

**ANALYSIS OF THE EFFECT OF BROILER
BREEDER'S AGE ON PERFORMANCE AND
BEHAVIOR OF CHICKEN TO FORTY-ONE DAYS
OF REARING PERIOD**

V. L. A. D. Karunaratne

168805R

Degree of Master of Science

Department of Mathematics

University of Moratuwa

Sri Lanka

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168805R

Thesis submitted in partial fulfillment of the requirements for the Degree of
Master of Science in Operational Research

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Declaration of the Candidate and Supervisor

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Abstract

The study was based on analysis of the effect of broiler breeder's age on performance and behavior of chicken during the rearing period (41 days). Broiler chicks (1200 birds) from three different ages of broiler breeders (56 weeks, 72 weeks and 95 weeks (post molted breeder)) were studied for their body weight, feed conversion ratio (FCR), overall mortality rate and behavior for 41 days. The performance of the broiler was analyzed by considering the body weight, FCR and the overall mortality while eating, drinking, moving, laying were considered in behavior analysis. There were three experiment groups based on the age of broiler breeders and additional experiment group was made with mixed chicks from all the three breeders. Data were collected in weekly basis for the four experiment groups. Behavior of broilers was observed according to the scan sampling method at every five minutes interval. Data on body weight, FCR, mortality rate and behavior were analysed by using ANOVA. Mean values of body weight, FCR and behavior were separated by Tukey's Studentized Range (HSD) tests. Principal Component Analysis (PCA) was carried out in order to develop an overall behavior index by using sub behavior variables (eating, drinking, moving, laying, other behaviour).

Results revealed that body weight of broilers was significantly different and the lowest body weight was found in the youngest breeder batch in the sixth week compared to the 72 weeks old breeder batch. The FCR was significantly different in the 4th week and the population mean FCR value of 56 weeks old breeder is greater than the 72 weeks old breeder. However, the overall mortality rate was not significantly different among all the breeder groups during the rearing period. The 72 weeks old broiler breeder group was identified as the best breeder group in terms of profit and the performance when the body weight values, FCR values, mortality rates and breeder maintenance cost are considered.

According to the week wise analysis, the drinking behavior was significantly different among the breeder groups in the 6th week and the mean drinking amount of 95 weeks old breeder group was greater than the mixed aged breeder group.

When the moving behavior is considered, it was significantly different among the breeder groups in the 6th week and the mean moving value of 72 and 56 weeks old breeders were greater than the mixed aged breeder group. Further, results revealed that the population overall behavior (overall behavior index value) was not significantly different during the rearing period and also there is no effect on performance of broilers by mixing of chicks from different age breeders. As a conclusion, it was found in this study that the breeders' age influences on the body weight, FCR, performance and some sub behavior parameters of broilers.

Keywords: Broiler chicken, Body weight, Behavior, Feed conversion ratio, Mortality

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List of Abbreviations

ANOVA	Analysis of Variance
CV	Coefficient of Variation
PCA	Principal Component Analysis
FCR	Feed Conversion Ratio