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Evaluation of some Economics Traits in Eastern Sudan Cattle Ecotypes

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Abstract

Sufficient phenotypic variation in livestock populations is necessary for continual genetic improvement of economically important traits. The general aim of a livestock genetic improvement strategy is to produce a new generation of animals that better performs than the present generation. In eastern Sudan, cattle are mainly kept in a mixed crop-livestock production system and they play multifunctional roles in this system. A study was undertaken on (n = 1650) indigenous cattle ecotypes maintained under farmer management system in eastern Sudan. A total of 211 cattle households were randomly selected and interviewed with structured questionnaires to obtain information on some economically important traits (total milk production, age at first calving, lactation length, calving interval and longevity). Futher information was obtained to quantify differences among eastern Sudan cattle ecotypes (Butana, Erashy and El-gash) under their natural production environment based on phenotypic markers. Data were analysed using General Linear Model (GLM) procedures when the economically important studied traits were selected as response variables and cattle ecotypes as fixed factors (main effects) to determine if there are significant differences in the responses across levels (fixed effect). It was found that all the studied traits were statistically significant ($P \leq 0.05$) by cattle ecotypes. The overall means reported for total milk production (litters /season), age at first calving (months), lactation length (months), calving interval (months) and longevity (years) were 1343.7 ± 20.32, 48.2 ± 0.13, 6.7 ± 0.98, 17.8 ± 0.11 and 17.8 ± 0.36, respectively.

The differences between the studied economically important traits regarding indigenous cattle ecotypes are a key to improving cattle performance. By evaluating these traits, selection focus can be narrowed, resulting in faster genetic improvement. In the end, the goal of focusing selection on economically important traits as a tool is to increase probability that the breeders will make selection decisions on these traits that make the bred animals profitable.

Keywords: Cattle, economically important traits, evaluation, households, selection, Sudan

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