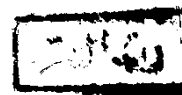


EFFECT OF LIGHT ON SOME PHYSIOLOGICAL AND IMMUNOLOGICAL
CHARACTERISTICS IN JAPANESE QUAIL

BY

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Thesis submitted in partial fulfillment
of
the requirements for the degree of



MASTER OF SCIENCE

in

Poultry Physiology

636.5142
M.A

33720



Department of Animal Production
Faculty of Agriculture
Ain Shams University

,1990

APPROVAL SHEET

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ABSTRACT

Two experiments were carried out using one-day old male Japanese quail.

The first experiment, was conducted to investigate the effect of continuous and intermittent light on some physiological and immunological characteristics of male Japanese quail. One-day old chicks were maintained under the lighting programs of 2(9L:3D), 2(5L:7D), 2(7L:5D) and 14L:10D, (as a control group), till six weeks of age. Chicks were fed ad libitum a turkey starter ration. Body weight, feed consumption, feed efficiency and weight gain were recorded at weekly intervals. Thymus, bursa, spleen, testes and adrenal glands were excised at autopsy and weighed. Corticosterone and testosterone were assayed in the plasma samples. Body weights were consistently higher for males raised under all different lighting programs at all ages than that of the control. The

highest averages body weight gain and feed efficiency (129.8 ± 6.69 and 1.37 ± 0.09) were noted for males kept under 2(5L:7D). While the highest average feed consumption were reported for males kept under 2(9L:3D) program. The relative weights of testes, adrenal and spleen increased as the birds grew older. While the relative weights of bursa and thymus decreased. An opposite trend was noted for the relative weights of bursa and thymus glands. The lighting programs had no effect on the weights of all glands under study as well as the plasma testosterone level but resulted in an increase in the plasma corticosterone level.

The second experiment, were conducted to investigate the effect of dipping fertile Japanese quail eggs in testosterone propionate solution on the weights of bursa, thymus and spleen glands of hatched chicks. The experimental period lasted for six weeks after hatching. No significant differences were found in the relative bursa, thymus and spleen weights between different ages, sex and dipping times. The hormonal treatment of the egg resulted in an increase in the thymus weight but no effect on either bursa or spleen weights.

ACKNOWLEDGEMENTS

THANKS GOD.

I wish to express my sincere gratitude and deep appreciation to Dr. Maie Fouad Ali, Professor of Avian Physiology, Faculty of Agriculture, Ain Shams University for suggesting the problem, continuous help, her guidance, during the preparation of this manuscript.

My sincere appreciation and deep gratitude are extended to Dr. Ali Abdel Moomen Bakeir, Professor of Poultry Physiology, Animal Production Research Institute for his encouragement, and reading this manuscript.

Thanks are also due to Dr. M.Y. Mekrawy, Assistant Professor of Animal physiology, Faculty of Agriculture, Al-Azhar University, for his continuous help and valuable guidance during the determination of hormones.

Kind acknowledgement is also due to Dr. Abdel Halim A. Ashmawy, Assistant Professor of Animal Breeding, Ain Shams University, for his valuable suggestions in the statistical analysis of the data.

Special thanks are due to Mr. Abdel Mageed Mekhimar Abdel Maksoud, assistant lecturer of Avian physiology, Faculty of Agriculture, Ain Shams University, for his continued assistance throughout this study.

Thanks are due to Dr. M.M. Mashaly, associate professor of poultry Endocrinology and Immunology, Department of poultry science, Faculty of Agriculture, Pennsylvania State University for his greatest help and support.

Deepest gratitude is due to Miss Manal Mohammad Ahmed sayed, assistant lecturer of Animal Breeding Ain Shams University for her greatest help in the statistical analysis.

Finally, I am sincerely grateful to my beloved mother, sisters and brothers for their encouragement and support, which made all this possible.

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