





ثبكة المعلومات الجامعية





جامعة عين شمس

التوثيق الالكتروني والميكروفيلم



نقسم بللله 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 %



ثبكة المعلومات الجامعية







STUDIES ON SOME LEAF MINING INSECTS INFESTING CERTAIN VEGETABLE CROPS IN EGYPT

By ABD EL-AZIZ MOHAMMAD FADEL

B.Sc., Agric. (Economic Entomology), Al-Azhar University, 1972 M.Sc., Agric. (Economic Entomology), Al-Azhar University, 1993

THESIS

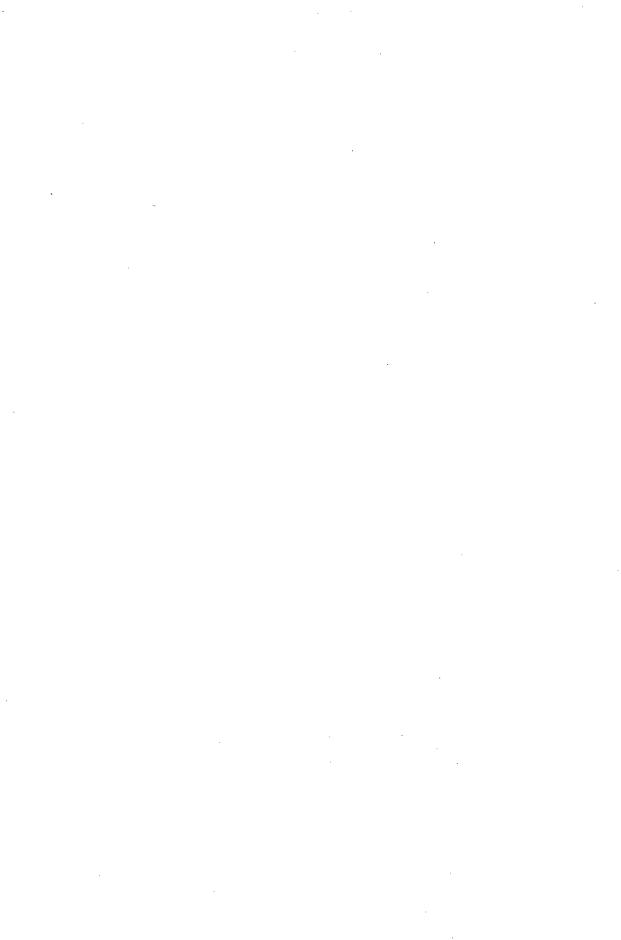
Submitted in Partial Fulfillment of the
Requirements for the degree
OF
DOCTOR OF PHILOSOPHY
IN
AGRICULTURAL SCIENCE
(Economic Entomology)

Department of Plant Protection
Faculty of Agriculture
Al-Azhar University

B

 $\wedge \wedge$

1422 A.H. 2001 A.D.



STUDIES ON SOME LEAF MINING INSECTS INFESTING CERTAIN VEGETABLE CROPS IN EGYPT

By ABD EL-AZIZ MOHAMMAD FADEL

B.Sc., Agric. (Economic Entomology), Al-Azhar University, 1972 M.Sc., Agric. (Economic Entomology), Al-Azhar University, 1993

THESIS

Submitted in Partial Fulfillment of the Requirements for the Degree OF
DOCTOR OF PHILOSOPHY
In
AGRICULTURAL SCIENCE
(Economic Entomology)

Department of Plant Protection Faculty of Agriculture Al-Azhar University 1422 A.H. 2001 A.D.

Supervision Committee:-

Prof.Dr. AHMED LOTFY ABDEL-SALAM

Professor of Economic Entomology, Faculty of Agriculture, Al-Azhar University

Prof.Dr. MOHAMED ABDEL-GHAFAR MAHMOUD

Professor of Economic Entomology, Faculty of Agriculture, Al-Azhar University

Prof.Dr. FATHY ABDEL-AZIZ ALY EL-SAYED

Chief Researcher, Plant Protection Research Institute, Agric. Res. Center, Ministry of Agriculture

APPROVAL SHEET

STUDIES ON SOME LEAF MINING INSECTS INFESTING CERTAIN VEGETABLE CROPS IN EGYPT

By ABD EL-AZIZ MOHAMMAD FADEL

B.Sc., Agric. (Economic Entomology), Al-Azhar University, 1972 M.Sc., Agric. (Economic Entomology), Al-Azhar University, 1993

THESIS

Submitted in Partial Fulfillment of the Requirements for the Degree
OF
DOCTOR OF PHILOSOPHY
In
AGRICULTURAL SCIENCE
(Economic Entomology)

Department of Plant Protection
Faculty of Agriculture
Al-Azhar University
1422 A.H.
2001 A.D.

Approved By :-

Prof	HMED ALY GOMAA Tessor of Economic Entomology versity	gy, Faculty of Agricu	lture, Ain Sham
Prof.Dr. A	HMED LOTFY ABDEL-S	SALAM	
Prof	essor of Economic Entomolo	gy, Faculty of Agr	iculture, Al-Azha
Univ	versity		
Prof.Dr. A	BDEL-HAKAM A. EL-S	SAEADY	
Prof	essor of Economic Entomolo	gy, Faculty of Agr	iculture, Al-Azhai
	versity		
Date 27/4/	1422 A.H. 18 /	7/2001 A.D.	

ACKNOWLEDGEMENT

Firstly, Ultimate thanks to ALLAH

Deep thanks and appreciation is expressed to **Prof.Dr. Ahmed Lotfy Abd-El-Salam**, Professor of Economic Entomology, Department of Plant Protection, Faculty of Agriculture, Al-Azhar University, for his supervision, valuable guidance, encouragement and for his help during this work

My best wishes and grateful to **Prof.Dr. Mohammed Abd El-Ghafar**, Professor of Economic Entomology, Department of Plant Protection, Faculty of Agriculture, Al-Azhar University, for his advice in the work planning, efficient cooperation, and constructive criticism of the present work.

Also, I am indebted to **Prof.Dr. Fathy Abd-El-Aziz Aly**, Chief Researcher, Plant Protection Research Institute, ARC, for his kind advice, consistent help and for reviewing and arranging the manuscript.

I wish also to express my thanks to **Prof.Dr. Metwally** Farrag, Chief Researcher, Plant Protection Research Institute, ARC, for his kind advices and participation in reviewing this thesis.

CONTENTS

	Page
I. INTRODUCTION	1
II. REVIEW OF LITERATURE	2
2.1- Survey Studies of Vegetable Mining Insects	2
and Their Natural Enemies	•
2.2- Population Studies	5
2.3- Varietal Susceptibility Studies	8
2.4- Intercropping Studies in Vegetables	10
2.5- Sowing Dates Affecting Vegetables Mining	11
Insects Population	
2.6- Weather Factors Studies	12
2.7- Control Studies	14
III. MATERIALS AND METHODS	21
IV. RESULTS	32
1- SURVEY STDIES	32
A- Survey of vegetable mining insects	32
B- Associated parasitoids and predators	36
C- Mining vegetation	37
2- SEASONAL ABUNDANCE AND	39
POPULATION FLUCATION OF	
VEGETABLE MINING INSECTS	
A- Monthly abundance and population	39
fluctuations of mining Species	
B- Monthly abundance and population	46
fluctuations of mining families.	
3- POPULATION FLUCTUATION OF	55
SOME MINING INSECTS	
CORRESPONDING WITH TEMPERATURE	
AND RELATIVE HUMIDITY	05
4- SEASONAL ABUNDANCE AND POPULATION FLUCTUATION OF MINING	87
Species ON VEGETATION	•

CONTENTS: Continued.

	Page
5- SEASONAL ABUNDANCE AND	100
POPULATION FLUCTUATION OF MINING	
SPECIES ON BEAN GROWN UNDER	
PLASTIC GREENHOUSE AND FIELD	
CONDITIONS	
6- MONTHLY ABUNDANCE AND	107
POPULATION FLUCTUATION OF	
ASSOCIATED PARASITOIDS AND	
PREDATORS	
7- EFFECT OF SOWING DATES ON	118
MINING INSECTS POPULATION	
8- EFFECT OF INTERCROPPING	142
VEGETABLES ON MINING INSECTS	
POPULATION	
9- RELATIVE SUSCEPTIBILITY OF	162
COMMON VEGETABLE CULTIVARS TO	
MINING INSECTS INFESTION	
10-EFFCT OF CERTAIN INSECTICIDES	185
AGAINST BEAN LEAFMINER	
POPULATIONS	
V. DISCUSSION AND CONCLUSION	196
VI. SUMMARY	213
VII. REFERENCES	23.6
ARABLC SUMMARY	200