Evaluation of some Economics Traits in Eastern Sudan Cattle Ecotypes

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Introduction :

* Sufficient phenotypic variation in livestock populations is necessary for continual genetic improvement of economically important traits.
* InEastern Sudan, Butana, Erashy and El-gash cattle ecotypes are native dual purpose animals, well adapted to the local environments.
* Population size has been declined over the past years due to breed substitution and crossbreeding.
* Conservation and genetic improvement strategies are therefore, required to maintain these ecotypes.
* The aim of this study was evaluate some economically important traits that are characteristics for these ecotypes.

Materials and Methods

- A total of (211) cattle households were randomly selected and interviewed with structured questionnaire to obtain information on some economically important traits. A study wasundertaken on (n = 1650) indigenous cattle ecotypes maintained under farmer management system in Eastern Sudan.
- Data were analyzed 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 the levels of it (fixed effect).

Results:

Table1 Least squares (means ± S.E.) of productive economically important traits in Eastern Sudan cattle ecotype according to ecotypes:

Cattle ecotypes	N_1	N_2	Total milk production (Liters/season)	Lactation length (months)
Butana	96	825	1681.02 ± 37.37^{a}	6.64 ± 0.07^{b}
El-gash	59	575	1073.54 ± 20.19^{c}	6.67 ± 0.04^{b}
Erashy	56	250	1351.39 ± 41.67^{b}	6.89 ± 0.07^{a}
Overall	211	1650	1343.71±20.32	6.71±0.98
p-value			0.000	0.02
S. L			**	*

- *The differences between means of quantitative variable are marked by various letters (a, b and c) in the same column are significant (P ≤ 0.001 and P ≤ 0.05).*

Table2 Least squares (means ± S.E.) of reproductive economically important traits in Eastern Sudan cattle ecotype according to ecotypes:

Cattle ecotypes	N_1	N_2	Age at first calving (months)	Calving interval (months)	Longevity (herd life) (years)
Butana	96	825	47.54 ± 0.29^{b}	19.82 ± 0.11^{a}	18.70 ± 0.50^{a}
El-gash	59	575	49.94 ± 0.20^{a}	16.85 ± 0.18^{b}	19.35 ± 0.36^{a}
Erashy	56	250	50.29 ± 0.12^{a}	16.63 ± 0.22^{b}	14.75 ± 0.61^{b}
Overall	211	1650	49.22 ± 0.13	17.78 ± 0.11	17.77 ± 0.36
p-value			0.000	0.000	0.000
S. L			**	**	**

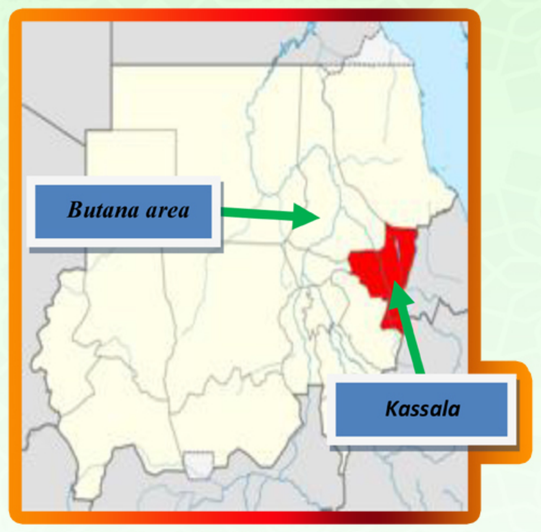

Figure1: Map of Republic of Sudan showing the study areas


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.Figure3: Typical adult female of El-gash cattle


.Figure4: Typical adult female of Erashy cattle

Conclusions:

- These indigenous cattle ecotypes may be taken into consideration for genetic improvement and conservationunder field conditions for betterment of the population.
- There were highly significantly phenotypically variations in productive and reproductive economically important traits of the studied indigenous cattle ecotypes.
- By evaluating the studied economically important traits, selection focus can be narrowed, resulting faster genetic improvement.
- Extensive work along with molecular techniques of these indigenous cattle ecotypes will be done as a future study.

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