MODELING OF THE CORPORAL DEVELOPMENT OF CABRITAS SAANEN: RUMP HEIGHT

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Mathematical modeling has been very usual in animal production. In addition to practicality and low cost, mathematical models can maximize the animal production and also minimize environmental impacts by reducing nutrient excretion in an economically viable mode. The objective of this research was to evaluate the use of non-linear statistical models to estimate the rump height (RH) of Saanen doeling goats. Were used 40 Saanen goats aged 109 ± 21 days, weighing 12 ± 2 kg of live weight. The work was carried out at the Professor Hélio Barbosa Experimental Farm, of the Universidade Federal de Minas Gerais, in metropolitan region of Belo Horizonte, Minas Gerais. The treatments consisted of four experimental diets formulated to predicted a daily weight gain of 90, 130, 170 and 210 g according to the National Research Council, 2007. The diets were composed of Tifton 85 hay, ground corn, soybean meal and mineral nucleus. Fortnightly the RH was measured by the distances between the wing of ilium and the ground, with a 0,5 cm scale hipometer. Three statistical models were used: Logistic, Gompertz and Generalized Michaelis-Menten. In order to model the variance, the functions of homoscedasticity (homogeneous) and staggered variance were used. Akaike method, Akaike minimums, likelihood ratio and evidence, was used to test the quality of the models. The best model to estimated RH was the generalized Michaelis-Menten model, with a function of stepwise variance one, and a lower Akaike value. The RH height growth rate was provided by the 210 g day^{-1} body weight gain diet. Rump height of doeling can be estimated by the Generalized Michaelis-Menten models with stepwise variance function.

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