Growth Curves Genetic Analysis of Native South Caspian Sea Poultry Using Bayesian Statistics

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Abstract : In this study, to determine the best non-linear regression model describing the growth curve of native poultry, 9657 chicks of generations 18, 19, and 20 raised in Mazandaran breeding center were used. Fowls and roosters of this center distributed in south of Caspian Sea region. To estimate the genetic variability of none linear regression parameter of growth traits, a Gibbs sampling of Bayesian analysis was used. The average body weight traits in the first day (BW1), eighth week (BW8) and twelfth week (BW12) were respectively estimated as 36.05, 763.03, and 1194.98 grams. Based on the coefficient of determination, mean squares of error and Akaike information criteria, Gompertz model was selected as the best growth descriptive function. In Gompertz model, the estimated values for the parameters of maturity weight (A), integration constant (B) and maturity rate (K) were estimated to be 1734.4, 3.986, and 0.282, respectively. The direct heritability of BW1, BW8 and BW12 were respectively reported to be as 0.378, 0.3709, 0.316, 0.389, 0.43, 0.09 and 0.07. With regard to estimated parameters, the results of this study indicated that there is a possibility to improve some property of growth curve using appropriate selection programs.

Keywords : direct heritability, Gompertz, growth traits, maturity weight, native poultry
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