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Season effects on milk production and composition from White Fulani and Gudali zebu cows under grazing system in Benin

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Abstract

In sub-Saharan Africa, climate change affects pasture availability and forage nutritional value, negatively impacting milk production. White Fulani and Gudali cows are two breeds introduced in Benin to improve milk production. However, little information exists about the performance of these breeds, particularly during the dry season when forage is of poor quality. This study aims to compare feed intake and milk production by the two breeds grazing in the same grassland during the dry season to identify the breed more likely to sustain milk production in a changing climate. The study was conducted in the semi-arid area of Benin (Kétou region) during the early (S1) and late (S2) dry seasons. The hand-plucking method was used to estimate cows' feed intakes. Ten cows that gave birth at the beginning of the experiment were monitored, and the milk offtakes were quantified every two weeks. The chemical composition of the milk was analysed using a Milkotester (Milkotester Ltd. 49. Hristo Botev St., 4470 Belovo, BULGARIA). Feed intake was higher ($14.92 \text{ kg day}^{-1}$) in White Fulani than in Gudali ($13.23 \text{ kg day}^{-1}$). There was a significant difference ($p < 0.001$) in the amount of milk produced by the two breeds. At the beginning and the late dry season, Gudali cows produce more milk (1.72 L day^{-1}) than White Fulani (1.2 L day^{-1}). Milk from Gudali has more fat (5.57%) than White Fulani (5.10%). However, White Fulani had higher milk protein content (3.29%) than Gudali (3.11%). The study showed that the Gudali cows ingested less forage but had higher milk production. Further studies could investigate the effect of accurate supplementation in improving milk production and composition in the two breeds.

Keywords: Climate change, fat, milk offtakes, protein, sub-Saharan Africa