INTRODUCTION

1. INTRODUCTION

In Egypt, increasing yield potentiality of corn hybrids is the ultimate goal of any breeding program to face the need of poultry industry and human consumption. Therefore, Many efforts have bee attempted to develop new hybrids with higher productivity and better quality. Developing new hybrids of corn depends mainly upon the superiority of the parental inbred lines involved in hybrid program. In maize breeding program of the Faculty of Agriculture at Moshtohor, some promising inbred lines were developed from different sources and evaluated to find out which inbreds can be combined well in hybrids. As a result, several new hybrid were developed and must be evaluated for yield and other important traits to detect the most outstanding hybrids to be used in a commercial scale.

The efficiency of a breeding program depends mainly on the direction and magnitude of the association between yield and its components and also the relative importance of each factor involved in contributing to grain yield. Therefore, simple correlation coefficient was used to clarify the association between grain yield and other related characters. However, simple correlation coefficients do not permit the estimation of the direct and indirect effects of each of the components on yield.

Path coefficient analysis facilities the partitioning of the correlation coefficients into direct and indirect effects, thereby providing the relative importance of each of the causal factors (Dewy and Lu, 1959).

Walton (1972) criticized these techniques and reported that false conclusions could be obtained. He suggested factor analysis as a new technique to identify some agronomic characters that are related to yield.

Therefore, the main objectives of the present work were :

1) to evaluate some new maize hybrids for yield and its components.
2) to study the association between yield and other related characters by means of simple correlation coefficient, path coefficient analysis and factor analysis.