



Original Research

Strategies for Housing Practices in Goat Farming of Southern Tamil Nadu

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Abstract

Goats are considered as a mobile bank and often termed mortgage lifter and automatic teller machine (ATM) for the weakest section of society and ray of hope in the areas where agriculture is not economically viable and ecologically sustainable. Tamil Nadu is endowed with two recognised breeds of goats viz. Kanni adu and Kodi adu which belongs to meat type. A total of 180 goat flocks from 60 villages spread in 30 blocks in three districts (Tirunelveli, Thoothukudi and Virudhunagar) were selected using multi-stage random sampling technique. Almost all the farmers in the districts provided night shelter (96.67 per cent) and only few farmers provided shelter to their goats during the day and night hr (3.33 per cent). Statistically, there was no significant relationship found between provision of shelters and district. The majority of the goat farmers provided open (41.11 per cent) type followed by closed (31.11 per cent) and half-open (27.78 per cent) types of housing to their goats. Statistical analysis revealed a significant ($P < 0.05$) relationship between the type of goat housing and districts. Provision of special enclosures for young kids in the study area was followed as partition in enclosure (46.11 per cent) and koodu a special type made up of bamboo and palmyra leaves with (53.89 per cent). Statistical analysis showed that there was highly significant difference ($P < 0.01$) observed between the provision of separate enclosure for kids and districts.

Key words: Goat Farming, Housing Management, Strategies, Tamil Nadu

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Introduction

Goats are distributed all over the world because of their wide adaptability to varying environmental conditions and the different nutritional regimes under which they are evolved and subsequently maintained. As per 19th Livestock census, 2012 Indian livestock sector is one of the largest in the world with a holding of 512 million livestock and the contribution of goats in total livestock population is 26.40 per cent (Anon, 2014). Goats are considered as a mobile bank and often termed mortgage lifter and automatic teller machine



(ATM) for the weakest section of society and ray of hope in the areas where agriculture is not economically viable and ecologically sustainable. Many useful goat husbandry technologies have been evolved by research system and have been transferred to the field for improving the production and productivity of goat sector in all agro-climatic zones of the country (Rajesh Kumar *et al.*, 2017). Even though India possesses 28 recognised breeds of goats raised for meat, milk and fibre production about 75 per cent of the goats are non-descript due to indiscriminate breeding and intermixing of flocks. Tamil Nadu is endowed with two recognised breeds of goats viz. Kanni adu and Kodi adu which belongs to meat type. There are about 9.27 million goat population reported in Tamil Nadu and out of this 27.74 per cent of the population are found in southern agro-climatic region of Tamil Nadu particularly Tirunelveli, Thoothukudi and Virudhunagar districts. Few studies have been done on the housing management practices in goats. To document the housing management of goat farming this study was carried out in farmer's field condition.

Materials and Methods

The villages were selected in consultation with the Department of Animal Husbandry of the Tirunelveli, Thoothukudi and Virudhunagar districts in Tamil Nadu on the basis of goat population existing there and goat flocks were selected at random (Fig. 1).



Fig.1: Selected areas in southern districts of Tamil Nadu

Considerable goat population is found in southern agroclimatic region of Tamil Nadu. Prior to sampling, proper discussions were held with local Veterinary Assistant Surgeons in the selected villages by preparing the plan and to make clear the purpose of the study. All the information on goat farming practices were collected with a structured and pre-tested schedule and by direct observation (Table1, 2 & 3).

Table 1: List of selected villages in Tirunelveli district

S. No.	Blocks	Villages
1	Ambasamuthiram	Kovilkulam
		Pirammadesam
2	Palayamkottai	Raajavillipuram
		Thatchanallur
3	Maanur	Azhakiyapandiyapuram
		Tenkalam
4	Meelaneelithanallur	Kurukkalpatti
		Thevarkulam
5	Radhapuram	Tisayanvilai
		Karaisudhuputhur
6	Nanguneri	Maruthakulam
		Panayankulam
7	Cheranmahadevi	Pottal
		Ullupadipaarai
8	Kadayam	Pungampatti
		Mayilappapuram
9	Keelapavoor	Paavoorchatram
		Selvavinayakipuram
10	Senkottai	Kumbli
		Therkumedu

Table 2: List of selected villages in Thoothukudi district

S. No.	Blocks	Villages
1	Karunkulam	Serakulam
		Keelasekkarakudi
2	Alwarthirunagari	Athinathapuram
		Alwarthirunagari
3	Srivaikundam	Padhnabamangalam
		Thoolapanpannai
4	Ottapidaram	Ottanatham
		Pasuvandhanai
5	Tiruchendur	Kayalpattinam
		Arumuganeri
6	Pudur	Duraisamipuram
		Senkottiah
7	Vilathikulam	Inamsubramaniapuram
		Keelavilathikulam
8	Kovilpatti	Kadalaiyoor
		Illupaioorani
9	Kayathar	Chettikuruchi
		Subulapuram
10	Sathankulam	Nedunkulam
		Kombankulam

A total of 180 goat flocks from 60 villages spread in 30 blocks in three districts (Tirunelveli, Thoothukudi and Virudhunagar) were selected using multi-stage random sampling technique. Data pertaining to the systems of rearing, type of housing, type of roofing materials used, floor space, type of feeder and water were collected. The data collected were subjected to descriptive statistics, correlation tests and least square analysis (Harvey, 1990).

Table 3: List of selected villages in Virudhunagar district

S. No.	Blocks	Villages
1	Vembakottai	Elayirampennai
		Chipiparai
2	Sivakasi	Sithurajapuram
		Poodureddipatti
3	Watrap	Koomapatti
		Kottaiyur
4	Rajapalayam	S.Ramalingapuram
		Ramco nagar
5	Srivilliputhur	Mamsapuram
		Pillyarnatham
6	Narikudi	Kottakatchiyendhal
		Irunchirai
7	Kariapatti	Kalkuruchi
		Samathuvapuram
8	Arupukottai	Ramasamy nagar
		Sempatti
9	Tiruchuli	Muthuraamalingapuram
		Kaloorani
10	Sattur	Nathathupatti
		Mayurnathapuram

Result and Discussion

Housing practices followed for goat units in the southern agro-climatic region of Tamil Nadu is presented in Table 4. Almost all the farmers in the districts provided night shelter (96.67 per cent) and only few farmers provided shelter to their goats during the day and night (3.33 per cent). Statistically, there was no significant relationship found between provision of shelters and district. Similarly, in Gohilwadi goats Singh *et al.* (2009a) reported that the Gohilwadi goats were housed only during night in north Gujarat region. In north Gujarat region, Gohilwadi goats were housed only during night and regarding the location of the shelter for these goats, farmers provided separate shed with residence (45.00 per cent) away from the residence (22.78 per cent) and attached with their residence (32.22 per cent) (Singh *et al.*, 2009a). Chi-square test showed that there was a significant ($P < 0.05$) relationship between the location of goat shelter and district. Separate goat sheds (45 per cent of the farmers) were more predominant

followed by sheds along with the residence (32.22 per cent) and sheds away from the residence (22.78 per cent).

Table 4: Housing management practices (per cent) adopted for goats in southern-agro climatic region of Tamil Nadu

Category		District			Overall	Chi square
		Tirunelveli	Thoothukudi	Virudhunagar		
Provision of shelter	Night only	96.67 (58)	95.00 (57)	98.33 (59)	96.67 (174)	1.03 ^{NS}
	Day and night	3.33 (2)	5.00 (3)	1.67 (1)	3.33 (6)	
Location	Separate shed with residence	31.67 (19)	58.33 (35)	45.00 (27)	45.00 (81)	9.65*
	Away from the residence	26.67 (16)	15.00 (9)	26.67 (16)	22.78 (41)	
	Attached with residence	41.67 (25)	26.67 (16)	28.33 (17)	32.22 (58)	
Housing type	Open	25.00(15)	48.33(29)	50.00 (30)	41.11(74)	11.69**
	Closed	43.33(26)	21.67 (13)	28.33 (17)	31.11(56)	
	Half-open	31.67 (19)	30.00 (18)	21.67 (13)	27.78(50)	
Flooring	Katcha	83.33 (50)	66.67 (40)	73.33 (44)	74.44 (134)	10.07 ^{NS}
	Pucca	6.67 (4)	21.67 (13)	18.33 (11)	15.56 (28)	
	Brick finished	8.33 (5)	11.67 (7)	8.33 (5)	9.44 (17)	
	Slatted	1.67 (1)	--	--	0.56 (1)	
Roofing materials	Thatched	76.7 (46)	65.00 (39)	61.70 (37)	67.78 (122)	3.47 ^{NS}
	Asbestos	16.7 (10)	25.00 (15)	26.67 (16)	22.78 (41)	
	Tiles	6.7 (4)	10.00 (6)	11.17 (7)	9.44 (17)	
Soil replacement interval	Once in 3 month	31.67(19)	20.00 (12)	23.33 (14)	25.00 (45)	9.75*
	Once in 6 month	21.67(13)	46.67 (28)	38.33 (23)	35.56 (64)	
	Once in a year	28.33(17)	25.00 (15)	23.33 (14)	25.56 (46)	
	Need basis	18.33 (11)	8.33 (5)	15.00 (9)	13.88 (25)	
Floor space	Sufficient	43.33 (26)	35.00 (21)	43.33 (26)	40.55 (73)	1.15 ^{NS}
	Insufficient	56.67 (34)	65.00 (39)	56.67 (34)	59.45 (127)	
Special enclosure for kids	Partition inside the shed	63.33 (38)	33.33 (20)	41.67 (25)	46.11 (83)	11.58**
	Koodu	36.67 (22)	66.67 (40)	58.33 (35)	53.89 (97)	

Figures in parentheses indicate number of observations * Significant ($P < 0.05$) ** Highly significant ($P < 0.01$),^{NS} Non-significant

The majority of the goat farmers provided open (41.11 per cent) type followed by closed (31.11 per cent) and half-open (27.78 per cent) types of housing to their goats. Statistical analysis revealed a significant ($P < 0.05$) relationship between the type of goat housing and districts. Jain *et al.* (2000) on analysing the goat farming practices in Kodi adu goats, stated that 20 per cent of the farmers maintained goats in open area, 60 per cent provided both open and close space and rest kept their animals in closed area and the goat shed was generally attached to or was a part of owners dwelling. Thiruvankadan *et al.* (2005) reported that the majority of Kanni goat farmers in Tamil Nadu had closed type (49 per cent) of sheds followed by half open sheds (27 per cent) and open pens (24 per cent). In contrast, Singh *et al.* (2009b) also found that about 20 per cent of the farmers kept their animals in open area and other 80 per cent of the farmers provided both

open and closed space for their animals. Housing trend completely depends on the farmers ability to spend. Flooring of the goat sheds were made of katcha (74.44 per cent), pucca (15.56 per cent) and brick finished (9.44 per cent) and slatted floor (0.56 per cent) types in the three districts. As per the Chi-square test no significant difference was observed between the flooring of goat sheds among districts. The results were similar to Nandi *et al.*, 2011 who studied the housing in Black Bengal goats, where the farmers followed floor typing as Earthen type (86.47%), brick finished (11.20 %), cemented floor (2.33 %) in West Bengal region.

Most of the goat sheds in all the districts were fitted with thatches (67.78 per cent), asbestos (22.78 per cent) and tiles (9.44 per cent) as roofing materials. There was no significant difference observed between the roofing materials used in goat sheds and districts. In Maharashtra, many goat keepers housed their animals in a specially thatched shelter (46.90 per cent), some of them used a place with thorny compound (35.86 per cent), very few famers (14.98 per cent) used their residence for housing their goats and remaining farmers (9.2 per cent) followed a separate constructed sheds with cement for their goats (Gokhale *et al.*, 2002). On the study of housing pattern followed by the goat keepers in tribal areas of Udaipur district of Rajasthan, Tanwar *et al.* (2008) reported that the goat farmers built katcha type house (95.56 per cent) and among the pucca housing system 94.97 per cent of farmers had katcha type of roof and floors. Nearly more than half of the goat farmers in the study area did not provide adequate floor space (59.45 per cent) to their goats, whereas 40.55 per cent of them provided proper floor space for goats. As per Chi-square test, there was no significant association observed between the provision of floor space to the goats and districts. In agreement with Lalitchandra *et al.*, (2016), majority of Ahirs community in Gujarat region had not provided sufficient floor space and gap in the slates of flooring of goat sheds.

Provision of special enclosures for young kids in the study area was followed as partition in enclosure (46.11 per cent) and koodu a special type made up of bamboo and palmyra leaves with (53.89 per cent). Statistical analysis showed that that there was highly significant difference ($P < 0.01$) observed between the provision of separate enclosure for kids and districts. Singh *et al.* (2009a) observed that the kids were kept in specially designed enclosures similar to koodu which were made up of bamboo stalks and palmyra leaves. Goat farmers preferred katcha type of house rather than pucca type to accommodate their herds this might be due to the fact that they are not willing to spend more for construction of goat shed. Thatched and Palmyra leaves are commonly preferred roofing materials utilised by the goat farmers. Rao *et al.* (2009) studied the housing pattern followed by the Ganjam goat framers in Orissa. They reported that majority of the farmers were rearing their goats without proper housing, followed by thatched house with mud flooring and thatched house with improvised flooring in 73.68, 21.05 and 5.26 per cent, respectively

In Malapuram district of Kerala, Verma *et al.* (2009) reported that the Tellicherry goat houses were made up of bamboos and placed at the height of about 2 - 4 ft from ground so that urine and faeces drop through

the bamboo floor on the ground and separate compartments were also made to keep the different category of goats. In Uttar Pradesh, Singh and Rai (2006) found that the goat houses were primarily made up of sand or wood with thatched roof and katcha floor for Barbari goats.

Conclusion

Goat farmers preferred katcha type sheds rather than pucca type sheds and providing open shelter to their goats. Well packed, easy to broom mud floors are very efficient and useful. Goat sheds were located along with the residence and thatched and palmyra leaves are commonly preferred roofing materials. Considering the negative aspects of these materials namely chances of fire, accumulation of dust and insect pests the farmers may be advised to go for simple economical and durable roof materials. As per the study the goat farmers are advised to house their goats with pucca flooring. If the animals are allowed minimal hrs for grazing, provision of proper run and pen area is also be recommended to overcome the vices and health. Daily manure collection is recommended and can be stored as heaps under a cover to prevent spoilage in rainy season.

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