

Title: The heritability of yield components and genetic correlations in hybrid populations of cotton (*Gossypium hirsutum* L.)

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Summary:

F<sub>1</sub> and F<sub>2</sub> populations formed by line x tester involving 6 female and 3 male parents of cotton (*Gossypium hirsutum* L.) were used as a material. The heritability and heterotic effects of yield and yield components, fiber properties and within-boll components, phenotypic and genotypic correlation coefficient among observed characters were determined.

The additive gene effect for seed cotton yield / unit area, lint yield / unit area, boll number /unit area, seed number / locule, fiber fineness, boll number /unit area, fiber length, fibers/seed, lint percentage, seed number /boll, seed yield / unit area, seed yield / boll, seed cotton yield /boll, lint yield /boll, seed index, fiber strength, single seed weight, seed volume, lint yield/seed; non-additive gene effect for locules / boll and seed specific weight were estimated.

SG - 125 and Blightmaster for seed cotton yield / unit area, Ozbek 142, Nazilli 84 S, CF 43/2 and SG - 125 for lint percentage, Ozbek 142 for fiber fineness had positive and higher general combining ability effects. Ozbek 142 x Deltapine 883, Blightmaster x CF 43/2, Blightmaster x SG - 125, Carmen x CF 43/2, Nazilli 84 S x CF 43/2, Aydm 110 x CF 43/2 for seed cotton yield / unit area had positive and higher specific combining ability effects. The highest mean values for seed cotton yield / unit area were found in the combinations of Sahin 2000 x Deltapine 883 (6552.5 kg ha<sup>-1</sup>) and Blightmaster x SG - 125 ( 6523.0 kg ha<sup>-1</sup>), while the highest heterosis (26.62 %) and useful heterosis values for seed cotton yield / unit area were found in Sahin 2000 x Deltapine 883.

When stepwise regression analysis, phenotypic and genotypic correlations for observed characters were evaluated together, it was concluded that boll number /unit area, seed number /boll and seed number / locule should be important selection criteria. According to these characteristics, Blightmaster x SG - 125, Carmen x Deltapine 883, Carmen x SG - 125, Nazilli 84 S x SG - 125, Aydın 110 x SG - 125,

Sahin 2000 x Deltapine 883 and Sahin 2000 x SG - 125 were selected as promising hybrids. Finally, it was suggested that breeder could select for higher boll number / unit area, seed number / boll and seed number / locule in population.