

LIVEWEIGHT GAINS OF BUFFALOES IN CULTIVATED PASTURE IN MARAJÓ ISLAND

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INTRODUCTION

In Marajo Island, state of Pará, Brazil, is concentrated most of the regional buffalo herd, reaching about 500,000 heads, raised in extensively managed floodable native pastures of higher productivity and quality, and upland pastures of low quality forage. *Brachiaria humidicola*, a well adapted forage grass of good productivity and rusticity characteristics, has been used for establishing cultivated pastures in several upland areas of the Amazon region. Productive performance of buffaloes grazing *Brachiaria humidicola* established in upland native pasture of Marajo Island is not well known yet. This experiment aimed to evaluate the liveweight gain of Mediterranean buffaloes fattened in a cultivated *B. humidicola* pasture grazed under different stocking rates.

MATERIAL AND METHODS

The experiment was carried out in the Marajo Island Experimental Field, Salvaterra, Pará, Brazil, of the Agroforestry Research Center for the Eastern Amazon (CPATU), in three periods: dry (September to December), rainy (January to May), and intermediate (June to August) in two consecutive years. Twenty four Mediterranean buffalo males of one year of age were used in the trial. The animals were weighed at 56-day intervals. The pasture was divided into six paddocks, two for each treatment, according to the stocking rate: TL₁- 1.0 head/ha; TL₂- 1.5 head/ha and TL₃- 2.0 head/ha. The experimental design was complete random, with three treatments (TL₁, TL₂ and TL₃) and two replications, with four animals per paddock. The animals received mineral supplements and health care. Availability of the forage was estimated by sampling five 0.25 m² quadrats placed at random in the paddocks. Samples were taken for crude protein content determination. Liveweight gains were compared by the Tukey test (P<0.05). Costs and incomes were also evaluated.

RESULTS AND DISCUSSION

Animal performance is presented in Table 1. There was no effect of stocking rate on animal liveweight gain/day in any experimental period. In the rainy season the gains were higher due to a better forage availability of the pastures. Liveweight gains varied from 121 to 215 kg/ha/year, in the first year and from 161 to 271 kg/ha/year in the second year.

Index terms: Amazon, *Brachiaria humidicola*, stocking rate, meat production.

TABLE 1. Liveweight gain of buffaloes grazing *B. humidicola* under three stocking rates.

Liveweight gain	Experimental year	Stocking rate (head/ha)		
		1.0	1.5	2.0
<u>Whole period</u> (kg/head/day)	1	0.331a	0.382a	0.295a
	2	0.441a	0.379a	0.372a
<u>Dry period</u> (kg/head/day)	1	0.181a	0.226a	0.109a
	2	0.195a	0.279a	0.211a
<u>Rainy period</u> (kg/head/day)	1	0.470a	0.504a	0.450a
	2	0.609a	0.540a	0.450a
<u>Intermediate period</u> (kg/head/day)	1	0.446a	0.386a	0.420a
	2	0.430a	0.192b	0.428a
<u>Gain/ha/year</u> (kg)	1	120.71b	209.26a	215.34a
	2	160.82b	207.76ab	271.24a

Averages with same letter in same line do not differ ($P < 0.05$).

Forage availability was always above the minimum quantity necessary to avoid nutritional deficiencies (1,600 kg of dry matter/ha) (1). Crude protein (CP) contents were 5.5, 4.5 and 3.9%, respectively for TL₁, TL₂ and TL₃. At the end of the dry period these values decreased to 2.5, 3.1 and 3.1%, respectively in the same order. CP tended to be higher for TL₃, nevertheless, the general average for this period was 3.4% for all treatments. Leaves CP rarely were higher than 5.4%, affecting N balance in the rumen (2). During the first experimental period, the intake of mineral mixture was 16, 19 and 14 g/head/day, respectively for TL₁, TL₂ and TL₃. That low intake, which may have affected animal performance, was due probably to phosphorus source of the mineral mixture, dicalcium phosphate, not very well accepted by buffaloes. In the second experimental period, when bone meal was used as phosphorus source, the daily intake of the mineral mixture raised to 54, 72 and 82 g/head/day, respectively in the same order. A simple economical analysis presented a superiority of TL₃ over TL₁ and TL₂, for both experimental periods, as shown in Table 2.

TABLE 2. Gross and net income according to the stocking rate
(US\$ 1.00)

Income /Cost	Experimental period	Stocking rate (head/ha)		
		1.0	1.5	2.0
<u>Gross Income</u>	1	78.79	133.11	136.98
	2	102.30	132.16	172.54
<u>Total Costs</u>	1	8.48	13.34	16.41
	2	12.60	21.99	31.61
<u>Net Income</u>	1	68.31	119.78	120.58
	2	89.70	110.17	140.93

There was no effect of stocking rate on liveweight gain in any experimental period (seasonal or annual). The better stocking rate was 2.0 head/ha, considering liveweight gain per ha/year, forage availability and net income. *Brachiaria humidicola* based pastures can substitute the native pasture cover of Marajo Island once it allows obtaining 2.5 year-old animals with an average liveweight of 420 kg, against the regional average of 350 kg.

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