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Effect of community-based buck selection and utilisation on production performance of progeny under smallholder farmers’ management

RACHAEL SOKO KAUNDA¹, TIMOTHY GONDWE², LIVINESS BANDA³

¹*Lilongwe University of Agriculture and Natural Resources, Animal Science Department, Malawi*

²*Lilongwe University of Agriculture and Natural Resources, Animal Science Department,*

³*Lilongwe University of Agriculture and Natural Resources, Animal Science Department,*

Abstract

The aim of this study was to evaluate the effect of buck selection through community-based breeding programme (CBBP) on the performance of goat progenies. The study was conducted in Mzimba and Nsanje districts of Malawi. A total of 955 progenies (458 from Zombwe Extension Planning Area and 497 from Magoti EPA) from selected bucks were used to evaluate genetic improvements of selective breeding. A total of 105 farmers (65 farmers from Zombwe and 40 farmers from Magoti EPA) were interviewed to assess the adoption and impact of the breeding programme and utilisation of the selected bucks. General linear model procedures were employed to evaluate selective breeding progress based on body weight of progenies of base flocks and selected bucks. Results revealed that birth weight of progenies of selected bucks (2.53 ± 0.460 kg) were significantly ($p < 0.001$) heavier than base flock progenies (2.38 ± 0.453 kg). There was also a significant improvement in body weight in subsequent growth stages, at pre-weaning and weaning ($p < 0.001$). Means for pre-weaning weight for the progenies was (8.49 ± 1.836 kg) while for the base flock progenies was (6.93 ± 1.718 kg). Mean for weaning weights were as follows: (13.40 ± 1.891 kg) and (11.72 ± 2.494 kg) for progenies of selected bucks and progenies of the base flock respectively, from both EPAs. Significant variation across districts were observed. Differences in body weight of progenies across study districts were observed, whereby kids born from Magoti EPA had significantly higher weights than kids born in Zombwe EPA ($p < 0.001$). This could be as a result of a combination of genetic, environmental and management variations. Positive correlation coefficients between body weight and scrotal circumference across all growth stages and in both EPAs were recorded.

On the importance of CBBP, most farmers responded that the breeding programme is important as they have benefited in terms of improvement in body weight of the kids, sold their goats at higher prices from the extra cash from the sale of high value stocks, as well as the domestic consumption of goat meat. Results further showed that 57.5% and 41.5% of farmers from Magoti and Zombwe EPAs responded that CBBP is important.

Keywords: Livestock management, Malawi, small-scale farmers