BAYESIAN APPROACH TO GROWTH CURVE WITH OBJECTIVE PRIORI

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- *ABSTRACT: In this work we propose a Bayesian approach for growth curve fitting of weight and age data of cattle, using data for male Canchim cattle measured along 40 months. As in bayesian approach prior probability densities play an important role, and due to possible biological relationship between parameters, we compare the performance of four models: the Brody model, the Gompertz model, the Logistic model and the model of von Bertalanffy, using noninformative Jeffreys priors, with and without the assumption of independence between the model parameters, normal density with large variance and prior density flat (uniform improper prior). As the considered models are. non-linear, posterior parameter density cannot be identified among the traditional distributions, and the moments can be obtained only numerically. The Monte Carlo Markov Chain (MCMC) simulation technique was implemented for obtaining posterior densities. For the selection of the model which best explains the data, several bayesian criteria based on samples generated from posterior densities were used. Finally, predictive density was used for posterior analysis of the last five months of growth.*

- *KEYWORDS: Growth curves; Bayesian methods; Jeffreys priors; simulation MCMC; non linear regression model.*

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