Prevalence and Control of Lice Infesting Goats in Egyptian Desert

595.**4**51



A Thesis

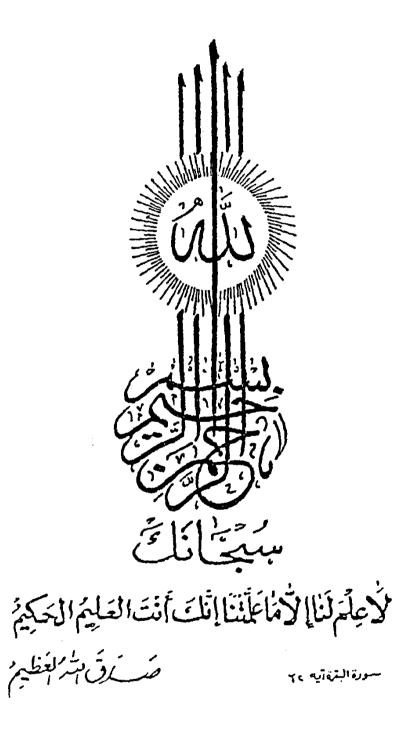
Presented for the award of the Ph.D. Degree

By

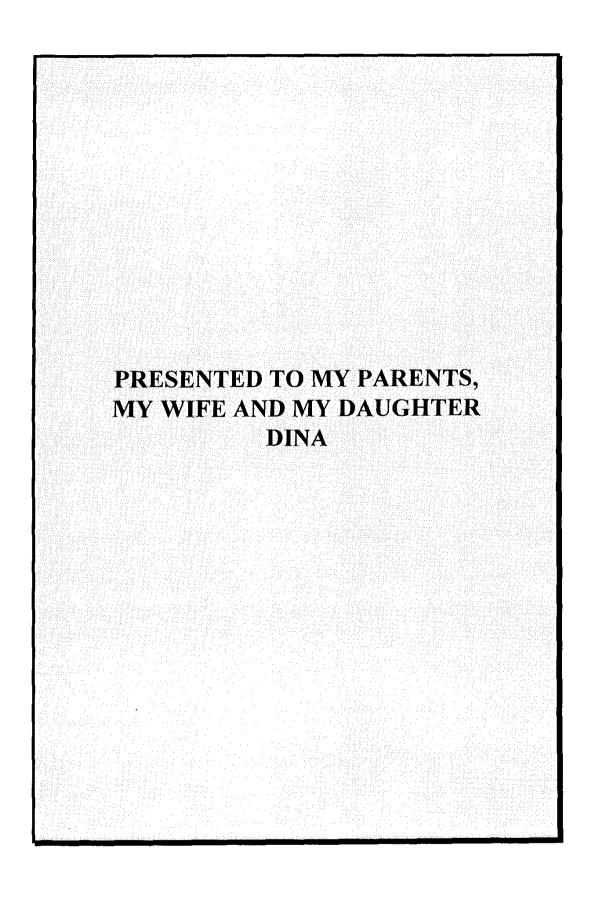
Sayed Mohamed Mahmoud Abd El-Baky (B.Sc., M.Sc.)

91925

Department of Entomology,
Faculty of Science,
Ain Shams University
Cairo
1994







supervisors

- Late Dr. Awny Mohammed Guneidy, Professor of Entomology and Dean of Faculty of science, Ain Shams University.
- Late Dr. Nagat Farid Shoumer, Professor of Entomology, Faculty of science, Ain Shams University.
 - Dr. Mohammed Saad Hamed, Professor of Entomology, Faculty of science, Ain Shams University.
 - Dr. Mohammed Tayseer Bayoumi, Professor of Toxicology, Animal Health Department, Desert Research Center, Mataria, Cairo.
 - Dr. Mohammed Hamdy Madbouly, Professor of Entomology, Parasitology and Animal Diseases Department, National Research Center, Dokki, Giza.
 - Dr. Salwa Kamal, Professor of Taxonomy, Entomology Department, Faculty of Science, Ain Shams University.

Thesis Examination Committee

Name	Title	Signature

	ہم ہے جب سے جب نہ جہ سا جہ دی شاخت شاخت نات انتا تاتا ہے ہے بنا ایک وی وی وی	

Supervisors

;

Prof. Dr.: Mohammed Saad Hamed
Prof. Dr.: Salwa Kamal Mohammed
Prof. Dr.: Mohammed Tayseer Bayoumi
Prof. Dr.: Mohammed Hamdy Madbouly

Head of Department

Prof.Dr. Bahira M. El-Sawaf

Biography

Date and place of birth

: 7 June 1954, Cairo ,Egypt.

Date of graduation

: June 1977.

Degree awarded

: B.Sc. (Entomology),1977) & MSc (Entomology,1986).

Grade

: Good

Occupation

: Assistant lecturer, Animal Health Dept., Desert Research Center, Cairo.

Date of registration

: 13-11-1989

for Ph.D Degree

ACKNOWLEDGMENTS

First of all, I am very indebted to the late Dr. Awny Mohammed Guneidy and Dr. Nagat Shoumer, professors of Entomology, Faculty of Science, Ain Shams University, who were very keen to follow up the progress of this work, so, I sincerely dedicate this Thesis to their spirits.

This work has been carried out in the Animal Production Division, Animal Health Department, Desert Research Center, Mataria Cairo, under the joint supervision of Prof. Dr. Mohammed Saad Hamed, Prof. of Entomology, Faculty of Science, Ain Shams University. Prof. Dr. Mohammed Tayseer Bayoumi, Prof. of Toxicology, Animal Health Department, Desert Research Center and Prof. Dr. Mohammed Hamdy Madbouly, Prof. of Entomology, Parasitology and Animal Diseases Department, National Research Center, Dokki, Giza. Prof. Dr. Salwa Kamal, Prof. of Taxonomy, Faculty of Science, Ain Shams University,

I wish to express my heartfelt thanks to Prof. Dr. M. Saad Hamed who supervised with great enthusiasm the work undertaken, his help in the laboratory work and for reading and criticizing the manuscript.

I wish to express my greatest gratitude, deep thanks, and appreciation to Prof. Dr. M.T. Bayoumi who has suggested the topic of the thesis, for his supervision and his help in all the stages of this work, in field and laboratory, his suggestions, criticism, encouragement and revision of the manuscript.

The author is particularly grateful to Prof. Dr. M. H. Madbouly, for the valuable help offered to me throughout the period of this study, his help in identification of specimens and revision of the manuscript.

The author is greatly indebted to Prof. Dr. Salwa Kamal for her kind encouragement, guidance and for reading and criticizing the manuscript.

Thanks are also due to Dr. Zidan Abdel Hamid Hendy, Professor of Insecticides, Faculty of Agriculture, Ain Shams University and director of Sumitomo Chemical Agent, Egypt for providing the insecticides used in this study.

Thanks to Ass. Prof. Dr. T. M. El-Metenawy, Parasitology and Animal Diseases Department, National Research Center for his help in identification of specimens.

I wish to express my sincere thanks and gratitude to my colleagues in the Animal Health Department, in Desert Research Center, for various help in field and laboratory work during the period of study.

The author's gratitude should also be expressed to all staff members and colleagues of the Entomology Department, Faculty of Science, Ain Shams University for their help and cooperation throughout the period of this study.

My deepest and sincere thanks to my wife for her great help and encouragement during the period of this study.

CONTENTS

Page

1. Int	roduction 1				
2. R	2. Review of Literature				
I.	Survey and Seasonal prevalence 3				
II.	Economical and Veterinary Importance				
I	II. Control				
3. M	aterial and Methods 32				
1	Seasonal prevalence				
	1. Method of collection and examination of lice 33				
	2. Mounting of lice 33				
	3. Statistical treatment of data 34				
I	I. Experimental studies				
	1. Locality				
	2. Experimental animals 34				
	2.1 Reproduction 35				
	2.2 Productivity 35				
	2.3 Haemogram investigation 35				
	2.3.1. Collection of blood				
	2.3.2. Haematological studies 36				
	A. Determination of haemoglobin (Hb) 36				
	B. Determination of erythrocyte count				
	(RBC _s) 36				
	C. Determination of total leukocytes				

(WBC _s) 36
D. Determination of the differential
leukocyte count
3. Total protein
4. Statistical treatment of data
III. Control
A. Laboratory tests
1. Origin of strain
2. Insecticides used
3. Preparation of insecticide concentrations
and susceptibility tests 40
4. Preparation of the impregnate papers 40
5. Statistical treatment of the data 41
B. Field tests41
1. Chemical control 42
2. Mechanical control
4. RESULTS
I. Seasonal prevalence
I.1. The infested goats percentage with lice
I.1.A.The seasonal prevalence percentage of
infested goats with (eggs, nymphs, adults
and nymphs & adults) 44
I.1.B.Percentage of infested goats on different
positions in all seasons 45
I.2. The average infestation density with lice 47
I.2.A. The average infestation density with (egg,

nympn, adults and nympns & adult	S
at different seasons	47
I.2.B. The average infestation density with (eg	gg
nymphs, adults and nymphs & adults	3
on different positions at all seasons	48
I.3. Seasonal prevalence percentage of lice speci	ies
and its mix on goats	49
I.3.A. Infested goats with biting lice Bovica	ola
caprae (Gurlt)	49
I.3.B. Infested goats with sucking lice linognath	us
africanus Kellogg and Paine	50
I.3.C. Infested goats with sucking lice Linognath	us
stenopsis (Burmeister)	50
I.3.D. Annual infested goats percentage	5 1
II. Veterinary important	53
II.1.Reproduction	53
II.2.Productions	53
II.2.A.Body weight	53
a. Kids	53
b. Lactating goats	54
II.2.B.Milk production	55
,	
II.3.Haemogram parameters	55
II.3.A.Pregnant goats	55
II.3.B.Lactating goats	56
II.3.C.Kids	58
II.4.Total plasma protein	59
II.4.A.Pregnant goats	59

	II.4.B.Lactating goats	59
	III. Control (Toxicological studies)	61
	III.1. Laboratory test	61
	III.2. Field application	63
5.	DISCUSSION AND CONCLUSION	65
	I. Seasonal Prevalence	65
	II. Veterinary important	69
	III. Control (Toxicological studies)	77
6.	SUMMARY	81
7.	LITERATURE CITED	87
	ARABIC SUMMARY	

INTRODUCTION

INTRODUCTION

The continuous demand for animal protein is increased because of increasing the population. Consequently, it is necessary to raise the animal production in any region all over the world. However, there are many problems that facing this progress especially in developing countries. Egypt is one of the developing countries that suffer from the same problem. The interaction of several ecological factors present in Egypt creates a favourable environment for several pests responsible for the transmission of different diseases to the domestic animals. Moreover, the rather temperate weather predominating throughout the year, allows for survival of these pests as endemic pests. In respect of the population of animal production in Egypt now a day, the present survey an animal count revealed that total numbers of cattle, buffaloes, sheep, goats and camels were 3.688, 2.570, 4.530, 5.373 and 0.232 melion heads, respectively (Central Agency for Public Mobilization and Statistics, June 1994).

One of the serious problems that hinder the animals breeding in Egypt is the parasitic infestation like ectoparasite (lice, fleas, mites, ticks and other blood sucking insects). The ectoparasites are vectors of several pathogenic agents that cause diseases or mortality to animals either biological or mechanical. Some of the early investigations in ectoparasites on domestic animals revealed that lice is one of the major ectoparasites that cause great skin irritation, restless, reduction in body weight gain and milk production and anaemia in infested animal (Soulsby 1968).