STUDIES ON WATER CONSUMPTION OF SOME VEGETABLE CROPS UNDER PLASTIC HOUSES

BY

MOHAMED ZAKY EL-SAYED EL-SHINAWY

A thesis submitted in partial fulfillment

of

the requirements for the degree of

MASTER OF SCIENCE

in

Agriculture
(Vegetable Crops)

Department of Horticulture

Faculty of Agriculture

Ain Shams University

1992

Approval Sheet

STUDIES ON WATER CONSUMPTION OF SOME VEGETABLE CROPS UNDER PLASTIC HOUSES

By

MOHAMED ZAKY EL-SAYED EL-SHINAWY

B.Sc. In Agriculture, 1985

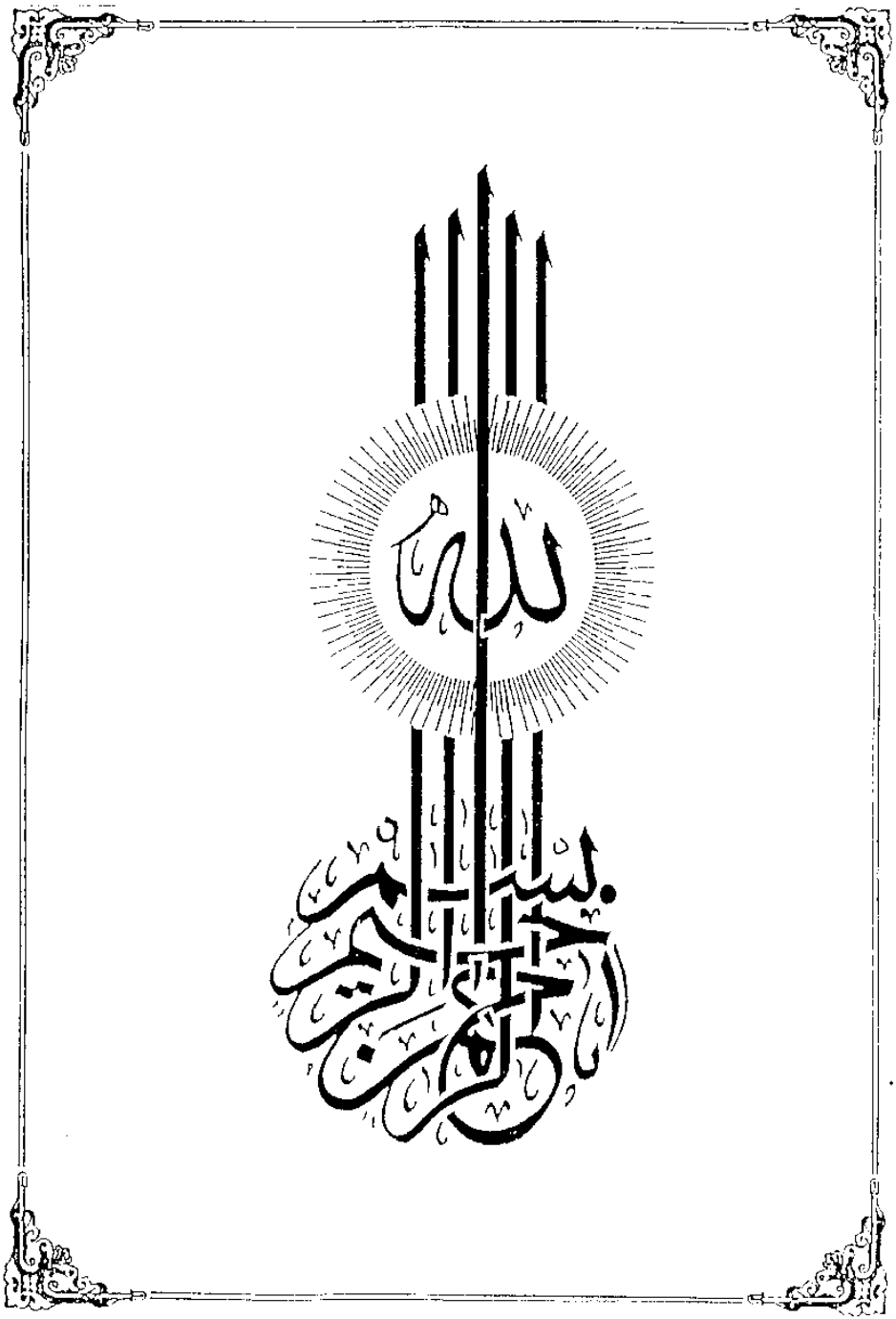
This thesis for M.Sc. degree has been approved by :

1- Prof. Dr. Shamel Ahmed Shanan
Prof. of Vegetables

2- Dr. Ahmed Mahmoud El-Gizawy
Assoc. Prof. of vegetables

3- Prof. Dr. Hosnia Mohamed Gomaa
Prof. of Vegetables

Date of examination : 15 / 11 / 1992



STUDIES ON WATER CONSUMPTION OF SOME VEGETABLE CROPS UNDER PLASTIC HOUSES

BY

MOHAMED ZAKY EL-SAYED EL-SHINAWY

B.Sc. (Agric.) in Horticulture, 1985

Under the supervision of :

Prof. Dr. Hosnia Mohamed Gomaa

Prof. of Vegetables, Fac. Agric. Ain Shams University

Prof. Dr. Ibrahim El-Oksh

Prof. of Vegetables, Fac. Agric. Ain Shams University

Assoc. Prof. Dr. Ayman F. Abou-Hadid

Assoc. Prof. of vegetables, Fac. Agric. Ain Shams University

Abstract

The experiments were carried out at the Kassasin plastic houses site, Ismailia Governorate, Egypt for two successive seasons (1987/88 and 1988/89) to evaluate two methods of determination of water consumption for sweet pepper and cucumber plants , namely, radiation and Class A pan . The obtained results indicated that plant height, leaf number, leaf area, leaf area index, fresh and dry weights of plants, early and total yields of sweet pepper and cucumber plants were significantly higher when the radiation method was used for determination of water consumption compared to using Class A pan method . Electric conductivity at 25 °C for soil solution, soil, air and leaf

temperatre increased when Class A pan method was used for determination of water consumption than using radiation method. Soil moisture was high owing to application of radiation method. The water use efficiency was higher by using Class A pan method for determination of water consumption compared to radiation method.

Acknowledgment

The witer would like to express his deep sense of gratitude to Prof.Dr. Hosnia Mohamed Gomaa professor of vegetable crops, Prof. Dr. Ibrahim El-Oksh professor of vegetable crops and Dr. Ayman Farid Abou-Hadid associate professor of vegetable crops Ain Shams Univ., for their supervision, constructive guidance, encouragements and continuous valuable help throughout the course of this investigation and preparation of the manuscript.

My thanks to Prof. Dr. A.S. El-Beltagy professor of vegetable crops Ain Shams Univ. for giving me the chance to do this work through the project FAO-UNDP-EGY/86/014 "protected cultivation" and for the guidance and encouragements during my study.

My thanks to the staff members and colleges in the Hort. Dept. Ain Shams Univ. for their help.

Lastly, my deep thanks to my mother, my wife, my brother and my sister for their patience during this work.

Contents

List of Figures

List of Tables

INTRODUCTION