MILK PRODUCTION OF BUFFALOES ON CULTIVATED PASTURE OF FLOODABLE AREA WITH SUPPLEMENTARY PROTEIN AND ENERGY

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INTRODUCTION

Buffalo breeding in the Amazon region is generally based on pasture without any supplementation. Several studies have indicated that under such feeding conditions the genetic potential for milk production is not reached (1,2,3). Those studies showed that concentrate supplements containing wheat bran can increase milk production up to 11%. No attempts were made yet to determine the adequate levels of digestible protein and energy under these conditions. This study aimed to evaluate the effect of concentrates formulated with different levels of digestible protein and energy on the costs and production of milk from water buffalo cows grazing a cultivated lowland floodable pasture.

MATERIAL AND METHODS

The experiment was carried out in the Agroforestry Research Center for the Eastern Amazon (CPATU), in Belém, Pará, Brazil. The climate is an Afi (Köppen classification). Annual rainfall is about 2.870 mm, rainy season from December to May. The average temperature and humidity are 26 ^{o}C and 85% respectively (4). The soils of the experimental area belongs to Humic Gley and Organic types. The treatments were A: pasture + minerals; B: A + concentrate with 15% of digestible protein (DP) and 65% of total digestible nutrients (TDN); C: A + concentrate with 15% of DP and 76% of TDN; D: A + concentrate with 19% DP and 65% of TDN; and E: A + concentrate with 19% DP and 76% of TDN. The concentrates were formulated using a computer software and based on data of nutritive value and price of wheat bran, babassu oil meal, cottonseed meal and ground corn. The concentrates were fed in the ratio of 1 kg for 3 kg of milk produced per cow. Three pastures were formed with a mixture of the grasses *Echinochloa pyramidalis*, *E. polystachia* and *Brachiaria radicans*; and were grazed rotationally under a stocking rate of 0.8 animal units per hectare. Twenty five buffalo cows were used in the experiment, five for each treatment. The statistical design was a change over (5), using three Latin Squares of five cows, each submitted to all treatments (a block), in successive periods of twelve days (seven for adaptation and five for data collection).

RESULTS AND DISCUSSION

Daily milk production is presented in Table 1.

Index terms: Amazon, lowland pasture, *Echinochloa*, nutritive value

TABLE 1. Average daily milk production of buffalo cows fed with different concentrates (1)

Treatment	Daily Milk production (kg)	Difference in relation to treatment A (kg)
A	7.7 a	-
B	7.6 a	0.1
C	8.2 a	0.5
D	8.2 a	0.5
E	8.4 a	0.7

(1) Averages with same letter do not differ (P<0.05).

The maximum difference observed in relation to A is a superiority of 9% in milk production in favour of treatment E, although not significant. This value is similar to that found by other authors 8,5% (1) and 11% (2). Pasture alone gave high production, probably because the good quality of the available forrage (crude protein content of the grass leaves was always above 10%). It is possible that in non floodable pastures of lower quality, like Koronivia grass (*Brachiaria humidicola*) the differences could be greater. With respect to economical returns from the supplementation, the results for treatments B, C, D and E show negative values in relation to A, demonstrating that it is not profitable the supplementation of buffalo cows grazing lowland floodable pastures of *Echinochloa* sp. and *Brachiaria mutica*. In conclusion, no significant differences were found in milk production of buffalo cows grazing cultivated lowland floodable pastures and supplemented with different levels of concentrate. High protein content of the grass leaves and the forage availability of the pastures used probably reduced the effect of the supplementation. There was not any economic advantage from supplementing the cows, under the experimental conditions, within the ranges of digestible protein and total digestible nutrients studied.

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