INTRODUCTION

Maize is considered one of the most important cereal food in Egypt and all over the world. It is widely used in bread making in rural areas of the country and conforms the base for several industries such as starch, fructose sugar and corn oil. In addition, it is the main component in animal feed. Recently, it become a general policy to mix wheat flour with 20% maize flour in bread making in order to reduce the quantity of wheat consumption and importation in order to narraw the food gap problem.

The total cultivated area of maize reached 1.648 million faddan in 1999 with a national average yield of 23.57 ard./fad. During the last few years, maize area decreased because of the increase in rice area due to the competition of Rice as a higher income crop.

Water is one of the most limiting factors in maize production. Saving water consuming in Egypt is considered as one of the essential demands for sustainable approved agronomic practices of maize especially in the new lands where water supply is limited and water holding capacity is very low in such new soils. In addition an alternative solution to increase maize production is through the horizontal expansion policy by increasing planting areas in the reclaimed new land.

Generally, growing maize of high production and quality using minimal amounts of irrigation is of great interest on the national and international levels. This could be achieved by adopting approved modified agronomic practices that satisfy such purpose.

The target of this research is to study the potentialities of some maize varieties in relation to growth characteristics , yield and yield component under soil water stress conditions.