Application of Physical Body Morphometric Parameters in the Evaluation of Sudanese Local Rabbits Breed

Ahmed Musa[1], Khalid Elamin[2], Nahid Idam[3]

[1] *University of Gezira, Genetics and Animal Breeding, Sudan*
[2] *University of Khartoum, Genetics and Animal Breeding, Sudan*
[3] *University of Gezira, Animal Physiology and Biochemistry, Sudan*

Abstract

Physical morphometric body parameters (body length, height at withers, heart girth, abdominal girth, nose to shoulder length, ear length, tail length, foreleg length, hide leg length, thigh girth, and live body weight of 142 Sudanese local rabbits were subjected to general linear model (univariate) analysis of variance and simple least squares regression analysis. The aims of this research were to (1) disclose the main sources of variability among live physical body morphometric parameters, (2) quantify the age and sex differences in live physical body morphometric parameters, (3) deduce the interrelationships among live physical body morphometric parameters and live body weight of different ages and sexes, and (4) predict live body weight from live physical body morphometric parameters. Live body morphometrical parameters appeared to be affected by both age and sex factors. Simple person's correlation coefficients between live body morphometric parameters and live body weight were revealed positive and highly significant ($P \leq 0.05$). Respective predictive simple linear regression analysis equations from live body morphometric parameters with coefficients of determination R^2 (0.90, 0.87, 0.72, 0.74, 0.65 and 0.74) respectively for both sexes (male and female at three, four and five months of age) were derived. Of all live body morphometric parameters studied, heart girth, height at withers, body length and abdominal girth were shown to be the most important predictors for live body weight of Sudanese local rabbit breeds, in addition to being used as selection criterion for genetic improvement of body weight. It is plausible that simple regression equations can be used for live body weight prediction. However, predicted live body weight based on derived simple equations come up with close results to the actual measured live body weight and these equations are acceptable to rabbit breeders due to its simplicity, time-saving and cost-efficiency.

Keywords: Physical morphometric parameters, correlations, regression analysis, Sudanese local rabbits

Contact Address: Ahmed Musa, University of Gezira, Genetics and Animal Breeding, Elgamaa, Wad Medani, Sudan, e-mail: ahmed.musa12@yahoo.com