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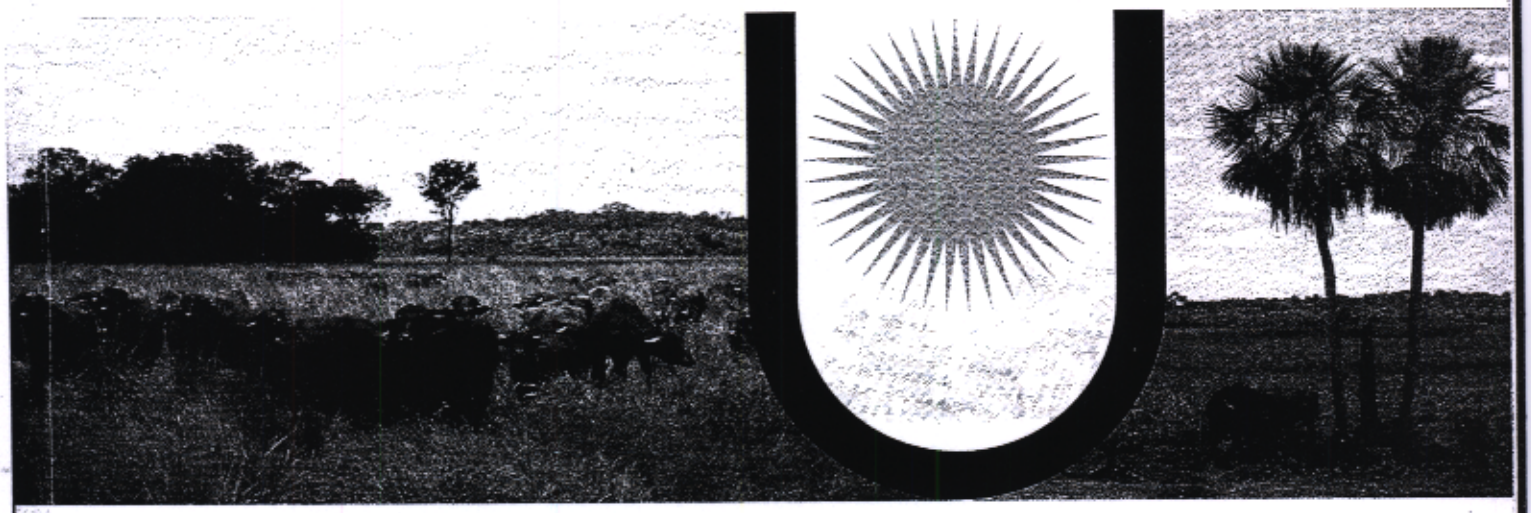

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Implementation of milk control and its influence on the behavior and productivity of Murrah buffaloes[1] *

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ABSTRACT

Buffalos have become an economically viable source of protein due to their adaptability, precocity and longevity. Knowledge about the behavior of this species contributes to its welfare and good performance in terms of productivity. In an attempt to promote advances, 24 Murrah buffaloes participating in an improvement program at Recôncavo of Bahia, Brazil, were monitored during the first three months of Milk Control (CL) for their behavior in the milking room, in the presence of st rangers. The behavioral variables monitored through direct observation were: permanence in the milking room (TPOR); milking time (TOR); rumination (Ru); defecation (Def); miction (Mic); reactivity (Reat); stress level (Nest). In addition, records were made of milk production on the date (PLO), milk production one week later (PLP) and class (CAT1 for first parturition and CAT2 for multiparous). The mean TPOR was 21, and the mean TOR was seven minutes. Only one defecated and three urinated during the first CL. Approximately 50% presented Reat mode equal to 1, 33% equal to 2 and only 17% equal to 3, with 80% in CAT1 and 58% in CAT2 showing little or no restlessness during milking. As for the modal Nest, only t wo CAT2 animals were rated as restless, 40% as slightly restless and 50% as quietly. The mean PLO was 7.54 kg, whereas the mean PLP was 10.06kg. The modal Nest and CAT were significant ($P<0.05$) over the mean PLO and PLP, and the females presenting Nest equal to 2 (slightly restless) produced 5kg more than those whose Nest values were 1 (restless). The modal Reat and the CAT were not significant over the same traits ($P>0.05$). The rank correlations between PLO and PLP were significant ($P<0.05$) and ranged between 0.44 and 0.91, suggesting that the presence of strangers during CL affected milk production.

Keywords: *Bubalus bubalis*, animal production, animal welfare, breeding program

1 *Embrapa MP2 Project number 02.07.07.009.00.03

INTRODUCTION

Buffalos have become an economically viable source of protein due to their adaptability, precocity and longevity. Human and dairy cattle interact on a daily basis in routine activities, which may have positive or negative effects on production and animal welfare[1]. Studies of animal behavior have aimed to describe how food traits and/or handling practices relate to behavioral aspects, linking behavioral changes as indicators of animal comfort with productive aspects[2]. The objective of this study was to assess the

behavior of buffaloes in the milking parlor under the influence of strangers' being present during the monthly Milk Control, throughout the first three lactation months, and verify how that affected the production of Murrah animals.

MATERIAL AND METHODS

Murrah buffaloes (N=24) participating in an improvement program at Recôncavo of Bahia, Brazil, were monitored during the first three months of Milk Control (CL) for their behavior in the milking parlor, in the presence of strangers.

Throughout the study, there was no change in the routine followed by animals. The milking parlor is comprised of two lines with eight animals in either side. After being milked, the animals are allowed to eat for approximately one hour the concentrated mixture of wheat flour and grains, combined to suit the lactation phase.

The behavioral variables monitored through direct observation were: permanence in the milking parlor (TPOR) – duration of the time the animal remained in the milking parlor, in minutes; milking time (TOR) – how long the animal was milked for, in minutes; rumination (Ru) – whether the animal ruminated in the milking parlor (equal to 1) or not (equal to 0); defecation (Def) - whether the animal defecated in the milking parlor (equal to 1) or not (equal to 0); miction (Mic) – whether the animal urinated in

the milking parlor (equal to 1) or not (equal to 0); reactivity (Reat) – animal limb movements in the milking parlor (1 = remained still; 2 = limbs raised up to 15cm above the ground; 3 = limbs raised more than 15cm above the ground); stress level (Nest) – equal to 1 for a restless animal, 2 for a slightly restless animal, and 3 for a calm animal). In addition, records were made of milk production on the date (PLO), milk production one week later (PLP), and class (CAT1 for first parturition and CAT2 for multiparous). Descriptive statistics for variables TPOR (in minutes), TOR (in minutes), PLO (in kg/day) and PLP (in kg/day) were calculated by the Statistical Analysis System software (SAS,

2002), as was the Spearman correlation between the production means when strangers were present in and absent from the parlor.

RESULTS AND DISCUSSION

The mean TPOR was 21, and the mean TOR was seven minutes. The mean PLO was 7.54 kg, whereas the mean PLP was 10.06kg. Only one animal defecated and three urinated during the first CL (Figure 1). Approximately 50% presented Reat mode equal to 1, 33% equal to 2 and only 17% equal to 3, with 80% in CAT1 and 58% in CAT2 showing little or no restlessness during milking. As for the modal Nest, only two CAT2 animals were rated as restless, 40% as slightly restless and 50% as quiet. According to a previous study[1], a high rumination rate, little reactivity during milking, reduced defecation and miction increase productivity and milk quality.

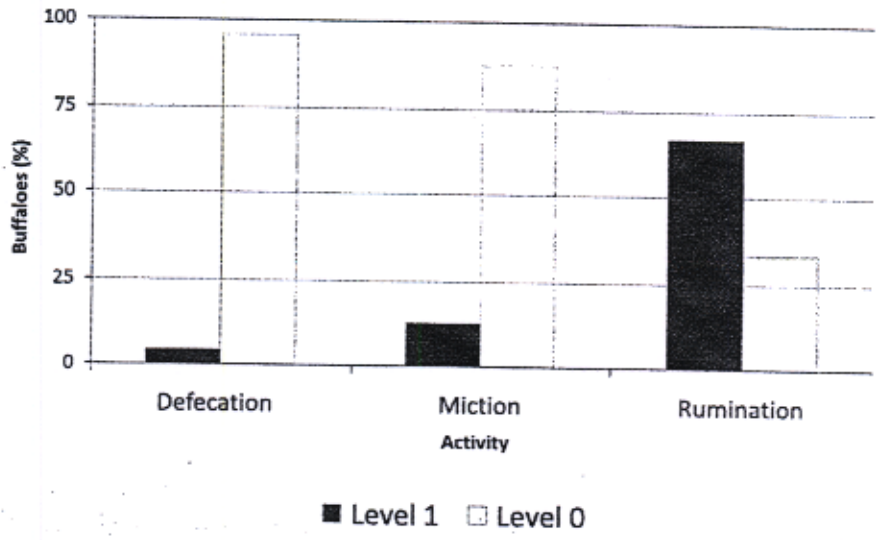

Figure 1. Percentage of buffaloes for each observation category (Level 1 = defecated, urinated or ruminated, and level 0 = did not defecate, did not urinate and did not ruminate).

The modal Nest and CAT were significant (P<0.05) over the mean PLO and PLP, and the females presenting Nest equal to 2 (slightly restless) produced 5kg more than those whose Nest values were 1 (restless). The modal Reat and the CAT were not significant over the same traits (P>0.05). The rank correlations between PLO and PLP were significant (P<0.05) and ranged between 0.44 and 0.94 (Table 1), suggesting that the presence of strangers during CL affected milk production. This finding is consistent with another study[3], with cattle, which showed that milk production decreased when animals presented high levels of stress. Studies of buffalo behavior are scarce, and it is hoped that our investigation can contribute to new research in the area.

Table 1. Rank correlation between milk production in Milking Control (days 1, 2 and 3 and mean, respectively – PLD1, PLD2, PLD3 and PLM) and when strangers were not present (days 1, 2 and 3 and mean, respectively –PLDP1, PLDP2, PLDP3 and PLPM

	PLD1	PLD2	PLD3	PLDP1	PLDP2	PLDP3	PLM	PLPM
PLD1	1.0	0.50	0.49	0.90	0.63	0.68	0.84	0.87
PLD2		1.0	0.49	0.65	0.52	0.68	0.73	0.72
PLD3			1.0	0.44	0.80	0.59	0.82	0.63
PLDP1				1.0	0.66	0.79	0.81	0.94
PLDP2					1.0	0.60	0.83	0.78
PLDP3						1.0	0.77	0.88
PLM							1.0	0.91
PLPM								1.0

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