

Hay intake in dual purpose cows supplemented with multinutritional blocks, during the transition dry-wet season

Ana María Herrera^{1†}, Robert Mora¹, Pablo Herrera², Nelson Martínez³, Omar Colmenares⁴ and Beatriz Birbe²

¹Universidad Nacional Experimental del Táchira. San Cristóbal, Venezuela; ²Universidad Nacional Experimental Simón Rodríguez. Valle de la Pascua, Venezuela; ³Universidad Central de Venezuela. Maracay, Venezuela; ⁴Universidad Rómulo Gallegos. San Juan de los Morros, Venezuela

Introduction

In hilly areas of the Central Plains the production systems for dual purpose meat and milk (cheese), are characterized by low production yields (Montilla and Colina, 1998), determined by the strong seasonality (Picolli, 1991), availability of dry matter and low nutritive value in this area (Fuentes *et al.*, 2002). These constraints expose a need to expand knowledge regarding the use of strategic supplementation, using non traditional local food resources in dual-purpose cattle grazing systems with low quality basal diet and their interaction with climatic factors such. One strategy of supplementation in cattle is the use of multinutritional blocks (MB), mainly of proteins and minerals, as a suitable alternative to offset food shortages. The present research work was carried out in order to evaluate the effect of supplementation with multinutritional blocks (MB) on hay intake in dual purpose cows.

Material and methods

The research was undertaken at the "Pozote" farm, located in the hilly area of the central plains of Venezuela, over a 60 day period during the transition dry-rainy season. A completely randomized design was used, with two treatments, using 20 crossbred cows (1st or 2nd calvers). The two treatments were: control group (CG) = 10 animals with *ad libitum* basal diet and Supplemented Group (SG) = 10 animals with diet basal *ad libitum* plus MB. The composition of MB was maize flour (15%), saman fruit (8%), cotton seed (6%), urea (10%), molasses (30%), mineral salt (15%), dismonium phosphate (4%), hay (2%) and lime (10%). For the basal diet these animals consumed milled hay of *Cynodon nlemfuensis* and crop residues of *Sorghum bicolor* in corrals, in the morning (5 hours/day), and the rest of the day were in paddocks with species including *Cynodon nlemfuensis*, *Panicum maximun*, *Andropogon gayanus*, *Brachiaria arrecta* and *Dichanthium aristatum*. For MB, hay and forage, values were determined for crude protein and ether extract (A.O.A.C., 1965), neutral detergent fiber (Goering and Van Soest, 1970), calcium (Fick *et al.*, 1979) and phosphorus (Harris and Popat, 1954).

Results

These are given in Table 1. Average intake of MB was 67.92 ± 21.41 g/100 kg live weigh. Highly significant differences were observed ($P < 0.01$) in hay intake (SG = 457.55 ± 216.45 and CG = 213.82 ± 81.12 g/100 kg live weigh) during the test, favorable to SG. Equally, the maximum MB intake coincided with the maximum hay intake in SG, of 93.75 y 726.14 g/100 kg live weigh respectively.

Table 1 Chemical composition of multinutritional block (MB), hay and forage offered in paddocks to dual purpose cows in central plains of Venezuela

	Ash	CP	EE	NDF	Ca	P
MB	34.28	29.59	2.11	16.94	9.94	2.52
Hay	12.46	5.24	1.03	66.89	0.39	0.07
Paddocks	9.65	6.27	3.37	74.28	0.23	0.21

CP: crude protein; EE: ether extract; NDF: neutral detergent fiber; Ca: calcium; P: phosphorus.

Conclusions

It is possible that supplementation with MB improved cow rumen environment, creating a better use of available fiber resources, evidenced in the increasing consumption of hay.

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[†] E-mail: anamariaherreraangulo@yahoo.com

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Effect of phenological stage on biomass production and chemical composition of *Brachiaria ruziziensis* for ruminant feeding

F. Tendonkeng^{1†}, B. Boukila², T. E. Pamo¹ and A. V. Mboko²

¹University of Dschang, FASA, Department of Animal Sciences, Laboratory of Animal Nutrition, PO Box: 222, Dschang, Cameroon; ²Institut National Supérieur d'Agronomie et de Biotechnologie (INSAB) Université des Sciences Techniques de Masuku. B.P. 941 Masuku, Gabon

Aim

The study of the effect of phenological stage (bolting, flowering and seed set) on biomass production and chemical composition of *Brachiaria ruziziensis* for ruminant feeding was conducted at the University of Dschang teaching and research farm in 2008.

Materials & Methods

A total of 24 plots of 8 m² (4 m × 2 m) of *Brachiaria ruziziensis* were used at each phenological stage (bolting, flowering and seed set). The evaluation of the plant biomass was done on each plot. A representative sample of 1 kg of plants, taken during the measurement of biomass was dried at 60°C to evaluate the chemical composition of the plant.

Results

The results of this study showed that the biomass of *Brachiaria ruziziensis* increased significantly ($P < 0.05$) with phenological stage. The phenological stage has variably affected the chemical composition of the *Brachiaria ruziziensis*. The dry matter and fibre content of *Brachiaria ruziziensis* increased at the phenological stage whilst the concentration of crude protein, digestibility of organic matter and metabolizable energy of *Brachiaria ruziziensis* decreased significantly ($P < 0.05$). However, the concentration of carbohydrates in the plant increased significantly ($P < 0.05$) with the phenological stage.

Conclusion

This study shows that harvesting/feeding at the flowering stage may be recommended for this forage crop because it combines both high biomass and forage with good nutritional value.

† E-mail: ftendonkeng@yahoo.fr