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The Effect of Forage Based Diets on Milk Composition, Lactation Stages and Growth Rate Kids from West African Dwarf (WAD) Goat in South West Nigeria

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Abstract

In Nigeria, there are three dominant breeds of goat in the hand of smallholder farmers. These are Sahel, red sokoto and West African dwarf (WAD) but the most common breed in southern part of Nigeria is WAD goat. The study, therefore, investigated effects of five different forages using *Panicum maximum* as control on milk composition, stages of lactation and growth rate of WAD goat kids. Twenty one (21) WAD does with their kids were randomly allotted to different forages in a complete randomised design. The forages were: *Albizia odoratissima*, *Gliricidia sepium*, *Leuceana leucocephalla*, *Spondias mombin*, *Ficus thonningii* and *Panicum maximum* as control. The forages were available all year round suggesting their utilisation as dry season feed for ruminants. All forages, except *P. maximum*, contained per kg of dry matter (DM): 14–24% crude protein (CP), 5–9% ash, and 45–60% neutral detergent fibre (NDF). Animals were supplemented with a compounded ration at 2% body weight.

The lactation length was 12 weeks (84 days) and the effect of diet on milk composition was significant ($p < 0.03$) with a CP content ranging from 3.5 to 4.2%, milk fat 3.5 to 4.2%, solid-not-fat 11.7 to 13.3%, and total ash 0.76–0.96%. The highest value for CP in milk was found for the treatment with *Albizia odoratissima*. Also, the contents of milk protein (3.00 to 3.80%), fat (3.47 to 3.88%) solid not fat (11.31 to 13.24%), lactose (4.20 to 4.53%) total ash (0.64 to 0.82%), and total solid (14.83 to 17.12%) varied significantly ($p < 0.05$) among the different stages of lactation. In contrast, the pH of milk (6.75 to 6.99) did not vary among the treatments.

The weaning weight of kids at twelve weeks of age was found to be significant ($p < 0.005$) different. This value ranged between 3.73 and 5.47 kg. The study revealed that the forage quality had an effect on milk composition which then influenced weaning weight of kids. It is therefore suggested that browse plants or concentrate supplementation should be encouraged for low quality pasture like Guinea grass.

Keywords: Forages, milk composition, WAD goat, weaning weight