

BREEDING STUDIES ON MAIZE
II- YIELD AND SOME OF ITS COMPONENTS

BY

Shafshak, S.E.; Oraby, F.E.; El-Hosary, A.
Shokr El-Sayed and Sedhom, S.A.

Faculty of Agriculture, Moshtohor and Higher Institute
of Efficient Productivity, Zagazig University

ABSTRACT

Highly significant negative heterotic effect was obtained for date of silking in the four crosses. Positive highly significant heterotic effects were detected for ear length, number of rows per ear and kernels per row, 100 kernels weight and grain yield per plant in four crosses and ear diameter in three crosses. Inbreeding depression was negative and highly significant for silking date in the four crosses. Highly significant positive values were obtained for the remain cases except number of rows per ear in the four crosses. Overdominance towards the lower parent was detected for silking date, whereas overdominance towards the higher parent was detected for all other traits studied. Epistasis tests showed significant values of E_1 and E_2 for all traits at least in one cross. Dominance effects were higher in magnitude than additive gene effects in the performative gene effects had the major role of the inheritance of such traits in four crosses. Low to moderate values of heritability were obtained for most traits. High to moderate values of predicted genetic gain for most traits studied were detected.

INTRODUCTION

The information on heterotic effect, potence ratio, inbreeding depression, heritability, (G.C.V.) genetic coefficient of variation, predicted genetic advance under selection and information about types of gene action for late wilt disease in corn were discussed in a previous paper (Shafshak *et al.*, 1986). The present investigation involved information concerning some genetic parameters for silking date, ear length and diameter, number of rows per ear and kernels per row and grain yield per plant in the same material. Therefore, breeding for new genotypes characterized by high yielding potentiality as well as resistance to late wilt disease could be practised.