

GENERAL AND SPECIFIC COMBINING ABILITY OVER SUCCESSIVE GENERATIONS OF A 5X5 DIALLEL CROSS POPULATION IN BREAD WHEAT

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ABSTRACT

The objective of the study was to determine the general (GCA) and specific combining ability (SCA) effects and follow the repeatability of these effects for yield, biomass and harvest index in successive generations of a 5x5 diallel (without reciprocal) cross population in bread wheat. It was found that the relative magnitude of GCA variances was generally lower than SCA variances in almost all generations except the F_2 for all the traits measured, F_3 generation for harvest index and F_5 generation for biomass indicating additive and non-additive gene effects for the traits. The GCA effects for certain parents were quite consistent over successive generations for all the traits while SCA effects were only consistent for harvest index. The results of the study indicated that there was predominance of additive genetic effects for the traits measured. It was also concluded that selection in the F_2 generation could effectively be used in the population studied.