

PRODUCTIVE AND REPRODUCTIVE PERFORMANCE OF BUFFALO FEMALES IN  
AN INTEGRATED SYSTEM OF NATIVE AND CULTIVATED PASTURE

Lourenço Junior, J.B., Costa, N.A., Rodrigues Filho, J.A.,  
Camarão, A.P. & Marques, J.R.F.

Brazilian Agricultural Research Organization (EMBRAPA),  
Agroforestry Research Center for the Eastern Amazon (CPATU),  
Belém, Pará, Brazil.

#### INTRODUCTION

Floodable lowlands of the Amazon river shores are an important ecosystem for buffalo raising in the Amazon region, due the high quality and productivity of the pasture forage grasses. During the dry period (August to January) there is a high forage availability and the animals present good productive performance. During the flooding period (February to July), grazing becomes difficult, causing severe losses to the herds. *Brachiaria humidicola*, a grass species which has good characteristics of productivity, rusticity and adaptation to low fertility soils in upland areas, is an excellent alternative for pasture establishment in the Amazon region. The aim of this experiment was to compare the productive and economical performance of water buffalo cows in an integrated pasture system, involving floodable lowland native pasture and upland cultivated pasture, to buffalo cows raised in the traditional management system which uses floodable lowland native pasture year round.

#### MATERIAL AND METHODS

The trial was carried out in the "Baixo Amazonas" Research Field, Monte Alegre, Pará, Brazil (2° 23' S and 54° 24' W), which belongs to the Agroforestry Research Center for the Eastern Amazon (CPATU). The native pasture was grazed with no control of stocking rate. The cultivated *B. humidicola* pasture was used in a rotational system, 14 days for grazing and 42 days of rest, stocking rate of 3.0 head/ha. Mediterranean buffalo herds were used from 1987 to 1990 in two management systems: 1. Traditional (T<sub>1</sub>) - 30 females and a bull in native pasture during the year; and 2. Integrated (T<sub>2</sub>) - 30 females and a bull in native pasture during the dry period and in cultivated pasture during the raining period. The experimental design was completely randomized. Annual costs were also evaluated for both systems.

#### RESULTS AND DISCUSSION

Productive performance: Liveweight gains from 1987 to 1990 are presented in Table 1.

Index terms: Amazon, floodable lowland, *Brachiaria humidicola*, liveweight gain.

TABLE 1. Liveweight gains (kg) of buffaloes raised in two management systems (87/90).

Year	System	
	Traditional (T <sub>1</sub> )	Integrated (T <sub>2</sub> )
1987/88	0.426b	0.574a
1988/89	- 0.003b	0.130a
1989/90	--	0.224

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

At the end of the first experimental year the average liveweight daily gain/head was superior in the Integrated system (35%). These results are similar to found in other study (1), which shows the negative effect of flooding in the animal performance due unavailability of the forage to supply the herd nutritional needs. In the second experimental period females of T<sub>2</sub> had also a better performance in relation to T<sub>1</sub>. Females of T<sub>1</sub> in this period lost weight. During the third experimental period the average liveweight gain for T<sub>2</sub> was 0.224 kg/head/day. Reproductive performance: The reproductive parameters are presented in Table 2.

TABLE 2. Reproductive performance of buffaloes raised in two management systems.

Parameter	System	
	Traditional (T <sub>1</sub> )	Integrated (T <sub>2</sub> )
Birth rate (%)	78a	83a
Age at first calving (days)	1,074a	1,126a
Age at second calving (days)	1,451a	1,472a
Calving interval (days)	488a	476a
Weight at first calving (kg)	393b	502a
Weight at second calving (kg)	--	560
Weight at birth (first calving)	32a	33a
Weight at birth (second calving)	32a	33a

Averages with same letter in same line do not differ (P<0.05). Animals of both systems showed excellent productive and reproductive performance. During the flooding period, animals of the traditional system moved to areas artificially elevated, improving the performance. Economical costs: Annual costs for both systems are presented in Table 3.

TABLE 3. Annual cost of two buffalo management systems (US\$ 1.00).

Cost	System	
	Traditional (T <sub>1</sub> )	Integrated (T <sub>2</sub> )
Variable costs	367.63	787.66
Losses	1,519.67	153.98
Unvariable costs	309.19	527.79
Total	2,196.49	1,469.43

Total costs for T<sub>1</sub> was 49% greater than for T<sub>2</sub>, and showed that the integrated system is more viable, under the economical point of view. In both systems the buffaloes showed excellent productive performance. The use of integrated system, although similar to the traditional, is a satisfactory alternative for improving buffalo raising in grassland areas of the Low and Medium Amazon region. The establishment of cultivated pasture in native upland ecosystems for grazing during flooding periods of the Amazon river is a viable alternative to improve animal production of local farms. *Brachiaria humidicola* grazed under stocking rate 3 head/ha in rotational system, with 14 days of grazing and 42 days of rest contributes to improve animal performance in integrated systems.

#### REFERENCES

- (1) Costa, N.A., Lourenço Junior, J.B., Camarão, A.P., Marques, J.R.F. & Dutra, S. Produção de carne em sistema integrado de pastagem nativa de terra inundável e cultivada de terra firme. Belém: EMBRAPA-CPATU, 1987. 39p. (EMBRAPA-CPATU. Boletim de Pesquisa, 86).