Impact of Audio-educational Information About Buffalo Calf Management Practices among the Livestock Owners

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ABASTRACT

It is empirically evident from the various researches that progressive farmers, input dealers and the mass media are the most important sources of information for the farmers. Also, ICT in different forms has been widely taken up as a potential tool to disseminate the information about livestock health management amongst the farmers. In this direction, Indian Veterinary Research Institute, Izatnagar has developed an audio-educational information aid on scientific buffalo calf management which was disseminated by transferring the information via memory card of mobiles phones owned by the livestock owners. A total of 140 respondents (70 from the exposed villages and 70 respondents from the unexposed villages) were selected for the present study for assessing the impact of audio-educational aids on knowledge and adoption of buffalo calf management practices. Results revealed that majority of the respondents of exposed group had higher knowledge and adoption level about scientific buffalo calf management practices viz. new born care, calf feeding, vaccination, deworming and hygiene & sanitation in comparison to the respondents of unexposed group.

Key words: Adoption; Audio-educational aids; Impact; Knowledge;

India has vast resource of livestock and poultry which play a pivotal role in improving the socio-economic conditions of rural masses. India reigns globally in terms of largest buffalo population *i.e.* 108.7 million (*Livestock Census, 2012*), huge buffalo germplasm diversity (13 registered breeds, 17 lesser known defined population groups) and home for the world's best milch buffalo breeds *viz.,* Murrah, Mehsana, Jaffrabadi, Banni and Nili-Ravi. The world is looking at this valuable germplasm as a hope for food in the near future, especially in the face of imminent global warming (*Thiruvenkadan et al. 2013*). Buffaloes are spread over almost all parts of the country which are majorly in Uttar Pradesh (28.17%) followed by Rajasthan (11.94%) and Gujarat (9.55%) (*Livestock Census, 2012*).

Calf plays an important role in profitability of a dairy farm. Healthy calves are not only essential for sustenance of dairy farm but also necessary for preserving the good quality germplasm. A large number of calves die during the first year of their life, causing heavy drain on the economics of livestock production. Mortality of neonatal calves was attributed to conditions *viz.,* diarrhoea and pneumonia (*Shimizu and Nagatoma, 1978*).

Most important sources of information for the farmers are progressive farmers, input dealers and mass media (*Surabhi and Gaurav 2009; Ashutosh et al., 2012*). *Sasidhar and Sharma (2006)* have emphasised that the use of ICT tools has potential to change the farmer's economy. In India, only about 5.1 per cent of the households have some kind of access to modern technology with the respect to animal husbandry (*NSSO, 2005*). Total mobile cellular subscribers in India is 74 per cent but internet users is only 18 per cent (*World Bank, 2014*). Though, various educational information system are available for empowering the farmers but either they are not cost-effective or are not accessible for the farmers because of many reasons.

In this direction, IVRI has developed an audio-educational information on buffalo calf management practices which is cost effective and can be access via mobile phone also. Hence, the present study was taken up to assess the impact of audio-educational information in terms of knowledge and adoption of scientific buffalo calf management practices among the livestock owners.

METHODOLOGY

Present study was purposively conducted in the Bareilly district of Uttar Pradesh because audio educational information on buffalo calf management practices (new born care, colostrum feeding, feeding of calves, calf diarrhoea and other management practices) was developed by the Indian Veterinary Research Institute and was disseminated among the farmers of Bareilly district. The *ex-post facto* and exploratory design was followed in this study. A total of 10 villages were selected for the study. Among these, 5 villages (*Akha, Kalhapur, Katha, Ahiladpur and Mornia*) were exposed (wherein audio-educational information was disseminated 2 years ago). Another 5 villages (*Malhpur, Faiznagar, Kalyanpur, Dalatpur karena and Biharipur*) were selected as control villages. A total of 140 livestock owners were selected for the present study. Among these, 70 respondents were from the exposed villages and another 70 respondents were from the unexposed villages.

The audio educational clips were transferred via the memory card of mobiles phones owned by the buffalo rearing farmers in exposed villages. Knowledge was operationalized as the degree of factual information on scientific calf management practices possessed by the respondents. Important practices related to scientific calf management practices were selected and their score were allotted 1 for correct answer, 0 for incorrect answer. The total score for a respondent was obtained by summing up the score obtained on each practices.

$$\text{Knowledge index} = \frac{\text{Score obtained by Respondents}}{\text{Total possible score}} \times 100$$

Adoption referred to the extent to which one makes use of the recommended practices in daily life. For the study, important practices related to scientific calf management practices were selected and their score were allotted 2 for complete adoption, 1 for partial adoption and 0 for non-adoption. The adoption index was calculated by following method:

$$\text{Adoption index} = \frac{\text{Respondents total score}}{\text{Total possible score}} \times 100$$

Depending upon the level of knowledge and adoption of the practices, the respondents were categorised as: Low (up to the score of 33%), Medium (score >33-66%) and High (score >66%) knowledge and adoption level, respectively.

RESULTS AND DISCUSSION

Knowledge level of respondents in scientific calf management practices

New born care: Table 1 reveals that in pooled data, majority (72.10%) of respondents belonged to medium level (34-66) of knowledge category. In unexposed villages, around 23 per cent and in exposed village 13 per cent of respondents fell in category of low knowledge level. Chi-square test revealed significant (p<0.05) difference between the groups with respect to knowledge level about new born care which conclude that respondents who were exposed to the audio information had better knowledge level in comparison to the unexposed group.

Calf feeding: Majority (68.60%) of respondents belonged to medium knowledge level about calf feeding practices (Table 1). In exposed group 10 per cent of the respondents had low knowledge, whereas 25.70 per cent of respondents of unexposed group had low knowledge level. There was significant (p<0.05) difference between the groups with respect to the knowledge level of the respondents in calf feeding. The findings are in concurrence with Aulakh et al. (2011) who studied the knowledge level of recommended buffalo management practices and found that majority (57%) of respondents had medium knowledge level about feeding.

Vaccination: More than the half of the respondents (50.70%) from pooled sample belonged to medium knowledge level group on vaccination followed by low (37.10%) and high (12.10%) knowledge level. Among the respondents having high knowledge level about vaccination, 20 per cent were from exposed group and only 4.30 per cent were from unexposed group. Among the respondents having low knowledge level about vaccination, 31.40 per cent were from exposed group and 42.90 per cent were from unexposed group. Significant (p<0.05) difference was observed between the groups with respect to knowledge level of

Table 1. Knowledge level of respondents about scientific calf management practices

Practices	Knowledge level	Exposed (n=70)	Unexposed (n=70)	Pooled (N=140)	χ^2 value
New born care	Low (up to 33 %)	9 (12.90)	16 (22.90)	25 (17.90)	6.541*
	Medium (>33-66 %)	50 (71.40)	51 (72.90)	101 (72.1)	
	High (>66-100)	11 (15.70)	3 (4.30)	14 (10.00)	
Calf feeding	Low	7 (10.0)	18 (25.7)	25 (17.9)	9.145*
	Medium	49 (70.0)	47 (67.1)	96 (68.60)	
	High	14 (20.0)	5 (7.1)	19 (13.6)	
Vaccination	Low	22 (31.40)	30 (42.90)	52 (37.10)	8.475*
	Medium	34 (48.60)	37 (52.90)	71 (50.70)	
	High	14 (20.00)	3 (4.30)	17 (12.10)	
Deworming	Low	24 (34.3)	37 (52.9)	61 (43.6)	7.167*
	Medium	34 (48.6)	29 (41.4)	63 (45.0)	
	High	12 (17.1)	4 (5.7)	16 (11.4)	
Hygiene, sanitation	Low	23 (32.9)	34 (48.57)	57 (40.71)	7.185*
and other management	Medium	39 (55.7)	35 (50.00)	74 (52.86)	
practices	High	8 (11.4)	1 (1.4)	9 (6.4)	
Overall knowledge	Low	15 (21.40)	30 (42.90)	45 (32.10)	11.189**
about calf management	Medium	47 (67.10)	39 (55.70)	86 (61.40)	
practices	High	8 (11.40)	1 (1.40)	9 (6.40)	

Figures in parenthesis indicate percentage, χ^2 (Chi-square value),**P<0.05, **P<0.01

vaccination, wherein respondents of exposed group showed higher knowledge level.

Deworming: It is evident from the study that majority (45.00%) of respondents belonged to medium followed by low (43.60%) and high (11.4%) knowledge level about deworming. Among the respondents who had high knowledge, there were 17.10 per cent from exposed group and 5.70 per cent were from unexposed group. There was significant (p<0.05) difference between the groups with respect to knowledge level on deworming. The findings are in concurrence of Singh et al. (2005) who studied the knowledge level of dairy farmers about the selected management practices in Punjab and found that majority (57.00%) of respondents had medium knowledge level about deworming.

Hygiene, sanitation and other management practices: Majority (52.86%) of the respondents in pooled data had medium knowledge followed by low (40.71%) and high (6.40%) knowledge about the hygiene sanitation and other management practices. About 11.4 per cent of the respondents of exposed village had high knowledge level, whereas in unexposed village, only 1.4 per cent of the respondents had high level of knowledge. Significant (p<0.05) difference was found between exposed and unexposed groups with

respect to knowledge level on hygiene, sanitation and other management practices.

Overall knowledge about calf management practices: It is also evident from the study that majority (61.40%) of the respondents from pooled data had medium level of knowledge followed by low (32.10%) and high (6.40%) knowledge level about calf management practices. In exposed villages, around 12 per cent of the respondents had high knowledge, whereas in unexposed group only 1.40 per cent of the respondents had high knowledge. Chi-squre test revealed significant (p<0.01) difference between the groups with respect to overall knowledge about calf management practices. Results are in concurrence with the findings of Rahman and Gupta (2015) who noted significant difference (p<0.01) between SHG's members and non-members while studying their knowledge level about the improved dairy husbandry practices (IDFPs). Similar findings are also reported by *Biswas et al. (2012).*

Adoption level of selective recommended practices: New born care: Results in Table 2 revealed that in pooled data, majority (46.4%) of the respondents belonged to medium level (34-66) of adoption. In exposed group, 24.30 per cent of respondents belonged to high

Table 2. Adoption level of respondents on selective recommended practices

Practices	Level of Adoption	Exposed(n=70)	Unexposed (n=70)	Pooled (N=140)	χ^2 value
New born care	Low (up to 33 %)	17 (24.30)	33 (47.1)	50 (35.70)	9.114*
	Medium (>33-66 %)	36 (51.40)	29 (41.40)	65 (46.40)	
	High (>66-100)	17 (24.30)	8 (11.40)	25 (17.90)	
Calf feeding	Low	17 (24.30)	31 (44.30)	48 (34.30)	9.116*
	Medium	42 (60.00)	36 (51.40)	78 (55.70)	
	High	11 (15.70)	3 (4.30)	14 (10.00)	
Vaccination	Low	23 (32.90)	21 (30.00)	44 (31.40)	0.473*
	Medium	33 (47.10)	37 (52.90)	70 (50.00)	
	High	14 (20.00)	12 (17.10)	26 (18.60)	
Deworming	Low	17 (24.30)	29 (41.40)	46 (32.90)	7.585*
	Medium	44 (62.90)	38 (54.30)	82 (58.60)	
	High	9 (12.90)	3 (4.30)	12 (8.60)	
Hygiene, sanitation and	Low	23 (32.6)	29 (41.42)	52 (37.10)	8.811*
other managemental	Medium	38 (54.3)	37 (52.9)	75 (53.9)	
practices	High	9 (12.9)	4 (5.71)	13 (9.30)	
Overall adoption of	Low	17 (24.30)	29 (41.40)	46 (32.90)	8.182*
calf management	Medium	44 (62.90)	38 (54.30)	82 (58.60)	
practices	High	9 (12.90)	3 (4.30)	12 (8.60)	

Figures in parenthesis indicate percentage , χ^2 (Chi-square value),,*P<0.05, **P<0.01

(66-100) adoption level, whereas in unexposed group only 11.40 per cent of respondents belonged to high adoption level. Chi-square test revealed significant (p<0.05) difference between the groups with respect to level of adoption in new born care practices.

Calf feeding: Table 2 also reveals that majority (55.70%) of respondents from pooled data belonged to medium adoption level about calf feeding. Among the respondents having high adoption level, 15.70 per cent were from exposed group and only 4.3 per cent were from unexposed group. Significant (p<0.05) difference was observed between the groups with respect to the adoption level of calf feeding. From the results it can be concluded that respondents who had exposure to audio information had better adoption in calf feeding management practices as compared to the unexposed group.

Vaccination: Perusal of data from Table 2 reveals that about 32 per cent and 19 per cent respondents from pooled data belonged to low and high adoption level, respectively. Among the respondents having high adoption level about vaccination, 20.00 per cent were from exposed group and 17.10 per cent from unexposed group. There was no significant (p<0.05) difference between the groups with respect to the adoption level of vaccination. This might be due to the livestock owners in both the exposed and unexposed group depend upon

state animal husbandry department for vaccination. Further, around 30.00 per cent of the respondents were low adopters with respect to vaccination because of non-availability of regular and timely vaccination facility.

Deworming: Majority (58.60%) of respondents belonged to medium level of adoption followed by low (32.90%) and high (8.60%) adoption level with respect to deworming (Table 2). Among the respondents who had high adoption, 12.90 per cent were from exposed group and 4.30 per cent were from unexposed group. There was significant (p<0.05) difference between the groups with respect to the adoption level of deworming and it is denoted by Chi-square value.

Hygiene, sanitation and other management practices: Hygiene and sanitation are important factors for calf health. It is evident from Table 2 that majority (53.90%) of the respondents, from pooled sample, had medium adoption level about hygiene, sanitation and other management practices. About 13 per cent of the respondents of the exposed group had high adoption level whereas only 5.71 per cent of respondents of unexposed group had high adoption level. There was significant (p<0.05) difference between the groups with respect to the adoption level of hygiene, sanitation and other management practices.

Overall adoption level of recommended calf management practices: It was observed that majority

of respondents (58.60%) from pooled sample had medium adoption level followed by low (32.90%) and high (8.60%) overall adoption level about the recommended calf management practices. Around 13 per cent of the respondents of exposed group had high adoption level whereas only 4.3 per cent of the respondents of unexposed group had high adoption level. There was significant (p<0.05) difference between the groups with respect to overall adoption of recommended calf management practices. Thus, this proved evidently that the adoption of improved animal husbandry practices was more among the exposed groups as compared to the unexposed groups. *Meena et al. (2012)* also noted significant difference between members and non-members of dairy cooperatives while studying the adoption of improved animal husbandry practices in Bikaner.

CONCLUSION

The study conclude that dissemination of audio-education information on buffalo calf management practices is having positive impact on the knowledge and adoption level of the farmers on scientific buffalo calf management. The positive impact of the audio-educational information was revealed in the results with higher knowledge and adoption level among the respondents of exposed villages in comparison to controlled group. Knowledge is prerequisite for adoption of any technology or innovation. In the era of information and communication technology (ICT) with suitable blending of need based information in cost effective communication tool may help to wider and faster dissemination of information. Hence, the mobile compatible audio-educational clips can be used as a tool for imparting need based knowledge to the farmers.

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