COMPONENTS OF GENETIC VARIANCE IN SYNTHETIC VARIETY OF MAIZE "MOSHTOHOR 2" WITH REFERENCE TO EXPECTED GAIN FROM SELECTION

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ABSTRACT

Estimates of additive, dominance variance and expected advances from different methods of selection for grain yield were calculated according to Design - I in the synthetic variety of maize, "Moshtohor-2". Data were collected on grain yield per plant (g), plant and ear heights (cm), number of rows per ear, number of kernels per row and 100-kernel weight.

The additive genetic variance was significant for plant and ear heights and number of rows per ear. However, the dominance variance was significant for most traits. Moderate to high heritability values were detected for all traits except 100-kernel weight. The heritability values in narrow sense ranged from 66.21 for plant height to zero for 100 - kernel weight.

The predicted genetic advance per cycle for improvement the variety under study using mass selection one six, modified ear-to-row selection, half-sib family selection, full-sib family selection, progeny test and S_1 family selection were 2.57, 3.01, 7.53, 6.26, 12.04 and 8.79%, respectively. Progeny test and S_1 family selection seem to be the best methods to improve the variety under study.

INTRODUCTION

Partition and magnitude of genetic variances in corn (*Zea mays* L.) are of value to breeders as a guide in choosing germplasm for population improvement. A knowledge of the relative contributions of various types of genetic effects controlling quantitative traits in the populations undergoing selection is basic to all plant breeding programs. Estimates of additive and dominance genetic variances help the breeder to choose the most efective breeding procedure. Selection within population would be advisable if the gene action is mainly additive. Hence, heritability would be expected to be relatively high, and single plant selection should initially be effective in improving the trait under consideration. On the other side, existence of dominance or epistasis