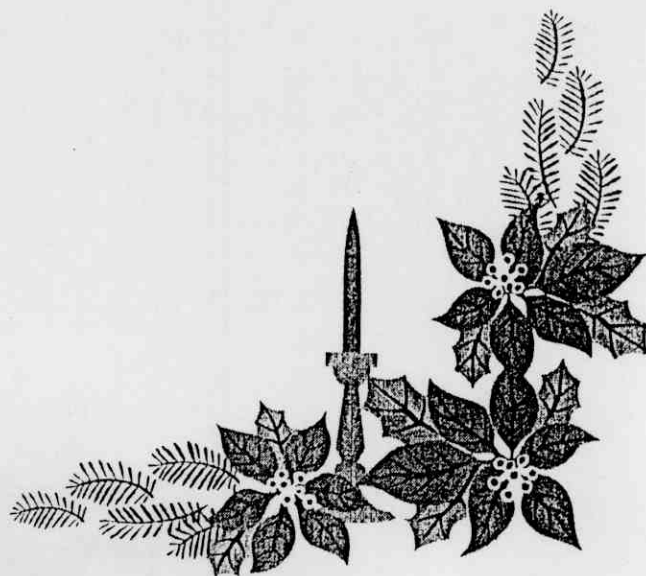


INTRODUCTION



I. INTRODUCTION

Apple is the most important deciduous fruit in the world. In recent years, there has been a steady increase in the area planted with apple in order to meet the continuous rise in demand for apple fruits for local consumption.

Nowaday, land reclamation projects in Egypt occupy a very important sector in the agricultural development programmes for increasing the cultivated area. Beside, agricultural expension needs a great amount of suitable irrigation water which already is not sufficient to meet all the expected demand in this respect. As long as these is an obvious shortage in Nile water especially under the conditions of the new reclaimable areas, the projects of reclamation depends on another sources such as: Wells, sanitary drainage, diluted sea water.... etc.

Generally; at such areas, the problems of soil salinity and saline water used for irrigation is considered as alimiting factor for the success of such projects. In addition; through this year, the cultivated area is continuously rising in order to meet the steady increase in apple demand. Moreover, plants are developed to establish new apple orchards on new reclaimed soils such as calcareous soil. Therefore, many proplems are expected to arise. These problems would be related to the excessive accmulation of soluble salts in the soil is an actual limiting factors for growth and productivity of apple orchards. Moreover, agricultural expansion needs a great amount of suitable irrigation water which already is not sufficient to meet all the expected demands. For that the possibility of using saline water for irrigation especially under

ground water is of great value, but till now it is still very limited, because this water contain a considerable amount of harmful salts. The applicability of saline water for irrigation is first of all dependent upon the concentration, composition of salts dissolved therein, and upon the degree to which plants are salt tolerance.

There is a lake in information about the irrigation water availability for fruit growers pertaining the possability of apple rootstocks to grow under conditions of new reclaimed lands particularly those irrigated with saline water.

Therefore, the main objective of the present investigation was planned to study the response of vegetative growth, physiological asbects, and chemical composition of three apple rootstocks seedlings to irrigation with salinized water, prepared at different concentrations of salts at 2000, 3000 and 4000 ppm and two levels of sodium adsorption ratio (SAR) 3 and 6 with two levels of chloride:sulphate ratio (Low and high) with the hope to solve the problems of irrigation with saline solutions through P, K and Zn foliar sprays.