Bulletin of Environment, Pharmacology and Life Sciences
Bull. Env. Pharmacol. Life Sci., Vol 7 [7] June 2018 : 37-41

Online ISSN 2277-1808
Journal's URL:http://www.bepls.com
CODEN: BEPLAD
Global Impact Factor 0.876
Universal Impact Factor 0.9804
NAAS Rating 4.95

ORIGINAL ARTICLE **OPEN ACCESS**

Sustainability of Buffalo Farming in Milk Shed Areas of Andhra Pradesh

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ABSTRACT
The study was carried out to assess the sustainability of buffalo farming in milk shed areas of Andhra Pradesh. A total of 144 respondents were selected through multi stage random sampling and data collected with structured interview schedule. Majority of respondents (67.36%) had high aspirations regarding buffalo farming in the study area. Majority of respondents in the study area had opinion that buffalo farming was a profitable business (67.36%) and rewarding job (75.69%). About one third of respondents (36.11%) interested to expand their herd size. Overall adoption of selected buffalo husbandry practices was 50.68 per cent. Only few constraints faced by the buffalo farmers. Substantial availability resources, veterinary services and market facilities in the study area indicated the scope for sustainability of buffalo farming in near future in the study area.
Key words: Sustainability, Aspiration, Adoption, Buffalo farming, Andhra Pradesh

Received 19.02.2018 Revised 18.04.2018 Accepted 20.05.2018

INTRODUCTION

The key drivers impacting the sustainability of dairy farms are feed and fodder development, breeding and health care management, impact of climate change, extension services and skill development and access to finance [8]. Understanding of buffalo husbandry practices followed by farmers in a region is primary to identify the strengths and weaknesses of the rearing systems and to formulate suitable intervention policies and these practices play a crucial role in the improvement of productivity of buffaloes and economy of milk producers in a particular area [7, 10, 15]. Further, the sustainability of buffalo rearing is dependent on the aspiration of the buffalo farmers [11].

Andhra Pradesh is in 5th in buffalo population (10.6 million) and 4th in buffalo milk production (7.4 MTs) in India [5]. Out of districts, Guntur and Prakasam districts ranks first and second in buffalo population and milk production, considered as milk shed areas of Andhra Pradesh [6]. According to the 19th livestock census there is a total of 10.6 million buffaloes in Andhra Pradesh which shows a decrease of 20 per cent compared to 18th livestock census. In this scenario sustainability of buffalo farming is questionable. This study was carried out to assess the adoption of selected buffalo husbandry practices, constraints faced in buffalo farming, aspirations of buffalo farmers and to understand the sustainability of buffalo farming in the study area.

MATERIALS AND METHODS

Multistage random sampling technique was used for respondent's selection. A total of 144 respondents were selected randomly from both districts and data were collected with structured interview schedule.

The extent of adoption of buffalo husbandry practices by the respondents was measured through direct interviewing the respondents in the study area. The responses were collected for each of the practice on three point continuum scale, representing "always adopted", "sometimes adopted" and "never adopted" and scores of 2, 1 and 0 were assigned for these responses respectively. The respondents were grouped into three categories as full adoption, partial adoption and non adoption based on their responses.

Aspirations of the buffalo farmers was studied through identified 10 aspiration statements which include five positive statements and five negative statements on buffalo farming [13]. The answers were elicited through personal interview and quantified by giving scores of 1 and 0for yes and no responses respectively. Based on the total scores, the respondents were categorized into high and low aspiration buffalo farmers.

RESULTS AND DISCUSSION

Sustainability of buffalo farming in this study was concluded through the socio economic situation of buffalo farmers, availability of resources and services, extent of adoption of selected buffalo husbandry practices, constraints faced by buffalo farmers and aspirations of buffalo farmers with reference to buffalo farming (depicted in fig.1).

I. Socio Economic Situation of Buffalo Farmers and Sustainability of Buffalo Farming

The socio-economic and psychological variables significantly, influence the sustainability of dairy farming [12].

1. Youth formed a notable share of the farmers in the study area (44%). Majority (69%) of these young buffalo farmers had high aspirations regarding buffalo farming. Young respondents with high aspirations to continue the farming is a sign of sustainability of buffalo farming in the coming years in these regions.
2. Majority (54%) of the buffalo farmers received more than 25 per cent of their family income from buffalo farming. The substantial contribution to the family income has direct relation on their livelihood. Further, the status of buffalo farming as a primary occupation for 44 per cent of respondents also points to continuing buffalo farming in the study area. The more dependency on dairy farming, the lesser the chance of discontinuance of dairy farming [17].
3. Though there was a recent reduction (20%) in the total buffalo population in Andhra Pradesh, the milk production has increased due to perceptible increase in graded Murrah milch buffalo population [6]. Further, high percentage (70%) of buffalo farmers rearing graded Murrah in both districts reflects the interest of farmers in increasing productivity from buffaloes, which also indicates they prefer higher yielding buffaloes which fetches better incomes to the family. Sirohi *et al*. [16] reported that rearing buffaloes were economically sustainable if their average daily milk production were more than 6 litres in Haryana. Baba *et al.* [3] suggested that to ascertain sustainability in livestock sector in Jammu and Kashmir, focused on suitable livestock mix and increasing animal productivity through scientific management.
4. From this study it is observed that there was a significant ($P \leq 0.05$) increase in the herd size from 4.89 in 2012 to 5.42 in 2017. The trend in the growth of herd size is the good indicative of sustainability of the buffalo farming.

II. Availability of Resources and Services and Sustainability of Buffalo Farming

a) Feed and Fodder Resources

There exist a strong bond between crop, water and milk production [16]. The existing barren, uncultivated, forest and pasture lands were used for grazing purpose in the study area. The availability of this area was about 19 per cent and 26 per cent in Guntur and Prakasam districts, respectively. The Government of Andhra Pradesh is also implementing fodder development schemes viz. OPGK (Oorura Pashu Graasa Kshetralu) scheme, fodder seed procurement and distribution scheme and distribution of power driven chaff cutter on 75 per cent subsidy. Paddy is the primary agriculture crop in both districts. Paddy straw is available for buffaloes throughout the year in these districts. Crop residues like rice bran, cotton seed, vegetable waste and cereal husks were used as feed for buffaloes. About 32 per cent of farmers were preparing their own ration with locally available feed ingredients. Animal Husbandry department also distributes the concentrate feed and mineral mixture at 50 per cent subsidy.

Guntur and Prakasam districts have (a)the most suitable environment (hot and humid climate) for the buffalo rearing, and (b) natural resource of water, such as good number of rivers, canals, local water bodies, ponds and lakes which supports wallowing behaviour of buffaloes. Majority (77%) of buffalo farmers allow buffaloes for wallowing in the study area. The above information reveals the availability of resources: especially, water, feed and fodder, which again strongly indicates the sustainability of buffalo farming in these regions.

b) Availability of Breeding and Veterinary Services

Extension services, which provide support for the dairy farmers geared towards improving management, feeding, fertility and veterinary care is crucial to sustainable small scale dairy farming [14].

Andhra Pradesh Livestock Development Agency (APLDA) is involved in breed up-gradation activities by providing doorstep artificial insemination service through Gopalamitras and also through involvement of NGOs (JK Trust Gram VikasYojana) under PPP mode in remote areas of the State. The State Animal

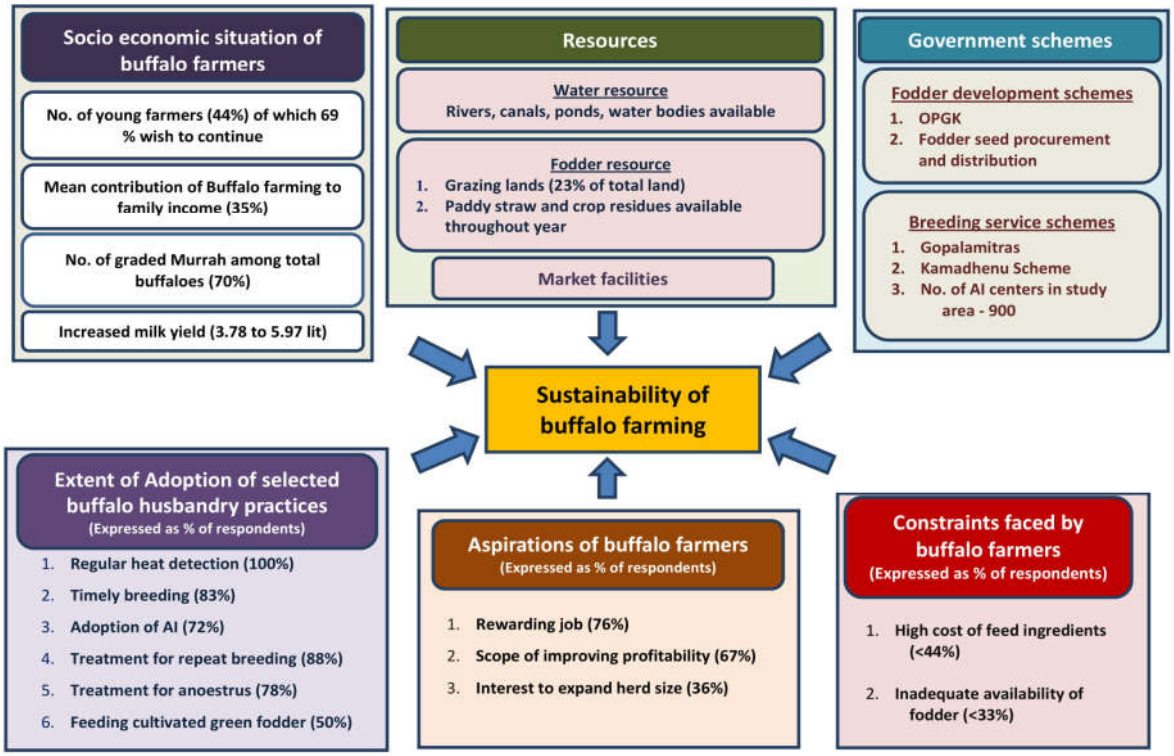
Husbandry Department is also implementing schemes to encourage dairy farmers' viz. Kamadhenu scheme, Sunandini scheme, Ksheerasaagar scheme Pashu KranthiPathakam, Pavalavaddi Pathakam. Private and Cooperative milk unions are also involved in providing veterinary and breeding services in the study area. Majority (73%) of buffalo farmers stated that they satisfied with what they got asmilk price in the study area. There are more number of institutions involved in dairy development activities in Guntur and Prakasam districts of Andhra Pradesh.

c) Marketing Facilities

Majority (60%) of buffalo farmers sold their milk at cooperative societies and 24 per cent at private dairies. This indicates study area had enough number of marketing facilities. The average milk price received Rs. 34.75. Majority (73%) of buffalo farmers satisfied with the milk price in the study area. Kalaivani and Bose [9] reported that dairy farming would be sustainable, if the global market opportunities/ contract system is available for dairy farmers to sell their milk in Theni district of Tamilnadu.

The sustainability of any farming mainly depends upon the availability of input resources and marketing facilities for the output produced. Both Guntur and Prakasam districts have substantial quantity of feed and fodder, breeding and veterinary services, natural resources like water, climate, grazing land and good network of marketing facilities for dairy products. Hence, it is understood that the sustainability of buffalo farming in this region is very bright.

Figure: 1. Sustainability of buffalo farming in the study area based on selected factors



III. Adoption of Selected Husbandry Practices and Sustainability of Buffalo Farming

The high adoption of selected buffalo husbandry practices indicated the availability of technologies / improved practices and the farmers ability to use these technologies. The availability and accessibility to veterinary and breeding services may have some influence on sustainability of buffalo farming. Arefaine and Kashwa [2] stated that proper recording of accurate heat detection, breeding strategies, individual buffalo milk yield and selection of animals based on pedigree information will bring sustainable improvement in efficient utilization of buffaloes in Egypt. The following six practices are selected for understanding the sustainability. Good management practices of a farming system constitutes the grassroots of the system's economic, environmental and social sustainability [4].

a) Regular Heat Detection and Timely Insemination of Animal

All the respondents adopted heat detection skills regularly in the herd. Majority (83%) of the buffalo farmers practiced right time of insemination (12-18 hours) in the study area.

b) Adoption of AI Practice

Majority (73%) of the buffalo farmers were practicing AI for buffaloes in the study area.

c) Treatment for Repeat Breeding and Anoestrus

Usually reproductive disorders like repeat breeding and anoestrus in buffaloes make the farmers to lose interest in buffalo farming. Treatment for repeat breeding and anoestrus was adopted by majority (88% and 78%) of the respondents.

This shows the availability of veterinary and breeding services in the study area. The high adoption of these practices may have considerable influence on sustainability of buffalo farming in the area.

d) Cultivation of Green Fodder

Because of the government schemes about 24 per cent of respondents were cultivating the improved fodder varieties and in addition, 26 per cent of respondents had accessibility to purchase fodder in the study area. From these findings one could understand that with the government promotionthe availability of feed and fodder in these regions has been increased substantially.

IV. Constraints and Sustainability of Buffalo Farming

High cost of feed ingredients was the major problem faced by buffalo farmers (44%) in both the districts. However, the locally available crop residues viz. paddy straw, ground nut hay, cotton seed, sugar cane tops, vegetable waste, coconut cake oilcake and rice bran etc. may help the farmers to continue buffalo farming.

Further, realizing the importance of green fodder in buffalo farming the State Government implemented OPGK scheme, which encourage cultivation and distributionof fodder to the buffalo farmers who is interested to practice it. As mentioned earlier, the study revealed that about 50 per cent of farmers had accessibility to either cultivation or purchase of green fodder for buffaloes.

All other constraints expressed by the respondents were less significant in nature because the number of respondents felt as constraints were less than the one fourth of the respondents selected for this study.

V. Aspirations of Buffalo Farmers and Sustainability of Buffalo Farming

Majority (67%) of buffalo farmers had high aspirations regarding buffalo farming in the study area. Majority (76%) of respondents in the study area opinion that buffalo farming was a rewarding job. (67%) and rewarding job (76%). About one third of respondents interested to expand the herd size. None of the buffalo farmers in the study area felt that buffalo rearing was low status profession in society. These results are also similar to the findings of Ramkumar [15] who found that majority of dairy farmers wanted to expand their herd size and would like to become ideal dairy farmers.

CONCLUSIONS

Buffalo farming is an occupation of young with no formal education and small land holders belonging to the all communities. It contributes one third of family income. In the last five years (2012 to 2017) graded Murrah buffalo population increased from 46 per cent to 66 per cent and non descript buffaloes decreased from 53 per cent to 30 per cent. This indicates that respondent's preference to high yielding buffaloes in the study area. Higher level of aspiration, substantially full adoption of practices, resource availability, market facilities and existing government policies were favourable for sustainability of buffalo farming in the study area.

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CITATION OF THE ARTICLE

D.V. Sivaji, K. Natchimuthu, S. Ramkumar.Sustainability of Buffalo Farming in Milk Shed Areas of Andhra Pradesh. Bull. Env. Pharmacol. Life Sci., Vol 7 [7] June 2018 : 37-41