

IN THE NAME OF ALLAH,
THE COMPASSIONATE,
THE MERCIFUL.

COMPARATIVE STUDY OF VARIOUS ECONOMIC TRAITS
IN THE FIRST AND SECOND LAYING YEARS OF
WHITE LECHORN AND LYALLPUR
SILVER BLACK BREEDS



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SECOND LAYING YEARS OF WHITE LEGHORN AND LYALLPUR SILVER
BLACK BREEDS

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The Controller of Examinations.

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TABLE OF CONTENTS

			<u>Page</u>
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	v
 <u>CHAPTERS:</u>			
I. INTRODUCTION	1
II. REVIEW OF LITERATURE	...	...	3
III. MATERIALS AND METHODS	...	...	18
IV. RESULTS ...	...	...	25
V. DISCUSSION...	...	...	70
VI. SUMMARY AND CONCLUSIONS	...	...	91
BIBLIOGRAPHY	...	...	95

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. AVERAGE FORTNIGHTLY FEED CONSUMPTION PER BIRD DURING THE FIRST AND SECOND LAYING YEARS.	26
2. ANALYSIS OF VARIANCE OF FEED CONSUMPTION IN WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS DURING THE FIRST AND SECOND LAYING YEARS.	26
3. AVERAGE POUNDS OF FEED REQUIRED TO PRODUCE ONE DOZEN OF EGGS (FEED EFFICIENCY) DURING THE FIRST AND SECOND LAYING YEARS.	28
4. ANALYSIS OF VARIANCE OF FEED EFFICIENCY IN WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS DURING THE FIRST AND SECOND LAYING YEARS.	28
5. AVERAGE FORTNIGHTLY EGG PRODUCTION PER LAYER DURING THE FIRST AND SECOND LAYING YEARS.	29
6. ANALYSIS OF VARIANCE OF EGG PRODUCTION IN WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS DURING THE FIRST AND SECOND LAYING YEARS.	29
7. MEAN EGG WEIGHT DURING THE FIRST AND SECOND LAYING YEARS.	31
8. ANALYSIS OF VARIANCE OF EGG WEIGHT IN WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS DURING THE FIRST AND SECOND LAYING YEARS.	31
9. MORTALITY PERCENTAGE DURING THE FIRST AND SECOND LAYING YEARS.	33
10. AVERAGES OF WEIGHT AND THICKNESS OF ALBUMEN DURING THE FIRST AND SECOND LAYING YEARS.	35
11. ANALYSIS OF VARIANCE OF EGG ALBUMEN QUALITY TRAITS DURING THE FIRST AND SECOND LAYING YEARS.	36
12. MEAN YOLK WEIGHT IN EGGS DURING THE FIRST AND SECOND LAYING YEARS.	39
13. ANALYSIS OF VARIANCE OF YOLK WEIGHT IN WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS DURING THE FIRST AND SECOND LAYING YEARS.	39

14. INCIDENCES OF BLOOD AND MEAT SPOTS IN EGGS DURING THE FIRST AND SECOND LAYING YEARS.	41
15. ANALYSIS OF VARIANCE OF BLOOD SPOTS AND MEAT SPOTS IN THE EGGS OF WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS DURING THE FIRST AND SECOND LAYING YEARS.	41
16. AVERAGES OF SHELL WEIGHT AND ITS THICKNESS IN EGGS DURING THE FIRST AND SECOND LAYING YEARS.	43
17. ANALYSIS OF VARIANCE OF EGG SHELL QUALITY TRAITS IN THE WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS DURING THE FIRST AND SECOND LAYING YEARS.	43
18. AVERAGE CONTENT OF VARIOUS NUTRIENTS OF EGG ALBUMEN DURING THE FIRST AND SECOND LAYING YEARS.	46
19. ANALYSIS OF VARIANCE OF NUTRIENTS OF EGG ALBUMEN IN THE WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS DURING THE FIRST AND SECOND LAYING YEARS.	47
20. AVERAGE CONTENT OF VARIOUS NUTRIENTS OF EGG YOLK DURING THE FIRST AND SECOND LAYING YEARS.	52
21. ANALYSIS OF VARIANCE OF NUTRIENTS OF EGG YOLK IN WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS DURING THE FIRST AND SECOND LAYING YEARS.	53
22. AVERAGE FERTILITY IN EGGS DURING THE FIRST AND SECOND LAYING YEARS.	58
23. ANALYSIS OF VARIANCE OF FERTILITY IN EGGS OF WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS DURING THE FIRST AND SECOND LAYING YEARS.	58
24. COMPARISON OF THE INCUBATION QUALITY OF EGGS LAID DURING THE FIRST AND SECOND YEAR OF PRODUCTION.	60
25. ANALYSIS OF VARIANCE OF INCUBATION QUALITY TRAITS IN THE EGGS OF WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS DURING THE FIRST AND SECOND LAYING YEARS.	62
26. COMPARISON OF COSTS OF REARING THE CHICKS UPTO 26 WEEKS OF AGE IN WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS.	65

- | | |
|---|----|
| 27. COMPARISON OF COSTS DURING THE FIRST AND SECOND LAYING YEARS IN THE WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS. | 66 |
| 28. COMPARISON OF GROSS AND NET RETURNS DURING THE FIRST AND SECOND LAYING YEARS IN THE WHITE LEGHORN AND LYALLPUR SILVER BLACK BREEDS. | 68 |

CHAPTER I

INTRODUCTION

Unprecedented developments in various aspects of poultry science during the current century have ushered an era of mass production of chicken in many parts of the world. Such advances have enabled man to produce food of high biological value at a speed unknown in the annals of history. It is noteworthy, however, that the successful achievements in the productive efficiency in the temperate regions have not yet penetrated into tropical and subtropical zones of the world.

With the introduction of improved types of poultry in the tropical areas, the farmers have recognized the differences in the income producing potentials of various breeds but they have been unable to plan effectively the replacement of their flocks, since the problem is affected simultaneously by many physical and economic variables. In the developed countries of the world most of the egg production is limited to one year after birds attain maturity. It is a common belief that they become uneconomical during the second year of production. This is true of developed countries but culling at such a high rate after a year may not be feasible in less developed ones. The second year of productive life may lead to economical production, particularly in locally evolved breeds as

compared to the imported ones. Consequently, it was decided to study the comparative behaviour of chicken for various aspects of performance during their first and second laying years in White Leghorn and Lyallpur Silver Black breeds.

Industrialization has increased the egg consumption of human population of this country. It could be expected that the quality of eggs, which was ignored till recently would attract more favourable consideration of consumers with future acceleration in production. The effect of age of birds on the quality and composition of egg components besides feed efficiency and egg production have to be elucidated as they would provide a sound basis for culling the birds producing at uneconomical rate or eggs of poor quality.

The problem of securing the largest possible number of chicks in proportion to the total number of incubated eggs is of considerable economic significance. It needs exploration of the effect of age on the fertility, hatchability and embryonic mortality in the White Leghorns and Lyallpur Silver Blacks, which would be of use for the farmers keeping birds for breeding purposes.

A study, therefore, was conducted to evaluate the changes in the egg producing capacity of birds and structural components of eggs in the first and second laying years. Efforts were also made to determine the incubating quality of eggs and the proximate analysis of egg albumen and yolk in the two years of production.

CHAPTER III

REVIEW OF LITERATURE

In order to bring out the multiple effects of increasing age on the body economy of fowl the subject would be reviewed in different sections. This procedure would help in ascertaining the mode of comparative body reactions in first and second laying years as regards to various aspects.

FEED CONSUMPTION AND EFFICIENCY:

Most of the workers have reported a pronounced depressing effect on feed consumption and efficiency of its utilization in the second year of laying. Mueller and Heidenreuter (1960) compared White Leghorn birds in first and second laying years in the intensive system of housing. They showed that the feed requirements were 10 per cent lower in the case of hens in second laying year than those in the first year. Similar results were reported by Marble (1963) who observed 4.8 per cent reduced feed intake in layers in second year of production as compared to those in the first laying year. Additional evidence in favour of this observation was furnished by Vogt (1967) who studied the food requirements for production of a fixed amount of egg mass in layers of different ages and stated 380 grammes of food was consumed by the layers in their second laying year as against 356 grammes in the first year of production for 100 grammes of egg mass.

Various breeds of poultry seem to behave differently as regards to feed consumption and efficiency. Bokhari (1967) in a comparative study on White Leghorns and Lyallpur Silver Blacks found significantly better feed efficiency in White Leghorn birds. The data collected by Sadiq (1968) indicated higher feed consumption in New Hampshire breed than Lyallpur Silver Black, while feed efficiency values were significantly better in Lyallpur Silver Black birds. The thyroxine secretion has been found to be directly related to the metabolism of fowl, which in turn affects the feed consumption and consequently the efficiency of its utilization. Turner (1948) studied the effect of age and season on the thyroxine secretion in White Leghorns and concluded the average daily secretion of two years old hens to be decidedly lower than those of younger age. He reported no seasonal decline in thyroxine secretion between the months of January and March, However, a reduction of 15 per cent was recorded between March and May months.

EGG PRODUCTION:

A decrease in the egg production with increase in age has been reported by Jull (1928) who compiled data from all possible sources in different flocks and noticed that the second year production did not reach 88 per cent of the first year in practically all instances. Hall and Marble (1931) observed 13 per cent decline in production of White Leghorns in the second year. A significant correlation