

### Genetical Studies on Grain Yield and Some of its Components in Barley (*Hordeum vulgare* L.).

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**T**WO six - rowed barley crosses i.e Giza 117 x Giza 119 and Giza 117 x introduction line Baitori, were tested with six populations ( $P_1$ ,  $P_2$ ,  $F_1$ ,  $F_2$ ,  $BC_1$ , and  $BC_2$ ) for; grain yield per plant, no. of spikes per plant, 1000 - kernel weight, and spike length.

Highly significant positive heterosis were obtained for all studied traits in the second cross. Significant positive values for inbreeding depression were detected for spike length in the first cross, no. of spikes/plant, 1000-kernel weight and grain yield/plant in the second cross. However, spike length seemed to be highly significant negative value for inbreeding depression in the second cross.

The additive and dominance genetic estimates as the type of gene action were either significant or exceeded their standard error for all traits in both crosses, except, grain yield per plant in both crosses and spike length in the first cross for the additive genetic estimate. Significant estimates for epistatic gene interactions were exhibited in both crosses for all traits.

High heritability values, in broad sense, were detected for all traits in both crosses. On the other hand, low heritability values, in narrow sense, were obtained for no. of spikes/ plant and spike length in the first cross. Moderate values were estimated for the other traits. High to moderate values of predicted genetic gain were detected for all studied traits in both crosses.