GENETIC STUDIES ON SHEEP PERFORMANCE

By

Mona Abdel-Zaher Ahmed

A thesis submitted in partial fulfillment

of

the requirements for the degree of

MASTER OF SCIENCE

in

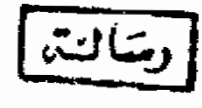
Agriculture

(Animal Breeding)

Department of Animal Production

Faculty of Agriculture

Ain Shams University



1991

Approval Sheet

GENETIC STUDIES ON SHEEP PERFORMANCE

By

Mona Abdel-Zaher Ahmed

B.Sc. of Agric. Sci. (Animal Production), Ain Shams Univ. 1984

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

Prof. Dr. E.S.E. Galal .....

Prof. of Animal Breeding, Fac. of Agric.

Ain Shams Univ.

Prof. Dr. E.A. El-Tawil .....

Prof. of Animal Breeding, Fac. of Agric.

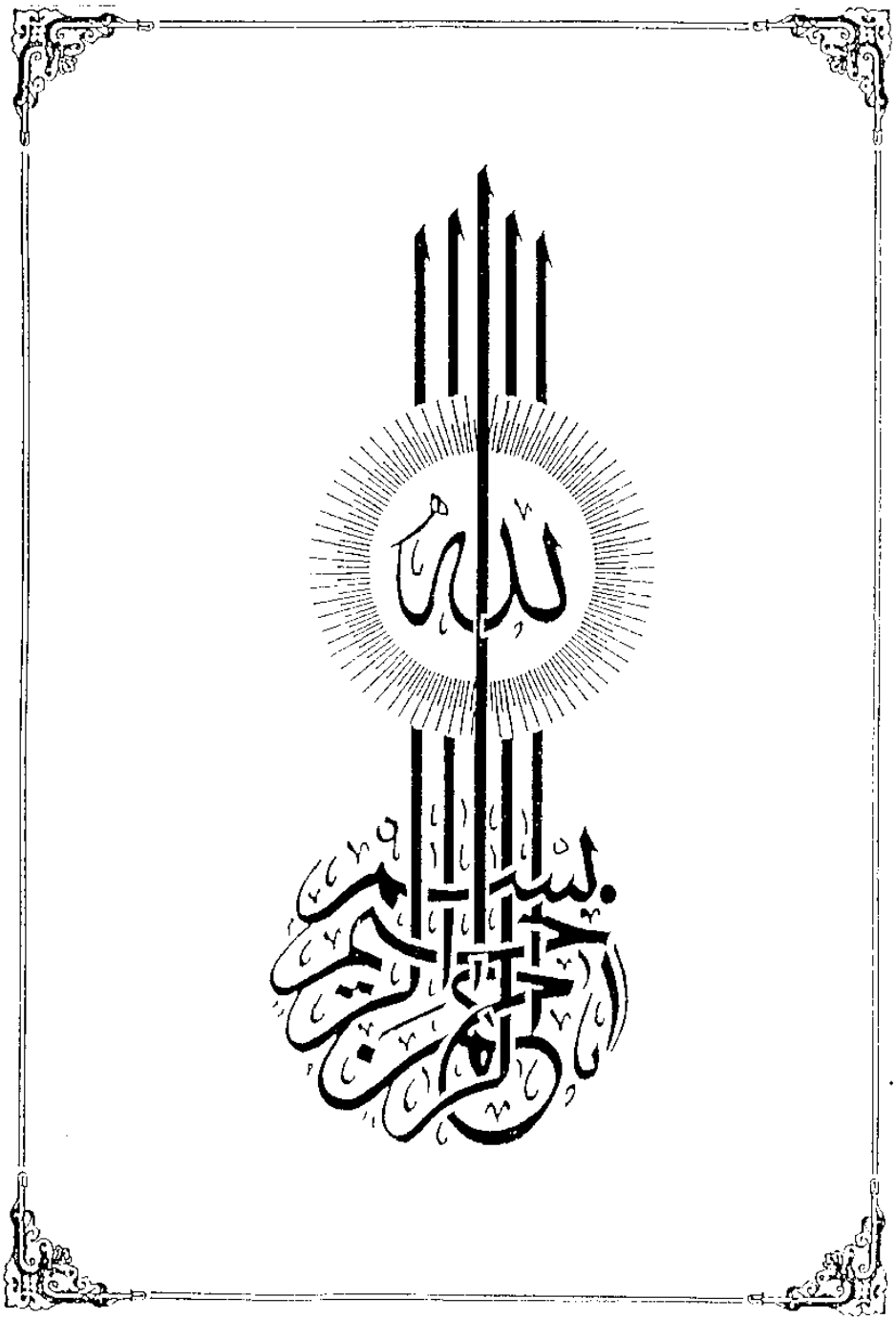
Ain Shams Univ.

Prof. Dr. E.A. Afifi .....

Prof. of Animal Breeding, Fac. of Agric.

Zagazig Univ.

Date of examination 14.17.1991.....



GENETIC STUDIES ON SHEEP PERFORMANCE

By

Mona Abdel-Zaher Ahmed

B.Sc. in Agriculture Sciences (Animal Production), Ain Shams University 1984

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

Prof. Dr. E.S.E. Galal .....
Prof. of Animal Breeding, Faculty of Agriculture
Ain Shams University

Prof. Dr. A. M. Aboul-Naga .....
Under Secretary of State for Animal Production
Ministry of Agriculture

ABSTRACT

This study included data on 520 Ossimi and 629 Rahmani ewes, raised on experimental stations belonging to the Ministry of Agriculture during the period 1970 - 1988.

The objectives of this study were to estimate non-genetic factors affecting, heritability and genetic and phenotypic correlations of life-time lamb and wool production traits and mature weight using Harvey's Mixed Model Least-Squares and Maximum Likelihood Computer Program (LSML 87).

Estimates of least squares means of total number of lambs born (TLB), total number of lambs weaned (TLW), total kilograms born (TKB), total kilograms weaned (TKW), total kilograms of fleece weight (TFWT) and mature weight (MWT)

were 4.23, 3.73, 12.83, 46.98, 5.86 and 50.8 respectively, in Ossimi ewes and 4.47, 3.74 13.81, 48.09, 6.55 and 53.3 respectively in Rahmani ewes.

The differences between block-locations were highly significant in all studied traits in both Ossimi and Rahmani ewes. Age of dam and type of birth had non significant effects on all studied traits in Ossimi and Rahmani ewes, while season of lambing significantly affected all studied traits in Ossimi ewes except TKW and MWT and non significantly affected all studied traits in Rahmani ewes.

The effect of weaning weight on all the studied traits in each of Ossimi and Rahmani ewes was not significant, while the effect of yearling weight was significant on all studied traits in Ossimi ewes except TFWT, MWT and non significant on all studied traits in Rahmani ewes.

The estimates of heritability of the TLB, TLW, TKB, TKW, TFWT and MWT were .013, .031, .031, .004, .234 and .121, respectively, in Ossimi ewes and .131, .154, .121, .142, negative and .268, respectively, in Rahmani ewes. The genetic correlations between these previous traits ranged from -3.104 to 1.3 in Ossimi and from -.102 to 1.1 in Rahmani, while the phenotypic correlations ranged from -.231 to .97 in Ossimi and from -.029 to .96 in Rahmani.

ACKNOWLEDGEMENTS

All praises are to Allah, who blessed me with kind colleagues and professors, and gave me the support to produce this thesis.

Sincere gratitude and appreciation are due to Dr. Salah Galal, Professor of Animal Breeding, Faculty of Agriculture, Ain-Shams University, for his continuous encouragement and support, direct supervision, guiding, revision of the manuscript and extended help throughout this whole work.

I am greatly indebted to Dr. Hussien Mansour, Associate Professor, Faculty of Agriculture, Ain Shams University for his advice in statistical analysis, suggesting topics, being helpful and the valuable guidance he gave me.

My sincere appreciation goes to Professor Dr. Adel Aboul-Naga Under Secretary of State for Animal Production, Ministry of Agriculture, for his kind help, providing facilities, continuous encouragement and valuable guidance which were extended throughout the work.

I am most grateful to Dr. Ferial Hassan for her encouragement and support during this work.

I would like to express my sincere thanks to my colleague Mr. Hazem Almahdy for his help in the earlier stages of this thesis. I would also like to thank Ms. Afaf Mohammad for her support in computer typing the thesis.

Thanks is accorded to all the staff of Sheep and Goat Research Division, Animal Production Research Institute, Ministry of Agriculture, for their help and assistance.

Sincere thanks are due to my parents, my husband and my brothers and sister for their continuous encouragement, patience and thoughtfulness throughout the study.

TABLE OF CONTENTS

Page

Page

LIST OF TABLES

LIST OF ABBREVIATIONS

AGM	Age at maturity
BWT	Birth weight
b_{yx}	Regression of y on x
E	Exotic
E.R	½ Exotic . ½ Rahmani
F	Finnish Landrace
F.O	½ Finn . ½ Ossimi
F.R	½ Finn . ½ Rahmani
FO.O	1/4 Finn . 3/4 Ossimi
FR.R	1/4 Finn . 3/4 Rahmani
FWT	Greasy fleece weight
KGB	Kilograms born
KGW	KIlograms weaned
LB	Number of lambs born
LW	Number of lambs weaned
MWT	Mature weight
O	Ossimi
R	Rahmani
R	Romanov
R.R	½ Romanov . ½ Rahmani
r_{yx}	Correlation between y and x
S	Suffolk
S.O	½ Suffolk . ½ Ossimi
TFWT	Total grease fleece weight
TKB	Total kilograms born
TKW	Total kilograms weaned
TLB	Total number of lambs born