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Knowledge level of *Gujjars* of Jammu and Kashmir regarding Improved Animal Husbandry Practices

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ABSTRACT

The study was conducted in Jammu district of Jammu and Kashmir, with a view to find out the knowledge level of the *Gujjars* regarding improved animal husbandry practices. The data were 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. Most of the respondents (70.8%) were having medium knowledge level, whereas 19.2% had low and 10% had high knowledge level. The respondents were having low knowledge about improved health care practices (41.25%) when compared with the knowledge level about improved breeding practices which was 71.75%. Age, occupation, herd size and land holding were negatively related to the knowledge level. Education, social participation, extension contact, economic motivation, mass media exposure, risk orientation and exposure to training were positively associated with knowledge level of the respondents.

Keywords: Knowledge, Pastoralist, Jammu, *Dodhi Gujjars*, Animal husbandry

Tribals constitute 8.6% of the total population of India (Census, 2011). Tribals are particularly present in Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Jammu and Kashmir, Tamil Nadu, West Bengal and some north-eastern states and the Andaman and Nicobar. *Gujjars* and *Bakarwals* are numerically the third largest community in Jammu and Kashmir after Kashmiri Muslims and Dogras and 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). Jammu district being the winter capital of state of Jammu and Kashmir plays a crucial role in the economy of the state with high tourist inflow from all over the world throughout the year. The native population of Jammu district is about 15.26 lac (Census, 2011), and has a large demand for milk and milk products round the year, which is not sufficiently met. The *Gujjars* of Jammu district are mainly dependent on dairy business and are called *Banihara or Dodhi Gujjars*. The current level of productivity of milch cattle of *Gujjars* remains an area of concern as the productivity of their livestock is very low (1361.58 litres/lactation), when compared to the large number of animals they keep (Koundal, 2012). 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 (Annonymous, 2007). 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 economical potential of *Dodhi Gujjars* and they are in the same position in which they were hundreds of years before. Knowledge is the primary factor which eventually results in the adoption of a new technology. Therefore the knowledge level of *Gujjars* of Jammu district regarding

improved animal husbandry practices and its relationship with their socio-economic profile needed to be evaluated to investigate the cause of low productivity of their livestock.

MATERIALS AND METHODS

Locale of study

Jammu and Kashmir state consists of three divisions viz. Jammu, Kashmir and Ladakh. The state comprises of 22 districts of which Jammu is an important one and most populated with a population of 15,29,958. Population of tribals in Jammu district is 69,193 (Census, 2011). It is located at 32.73°N and 74.87°E. 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 (Figure 1).

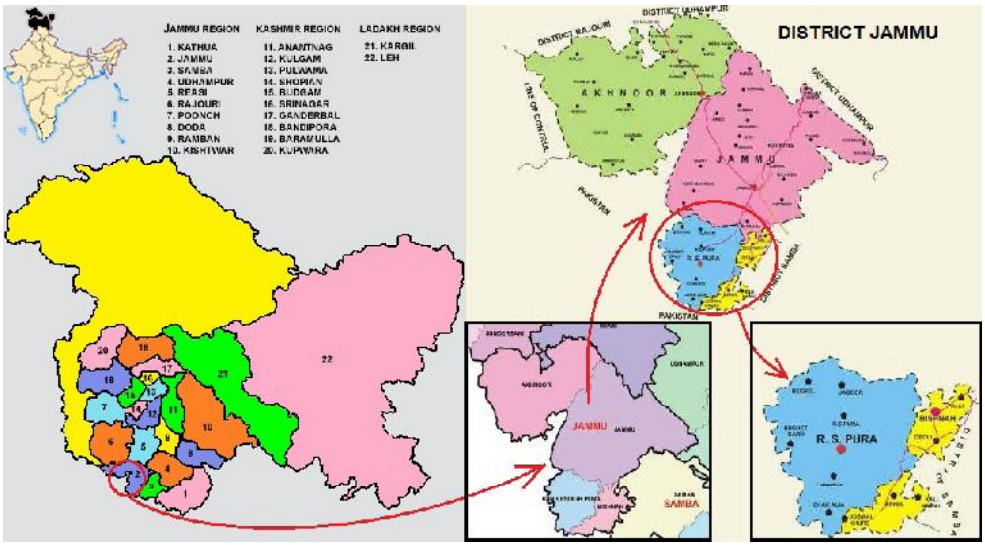

Figure 1. Map showing locale of study

Sampling Method

Jammu district comprises of eight blocks. 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 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.

Data collection

A schedule to measure respondents knowledge level regarding improved animal husbandry practices was developed using the package of practices of neighbouring universities as 'universe of content'. The schedule was developed using different type of questions i.e. true/ false and multiple choice. The items were based on factual information recommended in the latest package of practices. The schedule consisted of four areas i.e. management, feeding, breeding and health care. The items in each of these areas were 34, 22, 17, and 18 respectively. Opinion from faculty members of Faculty of Veterinary Sciences and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu were obtained in their respective areas of expertise. Based on their opinion and discussion with them certain items were deleted or modified. The final schedule consisted of 23, 12, 11 and 10 items in the areas of management, feeding, breeding and health care, respectively. The management component was further divided into two parts; general

management and clean milk production practices. Each correct answer was awarded one mark and incorrect answer was awarded zero marks in true/ false type of items. For multiple choice items the scoring ranged from 0 to 3 depending upon the accuracy of the response. Maximum possible score for each area was 20 and thus the maximum possible score was 100.

Statistical Analysis

The data was coded, classified, tabulated, analyzed using the software Statistical Package for the Social Science (SPSS 17.0). The presentation of data was done to give pertinent, valid and reliable answer to the specific objective. Frequencies, percentage, mean, standard deviation and correlation were worked out for meaningful interpretation.

RESULTS AND DISCUSSION

General background profile of respondents

A brief account of the general background profile of the respondents is presented in the table 1. The variables studied were age, education, occupation, social participation, extension contact, herd size, mass media exposure, land holding, risk orientation, economic motivation and exposure to training.

As evident from the table 1, majority of the respondents were middle aged with poor education. Most of the respondents were involved in caste occupation with low social participation and poor extension contacts. The respondents had medium herd size with poor mass media exposure level. The overall risk orientation of the respondents was low; however, they fared well in terms of economic motivation. Majority of the respondents had no exposure to training.

Knowledge level of Gujjars regarding improved animal husbandry practices

In the present study, overall knowledge level of the respondents regarding improved animal husbandry practices was observed to be medium with the percentage value of 50.47% (table 2). It can be concluded that almost half of the improved farming practices were known to the respondents. Podikunju *et al.* (1999) in his study about knowledge of farm women about modern livestock management practices in Udaipur district of Rajasthan found that the tribals of Rajasthan were having medium level of knowledge regarding modern animal husbandry practices. Similarly, Sankhala and Chand (1999) have earlier reported that majority of trained tribal farmers of all the categories were having medium level of knowledge in management, fodder production and overall

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

Table 2. Knowledge level of *Gujjars* regarding improved animal husbandry practices

Area of improved animal husbandry practices	Possible range	Observed range	Mean ± Standard error	Standard deviation	Knowledge level (%)
General management practices	0-20	7-17	9.45±0.22	2.39	47.25
Clean milk production practices	0-20	6-17	8.79±0.27	2.94	43.95
Total of all management practices	0-40	13-33	18.24±0.47	5.10	45.60
Improved feeding practices	0-20	6-15	9.63±0.27	2.94	48.15
Improved breeding practices	0-20	12-18	14.35±0.12	1.35	71.75
Improved health care practices	0-20	6-12	8.25±0.12	1.32	41.25
Total of all improved animal husbandry practices	0-100	39-77	50.47±0.89	9.71	50.47

rearing practices while studying the knowledge status of tribals regarding improved dairy farming practices in Rajasthan. Sharma (2011) conducted a study on adoption of improved animal husbandry practices by dairy farmers of Samba district and reported that, majority of dairy farmers of samba district (45%) had medium knowledge level. Further, the respondents did not vary considerably in their knowledge levels regarding different components of improved animal husbandry.

The variation observed in the knowledge level was fairly large with a standard deviation of 9.71 as can be seen in Figure 2. A closer look at the table 2 reveals that the respondents were having low knowledge about improved health care practices (41.25%) when compared with the knowledge level about improved breeding practices which was 71.75%. Khandi *et al.* (2010) found that majority of *Gujjars* of Jammu and Kashmir (54%) had medium level of knowledge and 23% each were in low and high knowledge level category. *Gujjars* had highest knowledge level regarding breeding practices.

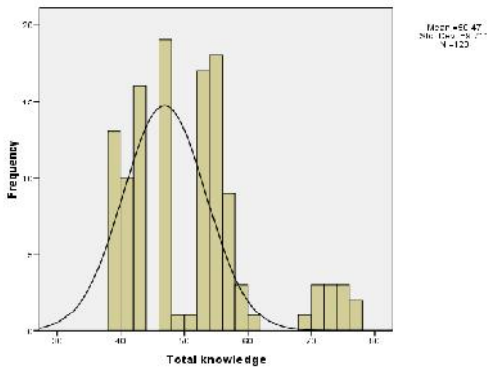

Figure 2. Histogram depicting knowledge scores of respondents

For appropriate analysis, the respondents were divided into three categories based on the total knowledge scores obtained (table 3).

Table 3. Classification of the respondents based on knowledge scores

Category	Low (<40.76)	Medium (40.76-60.18)	High (>60.18)
Frequency	23 (19.2%)	85 (70.8%)	12 (11.7%)
	(Mean score ± SE)		
General management practices	7.43±0.11	9.22±0.17	14.92±0.42
Clean milk practices	6.00±0.00	8.57±0.18	15.67±0.66
Total management practices	13.43±0.11	17.80±0.30	30.58±0.70
Feeding practices	6.34±0.11	9.86±0.27	14.08±0.38
Breeding practices	12.43±0.11	14.47±0.06	17.17±0.24
Health care practices	7.13±0.21	8.15±0.09	11.08±0.08
Total score of all practices	39.43±0.11	50.28±0.57	72.92±0.78
Knowledge level (%)	39.4	50.3	72.9

It is evident from table 3 that majority of the respondents i.e. 70.8% were having medium level of knowledge (50.3%), where as 19.2% of the respondents had low level of knowledge (39.4%) and only 11.7% of the respondents had high level of knowledge (72.9%). Similar findings were reported by Hamdani (2008). The cause and effect dilemma aside, it can be hypothesized here that by

increasing the knowledge of the respondents, a relative increase in the adoption can be expected. Tyagi and Sohal (1984) conducted the study on factors associated with adoption of dairy innovations in operational area of the Intensive Cattle Development Project, Karnal and inferred that increase in knowledge of dairy innovations leads to higher adoption of dairy innovations by the farmers. Tiwari *et al.* (2003) conducted a study on constraints regarding adoption of improved animal husbandry practices in Chhattisgarh plains and found that increase in knowledge level contributes positively to the increase in adoption.

Relationship of knowledge with socio-economic profile of *Gujjars*

The correlation estimates between the knowledge and independent variables are presented in table 4.

In the present study (Table 4) 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 1). 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 the knowledge level of the respondents (table 4). Thus with increase in age of the 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).

Education was positively and significantly related to knowledge level. 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% of the total respondents (table 5). Similar findings were reported by Khandi *et al.* (2010b), 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. Similar results were reported by Raghavendra *et al.* (1984) and Sawarkar *et al.* (2001). This can probably be hypothesized here that the respondents with higher formal education have increased capabilities of deciphering the complex animal husbandry information.

Similarly, positive and significant association of social participation, extension contact, mass media exposure, risk orientation, economic motivation and exposure to training with knowledge scores of the respondents was observed (table 4). Surprisingly Khandi *et al.* (2010b) found negative, though insignificant association of social participation and knowledge level of *Gujjars* of Jammu district. Yadav and Yadav (1997) stated 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 by increasing the

Table 4. Correlation coefficients of independent variables and knowledge

Independent variable	Management practices	Feeding practices	Breeding practices	Health care practices	Overall knowledge
Age	-0.260**	-0.087	-0.187*	-0.251**	-0.223*
Education	0.541**	0.408**	0.429**	0.547**	0.542**
Occupation	-0.307**	-0.323**	-0.114	-0.257**	-0.310**
Social participation	0.290**	0.225*	0.273**	0.257**	0.294**
Extension contact	0.493**	0.257**	0.502**	0.518**	0.477**
Herd size	-0.005	-0.079	0.110	-0.059	-0.019
Mass media exposure	0.607**	0.396**	0.471**	0.546**	0.578**
Land holding	-0.240**	-0.230*	-0.158	-0.267**	-0.254**
Risk orientation	0.599**	0.358**	0.376**	0.525**	0.547**
Economic motivation	0.512**	0.337**	0.513**	0.461**	0.505**
Exposure to training	0.505**	0.449**	0.316**	0.483**	0.511**

** Correlation is significant at the 0.01 level (2-tailed)[a]

* Correlation is significant at the 0.05 level (2-tailed)[b]

Table 5. Classification of knowledge level of the respondents, based on education level

Education level	Low (0) (Mean score ± SE)	Medium (1-3) (Mean score ± SE)	High (4-6) (Mean score ± SE)
Frequency	62 (51.7%)	32 (26.7%)	26 (21.6%)
General management practices	8.93±0.21	8.25±0.19	12.15±0.58
Clean milk practices	7.95±0.23	7.66±0.30	12.19±0.74
Total management practices	16.89±0.40	15.90±0.47	24.35±1.25
Feeding practices	9.05±0.33	8.50±0.44	12.38±0.51
Breeding practices	13.97±0.13	14.16±0.18	15.50±0.34
Health care practices	7.85±0.13	7.78±0.15	9.77±0.27
Total score of all practices	47.76±0.19	46.34±1.00	62.00±2.19
Knowledge level (%)	47.8	46.3	62.0

knowledge of respondents. Lal *et al.* (2007) reported that the increase in extension contact decreases the training needs of farmers by increasing the knowledge level. Khandi (2008) found that *Gujjar* respondents in general were willing to take risk. He observed positive significant association between risk orientation and knowledge. Sawarkar *et al.* (2001) also reported risk orientation and knowledge to have positive and significant relationship. Positive significant association between economic motivation and knowledge was observed by Khandi (2008). 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

The respondents were classified into two groups viz.; caste occupation and diversified occupation. Animal husbandry is the caste occupation of *Gujjars (*Khandi *et al.*, 2011*)*. Majority of the respondents (58.3%) in present study were engaged in caste occupation while 41.7% of the respondents were engaged in diversified occupation activities (table 6). Decrease in knowledge level regarding improved animal husbandry practices was observed with an increase in the diversification of the occupation of *Gujjar* respondents (table 4). The diversified activities included agriculture, business and any other job not related to animal rearing. Bhat *et al.* (1984) conducted study on *Gujjars* of Jammu and Kashmir and found that their main family occupation was livestock rearing. Hasan (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. Hamdani (2008) found occupation to be positively and significantly related with knowledge. Khandi *et al.* (2010a) 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.

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 (table 1). Remaining 10% of the respondents were having small herd size of less than 15 dairy animals. 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 4). This is in

Table 6. Classification of knowledge level of the respondents, based on occupation

Category	Caste occupation (1) (Mean score ± SE)	Diversified occupation (2-4) (Mean score ± SE)
Frequency	70 (58.3%)	50 (41.7%)
General management practices	9.90±0.32	8.82±0.25
Clean milk practices	9.51±0.40	7.78±0.24
Total management practices	19.41±0.70	16.6±0.44
Feeding practices	10.31±0.37	8.86±0.34
Breeding practices	14.57±0.18	14.04±0.15
Health care practices	8.59±0.18	7.78±0.12
Total score of all practices	52.89± 1.31	47.08± 0.88
Percentage	52.9	47.1

agreement with the findings of Chugh (1986), who reported that herd size did not influence awareness 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 general, majority of the respondents were from landless category (57.5%), while 42.5% of the respondents were having some land holding (table 1). 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 (table 4). The knowledge scores are in agreement with the findings of number of workers like Kakoty (1980), Raghavendra *et al.* (1984) and Chugh *et al.* (1996). 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.

CONCLUSIONS

Majority of the *Gujjars* (70.8%) had medium level of knowledge (50.3%). Low knowledge level (39.4%) was observed in 19.2% of the *Gujjar* respondents, whereas only 10% of the *Gujjar* respondents had a high knowledge level of 72.9%. Young respondents had significantly higher adoption than the old respondents, as also the respondents with higher education status, high exposure to training and higher mass media. 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. It is recommended that stress should be given to enhancing the level of education of *Gujjars* of Jammu and Kashmir, along with providing better opportunities of information sources other than they have, in order to enhance the adoption level of improved animal husbandry practices. 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. The extension agencies offering trainings have limited coverage of the 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. It is essential for the *Gujjars* of Jammu and Kashmir to have the basic knowledge required for adoption of animal husbandry practices which can be achieved through conducting training programmes.

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