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ORIGINAL ARTICLE

A Study on Adoption of Buffalo Husbandry Practices in Guntur and Prakasam Districts of Andhra Pradesh

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ABSTRACT
The presented study was conducted in Gunturand Prakasam districts of AndhraPradeshthrough 144 buffalo farmers to assess the adoption level of selected buffalo husbandry practices viz. breeding, feeding, health care and general management practices. Out of seven selected breeding practices, cent per cent of buffalo farmers adopted the detection of heat signs and 83 per cent practiced the service within 5 months of calving. Feeding of green fodder (87%) and colostrum feeding to calves within one hour after calving (79%) were the most adopted feeding practices in the study area. FMD vaccination (59%) and burial of placenta (55%) got highest adoption index. Out of five selected general management practices, washing of udder before milking ranked first followed by regular shed cleaning (70%). The overall adoption index of selected buffalo husbandry practices was 50.68. Higher adoption was observed in breeding practices (68%) and lower level of adoption was noticed in health care practices (47%).
KEY WORDS: *Adoption, Buffalo farming, Andhra Pradesh, AI, FMD*

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INTRODUCTION:

Buffalo is the largest capital asset as well as the friend of small farmers which is the back bone of rural economy in many parts of India. Among the states, Andhra Pradesh ranks 5thin buffalo and 4th in buffalo milk production [5]. About 72 per cent of milk produced in the State comes from buffaloes. According to 19th livestock census there is a total of 10.62 million buffaloes in Andhra Pradesh which shows a decrease of 20 per cent compared to 18th livestock census, though there is reduction in the total buffalo population, the production and availability of nutritious food and supplemental income to farmers has increased due to perceptible increase in Graded Murrah Buffaloes population especially milch animals. Out of 13 districts of Andhra Pradesh, Guntur and Prakasam district stands first and second in buffalo population and buffalo milk production. It is now considered as one of the best areas for buffalo rearing in Andhra Pradesh [4]. 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 [6]. Breeding, feeding and general management practices play a crucial role in the improvement of productivity of buffaloes and economy of milk producers in a particular area [9]. Keeping all these in view, a study was conducted to know the extent of adoption of selected practices of buffalo husbandry in the study.

MATERIALS AND METHODS

The sampling design followed for this study was multi stage random sampling. Guntur and Prakasam districts selected for this study. From each selected district, all the three Animal Husbandry Divisions were selected for the study. From each Animal Husbandry Division, two Mandals were selected randomly. From each selected Mandal, two villages were selected randomly forming a total of 24 villages. From each selected village, 6 buffalo farmers were selected randomly forming a total of 144 respondents.

The extent of adoption of buffalo husbandry practices by the respondents was measured by using modified adoption index developed by Karthikeyan [8] for this study. 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 sum of scores for each practice given by all respondents was obtained to get the total adoption score.

$$\text{Adoption Index (AI)} = \frac{\text{Total Adoption Score obtained (TAS)}}{\text{Total maximum Score}} \times 100$$

Based on the adoption index (AI), the respondents for each practice were grouped into three categories as full adopters, partial adopters and non adopters.

RESULTS AND DISCUSSIONS

Breeding practices:

Out of seven selected breeding practices, detection of heat signs in herd was ranked first with adoption index of 96 per cent in the present study. Major heat signs observed in the herd were mucus discharges (86%) and bellowing (74%). This indicates the skill of buffalo farmers leading to detection of heat signs in the study area. Similar results were observed in Andhra Pradesh [11] and in Uttar Pradesh [12]. Followed to that majority(84%) of buffalo farmers adopted service within 5 months of calving. This practice might be due to the easy availability of breeding facility (AI / Natural service) in the study area and this also indicates the farmers' concern over economic way of managing farm. The treatment for repeat breeding and anoestrus in buffaloes were ranked as third with adoption index of 71 per cent. Similar results were observed by Rangamma *et al.* [11] in Andhra Pradesh, found that majority (60%) of buffalo farmers adopted treatment of anoestrous/ repeaters in buffaloes, and similar results were observed by Divekar *et al.,*[2] in Gujarat, Islam *et al.*[7] in Assam. The adoption index of Artificial insemination and right time of breeding was 59 and 73 per cent which might be due to the intensive involvement of Andhra Pradesh Livestock Development Agency (APLDA) with breed up-gradation activities by providing doorstep artificial insemination service through gopalamitras and also through involvement of NGOs (JK Trust Gram Vikas Yojana) under PPP mode in remote areas of the State. Pregnancy diagnosis after 3 months of breeding was adopted by 49 per centof buffalo farmers, which is not in line with the reports of Sachan *et al.* [12] who reported that majority of the buffalo farmers adopted the AI(98%) and pregnancy diagnosis (69%) in Uttar Pradesh. Keeping records for breeding activities was least adopted in the study area with 29 per cent. The results were correlates with the findings of Islam *et al.* [7] and not in line with Gami *et al.* [3] who found that 51 per cent of buffalo farmers maintained the records of buffalo farming in Banaskantha district of North Gujarat.

Feeding practices:

Green fodder feeding was adopted by 87 per cent of buffalo farmers and stands in rank of first. Fodder schemes like Oorura Pashu Grasa Kshetralu (OPGK) implemented by Andhra Pradesh government plays a key rolein this adoption. Next to that 79 per cent of buffalo farmers adopted the colostrum feeding to calves within an hour of calving. The reason for high adoption might be for letdown of milk immediately after calving. Results are in line with the Divekar *et al.* [2] who reported that 86 per cent of dairy farmers offering green fodder and 77 per cent were adopted colostrum feeding with an hour in Gujarat. About half of the buffalo farmers adopted the concentrate feeding during last trimester of pregnancy (53%) and concentrate feeding on basis of milk production (47%) was ranked third and fourth. The major reasons for non adoption of concentrate feeding was "No need of concentrate feeding for non-descript buffaloes" and "High cost of concentrate mixture". Results are higher than the findings of Kishore *et al.* (2013) who reported that very few (3.5% and 12%) of buffalo farmers practising extra concentrate feeding and feeding of balanced ration in Khammam district of Andhra Pradesh. Feeding of mineral mixture, incorporation of common salt and concentrate feeding to calves was adopted only 26, 23 and 16 per cent respectively. The reason for low adoption of these practices is purely due to of lack of awareness in the study area. Results are not in line with the findings of Islam *et al.* [7] who reported that majority (66% and 53%) of the dairy farmers adopted the incorporation of mineral mixture and common salt in their ration.

Health care practices:

Vaccination against the FMD and HS disease were ranked first and fourth with adoption index of 60 and 34 per cent. The reasons cited by farmers for non adoption of vaccination against FMD and HS were till now no outbreak and milk yield decreases and incidence of fever and swelling of injected area. Rangamma *et al.* [11] observed that most (98%) of the buffalo farmers adopted the vaccination against FMD and HS in Andhra Pradesh. Nearly 55 per cent of buffalo farmers adopted the burial of placenta and one third (35%) of buffalo farmers adopted isolation of sick animal. Both deworming of buffaloes and control of ectoparasites were ranked 5th with adoption index of 28 per cent. It was observed that deworming practice was not a preventive measure and whenever there is a severe health problem occurs.

None of buffalo farmers adopted the tincture iodine application to the naval cord in the study area. The lack of awareness is the major reason for non adoption of majority of health care practices. These findings are similar to the findings of Kumar *et al.* [10] in Punjab but lesser than the findings of Divekar *et al.* [2] in Gujarat.

General management practices:

Out of 5 practices, cent per cent of buffalo farmers practiced the washing of udder before milking which was ranked first followed by 70 per cent of buffalo farmers adopted regular cleaning of shed. These results are in consonance with the findings of Singh *et al.* [13] who reported that most (94% and 86%) of dairy farmers adopted the washing of udder before milking and cleaning of shed daily in Jharkhand. Wallowing and full hand milking ranked as third and fourth in adoption with index of 59 and 43 per cent respectively. Majority of the farmers were practising knuckling method in the study area, because it is a traditional and they feel that easy method of milking. None of the farmers adopted the teat dipping practice in the study area, this might be due to lack of awareness about this practice. Swathi [14] reported that majority (88%) of respondents adopted buffalo wallowing, very few (13%) adopted full hand method of milking and none of the respondents adopted teat dipping practice in Cuddapah district of Andhra Pradesh.

Overall adoption of selected buffalo husbandry practices:

The overall adoption index of selected buffalo husbandry practices was 50.68. Majority (68%) of farmers in the study area adopted breeding practices followed by general management practices (54%) (fig.1). Feeding and health care practices were adopted by 47 and 34 per cent respectively. These results are in line with the findings of Sachan *et al.*[12] who reported that overall adoption of recommended buffalo husbandry practices was 52 per cent among which it was highest for breeding practices and lowest for health care practices in Uttar Pradesh. But the finding is not in agreement with the findings of Islam *et al* .[7] who reported that most (86%) of the dairy farmers adopted improved health care practices to a great extent and overall adoption of adoption of improved dairy husbandry practices was 65 per cent in Assam.

Table: 1. Adoption of selected buffalo husbandry breeding practices

Sl. No	Practices	Always	Sometimes	Never	Total adoption score	Adoption index	Rank
		2	1	0			
Breeding practices							
1	Observation of heat signs in herd	133	11	0	277	96.18	1
2	Artificial insemination	77	26	41	170	59.03	5
3	Right time of breeding	92	27	25	211	73.26	3
4	Service within 5 months of calving	111	19	14	241	83.68	2
5	Pregnancy diagnosis after 3months of breeding	50	42	52	142	49.31	6
6	Treatment for repeat breeding and anoestrus	85	35	24	205	71.18	4
7	Keeping breeding records	36	12	96	84	29.17	7
Feeding practices							
1	Feeding of green fodder	106	38	0	250	86.81	1
2	Feeding of colostrum to calves within an hour	103	21	20	227	78.82	2
3	Feeding of concentrate during last trimester of pregnancy	55	44	45	154	53.47	3
4	Feeding of concentrate on the basis of milk production	59	17	68	135	46.87	4
5	Feeding of mineral mixture	26	23	95	75	26.04	5
6	Incorporation of common salt in ration	17	33	94	67	23.26	6
7	Feeding of concentrate to calves	14	19	111	47	16.32	7
Health care practices							
1	FMD vaccination	79	14	51	172	59.72	1
2	HS vaccination	39	21	84	99	34.37	4

3	Burial of placenta	37	83	24	157	54.51	2
4	Isolation of sick animal	27	49	68	103	35.76	3
5	Deworming of buffaloes	23	34	87	80	27.78	5
6	Application of tincture iodine to naval cord	0	4	140	4	00.01	6
General management practices							
1	Cleaning of shed regularly	81	39	24	201	69.79	2
2	Washing of udder before milking	143	1	0	287	99.65	1
3	Full hand milking	46	33	65	125	43.40	4
4	Teat dipping	0	0	144	0	00.00	5
5	Wallowing	60	51	33	171	59.37	3

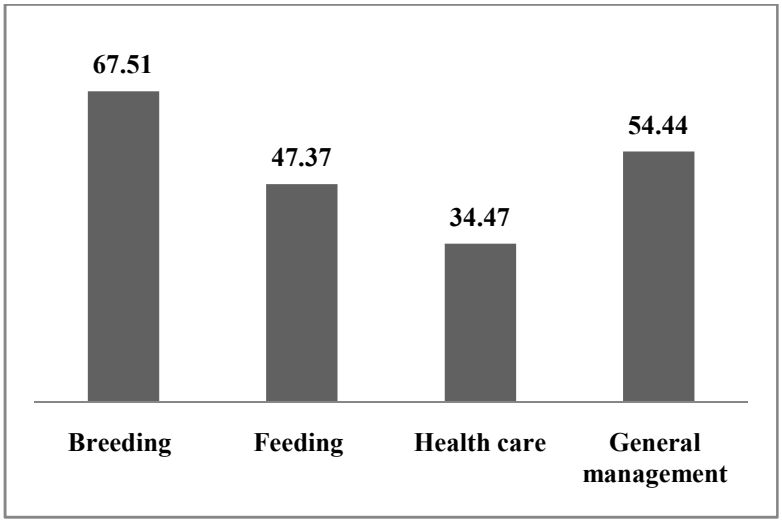

Figure:1. Overall adoption of selected buffalo husbandry practices

CONCLUSIONS

The study concludes that higher adoption in breeding practices and lesser adoption in health care practices. However, overall adoption of selected buffalo husbandry practices by only half of the respondents in the study area. This can be resolved by training of selected respondents on selected practices will improve the adoption rate.

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