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“Filling gaps and removing traps
for sustainable resource management”

Feed Resource Use Strategies and Performances of Small Ruminants in the Peri-Urban Area of Southern Benin

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Abstract

A study was carried out in the peri-urban areas of Cotonou in South Benin in order to identify the small ruminant production systems, to understand farmers' feed resource use strategies and assist them to increase their animal performances and farm profitability. A total of 125 small ruminant farms were surveyed, using a semi-structured questionnaire to collect information on the production system and feeding strategies. The two-step cluster procedure was used for classification of surveyed farms in homogenous groups. Cross tabulations with calculation of Chi² statistic were used to compare the groups according to key farm qualitative characteristics. Means were calculated for key quantitative variables and the non-parametric test of Kruskal-Wallis was used to assess significance of difference between groups. Subsequently 30 farms, representative of identified systems, were selected for in-depth study. Average daily gain (ADG), body condition scores (BCS), and body measurements including thoracic perimeters (TP) were recorded weekly on young animals during three months. Six small ruminant farm types were identified, as follows: Goat only (G, 46%), mixed goat-crop (GC, 30%), mixed sheep-goat-crop (SGC, 16%), sheep only (S, 15%), sheep-goat (SG, 11%) and mixed sheep-crop (SC, 7%). Free grazing was the main feeding strategy in all farm types. In addition, crop residues (cassava leaf), agro-industrial by-products (corn bran, soybean bran, cassava peels) and tree fodder (from oil palm tree, Moringa) were used for supplementing grazing with significant variations among farm types. ADG, BCS and TP values also varied ($p < 0.05$) over time and according to farm types. ADG was highest in CS farms 28.2 g day⁻¹ and lowest in G farms 13.3 g day⁻¹. There was a linear relationship ($p < 0.001$) between ADG and BCS ($R^2 = 0.72$) on the one hand, and between ADG and TP ($R^2 = 0.83$) on the other hand. On-going studies focus on identification of improved feeding and general management strategies for increasing animal productivities and welfare with low environmental impact.

Keywords: Feeding strategies, goat, sheep, urban farming, West-Africa