PREDICTION OF BODY WEIGHT AT EIGHT WEEKS OF AGE THROUGH BODY MEASUREMENTS AT DIFFERENT AGES OF MUSCOVY DUCKLINGS

Ensaf A. El Full and Gihan S. Farahat
Poultry Production Dept., Faculty of Agric., Fayoum, Cairo Univ., Egypt.

ABSTRACT:
The objective of this study was to compute appropriate statistical models that describe the body weight at eight weeks of age by the input variables body measurements at different ages. One-hundred and sixty one-day old Muscovy ducklings (72 males and 88 females) were used to determine the importance of phenotypic traits such as keel length (KL), shank length (SL) and breast circumference (BC) in addition to body weight (BW) and to fit different statistical models to predict body weight through body measurements in Muscovy ducks. In order to compare the relative efficiency of various models and to select the most suitable model, the coefficient of determination (R^2) and the standard error of the estimate (SEE) were used. A larger value of R^2 and smaller value on SEE indicate best fit of the model.

The following results were obtained:
Muscovy males had significantly heavier BW and longer SL and KL and had higher BC than females at all studied ages. SL, KL and BC growth trends were in general concomitant to body growth trends. The differences in BW at 8 weeks of age appeared to depend more on differences in growth in length of shank bone than on the differences in growth in keel or breast. Muscovy males' BW_8 significantly ($P \leq 0.001$) affected by either lengths of shank or keel at 8 weeks of age indicating that about 68.4% of variability in BW_8 were explained by both SL and KL at the same age. Whereas, either females' BC or KL at 8 weeks of age were significantly increased BW_8. Model 2 (BC_8 and KL_8 used as predictors for BW_8) had higher R^2 and lower SEE than model 1 (BC_8 used as the sole predictor for BW_8). The model for predicting Muscovy ducklings' BW_8, that depended firstly on KL_8 followed by BW_6 and SL_8 had higher R^2 ($P \leq 0.05$) and lower SEE than other models. Each of BW_6, SL_6, SL_4 and BW_4 could be used as predictors for Muscovy ducklings' BW_8, regardless of sex with higher R^2 values and lower SEE estimates ($P \leq 0.001$). Similarly, BW_8 could be predicted through BC_6, KL_6, SL_8 and KL_4.

Key words: Prediction- body weight- body measurements- Muscovy ducklings.

INTRODUCTION

Waterfowl have a remarkably rapid growth during the first weeks of life. At slaughter age of 7-8 weeks in domestic ducks, they attain 70-80 % of adult weight, while broiler chickens have a slaughter weight at similar age less than 40% of adult weight. The early growth of Muscovy is usually quite slow and they develop a marked difference in weight between sexes (**Pingel, 1993**).