VARIABILITY, CORRELATION AND PATH ANALYSIS IN DURUM WHEAT (*Triticum durum*)

ABSTRACT

An experiment was conducted to assess genetic variability, correlation and path coefficient analysis for grain yield and its attributes with a set of 40 genotypes of durum wheat (*Triticum durum*) at Wheat Research Station, Junagadh Agricultural University, Junagadh during Rabi 2016-17 in randomized block design with three replications. The characters studied were days to 50% flowering, days to maturity, grain filling period, plant height, number of productive tillers per plant, ear length, number of grains per main spike, grain weight per main spike, grain yield per plant, biological yield per plant, harvest index and 100-grain weight.

The analysis of variance revealed highly significant differences among the mean square due to genotypes for all the characters studied. Grain weight per main spike recorded maximum phenotypic range of variation followed by grain yield per plant and number of grains per main spike. High genotypic and phenotypic coefficient of variation were observed for grain yield per plant followed by grain weight per main spike, number of grains per main spike, 100-grain weight, number of productive tillers per plant and biological yield per plant. High heritability coupled with high to moderate genetic advance expressed as per cent of mean were observed for days to 50% flowering, number of productive tillers per plant, plant height, ear length, grain yield per plant, biological yield per plant and 100-grain weight.

Grain yield per plant had significant and positive correlation with biological yield per plant, harvest index, number of productive tillers per plant, number of grains per main spike and grain weight per main spike. Significant and positive correlations were observed for days to 50% flowering with days to maturity, grain filling period...
with 100-grain weight and grain weight per main spike; number of productive tillers per plant with biological yield per plant; number of grains per main spike with grain weight per main spike and harvest index; grain weight per main spike with harvest index and 100-grain weight; harvest index with 100-grain weight. The genotypic path coefficient analysis revealed that the biological yield per plant and harvest index exhibited high and positive direct effects on grain yield per plant, while days to 50% flowering exhibited positive and moderate direct effect towards grain yield per plant. Number of productive tillers per plant exhibited high and positive indirect effect via biological yield per plant towards grain yield per plant, while number of grains per main spike exhibited high and positive indirect effect via harvest index and biological yield per plant towards grain yield per plant.

On the basis of all the above studies, it can be concluded that for genetic improvement of grain yield in durum wheat through selection programme, more emphasis should be given to biological yield per plant, grain weight per main spike, number of grains per main spike, number of productive tillers per plant and harvest index.

Key words: Variability, heritability, genetic advance, correlation, path analysis, *Triticum durum.*