A COMPARATIVE STUDY OF COMMERCIAL FARMS SYSTEMS FOR TABLE-EGG PRODUCTION IN EGYPT

By

Mohamed Mahmoud Ezz El-Arab Abd El-Aziz Askora
B.Sc. Agric. Sc. (Poultry Production), Zagazig University, 1996
M.Sc. Agric. Sc. (Poultry Production), Zagazig University, 2003

A Thesis Submitted in Partial Fulfillment

Of

The Requirements for the Degree of

DOCTOR OF PHILOSOPHY
in
Agricultural Sciences
(Poultry Breeding)

Department of Poultry Production
Faculty of Agriculture
Ain Shams University

2017

Approval Sheet

A COMPARATIVE STUDY OF COMMERCIAL FARMS SYSTEMS FOR TABLE-EGG PRODUCTION IN EGYPT

By

Mohamed Mahmoud Ezz El-Arab Abd El-Aziz Askora
B.Sc. Agric. Sc. (Poultry Production), Zagazig University, 1996
M.Sc. Agric. Sc. (Poultry Production), Zagazig University, 2003

This thesis for Ph.D. degree has been approved by:

Dr. Mahmoud Maghraby Iraqi **……..……..……**
Prof. of Poultry Breeding, Faculty of Agriculture, Banha University, Egypt.

Dr. Hassan El-Sayed Ayoub **……...……**
Prof. Emeritus of Poultry Breeding, Faculty of Agriculture, Ain Shams University, Egypt.

Dr. Salah El-Deen Abd El-Rahman El-Safty **……**
Prof. of Poultry Breeding, Faculty of Agriculture, Ain Shams University, Egypt.

Dr. Ahmed Galal El-Sayed **..……..…….**
Prof. of Poultry Breeding, Faculty of Agriculture, Ain Shams University, Egypt.

Date of Examination: 9 / 5 / 2017

A COMPARATIVE STUDY OF COMMERCIAL FARMS SYSTEMS FOR TABLE-EGG PRODUCTION IN EGYPT

By

Mohamed Mahmoud Ezz El-Arab Abd El-Aziz Askora
B.Sc. Agric. Sc. (Poultry Production), Zagazig University, 1996
M.Sc. Agric. Sc. (Poultry Production), Zagazig University, 2003

Under the supervision of:

Dr. Ahmed Galal El-Sayed
Prof. of Poultry Breeding, Department of Poultry Production, Faculty of Agriculture, Ain Shams University (Principal Supervisor).

Dr. Salah El-Deen Abd El-Rahman El-Safty
Prof. of Poultry Breeding, Department of Poultry Production, Facultyof Agriculture, Ain Shams University.

Dr. Osama Mahmoud Zatar
Head Research Emeritus of Poultry Production Systems, Department of AnimalProduction Systems, Animal Production Research Institute, Agriculture Research Center.

ABSTRACT

MOHAMED MAHMOUD EZZ EL-ARAB ABD EL-AZIZ ASKORA: A comparative study of commercial farms systems for table-egg production in Egypt. Unpublished Ph.D. Thesis, Department of Poultry Production, Faculty of Agriculture, Ain Shams University, 2017.

This study was conducted to evaluate the productive and economical performance of three commercial layer strains (Hy-Line Brown, Lohman Brown and Bovans Brown) kept under two different production systems (semi-closed and closed) in AL-Sharkia and AL-Gharbia governorates. Productive data were weekly obtained all over the production periods and analyzed to 52 weeks of production and also at the end of production cycles for each farm. While, economical data were measured and analyzed at the end of production cycles after sealing the flocks.

Under semi-closed system, results indicated that Bovans Brown and Hy-Line Brown layers had significantly better age (day) at 50% of production, mortality percentages, feed conversion (g /egg), hen day egg production percentages (HD), hen housed egg production percentages (HH) and numbers and finally production efficiency coefficient compared to Lohman Brown layers to 52 weeks and the end of production cycles.

On the other hand, Lohman Brown layers kept under closed system recorded the best age (day) at 50% of production, mortality percentage, hen day percentage, hen housed egg number, and of course production efficiency coefficient value all over the production period whencompared with others under semi-closed system in AL-Sharkia governorate.

Under closed system age (day) at 50% of production, feed conversion (g /egg), hen day percentages, and production efficiency coefficient for Bovans Brownlayers were significantly affected by different pad cooling systems to 52 weeks and the end of production

cycles. Moreover, egg production (HD %) was significantly affected by different ambient temperature degrees of house's parts and pad cooling systems. Results showed that HD % for Hy-Line Brown layers was significantly affected by season of the year, house's parts and even battery liens location inside the semi-closed houses in AL-Gharbia governorate. Hy-Line layer's production performance was not significantly differed between AL-Sharkia and AL-Gharbia semi-closed system farms. Whereas, Bovans strain of AL-Gharbia governorate showed better egg production performance than Lohman strain of AL-Sharkia governorate under closed system. Egg production performance of layers kept under the same conditions was significantly affected by layer's strain.

Economical results confirmed that Bovans Brown layers had better hen's revenue, net profit, gross margin, revenue attributed to variable costs, revenue attributed to total costs, followed by Hy-Line and Lohman layers under semi-closed system. Lohman Brown layers under closed system showed better economical performance than others under semi-closed system in AL-Sharkia governorate. It could be noticed that Hy-Line layers of AL-Gharbia governorate were more economically efficient when compared with others in AL-Sharkia governorate under semi-closed system. The same trend was found when comparing Bovans Brown layers under closed system in AL-Gharbia governorate with others under semi-closed system in AL-Sharkia governorate.

Generally, commercial table egg production layers of Brown strains (Hy-Line, Lohman and Bovans) showed more productive and economical efficiency when kept under closed system farms than semi-closed system farms under Egyptian conditions.

Key words: Housing system, Layers, Productive performance, Economical efficiency, Commercial strains, Ambient temperature.

ACKNOWLEDGMENT

Firstly, I wish to express my prayerful thanks to **ALLAH** for everything.

I would like to initiate display profuse thank to the members of my supervising committee, **Prof.Dr. Ahmed Galal El-Sayed** (Principal Supervisor), Professor of Poultry Breeding, Poultry Production Department, Faculty of Agriculture, Ain shams University for his kindness, support advice during this work, and interest.

Many thanks due to **Prof. Dr. Salah El-Deen El-Safty**, Professor of Poultry Breeding, Poultry Production Department, Faculty of Agriculture, Ain shams University for his supervision, reading and correcting the manuscript, encourage and interest.

Special thanks and deep gratefulness are due to **Prof. Dr. Osama Mahmoud Zatar,** Professor Emeritus of Poultry Production System, Department of Animal Production System, Animal Production Research Institute, Agriculture Research Center for encourage, interest and support advice. He provided me invaluable direction all time during my research.

Finally, I would like to thank my parents, brother and all my family members for their continous encouragement. I appreciate my wife and my kids for their patience, understanding and supporting me during my work in my Ph. D thesis.

CONTENTS