

**DEVELOPING A GENOTYPE SELECTION MODEL
FOR LINT YIELD AND FIBER QUALITY**
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Abstract

Three models were developed to help producers select specific varieties based on desired fiber quality and lint yield. These models were developed using 19 mutant lines, 19 lines derived from crosses, and 11 commercial varieties. Which were grown in replicated plots in Lubbock, TX in 2000 and 2001 and New Deal, TX in 2001. The models were developed for three different users. These users consist of producers, breeders and textile manufacturers.

The producer model:

$$\text{Gross Return} = -616.06 + (-1.07)(\text{Micronaire}) + (-2.39)(\text{Length}) + (0.55)(\text{Uniformity}) + (-0.04)(\text{Strength}) \\ + (0.13)(\text{Elongation}) + (1.75)(\text{Rd}) + (4.78)(+b) + (0.52)(\text{Yield}) + (826.12)(\text{Loan Value})$$

The breeders model:

$$\text{Gross Return} = -2683.73 + (-57.19)(\text{Micronaire}) + (903.49)(\text{Length}) + (26.37)(\text{Uniformity}) + (-40.9) \\ (\text{Strength}) + (52.67)(\text{Elongation}) + (-0.87)(\text{Rd}) + (-52.49)(+b) + (360.17)(\text{Loan Value})$$

The textile users model:

$$\text{Loan Value} = -0.658 + (-0.008)(\text{Micronaire}) + (0.132)(\text{Length}) + (0.008)(\text{Uniformity}) + (0.001)(\text{Strength}) \\ + (-0.004)(\text{Elongation}) + (0.006)(\text{Rd}) + (-0.009)(+b)$$

Each model identifies certain aspects that are stressed. The producer's model stresses yield. The breeder's model has a combination of lint yield and fiber quality. The textile user's model stresses fiber quality.