

## HERITABILITY AND GENETIC ADVANCE STUDIES FOR GRAIN YIELD AND RELATED ATTRIBUTES IN HUSKED BARLEY (*HORDEUM VULGARE L.*)

Arun Kumar Singh\* and Javed Ahmed Siddiqui

Department of Botany, D.A-V College, Kanpur- 208001 (U.P.)

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**Abstract :** Twelve husked barley strains were intermated in diallel fashion, excluding reciprocals. Parents alongwith F<sub>1</sub>s and F<sub>2</sub>s were evaluated for plant height, days to reproductive phase, productive tillers per plant, length of spike, grains per spike, spikelets per spike, biological yield per plant, harvest index, grain yield per plant, grain weight per spike and 1000-kernel weight. The heritability and genetic advance were estimated for all the attributes in narrow sense using genetic components. High heritability (more than 30%) was observed for plant height, days to reproductive phase, grains per spike, spikelets per spike and harvest index in both the generations and for grain yield per plant in F<sub>1</sub> and biological yield per plant in F<sub>2</sub> generation. Moderate heritability (10 to 30 %) was noticed in productive tiller per plant, length of spike and 1000-kernel weight in both the generations and grain weight per spike in F<sub>2</sub> generation. Low heritability (less than 10%) was exhibited in grain weight per spike in F<sub>1</sub> generation. An advancement of 6.98 g based on F<sub>1</sub> and 5.92 g based on F<sub>2</sub> were expected per cycle of selection for grain yield per plant. For 1000-kernel weight it was approximately 3 g. The expectation for advancement in grain weight per spike and length of spike was quite meager. Considering comparative genetic advancement in percentage over mean, maximum advancement to the tune of, approximately, 42% was estimated for grains per spike, where as an approximation of 22-25% of mean were estimated for plant height, days to reproductive phase, harvest index and grain yield per plant. Genetic advance is conforming to the heritability estimates. In order to achieve expected genetic advance, the attributes which are highly heritable (above 30%) may be improved through progeny selection whereas, the attributes like grain weight per spike for which heritability estimates were moderate, hence bulk selection followed by progeny selection would be appropriate. Considering heritability estimates, the economic attribute like grain yield it was moderate to high quantified the involvement of non additive gene action in considerable proportion. Hence for improvement in grain yield the progeny selection followed by biparental mating would be appropriate.

**Keywords:** Barley, *Hordeum vulgare L.*, Heritability, Genetic advance, Grain yield

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\*Corresponding Author