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Management Strategies for Small Ruminants among Pastoralists in Semi-Arid Kenya: Do They Lead to Genetic Progress?

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Abstract

This study was carried out in Marsabit County of northern Kenya among the Rendille and Gabra communities, and aimed at characterising management strategies in order to optimise and expand community-based breeding programmes for small ruminants. Qualitative information on milking, watering and feeding strategies were categorised through identification of various themes each answering the specific research questions, and organised into coherent categories for inference. Quantitative data generated from the survey, which included livestock ownership patterns and flock sizes, were numerically coded for the purpose of computer entry and subjected to General Linear Model Procedure (PROC GLM) of SAS for statistical analyses. Further, attempts were made to predict genetic gain in traits perceived by the pastoralists to be important, namely, live weight (LW) and milk yield (MY) using selection index procedures. The results showed that the herders owned and kept small stocks in multispecies herds. However, the average flock sizes differed between the Rendille (sheep, 141; goats, 225) and the Gabra (sheep, 88; goats, 98). Additionally, herders had elaborate feeding and watering regimes that were essential in the management of the pastoral rangelands, especially during the present times of unprecedented climate variability. Genetic gains in LW and MY were higher in the sires to breed sires (SS) than in the dams to breed sires (DS) pathway. The projected population size (3000 does) in the nucleus would be attained in the 7th year after the start of the breeding programme. In conclusion, the herders' intricate knowledge on management of important genotypes was critical and should be incorporated with conventional approaches in planning and executing any community-based sheep and/ or goat genetic improvement initiatives.

Keywords: Breeding programmes, genetic gain, herders, traits