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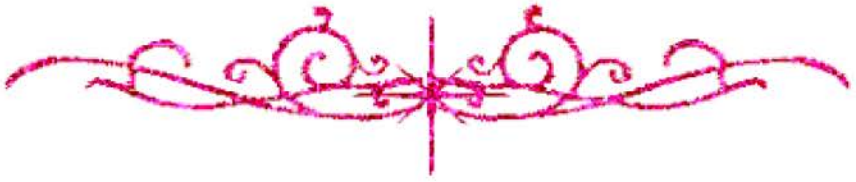

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SCHEDULING IRRIGATION OF MAIZE USING THE EVAPORATION PAN METHOD UNDER DIFFERENT FERTILIZATION REGIMES AND THEIR EFFECT ON SOIL CHARACTERISTICS.

BY

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INTRODUCTION

INTRODUCTION

Maize is one of the most important cereal crops in the world. It ranks the third among the big three crops, after wheat and rice. It is a major feed crop in many countries, because the grains are rich in the energy and it's used in the manufacture of many industrial products. Average maize area under cultivation in 1995 was 2,054,000 faddan.

The most important factors affecting maize production are high yielding varieties, irrigation and fertilization. Moreover, cultural practices such as sowing date, irrigation application time and amount, fertilization, weed and insect control and harvesting date.

Optimum soil moisture content plays an important role in yield production. Under high deficit of the available soil moisture, specially in vegetative growth, plant growth will be reduced.

Nitrogen is very important for all plants. It promotes the vegetative growth and increases the protein content in grains.

With regard to potassium as one of the macronutrients that is absorbed in higher amounts compared to the other mineral elements except nitrogen and in some cases, calcium. Potassium has an important role in plant nutrition associated with the quality of a product. It increases the starch contents in grains and the sugar content in fruits, beets and sugarcane, promotes protein development and photosynthesis. Plants receiving high rates of nitrogen coupled with inadequate potassium are also more prone to lodging (Follett et al., 1981).

Nitrogen-Potassium balance is important in certain soils. Follet et al. (1981) found that most profitable rate of nitrogen depends on the relatively high rates of potassium which maximized maize yield.

The aim of the present investigation is to study scheduling maize irrigation in middle Egypt (i.e. Giza region) using the pan evaporation records under different rates of nitrogen and potassium fertilizers and their effects on plant and soil characteristics.

In general, scheduling of maize irrigation through its growing season is very important process. Farmers have to add water timely and quantitatively. This will increase production. Nitrogen and potassium fertilizers are also of good importance to maximize maize crop production. It is obvious to know the optimum nitrogen and potassium fertilizer rates which give the optimum yield and water use efficiency, without high rate of pollution in the drainage water. and save irrigation water which can be used in cultivation of new areas.

REVIEW OF LITERATURE