

DIALLEL ANALYSIS FOR COTTON FIBER STANDARD FINENESS**Neha Kothari****Texas A&M AgriLife Research****College Station, TX****Steve Hague****Texas A&M University****College Station, TX****Eric F. Hequet****Texas Tech University****Lubbock, TX****Jane Dever****Texas A&M AgriLife Research****Lubbock, TX****Abstract**

Immature cotton fibers have been a concern in the cotton industry for a long time. Immature fibers are associated with variability in fiber quality, number of fiber neps, short fiber content and they ultimately lead to lower fiber uniformity index. In order to determine the potential for improvement of fiber maturity and standard fineness, five upland cotton (*Gossypium hirsutum* L.) genotypes were subjected to a diallel analysis at College Station, Texas, in 2011 namely 'Acala 1577-99', 'Deltapine 90' (DP 90), 'FiberMax 832' (FM 832), 'Half and Half' and 'Tamcot HQ-95'. Estimates of general (GCA) and specific combining ability (SCA) based on Griffing's diallel Model I, Method 4 were calculated for fiber maturity, fineness, standard fineness and length measurements from AFIS and fiber micronaire, length and strength measurements from High Volume Instrument (HVI). Four parents had significant GCA effects and Acala 1517-99 was found to be the best parent for improving standard fineness followed by FiberMax 832 and Tamcot HQ-95. Tamcot HQ-95 was the best parent to improve fiber maturity ratio while Deltapine 90 was the best parent to reduce fiber maturity ratio. The specific cross between Acala 1517-99 and Tamcot HQ-95 performed best. Diallel analysis indicated that fiber maturity ratio was influenced by non-additive gene effects more than additive gene effects while fiber standard fineness was highly influenced by additive gene effects.

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