Goat Rearing Practices of *Ahir* Community in High Rainfall Zones of South Gujarat

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ABSTRACT

The *Ahirs* are non-nomadic and resourceful people of South Gujarat having ample traditional knowledge of goat keeping. The study was done to document existing goat management practices of *Ahirs* in Valsad and Navsari districts of South Gujarat by selecting 300 *Ahir* goat keepers by multi stage random sampling technique. The data regarding socio-economic status, feeding and housing management were collected by interview schedule and tabulated for statistical analysis. Results revealed that majority of the respondents (67.67%) were in middle age category with an average age of about 50 years. Majority of the respondents (94%) were marginal land holders with an average land holding of 0.68±0.03 hectare. Average flock size was 47.13±1.79 heads and about 68% of *Ahir* respondents reared large animals along with goats. Goats were reared by the practice of 2 to 8 hour daily browsing which required 1 to 10 km daily travelling, whereas browsing duration and travelling was significantly (p<0.01) affected by the seasons. Majority of the *Ahirs* were high adopters of cleanliness, site selection, ventilation and drainage in goat shed. However, low level of adoption was observed in provisions of feeding space, overhang length and slate gapping in goat shed. Majority of the respondents kept kids in separate enclosures (*wada*). Almost all the respondents sold kids at 6 to 9 months of age, on cash payment basis to butchers and not on the basis of body weight.

Keywords: *Ahirs*, Browsing, Herd, Goat rearing, Adoption

Goats significantly contribute to Indian economy by sustaining the livelihood and generating income for small farmers. The traditional goat keepers belonging to various communities in different regions of Gujarat like *Bharwads* (western region), *Rabaries* (north & middle region) and *Ahirs* (south region) have adopted goat farming since generations, for their livelihood and sustainability (Sorathiya *et al.* 2013). The *Ahirs* or *Dudhia bharwad* communities possess ample traditional knowledge of goat rearing in the heavy rainfall zones of South Gujarat. The *Ahirs* of South Gujarat are believed to be migrated from Gokul-mathura around 800 years ago. The population of *Ahirs* in six talukas under study was 19914 (Anonymous, 2012). They are mostly resourceful people unlike *Bharwads* and *Rabaris* living in good houses and mostly engaged in livestock keeping. Their goat farming system is more profitable when compared to the farming systems of other caste based communities in South Gujarat and still

has a vast scope for improvement (Sorathiya *et al.* 2013). Therefore, the goat rearing system of *Ahirs* needed to be recognized in order to develop a better goat rearing model for high rainfall zones. This will be helpful for the policy makers and researchers to devise future strategic actions to improve goat farming in the country. Hence, the present study was conducted for a systematic documentation of goat rearing practices of *Ahir* community.

MATERIALS AND METHODS

Present study was conducted in Navsari and Valsad districts of South Gujarat. Multistage sampling technique was followed to select the respondents for the study. As both districts fall under heavy rainfall zone (Navsari-2350 mm, Valsad-1950 mm) they were selected purposively during the first stage. In the second stage three talukas from each district and from each taluka five villages

were selected randomly in subsequent stage. From each village ten respondents having at least ten goats were selected randomly. The data were collected by personal interview with the help of a well structured interview schedule exclusively prepared for the study. The goat housing related study was performed only on the 256 respondents having the facility of a goat shed. Housing facilities i.e. floor space, floor height, roof height and feeding space were ranked based on extent of adoption to housing standard IS: 2733-1985 (Anonymous, 1985). Qualitative categorization as high, medium and low adoption level was done on the basis of respondents following 100%, 50-100% and less than 50% practices respectively when compared to the standard. Other housing management practices were qualitatively ranked, based on the visual observation by the researcher. The respondents were categorized in three age groups as per Sorathiya *et al.* (2013). The flock size of less than 50 goat heads were considered as small flock whereas remainders were considered as large flocks during categorization of respondents based on flock size. The collected data were collected and tabulated as per standard statistical methods (Snedecor and Cochran, 1994). The tabulated data were analyzed in SPSS software, version 20.0.

RESULTS AND DISCUSSION

Socioeconomic and personal characteristics

The data about profile parameters of *Ahir* goat keepers i.e. age, education, land holding, flock size and combination of other livestock is presented in table 1. Data revealed that majority of respondents (67.67%) were in middle age category with mean age of about 50 years. Involvement of youth in goat rearing was only 15%. Less involvement of youth in goat farming may have been observed due to industrial development in both the districts of South Gujarat generating enough employment opportunity for youth. Literacy rate was about 65% and majority of the respondents were educated up to primary standard (39.33%). Literacy rate observed in present study was quite higher than migratory traditional goat keepers of North Gujarat as reported by Singh *et al.* (2009). Higher education level in *Ahirs* may be associated with their non-migratory nature and prosperity (Sorathiya *et al.* 2013). Majority of the respondents (94%) were marginal land

holders with the mean land holding of 0.68±0.03 hectares. This is in agreement with findings of Jayashree *et al.* (2014). Majority of the respondents (67.33%) had medium flock size up to 50 heads with an average flock size of 47.13±1.79 (table 1). Ekambaram *et al.* (2011), Jayashree *et al.* (2014) and Tyagi *et al.* (2013) reported similar flock size between 30 to 45 heads in Tamil Nadu, Karnataka and Gujarat states, respectively. However, *Rabari* and *Bharwad* caste members were keeping more than 100 goats in their flocks (Singh *et al.* 2009). Moreover 44% of the *Ahir* respondents were rearing goats along with keeping large animals and about 24% of them reared goat, sheep and large animals (table 1). Thus, about 68% *Ahir* respondents reared large animals along with goats. Only 17% respondents were rearing goats alone, where as 39% respondents were rearing goats along with keeping 2 to 5 sheep in their flock, to take advantage of the ample browsing opportunities available due to heavy rainfall in the area.

Table 1: Socio-economic profile of *Ahir* goat keepers (n=300)

Parameters		Frequency
Age	Young (< 35 Years)	45 (15.00)
	Middle age (35-60 Year)	203 (67.67)
	Old (> 60 years)	52 (17.33)
	Average age (Years)	49.65±0.67
Education	Illiterate	105 (35.00)
	Primary	118 (39.33)
	Secondary and above	77 (25.67)
Land holding	Yes	282 (94.00)
	No	18 (6.00)
	Average land holding (Ha.)	0.68±0.03
Flock size	Small flock (≤ 50 Heads)	202 (67.33)
	Large flock (≥ 51 heads)	98 (32.67)
	Average flock size	47.13±1.79
Livestock Composition	Only goats	52 (17.00)
	Goats + sheep	45 (15.00)
	Goats + sheep + large animals	71 (24.00)
	Goats + large animals	132 (44.00)

*Values in parenthesis indicate percentage

Browsing practices

Navsari (49.0 trees/ha) and Valsad (40.5 trees/ha) are

Table 2: Seasonal effect on browsing duration and distance travelled by the goat herds of *Ahirs*

Seasons	Browsing duration (hours/ day)			Distance travelled (km/ day)		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum
Winter	$5.14^b \pm 0.05$	3.00	8.00	$5.65^b \pm 0.09$	3.00	10.00
Summer	$5.83^c \pm 0.06$	4.00	8.00	$6.72^c \pm 0.08$	4.00	9.00
Monsoon	$3.89^a \pm 0.05$	2.00	6.00	$3.38^a \pm 0.06$	1.00	7.00
P value	0.003			0.001		

*Means with different superscripts in columns differ significantly (p<0.01)

classified under high tree density districts of Gujarat state (Singh, 2013) having good tree cover, required for goat rearing. As the study area falls under heavy rainfall zone (Navsari-2350mm, Valsad-1950 mm) there were adequate pastures available during the monsoon months. The mean browsing duration (hours/d) in winter, summer and monsoon was 5.14, 5.53 and 3.89. Less browsing duration of goat herds in the present study is supported by the less travelling distance (3.38 km/d) in monsoon months (table 2). The less browsing time in monsoons might be due to the better browsing resources in nearby areas due to rainfall. Similarly, Lavania *et al.* (2014) and Jayashree *et al.* (2014) had also reported 5 to 8 hours of daily browsing with less travelling distance.

Housing management practices

Various parameters of housing management are ascertained in table 3. Almost all the respondents kept the goat shed clean. Poor cleanliness of the shed was observed in only 1.17% respondents. Majority of the goat keepers (55.47%) were high adopters of site selection. Majority of the respondents (53.94 %) were high adopters for the provision of ventilation facility in the shed. High or medium level of adoption (87%) was observed for drainage facility indicating that drainage was a less serious constraint. Mostly they have kept house in elevated areas so that the urine gets absorbed in soil below slates and droppings were collected below the slates. Present finding are in agreement with Jayashree *et al.* (2014). Medium level of adoption was found in provision of floor height (51.56%) and roof height (58.59%) and feeding space (42.19%). Majority of *Ahirs* had not provided sufficient floor space, gap in slates and recommended overhang length in goat sheds and hence falling in either medium or low level of adoption. Thus, *Ahirs* were good in cleanliness of floor, site

selection, ventilation, drainage, floor height, roof height showing good ancestral knowledge of goat housing. But they were poor in providing sufficient floor space, feeding space and overhang length. The adoption rate in present study was higher than the findings of Rahman (2007).

Table 3: Frequency based adoption level in housing management of goat houses by *Ahirs* (n=256)

	Levels of adoption		
	High	Medium	Low
Cleanliness in floor	149 (58.20)	104 (40.63)	3 (1.17)
Site selection	142 (55.47)	106 (41.41)	08 (3.13)
Ventilation	137 (53.52)	99 (38.67)	20 (7.81)
Drainage	118 (46.09)	100 (39.06)	38 (14.84)
Floor height	113 (44.14)	132 (51.56)	11 (4.30)
Roof height	95 (37.11)	150 (58.59)	11 (4.30)
Feeding space	58 (22.66)	108 (42.19)	90 (35.16)
Floor space	42 (16.41)	164 (64.06)	50 (19.53)
Gap in slates	32 (12.50)	175 (68.36)	49 (19.14)
Overhang length	31 (12.11)	157 (61.33)	68 (26.56)

*Values in parenthesis are in percentage

Kid management and marketing

The kid management and marketing practices which prevailed in both districts is shown in table 4. Majority of the respondents (84.67%) did not assist the kids for suckling. Orphan kids were mostly reared by fostering, where as 31.67% respondents used the infant nipples for feeding milk. The housing of kids in roofless and fenced enclosures made by bamboo or dry thorny tree branches (*wada*) is a specialty of *Ahirs*. Majority of the respondents (68.33%) housed kids in this separate enclosure up to their weaning age. The respondents selected elevated place

Table 4: Kid management and their marketing practices by *Ahirs* (n=300)

Name of practice		Frequency
Suckling method	No assistance	254 (84.67)
	Assisting the kids	46 (15.33)
Care of disowned/ orphan kids	By fostering	205 (68.33)
	By infant nipple	95 (31.67)
Housing of kids	Separate pens	91 (30.33)
	Separate enclosure (*wada*)	209 (69.33)
Age to start feeding tree leaves	< 15 days	17 (5.67)
	15-30 days	283 (94.33)
Marketing age of kids	< 6 months	84 (28.00)
	6-9 months	216 (72.00)
Selling price fixation	Same price for whole batch	245 (81.67)
	Individual animal pricing	55 (18.33)
Goat marketing place	Home	300 (100.00)
	Market	0 (0.00)
Weighing of goats during selling	No	300 (100.00)
	Yes	0 (0.00)
Kids sold to	Butcher	300 (100.00)
	Others	0 (0.00)
Payment	Cash on spot	300 (100.00)
	Credit	0 (0.00)

*Values in parenthesis indicate percentage

in a particular direction, with ample morning sunlight to facilitate proper drying of the excreta. Tanwar and Rohilla (2012) also found similar housing for kids in Rajasthan. Practice of stall feeding of tree leaves to pre-weaned kids after 15 days was prevalent. Jayashree *et al.* (2014) have reported similar results. Small sized tree leaves of various trees viz. *Deshi baval* (*Acacia nilotica*), *Goras amli* (*Pithecellobium dulce*), *Bordi* (*Zizyaphus maunitiana*) and *Khati amli* (*Tamarindus indica*) were preferred during first month of their age. Whereas, the trees with thick leaves viz. *Bhimal* (*Griwia* spp.) and *Subabul* (*Leucaena leucocephala*) were preferred for kids over one year of age. Majority of the respondents (72%) sold their kids at 6 to 9 months of their age. All the respondents were practicing sale of goats at home, to butchers directly on payment basis of cash on spot, without weighing the individual animals. The price fixation was generally undertaken for the whole batch, rather than a separate pricing for an individual animal in the batch.

CONCLUSION

It can be concluded that majority of *Ahirs* are marginal land holders keeping small sized goat herds and in some cases along with sheep and large animals like cattle and buffaloes. Majority of the respondents reared their goats on extensive system of feeding, where the browsing time and travelling distance was affected by different seasons. Majority of them were high adopters in providing cleanliness, site selection, ventilation and drainage aspects of goat housing. The goat rearing practices of *Ahirs* are traditional as well as professional, but their marketing strategies have some shortcomings. Training the *Ahir* goat rearers regarding the profitable marketing strategies should be a focus of the stakeholders and extension personnel, for the increment in economic returns to this community.

for providing necessary funds and facilities to conduct this study.

REFERENCES

Anonymous. 2012. Daxin Gujarat *Ahir* Samaj Parivar Parichay Pustak: Directory of *Ahir* households published by Surat-Choryash *Ahir* Gopalak Sarvajanik trust, Surat [Gujarati]. pp. 1184.

Anonymous. 1985. Code of Practice for Sheep and Goats. Housing, Indian Standard IS 2733 (FAD 5: Livestock Feeds, Equipment and Systems). First revision. https://law.resource.org/pub/in/bis/S06/is.2733.1985.pdf pp. 1-15.

Ekambaram, B., Gupta, B.R., Gnana P.M., Sudhaker, K. and Reddy, V.R. 2011. Housing, breeding and management practices of Mahabubnagar goats. *Indian J. Anim. Sci.,* **81**(8): 875-879.

Jayashree, R., Jayashankar M.R., Nagaraja C.S., Satyanarayana K. and Isloor, S. 2014. Goat rearing practices in southern Karnataka. *Int. J. Sci. Environ. Technol.,* **3**(4): 1328-1335.

Lavania, P., Jingar, S.C., Dileep, K., Ajesh, K. and Kantwa, S.C. 2014. Feeding and health care management practices adopted by tribal goat farmers in Sirohi district of southern Rajasthan. *J. Bio. Innov.,* **3**(3): 170-175.

Rahman, S. 2007. Adoption of improved technologies by the pig farmers of Aizawl district of Mizoram. *Livest. Res. Rural Dev.*, **19**(1): 1-4.

Singh, H.S. 2013. Tree wealth in the non-forest areas of Gujarat. Trees Outside Forest (TOF) - Third Tree Counting-2013. Gujarat Forest Department, Gandhinagar.

Singh, K.P., Dixit, S.P., Singh, P.K., Tajane, K.R., Singh, G. and Ahlawat, S.P.S. 2009. Economics of goat farming under traditional low input production system in north Gujarat region of India. *Indian J. Anim. Sci.*, **79**(9): 948-951.

Sireesha, K., Prasad, R.M.V., Rao, J.S. and Jayalaxmi, P. 2014. Prevalent sheep management practices in Guntur district of Andhra Pradesh. *Indian J. Anim. Prod. Mgmt.* **30**(1-2): 15-18.

Snedecor, G.W. and Cochran, W.G. 1994. Statistical Methods. 8th Edn. Oxford and IBH Publ. Co. Pvt. Ltd., New Delhi.

Sorathiya, L.M., Fulsoundar, A.B., Tyagi, K.K. and Patel, M.D. 2013. Effect of social groups and flock size on economic returns from traditional goat rearing in south Gujarat. *Indian J. Anim. Prod. Mgmt.* **29**(1-2): 102-109.

Tanwar, P.S. and Rohilla, P.P. 2012. Goat management practices adopted by farmers in Jaipur district of Rajasthan. *Indian J. Small Rumin.,* **18**(1): 121-124.

Tyagi, K.K., Patel, M.D., Sorathiya, L.M., Fulsoundar, A.B. 2013. Economic introspection of traditional goat rearing by *Ahirs* of Valsad district in South Gujarat. *Indian J. Small Rumin.,* **19**(1): 71-74.