Buffalo Keepers' Adoption about Improved Buffalo Production Practices

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ABSTRACT

India possesses about 56.8 per cent (97.10 million) of the world's buffalo population and is also a homeland for the best milk breed of buffaloes in the world. Buffaloes are considered more useful not only for quality butter and ghee but also for reasons such as higher fat component in milk, ability to utilize agriculture by-produce and require less amount of kilocalories to produce one kilogram milk. The study was conducted in flood prone eastern plain zone of Rajasthan. A sample of 270 buffalo keepers constituted small, medium and large herd owners based on certain number of buffaloes they possessed. Results indicated that more than half of the respondents possessed medium level of adoption. They had higher adoption about clean milk production followed by management, feeding, breeds and breeding practices. There also existed a significant difference with regard to adoption levels of small, medium and large herd owners.

Key words : *Adoption; Buffalo production; Feeding; Breeding; Management.*

In India, about 70 per cent of the population is engaged in agriculture and rearing livestock, subsidiary to agriculture. There exists a symbiotic relationship in man-land livestock ecosystem. Livestock comprising mainly cattle and buffaloes has a complementary, supplementary and sustainable relationship with crops und mixed farming system prevalent in our country. Majority of families engaged in agriculture get employment only during the time of ploughing, sowing, harvesting, threshing etc. under such conditions it is customary to rear livestock as a source of some extra income. India holds fourth rank in the world in livestock population. The total population of livestock in the year (2003) was 497.3 million in India (Anonymous, 2003-04). The annual milk production of India was approximately 88.10 million tones in 2003-04, which is nearly 14.5 per cent of the world's milk production. Rajasthan contributes with an annual milk production of 8.70 million tonnes, which is approximately 10 per cent of the country and total milk production.

India also possesses about 56.8 per cent (97.10 million) of the world's buffalo population and is also a homeland for the best milk breed of buffaloes in the world. Buffaloes are considered more useful not only for quality butter and ghee but also for reasons such as higher fat component in milk, ability to utilize agriculture by-produce and require less amount of kilocalories to produce one kilogram milk. Although the economic contribution of livestock seems to be quite substantial in the agricultural economy as well as in the national economy, the farmers who raise buffaloes are yet ignorant of scientific management practices. If, feeding, breeding and other management practices fit in the proper operation, it would be possible to reach the desired level of milk production. Considering the vitality of above stated facts, the present study was carried out with specific object as :

To determine the extent of adoption of buffalo keepers about improved buffalo production practices.

MATHODOLOGY

The study was conducted in flood prone eastern plain zone of Rajasthan (Zone-III-b), India. The districts falling under this zone are Alwar, Bharatpur, Dholpur, Karoli and Sawai-Madhopur (only three tehsils), out of these only Alwar and Bharatpur districts were selected purposely, because these districts had highest number of buffaloes as well as maximum milk production. Three panchayat samities, having maximum number of buffalo population were selected form each district and three villages from each of the selected panchayat samiti were selected randomly. Hence, eighteen villages in all were taken up for study from six selected panchayat samities of Alwar and Bharatpur districts, on the basis of number of buffaloes possessed by them. The respondents from each selected village were divided into three categories of small, medium and large herd owners, respectively. Respondents possessing 1-3 buffaloes were termed as small herd owners, those possessing 4-6 buffaloes, as medium herd owners and all those possessing for management practices. The

whole weight of 66 of which 15, 20 and 31 scores were assigned for these aspects, respectively

RESULTS AND DISCUSSION

Adoption level of different categories of buffalo keepers about the improved buffalo production practices **:** It is obvious from the data in table 1 about adoption level of small buffalo keepers that 51.11 per cent of buffalo keepers possessed medium adoption level about improved buffalo production practices. About 33.33 per cent respondents had low adoption whereas, only 18.56 per cent buffalo keepers had high adoption about improved buffalo production practices.

Further, in case of medium buffalo keepers it was revealed that 58.89 per cent buffalo keepers had medium adoption, about 22.22 per cent respondents had low adoption and only 18.89 per cent buffalo keepers had high adoption about improved production practices. With regard to large buffalo keepers it was revealed that 60.00 per cent of respondents had medium adoption, about 23.33 per cent of respondents had high adoption and only 16.67 per cent of buffalo keepers had low adoption about improved buffalo production practices.

Similar findings have been reported by Sharma (1990) who concluded that the majority of respondents were in medium adoption group with regard to livestock rearing practices.

Table 1. Distribution of respondents according to their adoption level about improved buffalo production practices N=270

S.No.	Adoption level categories	f	%
A	*Adoption level of small buffalo keepers*		
1.	Low Adoption level (<21.84)	30	33.33
2.	Medium Adoption level (21.84 to 27.10)	46	51.11
3.	High Adoption level (>27.10)	14	15.56
	Overall	90	100.00
	σ 2.63		
	$\overline{X}$ 24.47		
B.	*Adoption level of medium buffalo keepers*		
1.	Low Adoption level (<25.92)	20	22.22
2.	Medium Adoption level (25.92. to 34.80)	53	58.89
3.	High Adoption level (>34.80)	17	18.89
	Overall	90	100.00
	σ 4.44		
	$\overline{X}$ 30.36		
C	*Adoption level of large buffalo keepers*		
1.	Low Adoption level (<31.72)	15	16.67
2.	Medium Adoption level (31.72 to 41.90)	54	60.00
3.	High Adoption level (>41.90)	21	23.33
	Overall	90	100.00
	σ 5.09		
	$\overline{X}$ 36.81		

Adoption levels of different categories of respondents with respect to breeds and breeding : Table 2 depicts that the calculated 'F' value (53.50) is greater than the tabulated value at 1 per cent level of significance. Hence, conclu*sion* could be drawn that there was significant difference extent of adoption between different categories of small, medium and large herd owners with regard to breeds and breeding practice. Comparative look to data revealed that the large herd size buffalo keepers had higher mean per cent score of adoption (42.37) as compared to the medium (33.78 per cent) and small (29.26 per cent) category buffalo keepers.

Table 2. Adoption levels of different categories of respondents with respect to breeds and breeding
Maximum score = 15, N= 270

Category	f	MS	MPS
Small buffalo keepers	90	4.38	29.26
Medium buffalo keepers	90	5.07	33.78
Large buffalo keepers	90	6.36	42.37
SEm±	0.16		
F cal	53.59		
CD at 5%	0.45		
CD at 1%	0.58		
CV %	24.73		

MS = Mean score, MPS = Mean per cent score

Extent of adoption of improved feeding practices: It is evident from table 3 that calculated 'F' value (67.81) was greater than the tabulated value at 1 per cent level of significance which means that there was significant difference between different categories of adoption of improved feeding practices. This led to rejection of null hypothesis (H0.4) and acceptance of research hypothesis (H1.4). The respondents belonging to large category had higher mean per cent score of adoption (56.83 MPS) as compared to the medium (MPS 45.78) and small category (MPS 34.50), respectively. The CV for the observation is 28.00 per cent.

Table 3. Adoption levels of different categories of respondents with respect to feeding practices
Maximum score= 20, N= 270

Category	f	MS	MPS
Small buffalo keepers	90	6.90	34.50
Medium buffalo keepers	90	9.16	45.78
Large buffalo keepers	90	11.37	56.83
SEm+	0.27		
F cal	67.81		
CD at 5%	0.75		
CD at 1%	0.99		
CV %	28.00		

MS = Mean score, MPS = Mean per cent score

An indepth analysis of practices followed under feeding aspect revealed that all the respondents fed green and dry fodder and majority (78.89 per cent) gave concentrate to the buffaloes, however, majority did not supply the green fodder and concentrate in required

quantity. This could be attributed to lack of green fodder and poor economic condition of the respondents.

It was a common practice in the area that they used to give concentrate only to those animals who were in the milking stage. It was further found that around 51.39 per cent respondents chaffed the long stover and provided top feeds leaf of *Peepal*, *Neem* and *Jharbarry* (*pala*) as these were available in that area. Use of mineral mixture and salt for buffalo feeding was not common practice as only some of large buffalo keepers (13.93 per cent) were giving it on regular basis. Similarly, majority of the respondents did not adopt the practice of treatment of dry fodder with urea molasses to improve its nutritive value. This was due to lack of adequate knowledge among buffalo keepers regarding this aspect.

Regarding feeding of pregnant buffalo it was encouraging to note that all the respondents were feeding special ration viz., *gur sarbat*, barley *chokar* and sesame (*Tilli* oil) after calving to the buffalo. On the basis of findings it could be concluded that the respondents specially the medium and small category of buffalo keepers did not adopt the scientific method of feeding of buffalo.Similarly findings have been reported by Sharma (1997) and Intodia (2001) who concluded that the buffalo keepers were not following the scientific practices in case of feeding the buffalo.

Extent of adoption regarding improved buffalo management practices: Data presented in table 4 clearly reveal that the calculated value of 'F' (149.25) is greater than the tabulated value (4.66) at 1 per cent level of significance which means that there was significant difference between different categories of respondents with respect to adoption of improved buffalo management practices.

Critical examination of the data revealed that the large buffalo keepers had comparatively better adoption score (57.24 MPS) as compared to the medium and small buffalo keepers whose mean adoption score was only 48.60 and 39.89 per cent, respectively.

Table 4 . Adoption levels of different categories of respondents with respect to buffalo management practices
Maximum score= 31, N=270

Category	f	MS	MPS
Small buffalo keepers	90	12.37	39.89
Medium buffalo keepers	90	15.07	48.60
Large buffalo keepers	90	17.44	57.24
SEm+	0.22	F cal	149.25
CD at 5%	0.61		
CD at 1%	0.81		
CV %	13.88		

MS = Mean score, MPS = Mean per cent score

The higher adoption by large buffalo keepers in all the practices of management viz., housing, health care and clean milk production was due to their better knowledge regarding these practices.

Overall extent of adoption of improved buffalo production practices by buffalo keepers : From table 5 it is evident that calculated value 'F' (214.92) is greater than the tabulated value (4.66) at 1 per cent level of significance in case of overall extent of adoption in the three areas, namely breeds and breeding, feeding and management (housing, health care and clean milk production). This calls for the acceptance of research hypothesis i.e. there is significant difference in adoption of improved buffalo production practices between the identified categories of the respondents.

Table 5. Overall extent of adoption of improved buffalo production practices by buffalo keepers
Maximum score = 66, N= 270

Category	f	MS	MPS
Small buffalo keepers	90	24.46	37.07
Medium buffalo keepers	90	30.36	45.99
Large buffalo keepers	90	36.66	55.54
SEm+	0.42		
F cal	214.92		
CD at 5%	1.16		
CD at 1%	1.54		
CV %	12.94		

MS = Mean score, MPS = Mean per cent score

The mean value further indicates that the buffalo keepers possessing higher number of buffalo had higher adoption score than the buffalo keepers with medium and small herd size in all the three areas.

Regarding the practice of breeds and breeding the adoption percentage was found to be low because the buffalo keepers usually possessed local non-descript breeds followed by natural service to their buffaloes with local sire. The buffalo keepers lacked knowledge about exact time of removal of placenta. Due to lack of veterinary facilities they were not in a position to approach any trained person or veterinarian for the problem of anoestrus. The results are in conformity with that of Mathur (2001) who found that there was poor adoption of improved practices by the cattle keepers.

Results further showed that in feeding practice, the small, medium and large categories of buffalo keepers had 37.07 per cent, 45.99 per cent and 55.54 per cent level of adoption which was comparatively higher than the breeding practices. Results also showed that majority of buffalo keepers did not feed mineral mixture and salt to their buffaloes. However, colostrums feeding to new born calf was a common practice.

Regarding extent of adoption of management

practices it was found that respondents had poor adoption of practices like castration, weaning, deworming and vaccination against common diseases like H.S., F.M.D. and B.Q. Only 22.22 per cent buffalo keepers adopted the practice of full hand milking. Majority of the respondents had also not adopted the correct practice of disposal of animal waste. On the basis of findings it could be concluded that the respondents scored highest in management (48.77 MPS) followed by feeding (45.70 MPS) and breeds and breeding (35.14 MPS) aspect.

Similar results were also reported by Mathur (2001) and Chug (1998) who observed that maximum adoption was found in management practices followed by feeding, health care and least in breeding.

CONCLUSION

There was significant difference in adoption levels between different categories of respondents with regard to breeds and breeding, feeding and management practices of buffalo rearing. The overall extent of adoption in general was found to be highest in large herd owners followed by medium and small having mean per cent scores of 55.54, 45.99 and 37.07, respectively.

REFERENCES

1. Anonymous, 2003. Livestock Census Report, Directorate of Livestock, Jaipur.
2. Chug, M. 1995. An exploratory study of dairy farms owned by ex-serviceman in Karnal district (Haryana). *M.Sc. Thesis*, NDRI, Karnal.
3. Intodia, S.L. 2001. Documentation of farming system in operational area (Udaipur district): A brief survey and analysis. Agriculture perspective of Udaipur district, 103-104.
4. Mathur, P. (2001). Problems and prospects of improved cattle management in Arid Western Plain Zone of Rajasthan. *Ph.D. Thesis*, MPUAT, Udaipur, campus: R.C.A., Udaipur, Rajasthan, India.
5. Sharma, F.L. 1990. Problems and prospects of livestock development in tribal area of Rajasthan. *Ph.D. Thesis*, R.A.U., Bikaner, Campus, R.C.A., Udaipur.
6. *Sharma, R.K. 1997. A study into the impediments in contagious bovine disease control work in Hisar district of Haryana. M.Sc. (Ag.) Thesis*, P.A.U., Ludhiyana.