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Relationship of Socio-economic Profile of *Gujjars* (Pastoralists) with Knowledge and Adoption of Improved Animal Husbandry Practices

R. Jeelani[1], S. A. Khandi[2], M. Y. Beig[3], P. Kumar[4] and M. S. Bhadwal[5]

ABSTRACT

Gujjars are one of the major pastoral communities of India. The study was conducted in Jammu district of Jammu and Kashmir, with a view to find out the relationship of knowledge level and adoption of *Gujjars* regarding improved animal husbandry practices. The data was collected from 120 *Gujjar* respondents belonging to R.S Pura and Bishnah block of Jammu district with the help of structured interview schedule containing selected dependent and independent variable, through personal interview technique.The independent variables except age, occupation, herd size and land holding were positively associated with the dependent variables i.e. knowledge and adoption. Age and occupation were negatively and significantly related to the knowledge level and adoption. Herd size was negatively and insignificantly related to knowledge level, but significantly associated with adoption. Knowledge level of respondents was negatively and significantly related with land holding however it was insignificantly associated with adoption. Education, social participation, mass media exposure, risk orientation and exposure to training were significantly and positively associated with both the knowledge level and adoption of respondents. On the other hand, extension contact and economic motivation were positively and significantly associated with the knowledge level but insignificantly related to the adoption.

Key words: Knowledge, adoption, correlation, *gujjar*, pastoralists, improved animal husbandry.

INTRODUCTION

Tribals constitute 8.6 per cent of the total population of India (Census, 2011). *Gujjars* are one of the major pastoral communities of the state, predominantly rearing buffaloes, which play a crucial role in their economy and social status. They practice transhumance pastoralism that involves cyclical movements from lowlands to highlands, to take advantage of seasonally available pasture at different elevation in the Himalayas (Bhasin, 1988). The life of *Gujjars* revolves around buffaloes which plays a crucial role in their economy and social status (Singh, 1993). The *Gujjars* of Jammu district are mainly dependent on dairy business and are called *Banihara or Dodhi Gujjars*. The *Dodhi Gujjars* of Jammu district are hard working, spend all of their time with their livestock, and provide 'milk and milk products' to domestic households and almost all the famous sweets shops of Jammu city. The current level of productivity of milch cattle of *Gujjars* remains an area of concern as the productivity of their livestock is very low, when compared to the large number of animals they keep. There is poor management and ratio of dry, pregnant and milking animals in their livestock herds and the income they receive from marketing the milk and milk products is mostly spent on feeding of the animals. The price of milk and feed are contrary to each other and they find it very difficult, to make the both ends meet. It has drastically affected the economic condition of *Dodhi Gujjars* and they are in the same position in which they were hundreds of years before (Annonymous, 2007). This makes a strong case for regional strategies to be planned, to pursue the goal of higher milk production, for the elevation of economic status of this tribal community and to make the district self sufficient in milk production which could be done by increasing the knowledge level and adoption of improved animal husbandry practices. The increase of knowledge and adoption is supposed to contribute to raising the socio-economic standard of this tribal community and so this study was undertaken to find the relationship of knowledge and adoption with the socio-economic profile of *Gujjars*.

METHODOLOGY

District Jammu falls in sub-mountainous region, at the foothills of the Himalayas and is approximately 600 kilometres away from the national capital, New Delhi. Jammu district comprises of eight blocks. The population of *Gujjars* is more or less equal in all the blocks of the district. Two blocks were selected from the district by following simple random method. The selected blocks were R. S. Pura and Bishnah. A comprehensive list of villages of the selected blocks was prepared. Two villages were selected purposefully from each of the two selected blocks having predominantly *Gujjar* population. Thus, a

[1]Rizwan Jeelani, M.V.Sc Scholar, Division of Veterinary and Animal Husbandry Extension Education, Faculty of Veterinary Sciences and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu (J&K), India [2] Shafkat Ahmad Khandi, Assistant Professor,
[3] Mohd Younas Beig, M.V.Sc Scholar, [4] Pranav Kumar, Assistant Professor, [5] Mohinder Singh Bhadwal, HOD and Associate Dean,

total of four villages were selected in all. A list of *Gujjars* practicing dairy farming was prepared in each village and respondents were then selected by systematic random sampling method. Thirty *Gujjars* were selected from each of these 4 selected villages, constituting a total sample size of 120 respondents. Keeping in view the objectives of the study, literature was reviewed thoroughly and discussions were held with the faculty members of the division of Veterinary and Animal Husbandry Extension Education, to select the independent variables. Following variables were selected and operationalised in the study: age, education, occupation, social participation, extension contact, herd size, mass media exposure, land holding, risk orientation, economic motivation and exposure to training. A schedule was developed to measure the knowledge and adoption of *Gujjars*, maximum score being 100 in each. The schedule consisted of four areas i.e. management, feeding, breeding and healthcare. The management component was further divided into two parts; general management and clean milk production practices. The data was coded, classified, tabulated, analyzed using the software Statistical Package for the Social Science (SPSS 17.0). Frequencies, percentage, mean, standard deviation and correlation were worked out for meaningful interpretation.

RESULTS AND DISCUSSION

A brief account of the general background profile of the respondents is presented in the table 1.

Majority of the respondents were middle aged with mean age of about 44 years. The observed range of age was 15-78 years which indicates that the *Gujjar* respondents of all age groups were adequately represented in the study. The respondents had poor formal education with mean value of 1.44 which indicates that the majority of *Gujjars* were illiterate. None of the respondents had formal education, up to graduation level or higher, which is in consonance with finding of Khandi *et al.* (2008) regarding perception of *Gujjars* towards modern animal husbandry practices. Majority of the respondents were landless and with small land holdings as is being depicted by their mean value of 0.77. The respondents in general had poor social participation. Most of the respondents were engaged in caste occupation (mean value 1.49). Bhat *et al.* (1984), Hassan (1989), Samajadar (2000) and Khandi *et al.* (2010) have earlier reported that the main family occupation of *Gujjars* was livestock rearing. Most of the respondents had medium herd size of 15-54 dairy animals with mean herd size of about 35 animals. Further, the scores of the respondents indicate that they had poor extension contact, mass media exposure and risk orientation. However, scores obtained by the respondents in case of economic motivation were fairly high (mean value 21.59). Similar findings were reported by Khandi *et al.* (2010) in his study regarding knowledge level of *Gujjars* of Jammu district. Most of the respondents (65.8 per cent) had no exposure to trainings regarding improved practices of animal husbandry.

Table 1: General background profile of respondents

Independent variable	Possible range	Observed range	Mean ± Standard error	Standard deviation
Age	-	15-78	44±1.28	13.97
Education	0-6	0-5	1.44±0.17	1.82
Occupation	1-4	1-3	1.49±0.58	0.64
Social participation	0-4	0-4	0.85±0.08	0.83
Extension contact	0-32	5-12	7.06±0.17	1.92
Herd Size	-	8-100	35±1.77	19.43
Mass media exposure	0-18	2-7	3.43±0.13	1.48
Land holding	0-6	0-3	0.77±0.09	0.95
Risk orientation	6-30	8-20	11.43±0.28	3.04
Economic motivation	6-30	19-27	21.59±0.21	2.34
Exposure to training	0-4	0-4	1.12±0.15	1.68

The correlation estimates between the dependent and independent variables are presented in table 2.

The independent variables were classified into categories (table 3) and the results are discussed below:

Age

In the present study it was found that majority of the respondents (63.3 %) were middle aged with mean age of 44 years, followed by young (20 %) having mean age of 37.0 years (table 3). It was further observed that young respondents were having significantly higher knowledge than the respondents in old age category. The age was negatively and significantly related with both the knowledge and adoption scores of the respondents (table 2). Thus with increase in age of respondents there was decline in both their knowledge levels regarding improved animal husbandry practices and their adoption. Similar finding has earlier been reported by Mahipal (1983), for knowledge but on the contrary, he reported that the age was having positive but insignificant relationship with the overall adoption of dairy innovations by medium category farmers. Deepak *et al.* (2004) studied the knowledge level of rural women in Haryana and found that, age played an important role in influencing the knowledge level of rural women about feed and fodder practices for buffaloes. Chugh *et al.,* (1996) also found age, to be significantly affecting the adoption level. This can probably be attributed to the fact that the respondents of old age group differ in knowledge acquisition behaviour in comparison to the young respondents. Further the young age group respondents in general have higher curiosity levels, better formal

education and higher mass media exposure as compared to old age respondents. Studies to establish the cause of different knowledge levels are advocated. Anyhow, it is suggested that emphasis should be given to old age group and middle age group, to increase their knowledge level by simplifying the information of complex animal husbandry practices and by conducting training programmes periodically to impart knowledge about improved techniques.

Education

It is a well known fact that education results in all round development of an individual. In the present study it was found that majority of the respondents (51.7 %) had low level of education, followed by medium level category (26.7 %). The respondents with higher education levels comprised only 21.6 per cent of the total respondents (table 3). Similar findings were reported by Khandi *et al.* (2010), while stating the fact that *Gujjars* mainly remain engaged in nomadic lifestyle and right from childhood they are taught to rear livestock and drive the flocks in pastures for grazing. Further, education was observed to have a positive and significant association with knowledge and adoption scores of the respondents (table 2). Similar results were reported by other workers. Raghavendra *et al.* (1984) conducted a study on factors associated with adoption of recommended dairy management practices in Bengaluru and reported that education was positively and significantly associated with the adoption of recommended practices. Kolgi and Anand (1985) studied the adoption of dairy innovations among selected Tibetian refugees of Karnatka and found education to be significantly and positively correlated with adoption of dairy farming practices.

Similarly, Verma and Tyagi (1993) in their study about adoption behavior of dairy farmers in Haryana found education to have significant bearing on adoption. Education and knowledge had positive and significant relationship with the extent of adoption by dairy owners as reported by Sawarkar *et al,*. (2001) in their study about awareness, adoption and constraints of dairy owners of Vidharba region. Also, Bhakar *et al.,* (2006) revealed that education had positive and significant correlation with adoption of improved animal husbandry practices. Kumar *et al.,* (2011) conducted a study on prediction potentialities of socio-personal attributes on adoption level of dairy farmers in Patna district of Bihar and revealed a wide variation in prediction potentialities of selected variables. Cosmopoliteness followed by education emerged as potential predictors of adoption. They recommended enhancing the level of education of milk producers along with providing better opportunities of information sources other than they have, in order to enhance the adoption level of improved animal husbandry practices. This can probably be hypothesized here that the respondents with higher formal education have increased capabilities of deciphering the complex animal husbandry information. Further the respondents with higher education status scored higher in mass media exposure and social participation, which could have played a role in higher scores observed.

Occupation

Majority of the respondents (58.3 %) were engaged in caste occupation while 41.7 per cent of the respondents were engaged in diversified occupation activities (table 3). Bhat *et al.* (1984) conducted study on *Gujjars* of Jammu and Kashmir and found that their main family occupation was livestock rearing. Hassan (1989) stated that a large number of the *Gujjars* still stick to their ancestral profession of buffalo keeping and selling of milk and milk products. Samajadar (2000) reported that *Gujjars* were engaged exclusively in their traditional occupation of buffalo rearing in the forest areas for sustenance with total dependence on it as the only source of their family income. Khandi *et al.,* (2008) studied the perception of *Gujjars* towards modern animal husbandry practices and found that *Gujjars* were mostly involved in caste occupation. Significant negative association of occupation with knowledge and adoption scores of respondents was observed (table 2). Hamdani (2008) conducted a study on the adoption pattern of improved dairy farming practices in Jammu district and found occupation to be positively and significantly related with both knowledge and adoption. Khandi *et al.,* (2010) studied the correlates of *Gujjars* attitude towards modern animal husbandry practices and found that knowledge level of *Gujjars* was positively and significantly associated with occupation. It is assumed here that the *Gujjars* engaged in diversified occupational activities could have higher mobility, diverse social interaction, different attitudinal sets and less time devotion for animal husbandry, which in turn might have contributed to the differences observed. Decrease in knowledge and adoption of improved animal husbandry practices with diversification of occupation can also be attributed to the perception of *Gujjars* regarding their caste occupation being less profitable and more risky venture than other means of earning.

Social participation

The majority of respondents (43.3 %) in the present study were having medium level of social participation, whereas 37.5 per cent had low level and only 19.2 per cent

of the respondents had high level of social participation (table 3). Positive and significant association of social participation with knowledge scores of the respondents was observed. On the other hand, social participation was observed to have positive but insignificant association with adoption scores of the respondents (table 2). The extent of social participation seems to have positively affected the adoption scores of the respondents. A thorough review of literature reveals similar reports about the association of social participation with the knowledge and adoption scores of respondents. Chugh *et al.,* (1996) reported that social participation does not significantly contribute towards the adoption level. Contrary to this, Kolgi and Anand (1985) studied the adoption of dairy innovations among selected Tibetian refugees of Karnatka and found social participation to be significantly and positively correlated with adoption of dairy farming practices. Verma and Tyagi (1993) reported social participation to be significantly associated with the level of adoption both in members and non members of cooperative society, in their study about adoption behavior of dairy farmers in Haryana. Yadav and Yadav (1997) studied the different levels of adoption of buffalo husbandry practices among farmers of different levels of social participation and found that social participation was found to have a strong association with the level of adoption of housing, feeding, breeding, disease prevention, and sale-purchase practices.

Extension contact

In the present study, majority of the respondents (49.2%) were in medium category of extension contact, followed by high category (34.1 %) (table 3). Extension contact was observed to have positive and significant association with knowledge scores but positive and insignificant association was found with adoption scores (table 2). Lal *et al.* (2007) studied the correlates between the personal traits and training needs of dairy farmers regarding improved dairy farming practices in Karnal Haryana and reported that the increase in extension contact decreases the training needs of farmers by increasing the knowledge level. The overall extension contact of the respondents in general was poor with a mean value of 7.06, while the maximum possible score was 32 (table 1). Similarly, Hamdani (2008) found poor extension contact of dairy farmers of Jammu district and Khandi (2008) reported the low extension contact of *Gujjars* of Jammu and Kashmir. Bhakar *et al.,* (2006) has also reported that extension contact had positive and significant correlation with adoption of improved animal husbandry practices. It can be hypothesized that the extension contact is so meager that it fails to make any dent in the adoption. Nevertheless, it is a pointer to the urgency with which reforms in the present extension systems are required. The organization and performance of local extension systems could have been responsible for diverse reports. In this regard studies to evaluate the efficacy of present extension system are strongly advocated.

Herd Size

In the present study, majority of the respondents (75%) were having medium herd size of 15-54 dairy animals followed by large category (15 %) with more than 54 milch animals. Remaining 10 per cent of the respondents were having small herd size of less than 15 dairy animals (table 3). Khatra and Sharma (1992) have reported that range of herd size among nomadic *Gujjars* was 11.60 to 13.73, and that they utilized their saving from buffalo keeping, increasing the herd size at the cost of their standard of living. Khandi (2008) also reported about the large herd size of the *Gujjars* of Jammu and Kashmir. Herd size was observed to have negative and insignificant relation with knowledge (table 2). This is in agreement with the findings of Chugh (1986), who reported that herd size did not influence adoption as well as awareness knowledge of dairy farmers in his study about sustainability of dairy farming technology and factors affecting knowledge and adoption in dairy farmers of Pantnagar. Kherde *et al.,* (1986) also reported knowledge to be insignificantly associated with herd size. In the present study herd size was found to have significant negative association with adoption scores of respondents with a correlation coefficient of -0.376, which means that adoption was less in respondents having larger herd size. Hamdani (2008), while studying the adoption pattern of improved dairy farming practices by the dairy farmers of Jammu district found herd size to be positively but insignificantly associated with the adoption of recommended practices, with a correlation coefficient of 0.194. This can be attributed to the fact that respondents with more number of animals perceive higher risk in adopting new technologies while the economic factors cannot be taken for granted to observe this association.

Mass media exposure

Majority of the respondents (64.2 %) in the present study were having medium mass media exposure followed by the low category (23.3 %). Remaining 12.5 per cent of the respondents constituted the high category (table 3). Mass media exposure was positive and significant in its association with knowledge and adoption of improved animal husbandry practices (table 2). Similar findings were reported by Sohal and Tyagi (1978) as they found positive and significant relationship between mass

media exposure and knowledge about dairy technology. Patil (1981) also found mass media exposure was to be significantly related to the knowledge and adoption of dairy practices in his study regarding impact of intensive cattle development project on dairy development in milk shed area of Miraj in Maharashtra. Verma and Tyagi (1993) reported that mass media exposure was significantly associated with the level of adoption both in members and non members of cooperative society, in their study about adoption behavior of dairy farmers in Haryana. Thus it can be concluded here that mass media has pronounced effects on the knowledge and adoption of respondents. It is therefore suggested that mass media as an extension tool has a great potential. However, overall mass media exposure of the respondents in the present study was poor, with a mean of 3.43 out of maximum possible score of 18 (table 1). Similarly Khandi (2008) while studying the perception of *Gujjars* of Jammu and Kashmir reported about the poor mass media exposure and positive significant association with the knowledge level of his respondents. Appropriate steps to enhance the overall mass media exposure should form the first step prior to using mass media as an extension tool. This can perhaps be done by improving the quality and extent of mass media programmes.

Land holding

In general, majority of the respondents were from landless category (57.5 %), while 42.5 per cent of the respondents were having some land holding (table 3). This is probably because of the nomadic mode of lifestyle as stated earlier by and Khandi (2008). The land holding was observed to have significant negative effect on knowledge level but had insignificant association with adoption scores (table 2). The results of knowledge and adoption score are in agreement with the findings of number of workers. Raghavendra *et al.* (1984) in his study on factors associated with adoption of recommended dairy management practices in Bengaluru found that farm size was not significantly associated with the adoption of recommended dairy practices. Similarly, Chugh *et al.,* (1996) studied the suitability of dairy farming technology and factors affecting knowledge and adoption among dairy farmers in Uttaranchal and reported that land holding does not significantly contribute towards the adoption level. Thus, it can be hypothesized that resourcefulness of respondents exerts limited influence on the knowledge of animal husbandry practices. Interactive mixed crop livestock farming appears to be on decline. However, this needs to be substantiated before arriving at it conclusively. Decrease in adoption of improved animal husbandry practices with land holding can be postulated to perception of *Gujjars* regarding improved animal husbandry practices being less profitable and more risky venture than agriculture.

Risk orientation

Majority of the respondents (74.2 %) were found to have medium level of risk orientation followed by the respondents (17.5 %) who had low level of risk orientation (table 3). This indicates that the respondents in general were not willing to take risk related to adoption of improved animal husbandry practices. Hamdani (2008) reported that majority of his respondents (42 %) were having medium level of risk orientation, followed by high (30 %) and low (28 %) categories. Khandi (2008) in his study regarding perception of *Gujjars* of Jammu and Kashmir towards modern animal husbandry practices found that his respondents in general were willing to take risk.

He observed positive significant association between risk orientation and knowledge. Risk orientation and knowledge had positive and significant relationship with the extent of adoption by dairy owners as reported by Sawarkar *et al.,* (2001) in their study about awareness, adoption and constraints of dairy owners of Vidharba region. In the present study, positive and significant association was observed between the risk orientation and knowledge scores of the respondents, whereas it was positive though insignificant with adoption scores (table 2). This is a pointer to the view, that the dairy farmers willing to take risk were able to acquire their knowledge about improved animal husbandry practices, making it an active effort. However, their adoption remained unaffected. Probably the respondents were not convinced to translate the knowledge obtained into actual practice. It cannot be ruled out, that the additional knowledge acquired was difficult to fit with the system of livestock rearing practices of *Gujjars* of Jammu district. However, definite reasons behind this phenomenon remain concealed, and studies to understand this variation should be undertaken in future.

Economic motivation

In the present study, majority of the respondents (56.7%) had medium level of economic motivation followed by the respondents with high economic motivation category (24.1 %) of the respondents (table 3). The association of economic motivation with the knowledge and adoption scores of the respondents was positive but insignificant (table 2). With the increase in the economic motivation of respondents there was increase in the knowledge level, but adoption of the respondents regarding improved animal husbandry

practices was insignificant in relation to economic motivation scores. Presumably it can be hypothesized that the respondents with high economic motivation do not perceive animal husbandry in general as a lucrative option. Similarly, Hamdani (2008) reported that economic motivation was having positive but insignificant association both knowledge and adoption levels of the dairy farmers of Jammu district. The findings are in contrast, to the reports of Tyagi and Sohal (1984) and Kolgi and Anand (1985), who observed positive and significant association of economic motivation with animal husbandry practices. Positive significant association between economic motivation and knowledge was observed by Khandi (2008). However, Sawarkar *et al.,* (2001) found economic motivation to be negatively associated with the adoption. There perhaps is no uniform pattern of association between economic motivation and knowledge and adoption of improved animal husbandry practices. Perhaps the sustained growth of economy, especially the service sector provides suitable remunerative avenues to the people in general. Adoption of feeding practices was high in assured irrigated areas. Milk production, attitude towards dairy training and feeding constraints ascertained for maximum variation in adoption of feeding practices in assured irrigated areas (kumar and singh, 2012).

Table 2: Correlation of selected dependent and independent variables

Independent variable	Dependent variable	Management practices	Feeding practices	Breeding practices	Health care practices	Total of all practices
Age	Knowledge	-0.260**	-0.087	-0.187*	-0.251**	**-0.223***
	Adoption	-0.190*	-0.189*	-0.181*	-0.291**	**-0.276****
Education	Knowledge	0.541**	0.408**	0.429**	0.547**	**0.542****
	Adoption	0.419**	0.242**	0.171	0.367**	**0.428****
Occupation	Knowledge	-0.307**	-0.323**	-0.114	-0.257**	**-0.310****
	Adoption	-0.254**	-0.225*	-0.055	-0.224*	**-0.274****
Social participation	Knowledge	0.290**	0.225*	0.273**	0.257**	**0.294****
	Adoption	0.124	0.221*	0.120	0.133	**0.203***
Extension contact	Knowledge	0.493**	0.257**	0.502**	0.518**	**0.477****
	Adoption	0.087	-0.019	0.010	0.038	**0.049**
Herd size	Knowledge	-0.005	-0.079	0.110	-0.059	**-0.019**
	Adoption	-0.287**	-0.285**	-0.132	-0.428**	**-0.376****
Mass media exposure	Knowledge	0.607**	0.396**	0.471**	0.546**	**0.578****
	Adoption	0.288**	0.180*	0.086	0.238**	**0.288****
Land holding	Knowledge	-0.240**	-0.230*	-0.158	-0.267**	**-0.254****
	Adoption	-0.191*	-0.120	-0.004	-0.154	**-0.176**
Risk orientation	Knowledge	0.599**	0.358**	0.376**	0.525**	**0.547****
	Adoption	0.108	0.191*	0.124	0.141	**0.186***
Economic motivation	Knowledge	0.512**	0.337**	0.513**	0.461**	**0.505****
	Adoption	0.067	0.040	0.015	0.074	**0.069**
Exposure to training	Knowledge	0.505**	0.449**	0.316**	0.483**	**0.511****
	Adoption	0.319**	0.304**	0.164	0.420**	**0.406****

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Table 3. Classification of independent variables into various categories

Independent variable	Category	Frequency (%)	Knowledge Score (%)	Adoption Score (%)
Age	Young (<30)	20.0	54.6	35.3
	Middle (30-58)	63.3	49.6	32.9
	Old (>58)	16.7	49.0	32.1
Education	Low (0)	51.7	47.8	31.9
	Medium (1-3)	26.7	46.3	32.2
	High (4-6)	21.6	62.0	38.0
Occupation	Caste (1)	58.3	52.9	34.3
	Diversified (2-4)	41.7	47.1	31.8
Social participation	Low (0)	37.5	47.9	32.2
	Medium (1)	43.3	49.0	33.2
	High (2-4)	19.2	58.7	35.5
Extension contact	Low (<5.14)	16.7	46.8	32.1
	Medium (5.14-8.98)	49.2	48.8	33.9
	High (>8.98)	34.1	54.6	33.0
Herd size	Small (<15)	10.0	52.9	36.6
	Medium (15-54)	75.0	50.3	33.4
	Large (>54)	15.0	49.4	30.2
Mass media exposure	Low (0-2)	23.3	49.0	33.8
	Medium (3-5)	64.2	47.8	32.2
	High (6-7)	12.5	66.9	38.1
Land holding	Landless (0)	57.5	53.1	34.4
	Land holding (1- 6)	42.5	46.9	31.8
Risk orientation	Low (<8.39)	17.5	50.6	32.8
	Medium (8.39-14.47)	74.2	48.1	33.1
	High (>14.47)	8.3	71.5	35.7
Economic motivation	Low (<19.25)	19.2	50.6	36.8
	Medium (19.25-23.93)	56.7	47.4	31.7
	High (>23.93)	24.1	57.6	34.1
Exposure to training	Without training (0)	65.8	47.4	31.4
	With training (1- 4)	34.2	56.4	36.8

Exposure to training

Most of the respondents (65.8 %) had not received any training regarding improved animal husbandry practices in the recent past, while only 34.2 per cent of respondents had some exposure to training (table 3). Exposure to training was having positive and significant association with both knowledge and adoption of improved animal husbandry practices by the respondents. Sankhala and Chand (1999) conducted study on knowledge status of tribals regarding improved dairy farming practices in Rajasthan state and found that the trained tribal farmers were having significantly higher knowledge than the untrained farmers about improved dairy farming practices. It is presumed here that the extension agencies offering such trainings have limited coverage of areas where *Gujjars* live. It is suggested that major enhancement of training activities of the concerned departments should be there to cover a sizeable number of *Gujjars.* In the absence of such trainings improvements in terms of higher knowledge and adoption are difficult to achieve. Sagar (1991) stated that for high milk production, it is essential for the milk producers and livestock owners to have the basic knowledge required for adoption of animal husbandry practices which can be achieved through conducting training programmes.

CONCLUSION

The present study showed that the young respondents had significantly higher knowledge level and adoption than the old respondents, as also the respondents with higher education status, high exposure to training and higher mass media. Whereas, the respondents practicing

caste occupation had higher knowledge level and adoption than those involved in diversified occupational activities. The respondents with large herds had significantly low adoption than the respondents with small herds, while that did not have any significant effect on knowledge level. Respondents with higher social participation, higher extension contact, higher economic motivation and higher risk orientation had comparatively higher level of knowledge than the respondents with lower scores in these respective variables. However, this had less effect on the adoption of respondents regarding improved animal husbandry practices.

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