شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

Ain Shams University Information Network

جامعة عين شمس

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شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

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قَسَم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

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بعض الـوثـــائق

الأصـلية تـالـفـــة

شبكة المعلومات الجامعية

بالرسالة صفحات

لم ترد بالأصـــل

SCHEDULING IRRIGATION OF MAIZE BY USING THE EVAPORATION PAN METHOD

BY

FOUAD AHMED FOUAD KHALIL

B.Sc. (Soil Science), Fac. of Agric., Ain Shams Univ., 1978

M.Sc. Agron., Moshtohor, Zagazig Univ., 1995

A thesis submitted in partial fulfillment

of

the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Agricultural Science

(Agronomy)

Department of Agronomy

and Agricultural Mechanization

Faculty of Agriculture , Moshtohor

Zagazig University, Benha Branch

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Approval Sheet

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I dedicate this work to my wife for her potience and help.

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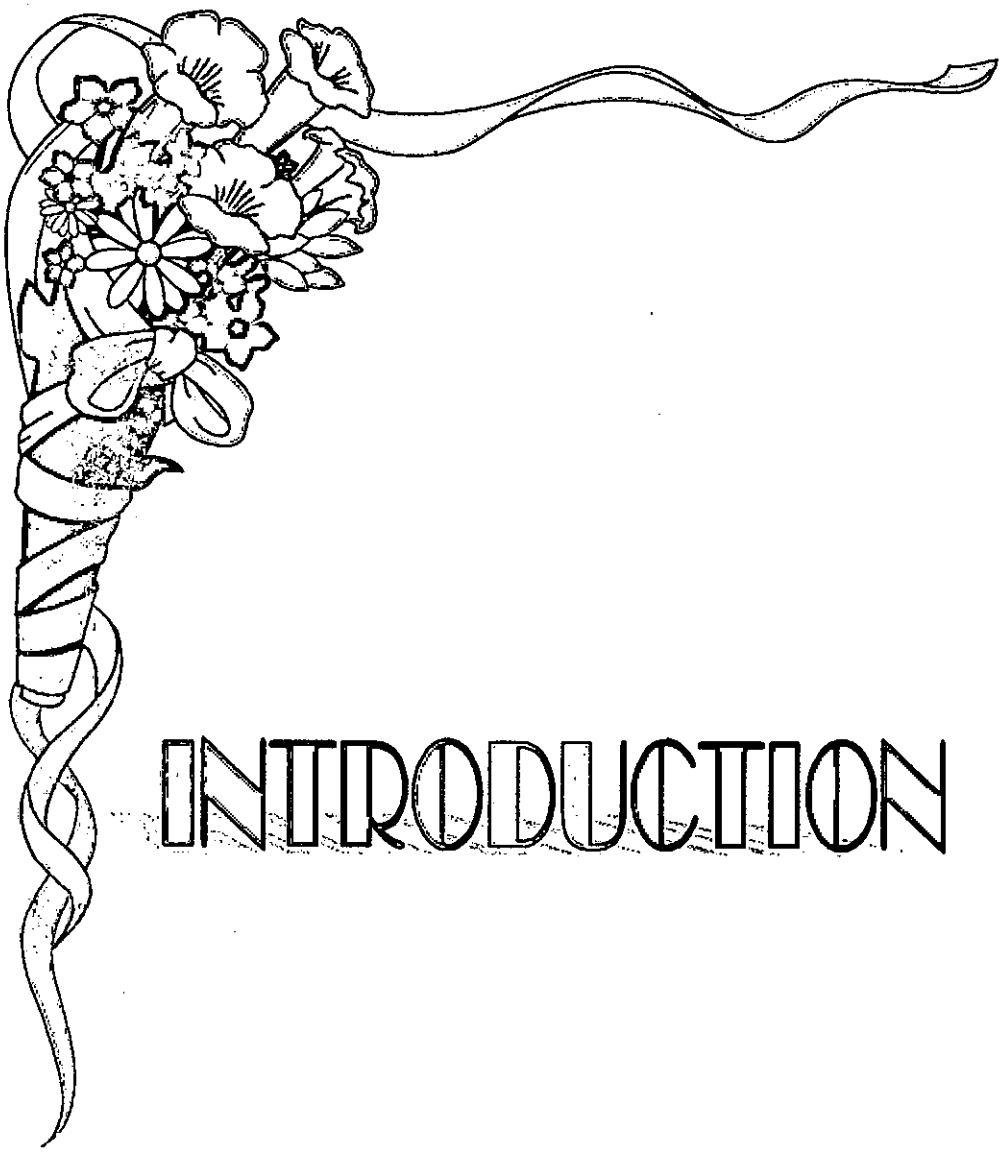

INTRODUCTION

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Maize (Zea mays L.) is one of the most important cereal crops in the world. In Egypt, maize has a special importance because the local production is not sufficient to suffice the local consumption.

The cultivated area of maize in Egypt was about 1648000 feddans*, yielding about 38843360 ardab, with an average production of 23.57 ardab**/feddan in 1999 growing season. Egypt imports annually more than 3 million tons of maize to meet the local requirements. In 1997 season 3059000 tons were imported with a value of 385.3*** million Dollars.

The production of maize can be increased in three ways, (i) increasing the acreage under maize, (ii) introducing high yielding varieties and (iii) using new rechniques in seedbed preparation and all cultural practices from planting till harvest. Irrigation scheduling with optimum planting date appeared to be among the most important factors which play a significant role in increasing maize yield. A successful water management of the limited irrigated land will certainly lead to a rationalization of water use and save a considerable amount of water. Water use must be modified in relation to planting date to achieve the maximum water and land use efficiency.

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* Statistical Data, Ministry of Agriculture (1999), (in Arabic).

** One ardab = 140 kg shelled grain

*** FAO Yearbook, Trade. Vol. 52, 1998, Rome.

Farmers experience differ with regard to irrigation as well as planting dates of maize crop. They must have a much better understanding of their soils and plants, under the intensive system of Egyptian agriculture where more than one crop is raised in the same land every year.

Consequently, this work was designed to study the effect of scheduling irrigation of maize crop according to class "A" pan evaporation under three planting dates and two varieties of maize on growth, yield and its components and chemical grain composition of maize.

The main targets of this study can be summarized in the following points :-

- To find out the most suitable irrigation intervals under different pan evaporation coefficients in order to maximize crop production with optimization of water and planting dates.
- To schedule irrigation frequencies based on pan evaporation coefficients.
- To evaluate the most important resources for increasing grain yield of maize.