



Forage production in the dairy buffalo region in Arari, Marajó Island ¹

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Abstract: The Marajó archipelago is known nationally for the exploitation of buffalo, evidenced by the large concentration of animals of this species, accounting for 38.19% of the existing buffalo in Brazil. The present study aimed to analyze the forage production in the region, the existence and the use of technologies in the area and to guide public policies intended to improve the production system. Questionnaires were applied to the main producers of buffalo milk in the Arari region, Marajó Island, Pará State. The questions were related to characterization of the buffalo herd, the limitations observed in dairy farming and the forage production. Feed is the main limitation to dairy farming, according to 77.5% of respondents, particularly during the off-season period (September-January), corresponding to the dry season. It was observed that 80% of farmers produce milk for a few months of the year. In addition, 65% of farmers said they do not grow forage species. Thereby, there is an urgent need to develop production systems adapted to the vegetation dynamics, considering the socioeconomic and climate conditions of the region.

Keywords: critical period, diagnostics, feeding, producers

A produção de forragem na região de bubalinos leiteiros do Arari, Ilha de Marajó

Abstract: O arquipélago do Marajó é conhecido nacionalmente pela exploração da bubalinocultura que é evidenciada pela grande concentração de animais dessa espécie, onde responde por 38,19% dos búfalos existentes no Brasil. Objetivou-se com a presente pesquisa diagnosticar o sistema de produção forrageira da região, a existência e o uso de tecnologias na área, bem como, direcionar as políticas públicas para a melhoria do sistema de produção. Foram aplicados 40 questionários nos principais produtores de leite de búfala na região do Arari, Ilha do Marajó, Pará. As perguntas foram direcionadas a caracterização do rebanho bubalino, sobre as limitações observadas na atividade leiteira e sobre a caracterização da produção forrageira. Observou-se que 77,5% dos entrevistados responderam que a alimentação é a principal limitação no desenvolvimento da atividade leiteira, principalmente durante o período de entre safra (setembro a janeiro) que corresponde ao período seco. Observou-se que 80% dos produtores produzem leite durante alguns meses do ano. Além disso, 65% dos produtores responderam que não cultivam espécies forrageiras. Portanto tem-se a necessidade e urgência de se desenvolver sistemas de produção adaptados à dinâmica da vegetação, as condições socioeconômicas e edafoclimáticas da região em estudo.

Palavras-chave: alimentação, diagnósticos, período crítico, produtores

Introduction

The Brazilian buffalo herd is estimated at 1.33 million head, concentrated in the Northern region, with 881,000 animals. This region is considered the largest producer in the country, especially the Pará State, which accounts for 61% of the national herd, and, 38.19% of this herd belongs to the Marajó archipelago, in the cities of Soure, Cachoeira do Arari, Ponta de Pedras, Muaná, Chaves, Salvaterra and Santa Cruz do Arari (IBGE, 2015).

The staple food for buffalo is grown in different pasture ecosystems: in the rainy period, native forage dominates floodable areas of the Marajó Island; in the dry period, upland forages are grown in areas that were originally forests, usually guinea grass (*Panicum maximum*), signal grass (*Brachiaria decumbens*) and kikuyu grass (*Brachiaria humidicola*) (Junior and Garcia, 2006).

Buffalo livestock in the region adds value to the economy of the Pará State and has potential for growth, mainly due to the market demand with respect to meat, milk and cheese of buffalo. Therefore, this study aimed to diagnose forage production in the Arari region, Marajó Island, and the existence and the use of technologies in the area.



Material e Methods

The diagnosis on forage production system encompassed small, medium and large farms during the dry period in the months of November and December, in the region of Arari/Marajó Island, located in the eastern side of the Pará state, between parallels 0° and 2° South latitude and meridians 48° and 51° longitude West of Greenwich. The study applied 40 questionnaires among buffalo milk producers in the municipalities of Cachoeira do Arari, Soure and Santa Cruz do Arari. Each questionnaire consisted of 14 questions that included information on characteristics of pasture production, native and cultivated species and possible limitations to milk production. Data were tabulated in Microsoft Excel® spreadsheets, exported to Statistica 12, and subjected to multivariate analysis. First, a Cluster Analysis was used to classify cases into relatively homogeneous groups called clusters, represented on a graph with a tree structure, called dendrogram.

Results and Discussion

The results showed that 67.50% of dairy farmers are in the municipality of Cachoeira do Arari, 17.50% in the municipality of Soure and 15% in Santa Cruz do Arari. It was observed that 40% of the producers have from 100 to 400 animals, especially Mediterranean crossbred buffalos (57.50%). Most properties (52.50%) have up to 100 hectares area, highlighting the predominance of small milk producers in the region.

Table 1 – Characteristics of the dairy buffalo region in Arari, Marajó Island

Item	Farms (n°)	Farms (%)
Production season milk		
<i>year-round</i>	8	20
<i>some months</i>	32	80
Cultivated species		
<i>Yes</i>	26	65
<i>No</i>	14	35
Limitation of dairy farming		
<i>feeding</i>	31	77,5
<i>genetics</i>	6	15
<i>other</i>	3	7,5
Improve pasture		
<i>nothing</i>	19	47
<i>irrigation</i>	2	5
<i>custom cultivate</i>	2	5
<i>pasture division</i>	15	38
<i>other</i>	2	5
Cultured species		
<i>Brachiaria humidicola</i>	24	70
<i>Brachiaria brizantha</i> cv. Marandu	3	12
<i>Pennisetum purpureum</i> cv. Napier	3	9
<i>other</i>	3	9
Native forage		
<i>Echinochloa polystachya</i>	16	34
<i>Leersia hexandra</i>	14	30
<i>Panicum laxum</i>	17	15
<i>other</i>	10	21
Silage production		
<i>Yes</i>	1	2,5
<i>No</i>	39	97,5

Ferrazza et al. (2015) emphasize the high heterogeneity in milk production, from non-specialized to more skilled producers. However, producers of the Arari region present technological limitations to the development of activity directly affecting milk production, whereas 80% of farmers are unable to produce buffalo milk during most of the year. This result is related to the lack of management practices to improve pasture areas in 47% of the properties. Most producers (65.0%) said they do not grow any type of forage species (Table 1).



Feeding the herd is one of the factors that directly influence the quantity and the quality of milk produced (Lima et al., 2010). Among the limiting factors to milk production, 77.5% of respondents affirmed that food availability is the main limitation to milk production, especially during the off-season period (September-January), which corresponds to the dry period. In the Arari region, most the existing properties are small and this can be observed in this study, where 92.50% of farmers responded that produce between 0-100 liters of milk a day and only 2.5% produce over 200 liters of milk.

Considering the Euclidean distance at 3.8, the dendrogram showed the formation of four groups. The first, the second and the fourth groups were formed by large milk producers, representing the largest height in relation to the axis y, as they accounted for 20% of respondents producing milk and pasture throughout the year, and among them, only 10% use supplementation and forage areas for animals. The third group consisted of small and medium milk producers, represented by 80% of farmers producing milk in part of the year. Of these, 63% produce milk for only 3 or 4 months. Among the factors associated with this low yield of milk, stands out the 15% farms (Table 1) whose pastures are predominantly composed of lax panicgrass (*Panicum laxum*), a native species with the lowest nutritional value among the species of the region.

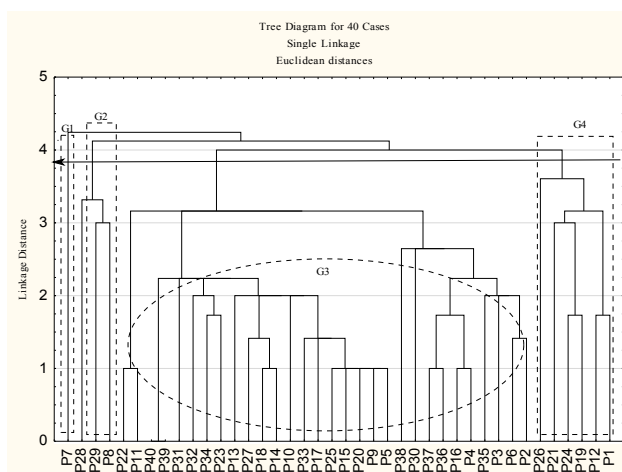


Figura 1. Multivariate analysis of interviews to milk producers in the Arari region.

Conclusions.

Buffalo milk production in the Arari region is negatively affected by the lack of appropriate management in farms. There is an urgent need to develop production systems adapted to the vegetation dynamics, considering the socioeconomic and climate conditions of the study region.

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References

- IBGE. Produção da Pecuária Municipal. Rio de Janeiro, v. 40, p.1-71, 2015
- FERRAZZA, R.A.; LOPES, M.A.; MORAES, F.; BRUHN, F.R.P. Índices de desempenho zootécnico e econômico de sistemas de produção de leite com diferentes níveis tecnológicos. **Seminário de Ciências Agrárias**, v. 36, n. 1, p. 485-496, 2015.
- LIMA, F.H.S.; GONZAGA NETO, S.; PIMENTA FILHO, E.C.; LEITE, S.V.F.; SOUZA, J.E.L.; LIMA, J.S.B.; ALBUQUERQUE, R.P.F. Efeito de níveis crescentes de inclusão da uréia e cana-de-açúcar na dieta de vacas primíparas das raças Guzerá e Sindi em lactação sobre a produção de leite. **Revista Científica de Produção Animal**, v.12, n.2, p.208-211, 2010.
- JÚNIOR, J.B.L.; GARCIA, A.R. Produção animal no bioma amazônico: atualidades e Perspectivas. **Anais de Simpósios da 43ª Reunião Anual da SBZ** – João Pessoa – PB, 2006.