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COMBINING ABILITY ANALYSIS FOR SOME IMPORTANT YIELD RELATED TRAITS IN DURUM WHEAT (*Triticum durum* Desf.)

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ABSTRACT

A 6x6 complete diallel set of crosses of elite durum wheat genotypes was studied for grain yield, yield components and plant height. The variance for general combining ability (GCA) and specific combining ability (SCA) were highly significant for all traits indicating the presence of additive as well as non-additive gene effects. For most of the traits magnitudes of GCA were higher than SCA indicating preponderance of additive gene effects. Highly significant reciprocal effects were observed for all traits except grains per spike having significant reciprocal effects. Parents V1, V4, and V6 expressed good General Combining Ability values for most of the traits. The crosses, V3xV4, V1xV4 and V4xV6 reflected higher SCA values for most of the characters and thus these crosses may produce high yielding segregants in later generations.

INTRODUCTION

Efficient exploitation of existing genetic variability is the only possibility of getting break through in present stagnant wheat yield levels. Knowledge of general and specific combining ability enables plant breeders to understand the basis on which certain parental lines can be exploited in breeding programmes.

Combining ability analysis developed and illustrated by Griffing (1956) provides information on genetic worth of parents right in the F_1 generation. Such information is very helpful in planning an efficient breeding strategy to achieve maximum genetic gain with available resources and limited time.

Investigations of most of the previous workers (Bitzer *et al.*, 1982; Bhullar *et al.*, 1979; Chaudhry *et al.*, 1992; Khan *et al.*, 1985; Saleem & Hussain, 1886) on combining ability have attributed preponderance of genetic variability to general combining ability for grain yield, yield components and plant height. While, Singh *et al.*, (1980), Malik *et al.*, (1988), Khan and Bajwa (1991), Sattar *et al.*, (1992) and Chaudhry *et al.*, (1992), reported that both general and specific combining ability variances were significant for