



Sources of Information in Adoption of Scientific Dairy Farming

NARESH PRASAD^{1,2}, PERUMAL PONRAJ^{2*}

¹LUVAS – College of Veterinary Sciences, Hisar, Haryana – 125004, India; ²ICAR – National Research Centre on Mithun, Jharnapani, Nagaland – 797106, India.

Abstract | The present study was conducted in Jind district of Haryana to ascertain the various sources of information is being utilized by the livestock farmers and to assess the extent of use of various sources for obtaining scientific livestock farming information. A multistage random sampling technique was followed for selection of two blocks, eight villages and 240 dairy farmers. The data was collected through pre-tested well-structured interview schedule and questionnaire. The study revealed that most of the dairy farmers obtained information from veterinary surgeon (93.75%), VLDA (90.88%), progressive farmers (83.75%), and experts from agricultural university (71.43%) regarding various aspects of breeding, feeding, health care and management practices. The study also revealed that most of the livestock farmers acquired the latest livestock information through their respective VLDA's followed by neighbours, friends, progressive livestock farmers and Veterinary Surgeons. Correlation analysis revealed that the sources of information were used by livestock farmers had positive and significant correlation with socio-economic status (SES), occupation, education of respondent, extension contact, mass media exposure, risk orientation and cosmopolitaness-localitiness. Age had negative correlation, while social participation, family education status and annual income were found positive but non-significant correlation with sources of information used by livestock farmers. The R² value indicated that all the thirteen independent variables fitted in the regression equation had explained about 47 per cent variation towards various sources of information. Further, values of 't' for 'b' in case of SES, occupation, social participation, herd size, mass media exposure, risk orientation and cosmopolitaness-localitiness were found to have positive and significant influence on sources of information used by dairy farmers.

Keywords | Source of information, breeding, feeding, health care, management practices and livestock farmers

Editor | M. Saminathan (M.V.Sc), Division of Pathology, ICAR-Indian Veterinary Research Institute (ICAR-IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Special Issue | 2, 2016 "Emerging Challenges and Opportunities in Veterinary Research for Improvement of Animal Health".

Received | February 06, 2016; **Revised** | March 22, 2016; **Accepted** | March 25, 2016; **Published** | April 06, 2016

***Correspondence** | Perumal Ponraj, Scientist, Animal Reproduction Lab, ICAR-National Research Centre on Mithun, Jharnapani, Nagaland-797106, India;

Email: perumalponraj@gmail.com

Citation | Prasad N, Ponraj P (2016). Sources of information in adoption of scientific dairy farming. *Adv. Anim. Vet. Sci.* 4(2s): 13-18.

DOI | <http://dx.doi.org/10.14737/journal.aavs/2016/4.2s.13.18>

ISSN (Online) | 2307-8316; **ISSN (Print)** | 2309-3331

Copyright © 2016 Prasad and Ponraj. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Animal husbandry sector provides a subsidiary occupation in rural and urban areas especially for landless, marginal and small scale farmers. Communication is the basic step to bring the effective changes in the farming system. Livestock productivity and dairy development could be accelerated if traditional farming system is replaced or substituted by scientific farming system or with suitable scientific modification. Information sources play a vital role in disseminating the information about scientific live-

stock farming system to the livestock stake holders and farmers. Utilization of scientific livestock farming technology by the livestock farmers to a large extent depends upon the effective sources and availability of information to which they are generally exposed directly or indirectly. The problems in India especially in dairy sector, is lack of improved dairy technologies for converting them into production accomplishments. Therefore, transfer of improved dairy technology to the dairy farmers is an important task for extension agencies as farmers have been playing vital roles in dairy development in India. Sources of information

refer to a person who communicates the ideas and information regarding scientific farming to the livestock farmers through face-to-face situation or in some other form. Information system plays a vital role in livestock and animal husbandry development. Communication technologies serve both as direct information channels to farmers as well as indirect channels. Effective communication from different sources is the essential for extension, which provides knowledge and information for rural people to modify their behaviour in the ways that provide sustainable benefits to them and to the society (Gunawardana et al., 2005). A source is an individual or an institution that originates a message. Pandey (1979) observed that in order to acquire farm information, most of the contact farmers depends on neighbours, friends, family members and village extension workers. Nataraju and Channegowda (1985) reported that the veterinary livestock inspector acted as the most common source of information for different categories of livestock farmers. Family members, relatives, friends, neighbours and fellow progressive farmers were the main sources being utilized by the livestock farmers to obtain the information regarding various animal husbandry practices (Jha and Chauhan, 1999), whereas, Village Level Worker (VLW), veterinary surgeons, veterinary clinics or hospitals, Block Development Officers and members of panchayat were also playing secondary role in terms of providing information related with livestock practices to the farmers (Sharma and Khan, 1997). Veterinary surgeons, friends, relatives, and progressive farmers were the different sources of technical information about breeding, feeding, health care and management practices for dairy farmers (Sawarkar et al., 2001). Very little efforts have been made in Haryana to explore the extent of various sources utilization by the livestock farmers. Therefore, the present study was undertaken to quantify the contribution of various sources of information used by livestock farmers in adoption of scientific livestock farming system to assess the extent of use of different sources for obtaining scientific livestock farming information and to assess the relationship between independent variables and sources of information used by livestock farmers.

MATERIALS AND METHODS

The present study was conducted in Jind District of Haryana as it has the highest population density of cattle and buffalo (Statistical Abstract of Haryana, 2015). A multi-stage random sampling technique was followed for selection of two blocks, eight villages and 240 dairy farmers. A list of various sources was prepared with the help of scientists, field veterinarians, progressive livestock farmers and library consultation through which livestock farmers can acquire the latest information. Respondents were asked to indicate the sources through which they received latest

information regarding various scientific livestock farming. For each source indicated by respondent for receiving information, the frequency and percentage of particular source used for particular practice were calculated accordingly. Measurement of the frequency of use of sources was based on the procedure adopted by Sarkar (1981) with suitable modification. The extent of contact with various sources by the respondents was measured with the help of three point continuum scale. The three points were such as rarely, sometimes and mostly and assigned scores of 1, 2 and 3, respectively. The frequency of use for this study was to work out the total score of sources by multiplying with the numerical value of source. Sources of information utilized by the livestock farmers were taken as dependent variable for analysis purpose. Thirteen independent variables namely, age, socio-economic status, occupation, education level of respondent, social participation, family education status, herd size, annual income from animal husbandry, total annual income, extension contact, mass-media exposure, risk orientation and cosmopolitaness-localitiness were included. These variables were measured with the help of scales/indices as already developed. A pre-tested structured interview schedule was developed and the data were collected by holding interview with the respondents. Correlation and regression analysis were also computed to assess the relationship between independent variables and the sources of information used by livestock farmers using the SPSS/PC computer program (version 15.0; SPSS, Chicago, IL).

RESULTS AND DISCUSSION

LEVEL OF SOURCES OF INFORMATION USED BY LIVESTOCK FARMERS

Frequency of contact to sources refers to number of contacts in unit time with source for receiving information about scientific livestock farming system. The livestock farmers were grouped into three levels namely, low, medium and high on the basis of mean and standard deviation. The data presented in Table 1 revealed that majority of livestock farmers (67.08%) from pooled analysis had medium level of sources of information followed by high (16.67%) and low (16.25%). Among different herd sizes 22.73, 71.82 and 5.45 per cent from small herd sizes, 14.44, 67.78 and 17.78 per cent from medium herd size and 2.50, 52.50 and 45.00 per cent livestock farmers from large herd size were having low, medium and high levels of sources of information, respectively. It is clear from the data that with the increase in herd size of livestock farmers the use of sources of information increased.

Sources of Information used by Livestock Farmers in Adoption of Scientific Livestock Farming Practices Breeding Practices: The data in Table 2 revealed that

Table 1: Level of sources of information used by livestock farmers

| Level of sources of information | Score range | Livestock farmers having different herd sizes | | | Pooled (N=240) |
|---------------------------------|-------------|---|-----------------------------|----------------------------|----------------|
| | | Small (N ₁ =110) | Medium (N ₂ =90) | Large (N ₃ =40) | |
| | | Frequency (%) | Frequency (%) | Frequency (%) | Frequency (%) |
| Low | <49 | 25 (22.73) | 13 (14.44) | 1 (2.50) | 39 (16.25) |
| Medium | 50-70 | 79 (71.82) | 61 (67.78) | 21 (52.50) | 161 (67.08) |
| High | >70 | 6 (5.45) | 16 (17.78) | 18 (45.00) | 40 (16.67) |

Table 2: Sources of information used by farmers in adoption of scientific livestock farming (N = 240)

| S No. | Livestock Farming | Sources of information | | | | | | | | | | | |
|-----------------------|----------------------------|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------|-------------|
| | | R | F | N | PF | S | LCFD | FAS | AUE | FO | VS | VL | VLDA |
| a) Breeding | | | | | | | | | | | | | |
| 1 | Artificial Insemination | 83 (34.58) | 107 (44.58) | 59 (24.58) | 192 (80.00) | 39 (16.25) | 27 (11.25) | 142 (59.17) | 156 (65.00) | 30 (12.50) | 225 (93.75) | 5 (2.08) | 205 (85.42) |
| 2 | Service time after calving | 42 (17.50) | 88 (36.67) | 38 (15.83) | 205 (85.42) | 32 (13.33) | 17 (7.08) | 143 (59.58) | 155 (64.58) | 8 (3.33) | 227 (94.58) | 13 (5.42) | 225 (93.75) |
| 3 | Pregnancy Diagnosis | 35 (14.58) | 61 (25.42) | 37 (15.41) | 165 (68.75) | 23 (9.58) | 9 (3.75) | 97 (40.42) | 119 (49.58) | 8 (3.33) | 226 (94.17) | 7 (2.92) | 203 (84.58) |
| b) Feeding | | | | | | | | | | | | | |
| 4 | Green feeding | 194 (80.83) | 182 (75.83) | 191 (79.58) | 210 (87.50) | 174 (72.50) | 204 (85.00) | 196 (81.67) | 192 (80.00) | 203 (84.58) | 221 (92.08) | 13 (5.42) | 219 (91.25) |
| 5 | Balanced conc. mixture | 157 (65.42) | 180 (75.00) | 167 (69.58) | 220 (91.67) | 159 (66.25) | 221 (92.08) | 217 (90.42) | 204 (85.00) | 224 (93.33) | 224 (93.33) | 12 (5.00) | 233 (97.08) |
| c) Health Care | | | | | | | | | | | | | |
| 6 | Treatment of sick animals | 72 (30.00) | 100 (41.67) | 66 (27.50) | 182 (75.83) | 66 (27.50) | 19 (7.92) | 132 (55.00) | 156 (65.00) | 68 (28.33) | 229 (95.42) | 7 (2.92) | 212 (88.33) |
| 7 | Prophylactic vaccination | 182 (75.83) | 207 (86.25) | 160 (66.67) | 229 (95.42) | 138 (57.50) | 60 (25.00) | 212 (88.33) | 205 (85.42) | 151 (62.92) | 224 (93.33) | 15 (6.25) | 228 (95.00) |
| d) Management | | | | | | | | | | | | | |
| 8 | Deworming of Calves | 128 (53.33) | 154 (64.17) | 119 (49.58) | 196 (81.67) | 112 (46.67) | 36 (15.00) | 178 (74.17) | 176 (73.33) | 121 (50.42) | 228 (95.00) | 9 (3.75) | 223 (92.92) |
| 9 | Clean milk production | 124 (51.67) | 136 (56.67) | 116 (48.33) | 210 (87.50) | 81 (33.75) | 44 (18.33) | 163 (67.92) | 180 (75.00) | 89 (37.08) | 224 (93.33) | 11 (4.58) | 215 (89.58) |

Figures in parenthesis indicates percentage of respondents

R: Relatives, F: Friends, N: Neighbours, PF: Progressive Farmers, S: Sarpanch. LCFD: Local Cattle Feed Dealer, FA: Field Assistant (Stock Man), AUE: Agricultural University Experts, FO: Field Officer (N- Banks), VAS: Veterinary Assistant Surgeon, VL: Village Leader, SL: Superintendent Livestock

Veterinary Surgeon (VS) as a source of information regarding artificial insemination practice proved to be the most important to the extent of 93.75 per cent followed by VLDA (85.42%) and progressive farmers (80%). In case of technical information about service period after calving, again VS (94.58%), VLDA (93.75%) and progressive farmers (85.42%) were found most important source of information. Similar results were also found in case of pregnancy diagnosis. More utilization of VS and VLDA for getting information may be due to their frequent visit and easy approachability. The role of veterinary hospital level functionaries was much emphasized. However, local cattle feed dealer and local village leader were rarely used for obtaining technical input regarding SDFP by the framers. This may be due to the reason that they are not technically trained personnel on these aspects.

Feeding Practices: Most of the dairy farmers were seeking information regarding green feeding and balanced concentrate mixture from VS (92.08 & 93.33%) followed by VLDAs (91.25 & 97.08%), progressive farmers (87.50 & 91.67%), local cattle feed dealer (85.00 & 92.08%) and field officer of nationalized banks (84.58 & 93.33%), while village leaders (5.42 & 5.00%) was rarely used as sources of information in adoption of improved breeding practices.

Health Care Practices: Table 2 indicated that high percentage of the dairy farmers were seeking information regarding treatment of sick animals and prophylactic vaccination from Veterinary Surgeon (95.42 & 93.33%), and VLDAs (88.33 & 95.00%), while local cattle feed dealer (7.92 & 25.00%) and village leader (2.92 & 6.25%) were rarely used as sources of information in adoption of these improved health care practices.

Table 3: Extent of use of various sources for obtaining scientific livestock farming information

| S No. | Sources of information | Extent of use of various sources | | | | | |
|-------|-------------------------------|----------------------------------|---------------|---------------|-------------|------------|------|
| | | Mostly | Sometimes | Rarely | Total Score | Mean Score | Rank |
| | | Frequency (%) | Frequency (%) | Frequency (%) | | | |
| 1 | VLDA | 212 (88.33) | 27 (11.25) | 1 (0.42) | 691 | 2.88 | I |
| 2 | Neighbours | 169 (70.42) | 70 (29.17) | 1 (0.42) | 648 | 2.70 | II |
| 3 | Friends | 166 (69.17) | 71 (29.58) | 3 (1.25) | 643 | 2.68 | III |
| 4 | Progressive Livestock Farmers | 149 (62.08) | 89 (37.08) | 2 (0.83) | 627 | 2.61 | IV |
| 5 | Veterinary Surgeon | 64 (26.67) | 176 (73.33) | - | 544 | 2.27 | V |
| 6 | Relatives | 15 (6.25) | 211 (87.92) | 14 (5.83) | 481 | 2.00 | VI |
| 7 | Local Cattle Feed Dealer | 27 (11.25) | 186 (77.50) | 27 (11.25) | 480 | 2.00 | VI |
| 8 | Field Assistant (Stockman) | 20 (8.33) | 188 (78.33) | 32 (13.33) | 470 | 1.96 | VII |
| 9 | Sarpanch | 10 (4.17) | 177 (73.75) | 53 (22.08) | 437 | 1.82 | VIII |
| 10 | Field officer (N-Banks) | - | 112 (46.67) | 128 (53.33) | 352 | 1.47 | IX |
| 11 | Village leader | 6 (2.50) | 57 (23.75) | 177 (73.75) | 309 | 1.29 | X |
| 12 | Agric. Univ. Experts | - | 23 (9.58) | 217 (90.42) | 263 | 1.10 | XI |

Mean score: 2.29 - 2.88 = mostly; Mean score: 1.69 - 2.28 = sometime; Mean score: 1.10 - 1.68 = rarely

Table 4: Correlation between personal attributes and sources of information used by livestock farmers

| S No. | Personal attributes | Correlation-coefficient 'r' value with sources of information | | | |
|-------|-------------------------------|---|-----------------------------|-----------------------------|------------------|
| | | Small (N ₁ =110) | Medium (N ₂ =90) | Large (N ₃ = 40) | Pooled (N = 240) |
| 1 | Age | 0.013 | -0.143 | 0.116 | -0.075 |
| 2 | Socio-economic status | -0.058 | 0.207 | -0.014 | 0.406** |
| 3 | Occupation | 0.226* | 0.079 | 0.407** | 0.166* |
| 4 | Education level of respondent | -0.113 | 0.067 | 0.279 | 0.331** |
| 5 | Social participation | 0.067 | 0.069 | 0.265 | 0.095 |
| 6 | Family Education status | -0.168 | 0.078 | 0.173 | 0.183** |
| 7 | Herd size | - | - | - | 0.443** |
| 8 | Annual income from AH | -0.037 | 0.132 | 0.278 | 0.413** |
| 9 | Total annual income | -0.003 | 0.141 | 0.070 | 0.442** |
| 10 | Extension contact | 0.318** | 0.369** | 0.020 | 0.430** |
| 11 | Mass-media exposure | 0.249** | 0.475** | 0.141 | 0.558** |
| 12 | Risk Orientation | 0.245** | 0.408** | 0.345* | 0.476** |
| 13 | Cosmopolitaness-localitiness | 0.125 | 0.345** | 0.386* | 0.288** |

* P<0.05; ** P<0.01

Management Practices: Majority of dairy farmers were seeking information regarding improved management practices (deworming of calves and clean milk production) from Veterinary Surgeon (95.00 & 93.33%), VLDA (92.92 & 89.58%) and progressive farmers (81.67 & 87.50%) (Table 2) while local cattle feed dealer (15.00 & 18.33%) and village leader (3.75 & 4.58%) were rarely used as the sources of information in adoption of these new technologies. The results are supported by Sharma et al. (2008), Devi and Verma (2011), Yadav et al. (2011) and Meena and Meena (2012).

It implies that the most of dairy farmers obtained information from Veterinary Surgeons and VLDA. It may

be due to the facts that these field functionaries are more available and within approach of the farmers. Moreover, the dairy farmers understand that the information given by Veterinary Surgeons and VLDA is more credible and reliable. The respondents rarely contact the local leaders for obtaining information regarding various aspects of scientific dairy farming practices.

FREQUENCY OF CONTACT TO SOURCES OF INFORMATION USED BY LIVESTOCK FARMERS

Extent of use of different sources for obtaining scientific livestock farming information: Table 3 revealed that out of twelve sources, four namely, VLDA (mean score: 2.88), neighbours (mean score: 2.70), friends (mean score: 2.68)

Table 5: Regression-coefficient between personal attributes and sources of information used by livestock farmers

| S No. | Personal attributes | Regression-coefficient 'b' value with sources of information | | | |
|-------|-------------------------------|--|-----------------------------|----------------------------|-----------------------|
| | | Small (N ₁ =110) | Medium (N ₂ =90) | Large (N ₃ =40) | Pooled (N=240) |
| | | b (Std. Error) t | b (Std. Error) t | b (Std. Error) t | b (Std. Error) t |
| 1. | Age | -0.041 (0.080) -0.520 | -0.197 (0.100) -1.974 | 0.088 (0.177) 0.497 | -0.050 (0.058) -0.875 |
| 2. | Socio-economic status (SES) | -0.139 (0.146) -0.953 | -0.109 (0.131) -0.828 | 0.179 (0.262) 0.681 | -0.124 (0.058) -1.450 |
| 3. | Occupation | 1.987 (1.087) 1.827 | 0.644 (1.161) 0.555 | 9.726 (5.341) 1.821 | 1.579 (0.764) 2.068** |
| 4. | Education level of respondent | -0.528 (-0.575) -0.918 | -0.700 (0.727) -0.963 | -0.341 (1.263) -0.270 | -0.178 (0.397) -0.449 |
| 5. | Social participation | 2.048 (1.652) 1.239 | -1.368 (1.679) -0.815 | 13.185 (6.688) 1.971 | 1.048 (1.124) 0.932 |
| 6. | Family Education status | -1.250 (1.028) -1.216 | 0.906 (1.257) 0.721 | 0.217 (2.783) 0.078 | -1.059 (0.727) -1.443 |
| 7. | Herd size | - | - | - | 4.799 (1.236) 3.883* |
| 8. | Annual income from A.H. | -0.014 (0.087) -0.172 | -0.124 (0.077) -1.608 | 0.036 (0.091) 0.406 | 0.038 (0.039) 0.979 |
| 9. | Total annual income | -0.003 (0.034) -0.102 | 0.005 (0.025) 0.231 | -0.022 (0.055) -0.408 | -0.078 (0.017) -0.450 |
| 10. | Extension contact | 0.365 (0.510) 0.716 | 0.667 (0.556) 1.201 | -0.785 (1.010) -0.777 | 0.279 (0.337) 0.827 |
| 11. | Mass-media exposure | 0.828 (0.507) 1.632 | 1.767 (0.577) 3.062* | 0.373 (1.113) 0.336 | 1.004 (0.339) 2.965* |
| 12. | Risk Orientation | 0.388 (0.277) 1.397 | 0.292 (0.387) 0.759 | 0.492 (0.544) 0.905 | 0.417 (0.201) 2.076** |
| 13. | Cosmopolitaness-localiteness | 0.126 (0.291) 0.435 | 0.390 (0.362) 1.077 | 1.188 (0.574) 2.069** | 0.444 (0.204) 2.171* |
| | R ² | 0.229 | 0.344 | 0.462 | 0.374 |
| | F | 2.399** | 3.360** | 1.932** | 10.376** |

b- Regression coefficient; t- Value of student t-test; * P<0.05; ** P<0.01; F- Value of F-test; R²- Coefficient of multiple determinants

and progressive livestock farmers (mean score: 2.61) were used most of the times by livestock farmers. This implied that livestock farmers mostly utilized these sources for getting latest livestock information. This may be due to easily availability of these personnel. Information sources namely, sarpanch (mean score: 1.82), field officer (N-banks) (mean score: 1.47), village leader (mean score: 1.29) and agricultural university experts (mean score: 1.10) were used rarely for seeking information regarding scientific livestock farming. The reason for maintaining limited contact with agricultural scientists may be that the scientists are distantly located and rarely visit to villages; additionally livestock farmers visit the university in very acute situation. The remaining sources such as veterinary surgeons (2.27), relatives (2.00), local cattle feed dealer (2.00) and field assistant (stockman) (1.96) were used sometimes by the livestock farmers. The findings are supported by Sarkar (1981) and Yadav et al. (2011).

Relationship between personal attributes and sources of information used by livestock farmers: Sample correlation and multiple regressions were worked out to find out the relationship between independent variables (personal attributes) and sources of information. The results have been presented in Table 4 and 5.

CORRELATION ANALYSIS

The pooled analysis indicated that all the independent variables except age and social participation had positive and highly significant correlation with sources of information (Table 4). However, age was negatively and social participation was positively but non-significantly correlated with sources of information used by livestock farmers. In case

of small herd size, farmers occupation, extension contact, mass media exposure and risk orientation had positive and highly significant correlation with sources of information, whereas SES, education, annual income had negative and age, social participation had positive but non-significant correlation with sources of information used by small herd size farmers. In case of medium herd size, farmers, extension contact, mass media exposure, risk orientation and cosmopolitaness-localiteness had positive and highly significant correlation with sources of information. However, age had negative and SES, occupation, education, social participation and annual income were found to have positive but non-significant correlation with sources of information used by livestock farmers. In case of large herd size farmers, occupation had positive and highly significant correlation with sources of information and risk orientation, cosmopolitaness-localiteness had positive and significant correlation with sources of information, whereas, SES was negatively and age, education, social participation, annual income, extension contact and mass media exposure were positively but non-significantly correlated with sources of information used by livestock farmers.

REGRESSION ANALYSIS

The regression analysis (Table 5) between personal attributes and sources of information used by livestock farmers in adoption of scientific livestock farming revealed that all the thirteen independent variables had jointly accounted for 29.90, 34.40 and 46.20 per cent variation in case of small, medium and large herd size farmers. In case of pooled analysis, the 0.374 value of multiple determinant coefficients (R²) exhibits that all the independent varia-

bles together accounted for 37.40 per cent variation in the sources of information. The computed 'F' value 10.37 was found to be highly significant with sources of information. It was further observed that the occupation, herd size, mass media exposure, risk orientation and cosmopolitaness-localiteness had strong influence on sources of information. The social participation also tended to be significant with sources of information of livestock farmers. Hence occupation, herd size, mass media exposure, risk orientation and cosmopolitaness-localiteness were important predictors of sources of information. In case of respondents belonged to small herd size, none of the independent variables were found to have significant contribution towards sources of information while mass-media exposure and cosmopolitaness-localiteness had positive and significant 't' value for 'b'. It implies that if one unit of mass-media exposure and cosmopolitaness-localiteness are increased then sources of information are increased by 3.062 and 2.069 unit.

SUMMARY

Significant proportions of livestock farmers were using veterinary surgeon, VLDA, neighbours, friends and progressive farmers as the sources of information in adoption of improved breeding, feeding, health care and management practices. These sources were used most frequently by livestock farmers. Therefore, extension agents and impersonal contacts are still the most preferred sources of information for dissemination as well as adoption of scientific livestock farming. Out of the thirteen independent variables SES, occupation, education, extension contact, mass media exposure, risk orientation and cosmopolitaness-localiteness were found to have positive and significant correlation with sources of information used by livestock farmers except age. The R^2 value revealed that all the thirteen independent variables fitted in the regression equation had explained about 47 per cent variation towards sources of information. Hence, it was recommended that the extension agencies and veterinary surgeon should arrange the frequent visits of scientists and other senior officers of the animal husbandry department to impart valuable information to livestock farmers and get feedback from them. The extension agencies should also advise the livestock farmers to visit the university to see the result demonstration of the technology generated by the scientists. Expertise should be invited to various meeting, fairs etc. organized by KVK, university and university training centres to increase the liaison with farmers as a result of which the livestock farmers can receive more valuable and useful information.

ACKNOWLEDGMENTS

The Dean, College of Veterinary Sciences (LUVAS), Hisar, Haryana, India for their tremendous help, sagacious

guidance, constant encouragement, valuable suggestions, stimulating discussions and everlasting affection, which inspired us to bring this problem in hand to a successful end.

CONFLICT OF INTEREST

None of the authors have any conflict of interest to declare.

AUTHOR'S CONTRIBUTION

Naresh Prasad: Plan of work, execution, analysis of data and manuscript preparation; Perumal Ponraj: Plan of work, technical assistance, analysis of data and manuscript preparation.

REFERENCES

- Anonymous (2015). Livestock, Animal Husbandry and Dairying. Statistical Abstract Haryana (2013-14), Govt. of Haryana, Chandigarh. Pp. 297-332.
- Devi U, Verma S (2011). Farm women preferences of communication sources for farm information. *Indian Res. J. Ext. Edu.* 11(2): 15-19.
- Gunawardana AMAPG (2005). Communication behaviour of farmers on improved farm practices on Udaipur district of Rajasthan. M.Sc. Thesis, Maharana Pratap University of Agriculture and Technology (MPUAT), Udaipur.
- Jha PK, Chauhan JPS (1999). Correlates of interpersonal communication behavior of dairy farmers. *J. Dairying Foods Home Sci.* 18(1): 55-57.
- Meena HR, Meena KL (2012). Sources of Information and Knowledge of Farmers about Dairy Farming. *J. Rec. Adv. Agric.* 1(2): 56-62
- Nataraju MS, Channegowda MB (1985). Sources of information utilized for adoption of improved dairy management practices by small, marginal farmers and agricultural labourers. *Indian J. Ext. Edu.* 21(3&4): 10-15.
- Pandey SN (1979). A study of communication patterns under the T and V system of agricultural extension in Chambal area development project of Rajasthan. Ph.D. Thesis, ICAR-Indian Agricultural Research Institute, New Delhi.
- Sarkar A (1981). A study of communication behaviour of dairy farmers in relation to scientific dairy farming practices of ICDP Barasat (WB). Ph.D. Thesis, National Dairy Research Institute, Karnal, India.
- Sawarkar SW, Borkar MM, Upadhye SV, Jadhao SB (2001). The source of technical information for trivial dairy farmers. *Indian J. Dairy Sci.* 54(2): 113-115.
- Sharma AK, Jha SK, Kumar V, Sachan RC, Kumar A (2008). Critical Analysis of Information Sources and Channels Preferred by Rapeseed-Mustard Farmers. *Indian Res. J. Ext. Edu.* 8(2&3): 42-45.
- Sharma ML, Khan MA (1997). Communication sources of farmers of south eastern Madhya Pradesh. *Agric. Ext. Rev.* 21: 22.
- Yadav BS, Khan IM, Kumar M (2011). Utilization pattern of different sources and channels of agriculture information used by the Fenugreek Growers. *Indian Res. J. Ext. Edu.* 11(1): 44 - 49.