 BG/RR). There were no significant differences in length and micronafis values related to fruiting positions across branches. Traditional differences in fiber properties related to seed position in a locule or boll position on a branch were not observed in bolls from plants with dispersed boll locations.

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 1:508-508 (1999)
National Cotton Council, Memphis TN