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West African Dwarf Goat milk production and composition under semi intensive management in Cameroon during the dry season

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Key words: *Calliandra calothyrsus*, *Leucaena leucocephala*, milk production, West African Dwarf Goat

Introduction The production potential of the West African Dwarf Goat (WADG) in Cameroon in the Central African sub-region is very low because of lack of proper nutrition (Pamo et al., 2006). Grass and crop residues which form the basis of their diet particularly during the dry season have very low nitrogen and fibre content. Supplementation of these roughages is a promising way of alleviating nutrient deficiencies. Different types of supplementary feeding have been advocated to boost goat production (Leng, 2003) of which supplementing with leguminous tree leaves has high merit. The present study was undertaken to evaluate the effects of supplementary feeding of *C. calothyrsus* and *L. leucocephala* leaves on milk production and composition of WADG.

Material and method The study was conducted with WADG in the dry season (November 2001 to April 2002). The WADG grazed on mixed pasture comprised of *Brachiaria ruziziensis* and *Pennisetum purpureum* between 9 AM to 5 PM each day. After about a month, two bucks were introduced in the herd for two months and breeding allowed. The males were removed thereafter. 12 goats were subjected to supplementary feeding with *C. calothyrsus* and *L. leucocephala* leaves mixed in equal quantities by weight from three months prepartum up to three months postpartum. The mixture was left in the pens in the afternoon (4 PM) at the rate of 800 g per goat for eating at night. The remaining 12 goats served as unsupplemented controls. The following observations were made: (i) consumption of the supplement calculated from the residue every morning, (ii) milk production and composition were analysed every two weeks from kidding up to three months. The data were analysed statistically (Steel and Torrie, 1980), and the effects of supplementary feeding in milk production and composition were evaluated.

Results On average the goats consumed between 700 to 800 g of the foliage supplement per head per day during the entire study period. Data on daily milk production of goats at different stages of postpartum are given in Figure 1. The Peak milk production was observed in the second week of lactation in controls but the peak production occurred during the 3rd week in the groups receiving supplements (Figure 1). Supplemented goats significantly produced more milk ($P < 0.05$) than controls during the entire period of study. The average weekly milk production during the period of study in the supplemented goats was almost double that in controls (361 ± 11 vs. 183 ± 43 g). The supplementation has not significantly influenced DM, ash and lactose content of WADG milk. Protein content in supplemented WADG milk was significantly ($p < 0.05$) higher than in the control group. The lipids content in milk of the control group was significantly ($P < 0.05$) higher than that of the supplemented group. It appears that the supplementation with the leaves of *Leucaena leucocephala* and *Calliandra calothyrsus* has variable influence on milk composition of WADG during the dry season.

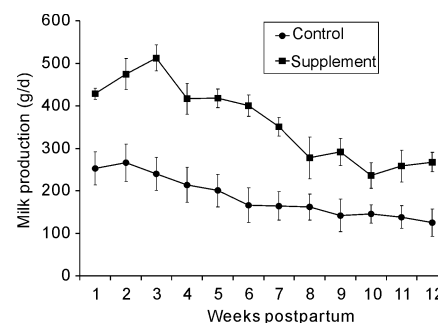


Figure 1 Weekly milk production of WADG.

Table 1 Average milk composition of WADG on different feeds regime.

Groups	Average milk composition (g/100g)					
	DM	Proteins	Lipids	Ash	P	Lactose
Control	14.67 ± 0.85	4.06 ± 0.29	3.83 ± 0.39*	0.81 ± 0.04	0.09 ± 0.007	6.18 ± 1.18
Supple-mented	14.21 ± 0.98	4.35 ± 0.34*	2.56 ± 0.27	0.80 ± 0.05	0.09 ± 0.003	6.48 ± 0.82

* : Means with superscript in the same column are significantly different ($P < 0.05$)

DM : Dry Matter ; P : Phosphorus

Conclusions Effect of supplementary feeding with *Leucaena leucocephala* and *Calliandra calothyrsus* on goat milk production and composition in Cameroon proved to be highly beneficial. It helps to substantially increase the overall yield of milk per animal and also increased the milk protein content of supplemented animals during the dry season.

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