



Knowledge Level of Goat Keepers of Middle Gujarat Regarding Improved Goat Husbandry Practices

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ABSTRACT

The study was conducted in Dahod and Kheda districts of middle Gujarat, with a view to find out the knowledge level of the Goat keepers regarding improved goat husbandry practices. The data were collected from 240 respondents with the help of structured interview schedule through personal interview technique. Majority of the goat keepers belonged to middle age group (64.58%) having primary level education (52.50%) belonged to backward class, schedule tribe and schedule caste, marginal and landless type. The goat keepers had least knowledge about health care and marketing practices (mean per cent scores 35.0%) and maximum knowledge regarding feeding practices (mean per cent scores 75.18%) in terms of bushes/trees' leaves fodder and colostrum feeding. The goat farmers are ignorant about ideal direction of goat shed (2.08%), flushing, disbudding (0.83%), goat insurance and deworming schedule of kids (0.83%). Nearly half of the goat keepers had medium to low level of knowledge whereas only 16.25 per cent of the goat keepers had very high level of knowledge about goat husbandry practices. Therefore, it is suggested that special awareness programmes or farm training related to goat production should be organized by the state department/ NGOs to educate the goat keepers about standard and valuable practices of profitable as well as sustainable goat farming in these areas.

HIGHLIGHTS

- Majority of the goat keepers belonged to middle age group having primary level education and landless type.
- Least knowledge possessed by goat keepers about health care and marketing practices.

Keywords: Goat keepers, husbandry practices, knowledge level, middle Gujarat

Goat farming provides much needed livestock support to the landless and weaker sections of the Indian rural society. It has been a source of supplementary income for marginalized rural families in Asia and Africa, where other species of livestock have not been able to perform well (Skapetas and Bampidis, 2016). Goat is the most suited for ensuring poverty reduction and food security for women, because it can be easily acquired by the poor, easily tended by women or children and provide valuable nutrients even in remote areas (Aziz, 2010). However, the productivity of goats under the prevailing traditional production system is very low. It is because they are maintained under the extensive system on natural vegetation on degraded common grazing lands and tree lopping. Even these

degraded grazing resources are shrinking continuously. Moreover, adoption of improved production technologies/practices in the farmers' flock is very low. Very scanty information was available on the socio-economic aspects and knowledge level of goat husbandry practices under field condition. Knowledge of farmers is pre-requisite for adoption of technologies developed by the scientists. Keeping in view the above fact, a study was undertaken to assess the knowledge level of goat keepers about improved goat husbandry practices in middle Gujarat.

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MATERIALS AND METHODS

The present study was carried out in Dahod and Kheda districts of Gujarat state. Both districts are purposively selected for the study because both districts have a considerable goat population and Goat husbandry is one of the second subsidiary activity along with agriculture. Four *talukas* of Dahod district and four *talukas* of Kheda district were selected randomly. Total eight *talukas* were selected for the present study. In the third stage, five villages were selected randomly from each selected *taluka* of Dahod and Kheda district. From each selected village of Dahod and Kheda district, six goat keepers were selected by simple random sampling technique. Thus, out of these selected 40 villages, 240 goat keepers were selected as respondents for this study. The data were collected by personal interview technique from randomly selected goat keepers. The respondents were contacted at their home, community places or their farms. Knowledge of the goat keepers regarding goat husbandry practices was measured with the help of ‘teacher made test’ developed for the purpose. The questions included in the test were of objective type. They were numbered from 1 to 35. The final schedule consisted of 7, 8, 13 and 7 items in the areas of feeding, housing, breeding and health care-marketing practices, respectively. Each question was given the score of one for correct answer and zero for incorrect answer. The possible total score that goat keepers could obtain would vary from zero to thirty-five. The total knowledge score for each respondent was calculated by summing up the number of items correctly answered by an individual respondent. Total score obtained by each goat keepers was worked out and based on the total scores obtained, respondents were classified using of the arbitrary method into five groups *viz.*, very low, low, medium, high and very high level of knowledge category. Moreover, practice wise/ item-wise knowledge level of goat keepers was calculated and ranked on the basis of mean per cent score. The data was coded, classified, tabulated and analyzed using the MS Excel software. Frequencies, percentage and mean were worked out for meaningful interpretation.

RESULTS AND DISCUSSION

General Profile of Goat Keepers

A general profile of the respondents is presented in table 1. It is evident from data reported in table 1, majority of

the goat keepers belonged to middle age (64.58%) group followed by young age. The probable reason might be that the middle age person is one of the responsible member in family having more awareness about goat rearing practices and is more experienced. The smaller number of young aged goat keepers might be lack of interest in goat rearing. Similar findings are well supported by Tanwar *et al.* (2008) and Sabapara (2016). Majority of goat keepers were literate having primary level of education (52.50%) followed by secondary to higher secondary level of education (22.92%) and illiterate (19.17%). Very few of them had higher level of education, this shows poverty level is very high and they could not afford higher education.

Table 1: General profile of the goat keepers

Independent variable	Distribution of respondents					
	Dahod (n=120)		Kheda (n=120)		Overall (n=240)	
	N	%	N	%	N	%
Age of respondents						
Young (up to 35 years)	32	26.67	31	25.83	63	26.25
Middle (36 to 50 years)	72	60.00	83	69.17	155	64.58
Old (Above 50 years)	16	13.33	6	5.00	22	9.17
Education level						
Illiterate	24	20.00	22	18.33	46	19.17
Primary	42	35.00	84	70.00	126	52.50
Secondary to higher secondary	52	43.33	14	11.67	66	27.50
Graduation & above	2	1.67	0	0.00	2	0.83
Caste						
General	0	0.00	0	0.00	0	0.00
OBC	76	63.33	27	22.50	103	42.92
SC	4	3.33	68	56.67	72	30.00
ST	40	33.33	25	20.83	65	27.08
Experience in goat farming (years)						
≤10	28	28.33	25	20.83	53	22.08
11 – 20	64	53.33	85	70.83	149	62.08
> 20	28	23.33	10	8.33	38	15.83
Land holdings						
Landless (00 ha)	0	0.00	88	73.33	88	36.67
Marginal (up to 1.0 ha)	104	86.67	30	25.00	134	55.83
Small (1.01 to 2.0 ha)	16	13.33	2	1.67	18	7.50
Flock size (number of goats)						
≤10	111	92.50	54	45.00	165	68.75
11 – 20	9	7.50	61	50.83	70	29.17
> 20	0	0.00	5	4.17	5	2.08

Similar findings were reported by Gokhale *et al.* (2002) and Deshpande *et al.* (2010) that majority of goat keepers were literate having minimum primary level of education. It was observed that most of the goat keepers belonged to backward class of community because usually most of the down trodden people practice goat rearing as a cash crop during money crisis to meet their household requirement. More than three fifth (62.08%) and 15.83 per cent of the goat keepers had 11 to 20 and more than 20 years of experience in goat farming, respectively. This might be due to the fact that majority of goat keepers belonged to middle age groups and had primary to secondary level of education. On the contrary, findings were reported by Sasane *et al.* (2012) that 57.78 and 35.55 per cent of rearers had more than 21 and 11-20 years of goat keeping experience, respectively while in Bihar, majority of the farmers (60.40%) as a whole were in middle aged group had average farming experience was of 18.33 years reported by Kumar (2012). Maximum goat keepers (55.83%) had marginal sized land holding while 36.67 per cent were landless type. These results illustrated that the people having less or marginal land holding were attracted toward the allied business and were good for ensuring fodder supply or crop-by products round the year which reduce cost of feeding. Similar findings were reported by Alam *et al.* (2008), Mohan *et al.* (2009) and Jayashree *et al.* (2014) in favor of the results.

It can be determined that maximum percentage of the goat keepers (68.75%) were keeping up to 10 numbers of goats followed by 29.17 per cent had 11 to 20 numbers of goat as small to medium flock size and very few of them had large flock size. This might be the reason of that inadequacy of land, infrastructure and market facility and may be risk in large flock size. Similar findings were reported by Debraj Nandi *et al.* (2011) and Deshpande *et al.* (2010) that majority of the goat keepers maintained small to medium size flock.

Knowledge level of goat keepers regarding improved goat husbandry practices

Adequate and relevant knowledge of goat rearing practices by the goat keepers has relevance in obtaining maximum benefit through production. Looking to the importance of this aspect, item-wise analysis was done to ascertain the exact knowledge by the respondents about the various aspects/areas of goat husbandry. The findings are presented as under:

Feeding practices

The data given in table 2 reveals that in Dahod district, the goat keepers had maximum knowledge about colostrums feeding to kids and hence ranked first. Moreover, result

Table 2: Item-wise knowledge level of goat keepers about feeding practices

Sl. No.	Practices/Items	Dahod (n=120)			Kheda (n=120)			Overall (n=240)		
		MS	MPS	Rank	MS	MPS	Rank	MS	MPS	Rank
1	Timing of colostrum feeding	0.98	98.33	I	0.89	89.17	II	0.94	93.75	II
2	Days of colostrum feeding to kid	0.98	98.33	I	0.88	87.50	III	0.93	92.92	III
3	Importance of colostrum feeding	0.95	95.00	III	0.42	41.67	V	0.68	68.33	V
4	Concentrates fed to milking goat (250 gm)	0.89	89.17	IV	0.26	25.83	VI	0.58	57.50	VI
5	Concentrate fed to breeding buck (400 gm)	0.83	82.50	V	0.09	9.17	VII	0.46	45.83	VII
6	Leaves of bushes/ trees fed to goats	0.97	96.67	II	1.00	100.0	I	0.98	98.33	I
7	In semi-intensive, browse hours/goat/day allowed	0.78	78.33	VI	0.61	60.83	IV	0.70	69.58	IV
Overall MPS:		—	91.19	—	—	59.17	—	—	75.18	—

(Ms= Mean Score, MPS= Mean Per cent Score).

indicated that least knowledge about browsing hours per goat. In case of Kheda district, the goat keepers had maximum knowledge about bushes or tree's leaves fodder and colostrums feeding while least knowledge about concentrate feeding of buck. Overall, the mean per cent scores of all 240 respondents indicated that 98.33 and 93.75 per cent knowledge were possessed by the goat keepers about bushes or tree's leaves fodder and timing of colostrums feeding to kids so occupied first and second rank, respectively. The possible reason for high knowledge about these practices may be due to awareness about importance of colostrums feeding for induced proper growth, nutrition and immunity to newborn. The findings are inconformity with the findings of Mandavkar *et al.* (2015) in which they observed that respondents knowledge found enriched in practices like feeding of colostrums to kids (60%). In all the goat farmers, they had overall poor knowledge *i.e.*, 57.50 and 45.83 per cent about concentrate mixture feeding to milking goat and breeding buck, respectively thereby occupy the last ranks. These findings may be attributed to the fact that goat owners were unaware about the benefits of these practices such as concentrate mixture provides energy, minerals and vitamins to enhance productive capacity and quality of animals.

Housing practices

The data presented in table 3 indicate that among all the goat keepers, maximum knowledge was about goat shelter design (88.75%) and ideal roofing materials for goat shelter in hot climate (87.50%), thereby occupied first and second rank, respectively. In many areas related to housing, the farmers had less than 40 per cent knowledge and also, very poor knowledge (2.08%) was observed about direction of goat house among all respondents. This may be due to their low educational status or high illiteracy among the farmers, moreover they have poor access to credit facilities thus cannot afford recommended floor space area and recommended no. of does to be kept in a given area. Similar findings were reported by George *et al.* (2010). But, comparatively maximum knowledge was found in all aspects of housing except about direction of goat house gained by the respondents of Dahod district (overall MPS = 65.83%) as compared in Kheda district (overall MPS = 27.71%). It might be due to their more experience gained through goat rearing in their tribal areas and easy to manage goats in small flock on own small to marginal land holdings.

Table 3: Item-wise knowledge level of goat keepers about housing practices

Sl. No.	Practices/Items	Dahod (n=120)			Kheda (n=120)			Overall (n=240)		
		MS	MPS	Rank	MS	MPS	Rank	MS	MPS	Rank
1.	Floor space / adult doe (12-16 sq. ft.)	0.68	68.33	V	0.11	10.83	III	0.40	39.58	IV
2.	Floor space/adult buck (20 sq. ft.)	0.74	74.17	IV	0.04	4.17	VII	0.39	39.17	V
3.	Different rearing systems for goat	0.58	58.33	VII	0.08	7.50	VI	0.33	32.92	VII
4.	No. of goats/flock housed in one shed	0.63	62.50	VI	0.10	10.00	IV	0.36	36.25	VI
5.	Ideal direction of goat house	0.02	1.67	VIII	0.03	2.50	VIII	0.02	2.08	VIII
6.	Ideal roof materials for goat shelter in hot climate	0.91	90.83	I	0.84	84.17	II	0.88	87.50	II
7.	Height of goat shed	0.87	86.67	II	0.09	9.17	V	0.48	47.92	III
8.	Desired type of goat shelter design	0.84	84.17	III	0.93	93.33	I	0.89	88.75	I
Overall MPS:		—	65.83	—	—	27.71	—	—	46.77	—

(Ms= Mean Score, MPS= Mean Per cent Score).

Breeding practices

The data depicted in table 4 indicate that in Dahod district, the goat keepers had maximum knowledge about heat symptoms of doe, duration of heat period and local goat breeds, thereby it occupied first three ranks while had possessed least knowledge about importance of flushing. Further, results indicate in Kheda district the maximum knowledge (93.33 and 92.50%) gained by the goat keepers about gestation period and heat symptoms of doe, so occupied first and second ranks, respectively. Moreover, goat keepers had least knowledge about economic kidding rate (2.50%), puberty age (13.33%) and buck: doe ratio (16.67%). Overall, the mean per cent scores of all 240 respondents indicated that 95.00 and 92.92 per cent knowledge were possessed by the goat keepers about heat

symptoms and gestation period of doe so it occupied first and second ranks, respectively. The maximum knowledge may be because of their long goat farming experience. However, only 35.00 per cent of them were aware about importance of flushing. Hence, this knowledge item got last rank order accordingly. This might be due to poor knowledge about the breeding management because they followed mostly traditional methods of rearing throughout the year, not interested in adopting any advance practices because of a lot of managerial constraints faced by them under field condition.

Health care and marketing practices

The data given in table 5 reveals that overall mean per cent scores of all 240 goat keepers is 35.00 per cent

Table 4: Item-wise knowledge level of goat keepers about breeding practices

Sl. No.	Practices/Items	Dahod (n=120)			Kheda (n=120)			Overall (n=240)		
		MS	MPS	Rank	MS	MPS	Rank	MS	MPS	Rank
1	Local goat breeds	0.94	94.17	III	0.40	40.00	IX	0.67	67.08	VIII
2	Puberty age of goat	0.88	87.50	VI	0.13	13.33	XII	0.50	50.42	X
3	Doe: Buck ratio	0.73	72.50	X	0.17	16.67	XI	0.45	44.58	XI
4	Economic kidding per doe in two years	0.80	80.00	IX	0.03	2.50	XIII	0.41	41.25	XII
5	Heat symptoms of estrus doe	0.98	97.50	I	0.93	92.50	II	0.95	95.00	I
6	Duration of heat period in goats	0.97	96.67	II	0.77	76.67	IV	0.87	86.67	III
7	Methods of breeding for goats	0.97	96.67	II	0.47	46.67	VIII	0.72	71.67	VII
8	Average gestation period of doe	0.93	92.50	IV	0.93	93.33	I	0.93	92.92	II
9	Average length of heat period	0.88	87.50	VI	0.79	79.17	III	0.83	83.33	IV
10	Importance of flushing	0.48	48.33	XI	0.22	21.67	X	0.35	35.00	XIII
11	Peak breeding season in goats	0.86	85.83	VII	0.69	69.17	V	0.78	77.50	VI
12	Average age at first kidding	0.90	90.00	V	0.67	66.67	VI	0.78	78.33	V
13	Best age of breeding buck	0.83	82.50	VIII	0.48	48.33	VII	0.65	65.42	IX
Overall MPS:		—	85.11	—	—	51.28	—	—	68.40	—

(Ms= Mean Score, MPS= Mean Per cent Score).

Table 5: Item-wise knowledge level of goat keepers about health care & marketing

Sl. No.	Practices/Items	Dahod (n=120)			Kheda (n=120)			Overall (n=240)		
		MS	MPS	Rank	MS	MPS	Rank	MS	MPS	Rank
1	Age of disbudding of a kid	0.02	1.67	V	0.00	0.00	VI	0.01	0.83	V
2	Common diseases of goat	0.93	92.50	I	0.93	93.33	I	0.93	92.92	I
3	Goat insurance	0.01	0.83	VI	0.01	0.83	V	0.01	0.83	V
4	Buck odour	0.07	6.67	IV	0.40	40.00	III	0.23	23.33	IV
5	Deworming of kids	0.01	0.83	VI	0.01	0.83	V	0.01	0.83	V
6	Ideal market age of male kids	0.87	86.67	II	0.10	10.00	IV	0.48	48.33	III
7	Importance of goat milk	0.78	78.33	III	0.78	77.50	II	0.78	77.92	II
Overall MPS:		—	38.21	—	—	31.79	—	—	35.00	—

(Ms= Mean Score, MPS= Mean Per cent Score).

Table 6: Distribution of goat keepers on the basis of their knowledge level regarding goat husbandry practices

Sl. No.	Level of knowledge (score)	No. of respondents					
		Dahod (n=120)		Kheda (n=120)		Total (n=240)	
		N	%	N	%	N	%
1	Very low (up to 7.0)	2	1.67	2	1.67	4	1.67
2	Low (7.1 to 14.0)	2	1.67	55	45.83	57	23.75
3	Medium (14.1 to 21.0)	14	11.67	53	44.17	67	27.92
4	High (21.1 to 28.0)	63	52.50	10	8.33	73	30.42
5	Very high (28.1 to 35.0)	39	32.50	0	0.00	39	16.25
Total		120	100.00	120	100	240	100.00

which indicate poor knowledge possessed by them about health care and marketing practices. The goat farmers had maximum knowledge about common diseases of goats and importance of goat milk, thereby ranked first and second, respectively. The reasons for high knowledge about these practices may be due to higher incidence of some common diseases due to poor sanitation and goat milk used for nourishment of family members. They are least aware about deworming schedule of kids, goat insurance and had poor knowledge about ideal market age of male kids. The reasons for low knowledge about these practices may be due to they had comparatively low extent of knowledge about deworming interval in days and treatment of animal. Also, comparatively minimum knowledge may also be due to their illiteracy, poor socio-economic status and rearing of local breeds. It is suggested that the goat farmers should be made aware about weight of kid at the time of selling through educational training.

The presentation of the data in table 6, revealed that more than half of the goat keepers (52.50%) of Dahod district had a high level of the overall knowledge of goat husbandry practices followed by very high (32.50%) and medium (11.67%) level of knowledge about the same, respectively while 1.67 per cent of the respondents had low to very low level of knowledge regarding goat husbandry practices whereas in Kheda district, more than two fifth (45.83 %) of the goat keepers had low level of knowledge about goat management practices followed by medium (44.17%) and high (8.33%) level of knowledge about the same and only 1.67 per cent of the respondents had very low level of knowledge regarding goat husbandry practices. Overall, only 16.25 per cent of the goat keepers had very high level of knowledge regarding goat husbandry practices followed by more than one fourth (30.42%) had

high level of knowledge of the same whereas 27.92, 23.75 and 1.67 per cent of the goat keepers had medium, low and very low level of overall knowledge regarding goat husbandry practices, respectively. Similar findings were reported by Wadkar (2007) who reported that majority of the goat rearers (65.0%) had medium level of knowledge followed by 12.50 per cent of the respondents who possessed low level of knowledge and remaining 22.50 per cent respondents had high level of knowledge about different goat rearing practices. The present findings were in accordance with Singh *et al.* (2013). They observed that the majority of the goat keepers (63.54%) have moderate level of knowledge on different aspects of goat breeding and very low level of knowledge on up-gradation of genetic potential of goat and preventive health measures. In contrary, these findings did not agree with the finding reported by Khalache *et al.* (2007) and Satyanarayan and Jagadeeswary (2010) that the majority of the goat rearers had medium and low level of knowledge about goat farming, respectively.

CONCLUSION

On the basis of findings of this study, majority of the goat keepers belonged to middle age group having primary level education belonged to backward class, schedule tribe and schedule caste, marginal and landless type. It can be concluded that the goat keepers had least knowledge about health care and marketing practices and maximum knowledge regarding feeding practices in terms of bushes/trees' leaves fodder and colostrum feeding. The goat farmers are ignorant about ideal direction of goat shed, flushing, disbudding, goat insurance and deworming schedule of kids. Therefore, it is suggested that special

awareness programmes or farm training related to goat production should be organized by the state department/NGOs to educate the goat keepers about standard and valuable practices of profitable as well as sustainable goat farming in these areas.

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