LIVEWEIGHT GAIN OF BUFFALO STEERS IN A NATIVE AND CULTIVATED PASTURE INTEGRATED SYSTEM SUPPLEMENTED WITH UREA.

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INTRODUCTION

Upland and floodable lowland native pasture are important ecosystems for buffalo and cattle raising in the Amazon. The upland native pastures prodution and quality are very low, while the lowland floodable pastures present high forage availability and nutritive value during the dry period. The integrated use of native floodable lowland pasture during the dry period with cultivated pasture based on *Brachiaria humidicola* during the rainy period has shown good results for fattening buffalo steers in the "Baixo Amazonas" region (1). To obtain better results it was felt necessary to supplement the animals with mineral containing urea. Therefore, this paper presents the results of an experiment carried out to verify the effect of urea on the liveweight gain of buffaloes in an integrated system.

MATERIAL AND METHODS

The experiment was carried out at the "Baixo Amazonas" Research Field (2^0 23' S, 54^0 24' W), Monte Alegre, Pará, Brazil, Agrforestry Center for the Eastern Amazon (CPATU), during two experimental periods of one year each. The animals grazed the floodable lowland in an extensive grazing system with no control of stocking rate. The cultivated *Brachiaria humidicola* pasture was grazed in a continous system, stocking rate of 3 head/ha. The treatments were: A - Native pasture (NP) during the dry period (August-February) and cultivated pasture (CP) during the rainy period, plus minerals; B - A plus mineral + 30% urea ; C - A plus minerals + 60% urea; and D - NP all year long. The mineral mixture was composed by 80% bone meal, 20% salt, 120 g of copper sulphate and 40 g of cobalt sulphate. In each one of the two one-year experimental periods 32 buffalo steers ageing 11 month were used. The statistical design was completely randomized, with two replications and four animals/replication. Liveweight gain and forage availability were compared using the test of Tuckey. Forage samples were taken in the CP using 0,25 m^2 quadrats in five plots/paddock. Economical avaluation was made based in costs and production values.

RESULTS AND DISCUSSION

Table 1 shows the liveweight gains during the two experimental periods (88/89 and 89/90) in NP and CP.

Index terms: Amazon, floodable lowland, upland pasture, *Brachiaria humidicola*.

TABLE 1. Liveweight gain of buffalo steers in an integrated pasture system supplemented with minerals containing urea.

Pasture ecosystem	Experimental period	Level of urea 0	30	60	Native pasture
Floodable lowland (kg/head/day)	1	0.680a	0.757a	0.680a	0.696a
	2	0.908a	0.872a	0.830a	0.706b
Cultivated (kg/head/day)	1	0.536a	0.391a	0.432a	--
	2	0.538a	0.627a	0.621a	--
Cultivated (kg/ha)	1	309a	225a	249a	--
	2	273a	318a	315a	--
Whole period (Kg/head/day)	1	0.606a	0.568a	0.552a	0.113b
	2	0.744a	0.765a	0.742a	0.478b

Means with same letter do not differ ($P<0.05$)

The liveweight in NP was 0.703 e 0.829 kg/head/day, respectively for the first and second periods, during the dry period. During the rainy period the animals were taken to CP, where they had a daily liveweight gain of 0.453 and 0.595 kg/head. The urea levels did not affect liveweight gains. The animals kept in NP the whole year lost weight (-0.438 kg/head/day), due the flooding of Amazon river during the rainy season. In the whole period the integrated system used gave similar weight gains in both periods, and higher weight gains in relation to NP based system. Liveweight gains/ha in CP, with or without urea, in both periods, were similar (average of 281 kg). Forage availability was similar for all evaluations. It decreased with time but never reached values below 1,600 kg MS/ha. Urea intake in treatment C was twice greater than treatment B (23.0 vs. 11.5 g/head/day). These results are similar to those found in other studies (2), but lower than the necessary quantity for protein formation (86.6 g/head/day) (3). The lack of sulphur in the mixture may have affected the results. Table 2 shows the economical evaluation of the systems used, in both experimental periods. The integrated system was superior to native pasture alone in about 400%, during the first period. However, during the second period all treatments game similar results. Thus, it was concluded that urea had no significant effect on liveweight gain, probably due to its low consumption; liveweight gains in the integrated native floodable pasture/cultivated upland pasture system was superior to native pasture alone; in the integrated system it is possible to obtain animals weighing 450 kg at 23 months of age and the integrated system is more economical than the traditional one, mainly when severe flood occurs.

Table 2. Economical evaluation (US$ 1.00)

Income/Costs	Experimental period	Level of urea			Native pasture
		0%	30%	60%	
Grass income	1	151.96	142.54	138.51	28.24
	2	194.32	199.02	192.30	133.13
Total costs	1	70.77	71.10	72.27	13.57
	2	70.48	70.75	71.82	13.57
Net income	1	81.18	71.45	66.24	14.67
	2	123.84	128.27	120.48	119.56

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