

# Estimation of Growth Parameters of Indigenous Chicken Populations Intensively Reared in Kenya

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## Abstract

This study compared body weights of indigenous chicken (IC) ecotypes from 0 to 34 weeks of age and modeled the growth curves to estimate the associated parameters and their relationship using four growth models, namely: Von-Bertalanffy, Gompertz, Logistic, and Brody. A total of 17,748 age-weight data collected biweekly on 522 birds belonging to five ecotypes, namely, Bomet (BE), Bondo (OE), Kakamega (KE), Narok (NE) and West Pokot (WE) were evaluated. Over the growth period, OE was the heaviest from week 2. However, from week 12 onwards, there were no significant differences in body weight between the ecotypes. The fitted parameters for growth demonstrate ecotype differences ( $P < 0.05$ ) in the asymptotic weights ( $A$ ), maturity index ( $k$ ) and scaling parameters ( $b$ ) in all the models. However,  $A$  were not different ( $P > 0.05$ ) among BE, NE and WE. The correlations between  $A$  and  $k$  were negative for all ecotypes in all models, and ranged from -0.63 to -0.99. The age at constant degree of maturity in all the models differed ( $P < 0.05$ ) among the ecotypes. Estimates from the Brody model indicated that IC attained maturity when older. The study revealed differences in growth curve parameters and patterns among the ecotypes, which indicate genetic influences. Such differences among the ecotypes give the chance to choose the best parental lines for practical IC breeding and development of commercial stock through selection and/ or crossbreeding.

**Key words:** ecotypes, growth curves, indigenous chicken, Kenya.