

Accessibility and Utilization of Extension and Veterinary Services by Badri Cattle Owners in Uttarakhand

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ABSTRACT

Indigenous cattle have many advantages over cross bred cattle. The newly registered Badri cattle from Uttarakhand by NBAGR is the 1st certified cattle breed of state but showing a negative population growth although it makes an important component of livelihood & earning of landless & smallholder farmers in hills of Uttarakhand. So the present study was conducted to find the extension and veterinary services available for the Badri cattle owners in hills of Uttarakhand which experience wide range of temperature variation. A total of 120 respondents 60 each from Almora and Pauri Garhwal district were selected for the study and data was collected based on the semi-structured interview schedule. The study revealed that majority of the respondents had medium (74.20 %) followed by high (18.30 %) and low (7.50 %) informal interpersonal source utilization. For formal interpersonal source majority of the respondents had low (45.00 %) followed by medium (44.20 %) and high (10.80 %) utilization pattern and for mass media source utilization, majority of the respondents had medium (70.00 %) followed by low (24.20 %) and high (5.80 %) utilization pattern. Majority of the respondents (65.00 %) have not attended any training. Cent per cent of the respondents who attended training said that the training/camps were organized by government. Cent per cent of the respondents admitted being benefitted by the training. None of the respondents were having insurance of their cattle or applied/ obtained any loan or any government assistance or credit facility for buying Badri cattle or for building shed *etc.*

Keywords: Extension, formal source, informal interpersonal source, mass media source, veterinary services.

INTRODUCTION

Badri cattle of Uttarakhand previously known by names likes Red Hill cattle, Uttara cattle, Pahadi cattle has been registered by NBAGR as 40th cattle breed of the country and has become the first ever certified breed of Uttarakhand. Badri cattle is small sized breed having short legs and varied body colors – black, brown, red, white or grey. Hooves and muzzle are black or brown in color. Hump prominent. Udder is small in size, tucked up with the body. These are well adapted to the hilly terrain and climatic conditions and comparatively more resistant to diseases (Pundir *et. al.* 2014).

Uttarakhand the 11th hill state and 27th State of India is located at the foothills of the Himalayan mountain ranges. The State includes 320 km long stretch of the mountains between the Kali River forming the Indo-Nepal border in the east and the Tons valley forming the eastern border of Himachal Pradesh in the west

(gbpihedennis.nic.in). Uttarakhand exhibits a high fluctuation in temperature *i.e* from -5.40C in Muketshwar to 400C in Pantnagar. The wide range of temperature variation and hilly topography compels to study the extension and veterinary service delivery to the Badri cattle rearing marginal and landless farmers of the hilly areas of the state. Extension and veterinary services play an important role in enabling application of new knowledge by livestock producers. Among all the services, livestock extension services play an important role to empower farmers with appropriate technological knowledge and skills through various extension education and training programmes. Livestock extension services can help the producers at every stage of production from improved animal husbandry practices to better quality milk and increased production. However, compared to its contribution in the economy, livestock sector has received much less resources and institutional support. Livestock extension remains grossly neglected (Planning Commission, 2013). Therefore this study was

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carried out in hills of Uttarakhand with the specific objective to document the extension and veterinary service delivered to Badri cattle owners.

METHODOLOGY

The study was purposively conducted in hills of Uttarakhand as Badri cattle has become first certified cattle breed of the state. Among all the districts two highly cattle populated districts from the Garhwal and Kumaun commissionaries *i.e* Pauri Garhwal and Almora were selected purposively for the study. The population of indigenous cattle has its highest proportion present in Pauri Garhwal (17.80 per cent *i.e* 2, 69,994) followed by Almora (11.5 per cent *i.e* 197326) district (www.dahd.nic.in). From each district, two blocks were selected (Almora district Lamgara and Bhikyasane block and in Pauri Garhwal district Jaiharikhal and Duggada block) for the study and from each block three villages were selected for the study making a total of 12 villages. Selection of blocks and villages was done randomly. For the study, 10 respondents from each village *i.e* 60 respondents from each district making a total of 120 respondents having two Badri cattle with a minimum of two years of experience were selected randomly. The data was collected through semi structured interview schedule.

The utilization of extension and information sources were measured under three subheads *i.e* formal, informal and mass media source utilization using the structured interview schedule and for each information source scores were assigned according to response of respondent as frequently (3), Sometimes (2), Rarely (1) and Never (0). The following formulas were used further-

$$\text{Percentage Utilized (\%)} = \frac{\text{Score Obtained}}{\text{Total Score}} * 100$$

$$\text{Score Obtained} = \text{No of respondents frequently using information source} * 3 + \text{No of respondents sometime using information source} * 2 + \text{No of respondents rarely using information source} * 1 + \text{No of respondents never using information source} * 0$$

$$\text{Total Score} = \text{Total no. of respondents} * 3 = 120 * 3 = 360$$

$$\text{MaS} = \frac{\text{Total Score}}{\text{Total no of respondents}}$$

$$\text{MOS} = \frac{\text{Obtained Score}}{\text{Total no. of Respondents}}$$

Under informal interpersonal source utilized in the area were family members, neighbours, medical shops, other Badri cattle owners and relatives, formal source

utilized in the area were V.O, L.E.O and N.G.O, mass media source utilized in the area were radio, television, newspaper and kisan mela. The data obtained on veterinary services except on availability of veterinary doctors were classified into three groups based on the equal class interval method using maximum and minimum obtained value.

RESULTS AND DISCUSSION

Extension services are best way to disseminate the recent researches, information and knowledge to stakeholders laying at any distance from the area of action but this dissemination of information is a two way process and require efficient participation and enthusiasm on both side. Information source of livestock include informal and extension sources (Formal and mass media). The availability and accessibility of the information sources to the owners is an important factor in its utilization. Information source utilization pattern

As per the results obtained in the present study among the informal interpersonal sources (family members, neighbours, medical/ feed shops, other Badri cattle owners and relatives) family members were sometimes used as information source by 48.30 per cent of respondents, neighbours by 55.80 per cent respondents, medical shops by 49.20 per cent of respondents, other Badri cattle owners by 50.80 per cent respondents and relatives by 70.80 per cent respondents. The average score obtained for the family members, neighbours, medical shops, other Badri cattle owners and relatives were 1.67, 1.76, 0.89, 1.61 and 1.06 respectively which were 55.66 per cent, 58.66 per cent, 29.66 per cent, 53.66 per cent and 35.33 per cent respectively of the maximum score of the concerned sources. The respondents were mainly seeking information from the neighbours among the informal sources. The mean score obtained for informal informational source utilization was 6.99 (46.60 %) out of maximum achievable score of 15. This means that 46.60 per cent of informal interpersonal source of information is being utilized to gather information regarding various aspects of Badri cattle rearing which is fair amount but the respondents still have scope for better utilization of information present within informal interpersonal source. Tanusha (2015) in her study on pack animal owners of Uttarakhand reported that utilization for informal interpersonal source for information was 47.17 per cent. Sawant and Dakhore (2007) reported that among all the sources available under personal localite category to the livestock owners the source mostly utilized are family members (97.78 %), progressive livestock owner (90.67 %) and friends and neighbours (98.33 %). Kumar *et al.* (2014) reported that personal localite sources of

information (59.79%) were the most utilized sources among all the information sources in the field of livestock rearing. The most important information sources were family member (67.78 %), radio (63.69 %) and magazines (62.08 %). Wakle *et al* (1998) reported that farmers prefer to contact easily available personnel in informal settings instead of formal and remotely available contacts. Interpersonal communication channels are the most preferred among rural communities in India (Bhaskaran and Rao 1985). Biradar (2000) revealed that farmers prefer informal and personal sources (friends, neighbours, shopkeepers) over impersonal sources for information. Sharma and Sahoo (2008) reported that the most effective information among the farmers was disseminated through personal contacts.

Table 1: Distribution of Badri cattle owners according to use of informal source utilization

| Informal Interpersonal Sources | Frequently | Sometime | Rarely | Never | MaS | MOS | % |
|--------------------------------|---------------|----------------|----------------|---------------|-----|------|-------|
| Family members | 15 (12.50) | 58 (48.30) | 39 (32.50) | 8 (6.70) | 3 | 1.67 | 55.66 |
| Neighbors | 12 (10.00) | 67 (55.80) | 41 (34.20) | 0 (0.00) | 3 | 1.76 | 58.66 |
| Medical shops | 4 (3.30) | 18 (15.00) | 59 (49.20) | 39 (32.50) | 3 | 0.89 | 29.66 |
| Other Badri Cattle owners | 8 (6.70) | 61 (50.80) | 47 (39.20) | 4 (3.30) | 3 | 1.61 | 53.66 |
| Relatives | 0 (0.00) | 21 (17.50) | 85 (70.80) | 14 (11.70) | 3 | 1.06 | 35.33 |
| Total | 39 (6.50) | 225 (37.50) | 271 (45.17) | 65 (10.84) | 15 | 6.99 | 46.60 |

Figure in parenthesis indicate percentage, MaS: Maximum Score MOS: Mean obtained score

Among the formal interpersonal sources, Veterinary Officers were rarely used as information source by 42.50 per cent of respondents, Livestock Extension Officers were never used as information source by 48.30 per cent of respondents. Non Government Organisations were never used as information sources by 92.50 per cent of respondents. K.V.K personnel, bank personnel, cooperative personnel and panchayat members were not at all consider as an information source regarding animal husbandry so not included in the calculations. The average score obtained for the Veterinary Officer (V.O), L.E.O and NGO were 1.03, 0.67 and 0.08 respectively which were 34.33 per cent, 22.33 per cent and 2.66 per cent respectively of the maximum score of the concerned sources. The respondents were mainly seeking information from V.O. among formal

source of information. The mean score obtained for formal informational source utilization was 1.78 (19.77%) out of maximum achievable score of 9. This means that 19.77 per cent of formal interpersonal source of information is being utilized to gather information regarding various aspects of Badri cattle rearing which is too low and reveals that the respondents are not taking advantage of the formal information sources like V.O, L.E.O, and N.G.O for obtaining information and should utilize the sources to increase the production efficiency and for better managemental practices of Badri cattle. In fact the percentage utilization for formal interpersonal source was 28.54 per cent by the pack animal owners in Uttarakhand as reported by Tanusha (2015). The reason for low use of formal information source may be that disease incidence in Badri cattle is very less and farmers avoid going to the formal sources for other issues due to lack of time, distance of the formal sources etc., so they are not meeting V.O, L.E.O and N.G.O personnel much.

Table 2: Distribution of Badri cattle owners according to use of formal information sources

| Formal Interpersonal Sources | Frequently | Sometime | Rarely | Never | MaS | MOS | % |
|------------------------------|-------------|---------------|----------------|----------------|-----|------|-------|
| V.O | 6 (5.00) | 27 (22.50) | 51 (42.50) | 36 (30.00) | 3 | 1.03 | 34.33 |
| L.E.O | 2 (1.70) | 14 (11.70) | 46 (38.30) | 58 (48.30) | 3 | 0.67 | 22.33 |
| N.G.O | 0 (0.00) | 1 (0.80) | 8 (6.70) | 111 (92.50) | 3 | 0.08 | 2.66 |
| Total | 8 (2.23) | 42 (11.67) | 105 (29.16) | 205 (56.95) | 9 | 1.78 | 19.77 |

Figure in parenthesis indicate percentage, MaS: Maximum Score MOS: Mean obtained score

Among the mass media sources radio was rarely used as information source by 40.80 per cent of respondents. Television were rarely used as information source by 45.80 per cent of respondents, newspaper were rarely used as information source by 46.70 per cent of respondents and Kisan mela were never used as information source by 90.80 per cent of respondents. Mobile advisory services, Kisan Call Centres and mobile based S.M.S services were not at all used to seek information so is not used in the calculation. The average score obtained for radio, television, newspaper, kisan mela were 0.96, 0.99, 0.72 and 0.11 respectively which were 32 per cent, 33 per cent, 24 per cent and 3.67 per cent respectively of the maximum score of the concerned sources. The mean score obtained for mass media source utilization was 2.78 (23.16%) out of maximum achievable score of 12. This means that 23.16 per cent of mass media source of information is being utilized to gather information regarding various aspects of Badri

cattle rearing which is poor and reveals that the mass media sources of information like T.V, mobile, radio, kisan mela, newspaper etc. are still not popular among the respondents for obtaining Badri cattle related information and respondents should be made aware, encouraged and motivated to utilize it as source of information as is time and cost effective as well and sometimes provides information in local language also which is easy to understand. The result obtained are similar to those obtained by Tanusha (2015) for pack animal owners of Uttarakhand where she reported that that percentage of mass media sources utilization was 25.35 per cent. Meena and Chauhan (2005) and Bandyopadhyay et al., (2001) in their study concluded that radio was most important sources of information for livestock owners. Sangha and Gupta (1985) in their study, placed TV as the most credible source of information for agriculture for the rural TV viewers, followed by radio. Sangha and Kalra (1993) in their study on the pattern of mass media utilisation by farmers found that radio was used to the greatest extent with highest, . credibility, followed by TV, newspapers, agricultural magazines, audio-cassettes and agricultural films by the farmers for receiving agricultural information. Kumar and Singh (2010) revealed that a majority of the respondents (62%) exhibited low level of TV advertisement viewing behavior followed by 23 per cent under medium level and 15 per cent respondents falling under high level.

Table 3: Distribution of Badri cattle owners according to mass media source utilization

| Mass media sources | Frequently | Sometime | Rarely | Never | MaS | MOS | % |
|--------------------|-------------|---------------|----------------|----------------|-----|------|-------|
| Radio | 2 (1.70) | 30 (25.00) | 49 (40.8) | 39 (32.50) | 3 | 0.96 | 32 |
| Television | 0 (0.00) | 32(26.70) | 55(45.80) | 33(27.50) | 3 | 0.99 | 33 |
| Newspaper | 0 (0.00) | 15(12.50) | 56(46.70) | 49(40.80) | 3 | 0.72 | 24 |
| Kisan mela | 0 (0.00) | 2 (1.70) | 9 (7.50) | 109 (90.80) | 3 | 0.11 | 3.67 |
| Total | 2 (0.41) | 79 (16.45) | 169 (35.20) | 230 (47.92) | 12 | 2.78 | 23.16 |

Figure in parenthesis indicate percentage, MaS: Maximum Score MOS: Mean obtained score

The results obtained explains that the majority of the respondents had medium (74.20%) informal interpersonal source utilization followed by high (18.30%) and low (7.50%) informal interpersonal source utilization. For formal interpersonal source majority of the respondents had low (45.00%) followed by medium (44.20%) and high (10.80%) utilization pattern and for

mass media source utilization majority of the respondents had medium (70.00%) followed by low (24.20%) and high (5.80%) utilization pattern.

Table 4: Distribution of Badri cattle owners according to information source utilization score

| Informal informational source utilization (Score) | Almora (60) | Pauri Garhwal (60) | Pooled (120) |
|---|---------------|---------------------------------|---------------|
| Low (0-4) | 9 (15.00) | 0 (0.00) | 9 (7.5) |
| Medium (5-8) | 45 (75.00) | 44 (73.3) | 89 (74.20) |
| High (9-12) | 6 (10.00) | 16 (26.70) | 22 (18.30) |
| Mean±S.D t test | 6.22±1.80 | 7.75±1.36 1.30 ^{NS} | 6.98±1.77 |
| Formal informational source utilization (score) | Almora (60) | Pauri Garhwal (60) | Pooled (120) |
| Low (0-1) | 43 (71.70) | 11 (18.30) | 54 (45.00) |
| Medium (2-3) | 13 (21.70) | 40 (66.70) | 53 (44.20) |
| High (4-6) | 4 (6.70) | 9 (15.00) | 13 (10.80) |
| Mean±S.D t test | 1.18±1.14 | 2.37±1.19 0.23 ^{NS} | 1.77±1.30 |
| Mass media source utilization (score) | Almora (60) | Pauri Garhwal (60) | Pooled (120) |
| Low (0-2) | 24 (40.00) | 5 (8.30) | 29 (24.20) |
| Medium (3-5) | 33 (55.00) | 51 (85.00) | 84 (70.00) |
| High (6-8) | 3 (5.00) | 4 (6.70) | 7 (5.80) |
| Mean±S.D t test | 2.88±1.50 | 3.83±1.07 1.08 ^{NS} | 3.36±1.38 |

Figure in parenthesis indicate percentage
NS Non Significant at 5% level (p < 0.05) of significance

Veterinary source utilization pattern

Majority of Badri cattle owners (66.70%) opined for the presence of only one veterinary hospital nearby them followed by respondents (33.30%) having two veterinary hospitals present nearby, The mean distance of the veterinary hospital from the house was about 5.89 Km in the study area with the mean distance of 9.34 Km and 2.45 Km for Almora and Pauri Garhwal district respectively. Majority of the respondents (58.30%) opined that the nearest veterinary hospital was at a distance of 0.5-5.67 Km followed by 5.68-10.85 Km (25.00%) and 10.86-16 Km (16.70%). The time taken to reach the veterinary hospital by majority of the respondents (40.00%) was 5-43.34 minutes followed by 81.70-120 minutes (36.70%) and 43.35-81.69 minutes (23.30%). The average time taken by overall respondents was about 65.21 minutes

with 75 minutes in Almora district and 55.42 minutes in Pauri Garhwal district. The independent sample t-test analysis indicates that there is significant difference between the two districts with respect to time required to reach the veterinary hospital and is lower in case of Pauri Garhwal district (55.42 minutes) compared to Almora district (75min).

Majority of respondents (75.00%) used walking as a medium of transport to reach the veterinary hospital followed by public vehicle (25.00%). In Almora district 50.00 per cent of the respondents used walking and other 50 per cent used public vehicle as means of transport. Whereas in Pauri Garhwal district cent per cent of the respondents travel on foot to reach veterinary hospital. The average cost for travelling up to veterinary hospital in the study area was ₹ 10.84. The average cost in Almora district was ₹ 20 whereas in Pauri Garhwal district it was ₹ 0.00. as people travel on foot to reach the hospital. Cent percent of the respondents agreed for the presence of the veterinary doctor in the hospital every time in working hours in both Almora and Pauri Garhwal district.

Table 5: Distribution of badri cattle owners according to the accessibility to veterinary services

| Number of veterinary hospitals present nearby | Almora (60) | Pauri Garhwal (60) | Pooled (120) |
|---|---------------|--------------------|---------------|
| One | 30 (50.00) | 50 (83.30) | 80 (66.70) |
| Two | 30 (50.00) | 10 (16.70) | 40 (33.30) |
| Chi square value | | 15.00** | |
| Distance (Km) of nearest veterinary hospital | | | |
| 0.5-5.67 | 10 (16.70) | 60 (100.00) | 70 (58.30) |
| 5.68-10.85 | 30 (50.00) | 0 (0.00) | 30 (25.00) |
| 10.86-16 | 20 (33.30) | 0 (0.00) | 20 (16.70) |
| Mean±S.D | 9.34±4.99717 | 2.45±1.03211 | 5.89±4.98 |
| t test value | | 10.449** | |
| Time required (min) to reach nearest veterinary hospital | | | |
| 5-43.34 | 20 (33.30) | 28 (46.70) | 48 (40.00) |
| 43.35-81.69 | 10 (16.70) | 18 (30.00) | 28 (23.30) |

| | | | |
|---------------------------------------|---------------|----------------|---------------|
| 81.70-120 | 30 (50.00) | 14 (23.30) | 44 (36.70) |
| Mean±S.D | 75.00±38.06 | 55.42±31.21 | 65.21±36.03 |
| t test value | | 3.082* | |
| Medium for travelling | | | |
| Walking | 30 (50.00) | 60 (100.00) | 90 (75.00) |
| Public Vehicle | 30 (50.00) | 0 (0.00) | 30 (25.00) |
| Cost of travelling (in ₹) | | | |
| 0-16.67 | 30 (50.00) | 60 (100.00) | 90 (75.00) |
| 16.68-33.35 | 10 (16.70) | 0 (0.00) | 10 (8.30) |
| 33.36-50 | 20 (33.30) | 0 (0.00) | 20 (16.70) |
| Mean±S.D | 21.67±22.86 | 0.00±0.00 | 10.84±19.43 |
| t test value | | 7.341** | |
| Veterinary Doctor availability | | | |
| Always available | 60 (100) | 60 (100) | 120 (100) |

* Significant at 5 per cent level (p < 0.05) of significance
 ** Significant at 1per cent level (p < 0.01) of significance
 Figure in parenthesis indicate percentage

Majority of the respondents (65.00%) have not attended any training followed by 35.00 per cent respondents having attended training. Cent percent of the respondents who attended training said that the training/camps were organized by government. Majority of respondents (76.90%) attended 1-2 days training followed by 23.07 per cent respondents attended 3-4 days training. Cent percent of the respondents who attended trainings admitted to be benefitted by the training.

Table 6: Distribution of badri cattle owners according to training attended

| Training ever attended | Almora (60) | Pauri Garhwal (60) | Pooled (120) |
|------------------------|---------------|--------------------|---------------|
| Yes | 11 (18.30) | 31 (51.70) | 42 (35.00) |
| No | 49 (81.70) | 29 (48.30) | 78 (65.00) |
| Organization | | | |
| Government | 11(100) | 31(100) | 42(100) |

| Duration of training(days) | | | |
|----------------------------|-------------|---------------|---------------|
| 1-2 | 0 (0.00) | 9 (29.03) | 40 (76.92) |
| 3-4 | 11 (100) | 22 (70.96) | 12 (23.07) |
| Benefited by training | | | |
| Yes | 11 (100) | 31 (100) | 42 (100) |
| No | 0 (0.00) | 0 (0.00) | 0 (0.00) |

Figure in parenthesis indicate percentage

None of the respondents were having insurance of their cattle or applied/obtained any loan or any government assistance or credit facility for buying Badri cattle or for building shed *etc.*

Table 7: Distribution of Badri cattle owners according to other services availed

| Insurance of animal | Almora (n=60) | Garhwal (n=60) | Pooled (n=120) |
|--|------------------|-------------------|-------------------|
| No | 120 (100.00) | 120 (100.00) | 120 (100.00) |
| Loan for purchase of cattle | | | |
| No | 120 (100.00) | 120 (100.00) | 120 (100.00) |
| Government assistance/ credit facility | | | |
| No | 120 (100.00) | 120 (100.00) | 120 (100.00) |

Figure in parenthesis indicate percentage

CONCLUSION

Information source utilization by Badri cattle owners was not upto the mark. They were having medium informal interpersonal source utilization, low formal source utilization and medium mass media source utilization. Despite of availability most of the respondents were not utilizing V.O, L.E.O, N.G.O, Television, newspaper, kisan mela, mobile phone *etc.* for gaining information. Unfortunately none of the respondents had any contact with the KVK personnel or Bank personnel. The NGOs, V.O and L.E.O should play active role in these areas for information dissemination. Farmers should be made aware about the mobile based advisory services and should be encouraged to use it as this will help them to access the information in one click and can help them in numerous ways by providing large amount of information about various aspects.

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