

شبكة المعلومات الجامعية







شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

### جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

#### قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها على هذه الأفلام قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار في درجة حرارة من ١٥-٥٠ مئوية ورطوبة نسبية من ٢٠-٠٠% To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%



## بعض الوثائـــق الإصليــة تالفــة



# بالرسالة صفحات لم ترد بالإصل

#### PHYSIOLOGICAL STUDIES ON GROWTH AND SEED YIELD OF SOME CITRUS ROOTSTOCKS

#### By

#### EMAD EL-DEEN EL-SAYED ABD EL-RAZEK

B.Sc. Agric. (High Institute of Agricultural Co-Operation), 1992 Accomplished B.Sc. Hort. (Zagazig Univ., Benha Branch), 1998

A thesis submitted in partial fulfillment of the requirement for the degree of

#### MASTER OF SCIENCE

in
Agricultural Science
(Pomology)

Department of Horticulture Faculty of Agriculture; Moshtohor Zagazig University, Benha Branch





#### APPROVAL SHEET

#### PHYSIOLOGICAL STUDIES ON GROWTH AND SEED YIELD OF SOME CITRUS ROOTSTOCKS

#### By

#### EMAD EL-DEEN EL-SAYED ABD EL-RAZEK

B.Sc. Agric. (High Institute of Agricultural Co-Operation), 1992 Accomplished B.Sc. Hort. (Zagazig Univ., Benha Branch), 1998

This thesis for M.Sc. degree has been

Approved by:

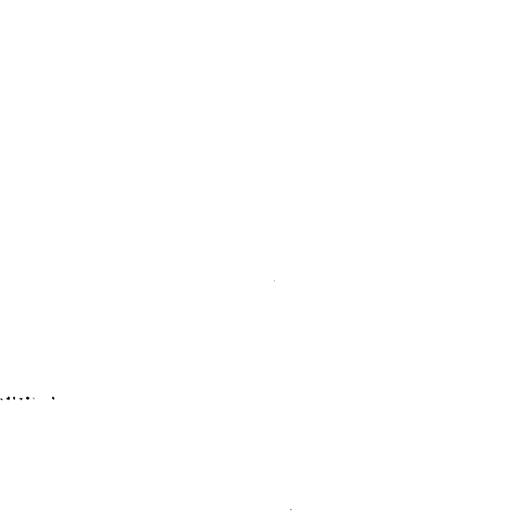
Prof. Dr. Naguib Sami Guirguis
Prof. of Pomology, Horticulture
Research Institute.

Prof. Dr. Issam A. Hassaballa
Prof. of Pomology, Faculty of
Agriculture, Moshtohor, Zagazig Univ.
Benha Branch

Prof. Dr. Abo Bakr Zaky Abd El-Aziz
Prof. of Pomology, Faculty of
Agriculture, Moshtohor, Zagazig Univ.
Benha Branch

Prof. Dr. Ahmed A. Rezk E. Atawia
Prof. of Pomology, Faculty of
Agriculture, Moshtohor, Zagazig Univ.
Benha Branch

Date of Examination: 11/01/2003.



.

. , . . .

#### PHYSIOLOGICAL STUDIES ON GROWTH AND SEED YIELD OF SOME CITRUS ROOTSTOCKS

#### By

#### EMAD EL-DEEN EL-SAYED ABD EL-RAZEK

B.Sc. Agric. (High Institute of Agricultural Co-Operation), 1992 Accomplished B.Sc. Hort. (Zagazig Univ., Benha Branch), 1998

Under the supervision of: Prof. Dr. Issam A. Hassaballa

Prof. of Pomology, Faculty of Agriculture,

Moshtohor, Zagazig University

Benha Branch

Prof. Dr. Ahmed A. Rezk.E. Atawia

Prof. of Pomology, Faculty of Agriculture,

Moshtohor, Zagazig University

Benha Branch

•

#### ACKNOWLEDGEMENT

I wish to express my sincere gratitude to **Dr. Issam A. Hassaballa**, Professor of Pomology, Horticulture Department, Faculty of Agriculture, Moshtohor, Zagazig University, Benha Branch, for guidance, encouragement, supervision, constant and sincere help during whole period of this study.

I am also deeply indebted to Dr. Ahmed A. Rezk E. Atawia, Professor of Pomology, Horticulture Department, Faculty of Agriculture, Moshtohor, Zagazig University, Benha Branch, for suggesting this research problem, offering the support necessary for this investigation, supervision, guidance and advice during whole period of this study.

Sincere thanks, grateful appreciation and deeply indebted are extended to **Dr. Mahmoud Soliman El-Shamma**, Professor of Pomology, and **Dr. Mohamed Maher Saad Saleh**, Associate Professor of Pomology, Pomology Department, National Research Center (NRC) for their supervision, sincere scientific advice, continuous help, valuable suggestions and reviewing the manuscript.

I am also deeply indebted to **Dr. Said Rabie** Professor of Plant Taxonomy, Flora Research Department, Horticulture Research Institute, and Agricultural Museum for continuos help in taxonomically part of this thesis.

Deep thanks are offered to my Wife and son "El-Hassan" for their continuous encouragement during this period.

#### **CONTENTS**

	page
1- INTRODUCTION	1
2- REVIEW OF LITERATURE	3
3- MATERIALS AND METHODS	31
4- RESULTS AND DISCUSSIONS	39
- Vegetative growth	39
- Tree fruiting	43
- Seed yield	49
- Leaf fresh weight, dry weight and dry matter.	55
- Leaf nutrients content	62
- Seed characteristics	75
- Seed content of organic substances	83
-Seedling growth	94
- Seed morphology	114
- Leaf morphology	131
5- SUMMARY AND CONCLUSION	144
6-REFERENCES	150
7- ARARIC SIIMMARY	

