

STUDIES ON SELECTED AGROMANAGEMENT
SYSTEMS FOR PROTECTED CULTIVATION
OF SOME VEGETABLE CROPS

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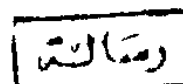
USAMA AHMED ALY EL-BEHAIRY

THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF

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AIN SHAMS UNIVERSITY

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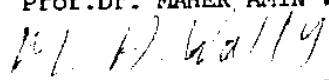
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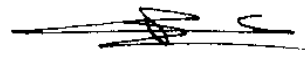
USAMA AHMED ALY EL-BEHAIRY

B.Sc. IN HORTICULTURE
AIN SHAMS UNIVERSITY
1984

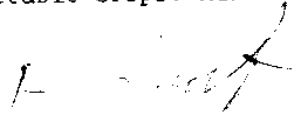
This thesis for M.Sc. degree has been approved by

1- Prof.Dr. MAHER AMIN WALLY


Prof. of Vegetable Crops . El-Azhar University.

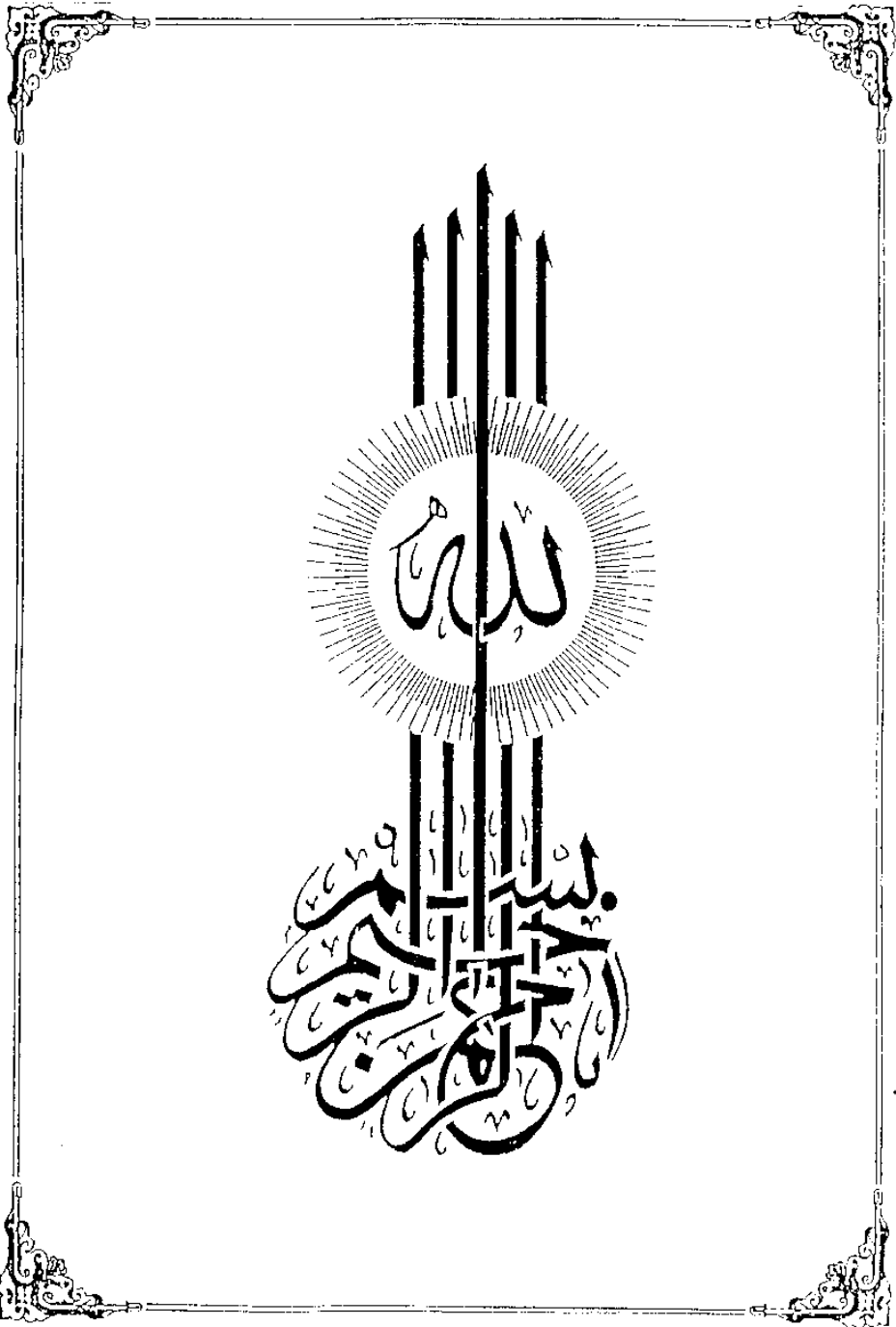

2- Prof.Dr. ADEL S. EL-BELTAGY

Prof. of Vegetable Crops. Ain Shams University.


3- Prof.Dr. ABD EL-REHIM SHARAF

Prof. of Vegetable Crops. Ain Shams University.

Date of examination : 27 / 3 / 1990



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USAMA AHMED ALY EL-BEHAIRY
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UNDER THE SUPERVISION OF

1. Prof. Dr. ABD EL-REHIM SHARAF
Prof. of Vegetable Ain Shams University
2. Dr. ABD EL-HAMID EL-ASDOUDI
Assist Prof. of Vegetable Ain Shams University
3. Dr. AYMAN FARID ABOU-HADID
Assist Prof. of Vegetable Ain Shams University

ABSTRACT

The current study was conducted at the experimental station in Wye collage London University during the period from 1985 to 1987. Four experiments had been made. Two experiments were on tomato and lettuce to study the effect of continuous and intermittent circulation treatments on growth characters, chemical composition and yield. The other two experiments were on tomato and cucumber to study the effect of alternating flow circulation at different stages of the growing cycle treatments on growth characters, chemical composition and yield.

A computerized data recording system was adopted for the four experiments.

Data were recorded on the following characters:

Plant height, leaf number, percentage of macro nutrients, accumulative water consumption, early and total yield, Vegetative growth measurements, water use efficiency and macro nutrient removal from the tank except the first experiment.

The obtained results could be summarized as follows :

Concerning tomato and cucumber:-

1. No reduction in total fruit yield was observed due to the use of intermittent system in comparison with the continuous flow system.
2. There was an increase in early yield in intermittent flow compared to control.
3. No reduction was observed in plant height and leaf number per plant between all treatments.
4. There was a reduction in stem and leaf, and root fresh and dry weight in the intermittent system.

As for tomato, cucumber and lettuce the obtained results could be summarized as follows :

1. There was a reduction in water consumption in intermittent flow compared to continuous flow.
2. There was an increase in water use efficiency in intermittent treatments compared to continuous flow.
3. There was a reduction in phosphorus and calcium content in tomato, cucumber and lettuce leaves and in tomato and cucumber fruits. This was due to the use of intermittent technique, nevertheless, there were no observations of deficiency symptoms.

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lists of abbreviations

CF	=	Conductivity factor
MJm ⁻²	=	Mega joule per square meter
mg/liter	=	milligram per liter
cont-inter	=	continuous - intermittent
inter-inter	=	intermittent - intermittent
inter-cont	=	intermittent - continuous
cm	=	centimeter
cm ²	=	square centimeter
g/plant	=	gram per plant
WUE/APW	=	water use efficiency concerning aerial parts fresh weight.
WUE/ADW	=	Water use efficiency concerning aerial parts dry weight.
WUE/RFW	=	Water use efficiency concerning root fresh weight.
WUE/RDW	=	Water use efficiency concerning root dry weight.
WUE/FFW	=	Water use efficiency concerning fruit fresh weight.
WUE/FDW	=	Water use efficiency concerning fruit dry weight.
WUE/PPW	=	Water use efficiency concerning total plant fresh weight.
WUE/PDW	=	Water use efficiency concerning total plant dry weight.
L/plant	=	Liter per plant
g/L	=	gram per liter

INTRODUCTION