

## Comparison of Housing Practices Followed by Goat Farmers Under Stall Fed and Extensive Rearing System in Punjab

Aman Deep Singh Dhaliwal<sup>1</sup>, Rajesh Kasrija<sup>2\*</sup>, Parminder Singh<sup>3</sup> and Y. S. Jadoun<sup>4</sup>

<sup>1</sup>MVSc scholar, Department of Veterinary and Animal Husbandry Extension Education, GADVASU, Ludhiana, Punjab, INDIA

<sup>2</sup>Associate Professor, Department of Veterinary and Animal Husbandry Extension Education, GADVASU, Ludhiana, Punjab, INDIA

<sup>3</sup>Associate Director, Krishi Vigyan Kendra, S A S Nagar, Mohali, Punjab, INDIA

<sup>4</sup>Assistant Professor, Department of Veterinary and Animal Husbandry Extension Education, GADVASU, Ludhiana, Punjab, INDIA

\*Corresponding Author: [dr.rajesh.kasrija@gmail.com](mailto:dr.rajesh.kasrija@gmail.com)

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### Abstract

*The present study was conducted in all the six different agro-climatic zones of Punjab to compare the housing knowledge level of goat farmers following stall feeding and extensive rearing system. A total of 120 goat farmers, belonging to Group I (Stall fed, n=60) and Group II (extensive rearing, n=60) were randomly selected (10 goat farmers each for Group I and Group II from every zone). The goat farmers were personally interviewed with the help of interview schedule. The mean housing awareness percentage in Zone I, II, III, IV, V, VI and Overall Punjab was reported to be 32.33%, 28.00%, 37.33%, 31.33%, 44.00%, 21.00% and 33.27% respectively. There is significant difference ( $P < 0.05$ ) for housing practices between different zones of Punjab. Group I had more awareness ( $P < 0.01$ ) about different housing practices than Group II goat farmers. The housing knowledge level of Group I and Group II goat farmer in Punjab was medium and low respectively. The present study suggests need of organizing more extension activities regarding knowledge enrichment of goat farmers for housing practices after assessing knowledge level of goat farmer belonging to a particular area/zone.*

**Keywords:** Extensive, Farmer, Goat, Housing, Punjab, Rearing, Stall Fed

## Introduction

Goats are among the main meat-producing animals in India, whose meat (chevon) is one of the choicest meats and has huge domestic demand. Besides meat, goats provide other products like milk, skin, fiber and manure. As per 20<sup>th</sup> livestock census (2019), Goat population of India and Punjab is 1488.8 lakhs and 3.48 lakhs respectively. In 19<sup>th</sup> livestock census, Goat population of India and Punjab was 135.17 million and 3.27 lakhs respectively (Anonymous 2019). This indicates that there is increase in population of goats at both state and national level. In other words, more number of farmers are engaged in goat farming. Goat provides food and nutritional security to the millions of marginal and small farmers and agricultural labourers. Goats are reported to be more economical than cattle and sheep under natural grazing and browsing (Sharma and Jindal 2008) and are hardy, prolific and can be cheaply reared (Banerjee 2004). Two types of rearing systems are prevalent for goats- stall fed and extensive system. In Stall fed/intensive/zero grazing system, the goats are continuously kept in confinement and are fed on manger. In extensive/grazing system of rearing, goat farmers roam from one place to another along with their flocks and goats sustain on grazing. To compare the housing practice knowledge level of goat farmers rearing goats under stall fed and extensive system in Punjab, the present study was planned.

## Materials and Methods

The present study was conducted in whole of the Punjab state. Punjab state is divided into six different agro climatic zones (Kingra *et al.*, 2001), namely Sub mountain undulating zone (Zone I), Undulating plain zone (Zone II), Central plain zone (Zone III), Western plain zone (Zone IV), Western zone (Zone V), and flood plain zone (Zone VI). The goats farmers were divided in to two groups- Group I (Stall fed goat farmers, n=60) and Group II (Extensive rearing goat farmers, n=60). From each agro-climatic zone, 10 goat farmers belonging to both the groups were randomly selected. Thus, the total number of respondents was 120. After careful examination of concerned research articles/relevant literature, discussion with field extension personnel and consulting subject matter specialists, a total 15 items/questions were compiled in the interview schedule. The goat farmers were personally interviewed by visiting their farm at field level. Goat farmers possessing knowledge about a particular housing practice were assigned one score and those which do not possess knowledge about that particular practice were assigned zero score. The goat farmers having knowledge score 0-5, > 5 - 10 and > 10 were categorized in to three different categories namely - low, medium and high knowledge for different items. The collected data was carefully examined for completeness and correctness before tabulation. For analysis, simple tabular techniques and appropriate statistical methods were employed by using SPSS version 20.0.

## Results and Discussion

A perusal of Table 1 represents that awareness percentage of Zone V goat farmers about housing practices was more than other zones, while Zone VI has lowest housing awareness. The mean housing awareness percentage in Zone I, II, III, IV, V, VI and overall Punjab was reported to be 32.33%, 28.00%, 37.33%, 31.33%, 44.00%, 21.00% and 33.27% respectively. Awareness percentage about type of housing, location and orientation of shed, appropriate height of shed, space requirement for covered area and space requirement for open area in Punjab was reported to be 51.67%, 25.00%, 25.00%, 9.16% and 15.83% respectively. Only 15.00% goat farmers were aware about separate shed for different categories of goats. The awareness about kidding pen was with only 18.33% goat farmers in Punjab. Awareness about isolation shed for sick goat was with only 30.83 % goat farmers. Majority (82.50 %) of goat farmers were aware about cleaning of shed, whereas awareness about proper drainage and slope of floors was possessed by 39.17% goat farmers; awareness about use of disinfectants for cleaning of shed was possessed by 11.67 % goat farmers. Awareness about summer and winter management was possessed by 21.67 % and 22.50 % respectively. Singh *et al.* (2020) also reported that in Punjab the knowledge about type of housing, space requirements, separate shed, location & orientation of shed, cleaning of shed, use of disinfectants for cleaning of shed, provision of ventilation appropriate height of shed and proper drainage and slope of floors was possessed by 33.75%, 17.92%, 37.08%, 35.83%, 56.25%, 34.58%, 48.33%, 39.17% and 25.83% respectively. In Punjab, the mean awareness about housing practices in goat farmers was 36.53%. Jayashree *et al.* (2014) reported that in Southern Karnataka, the goats were sheltered only during night in kutch type sheds constructed of locally available material (65%) with mud flooring or in pucca type sheds (35%) with half wall to the level of 2-3 feet on the sides with cement/concrete/ stone paved for flooring.

**Table 1:** Awareness percentage of goat farmers about housing practices in different agro-climatic zones of Punjab

Awareness about	Agro-climatic zone						Over all (n=120)
	I (n=20)	II (n=20)	III (n=20)	IV (n=20)	V (n=20)	VI (n=20)	
Type of housing	55	45	55	45	65	30	51.67
Location & orientation of shed	20	15	45	20	40	10	25
Appropriate height of shed	25	20	40	25	30	10	25
Space requirements for covered area	5	10	10	10	15	0	9.16
Space requirements for open area	5	10	15	10	20	10	15.83
Provision of ventilation	85	85	75	75	80	85	80.83
Lighting facility	45	45	65	55	75	35	53.33
Separate shed for different categories of goats	10	10	5	10	20	15	15
Kidding pen	15	5	20	20	30	10	18.33
Isolation shed for sick goats	40	25	35	25	55	0	30.83
Cleaning of shed	90	80	70	80	80	80	82.5
Proper drainage & slope of floors	35	35	50	40	55	15	39.17
Use of disinfectants for cleaning of shed	10	10	15	10	25	0	11.67
Summer management	20	10	25	20	35	10	21.67
Winter management	25	15	35	25	35	5	22.5
Mean percentage	32.33	28	37.33	31.33	44	21	33.27

**Table 2:** Awareness percentage of goat farmers groups (on rearing system basis) about housing practices in Punjab

Awareness about	Rearing practice		Over all (n=120)
	Group I (n=60)	Group II (n=60)	
Type of housing	85	18.33	51.67
Location & orientation of shed	36.67	13.33	25
Appropriate height of shed	31.33	18.33	25
Space requirements for covered area	18.33	0	9.16
Space requirements for open area	25	3.33	15.83
Provision of ventilation	81.67	80	80.83
Lightening facility	48.33	58.33	53.33
Separate shed for different categories of goats	30	0	15
Kidding pen	26.67	10	18.33
Isolation shed for sick goats	35	26.67	30.83
Cleaning of shed	88.33	76.67	82.5
Proper drainage & slope of floors	46.67	31.67	39.17
Use of disinfectants for cleaning of shed	21.67	1.67	11.67
Summer management of goats	28.33	15	21.67
Winter management of goats	21.67	23.33	22.5
Mean percentage	41.67	24.89	33.27

It is clear from Table 2 that Group I had more awareness about different housing practices than Group II goat farmers. The mean housing awareness percentage of Group I, Group II and Overall Punjab was 41.67%, 24.89% and 33.27% respectively. None of the goat farmer of Group II was aware about space requirements for covered area and separate shed for different categories of goats. Tanwar *et al.* (2007) reported that in Udaipur district of Rajasthan, goats were housed near dwelling. Loose housing as well as open yard was common housing practices adopted by goat owners. Sharma *et al.* (2007) also reported that in Nathdwara, Vallabh Nagar, Railmagra and

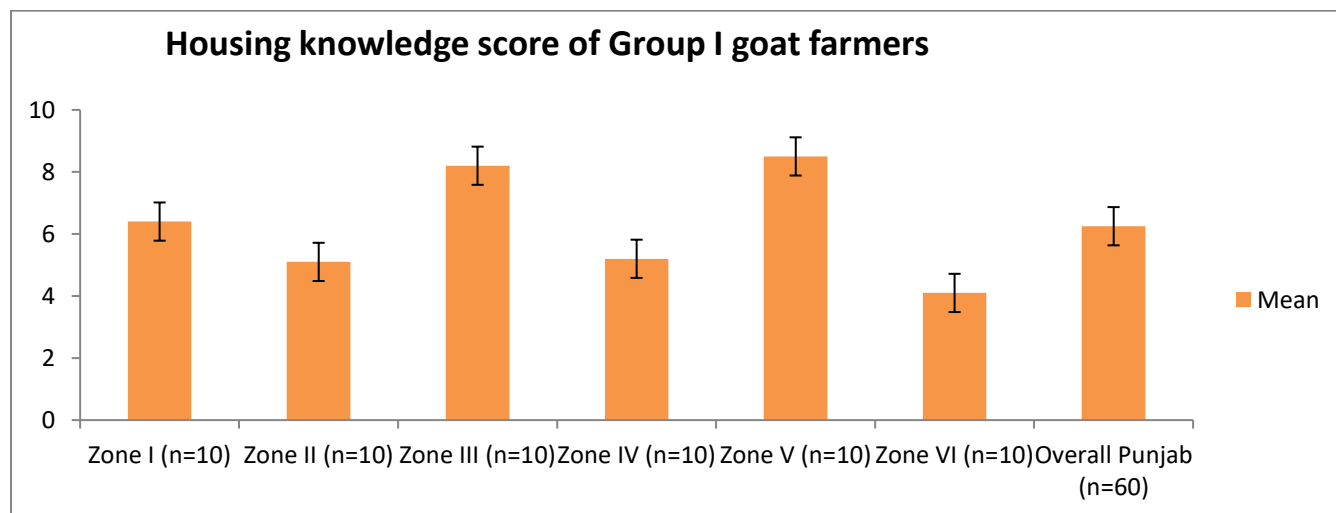
Devgarh areas of Rajasthan, majority of goat rearers house their animals attached to their own residential house, which was open and kaccha flooring type of house and provided separate house for kid and bucks.

Table 3 and Figure 1 depicts that housing Knowledge score of Group I goat farmers in different agro-climatic zones of Punjab differ significantly at  $P < 0.05$  level. The housing knowledge score of goat farmers in different zones and for overall Punjab for Group I goat farmers falls under medium category. It suggests that before execution of extension activity related with housing practices for goat farmers the zone/area of farmer should be taken in to consideration.

**Table 3:** Housing knowledge score of Group I goat farmers in different agro-climatic zones of Punjab

Agro-climatic zone	Housing Knowledge score (Mean $\pm$ S.E.)	Housing Knowledge level
Zone I (n=10)	6.40 $\pm$ 1.27 <sup>ab</sup>	Medium
Zone II (n=10)	5.10 $\pm$ 0.89 <sup>ab</sup>	Medium
Zone III (n=10)	8.20 $\pm$ 1.23 <sup>b</sup>	Medium
Zone IV (n=10)	5.20 $\pm$ 1.22 <sup>ab</sup>	Medium
Zone V (n=10)	8.50 $\pm$ 1.31 <sup>b</sup>	Medium
Zone VI (n=10)	4.10 $\pm$ 0.80 <sup>a</sup>	Low
Over all (n=60)	6.25 $\pm$ 0.50	Medium

(Values with different superscript differ significantly at  $P < 0.05$ )

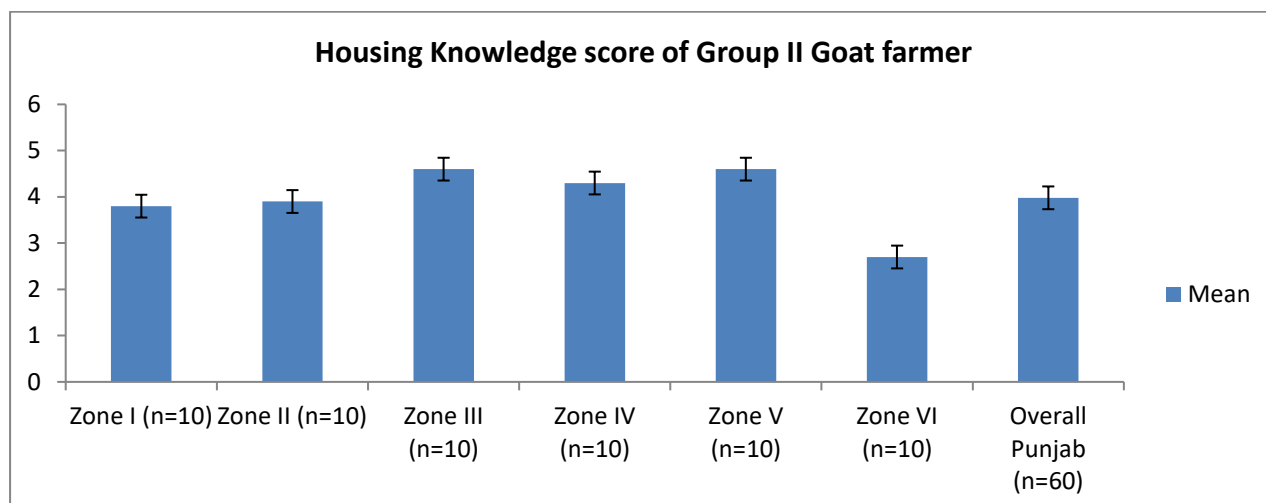


**Figure 1:** Housing knowledge score of Group I goat farmers in different agro-climatic zones of Punjab

Table 4 and Figure 2 shows that housing Knowledge score of Group II goat farmers differ in different agro-climatic zones of Punjab. The housing knowledge level of Group II farmers in different agro-climatic zones and in overall Punjab is low. It suggests that knowledge score of goat farmers following extensive rearing is low and they should be educated about benefit of scientific housing management.

**Table 4:** Housing knowledge score of Group II goat farmers in different agro-climatic zones of Punjab

Agro-climatic zone	Housing Knowledge score (Mean $\pm$ S.E.)	Housing Knowledge level
Zone I (n=10)	6.40 $\pm$ 1.27 <sup>ab</sup>	Medium
Zone II (n=10)	5.10 $\pm$ 0.89 <sup>ab</sup>	Medium
Zone III (n=10)	8.20 $\pm$ 1.23 <sup>b</sup>	Medium
Zone IV (n=10)	5.20 $\pm$ 1.22 <sup>ab</sup>	Medium
Zone V (n=10)	8.50 $\pm$ 1.31 <sup>b</sup>	Medium
Zone VI (n=10)	4.10 $\pm$ 0.80 <sup>a</sup>	Low
Over all (n=60)	6.25 $\pm$ 0.50	Medium

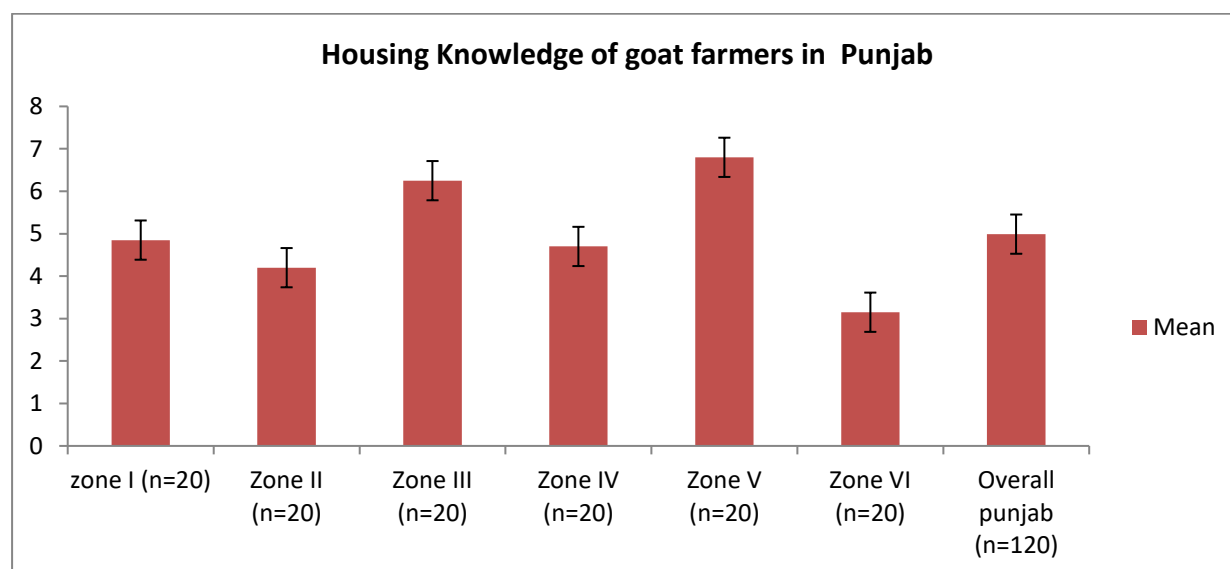


**Figure 2:** Housing Knowledge score of Group II goat farmers in different agro-climatic zones of Punjab

**Table 5:** Housing knowledge of goat farmers in different agro-climatic zones of Punjab

Agro-climatic zone	Housing knowledge score (Mean $\pm$ S.E.)	Housing knowledge level
Zone I (n=20)	4.85 $\pm$ 0.76 <sup>abc</sup>	Low
Zone II (n=20)	4.20 $\pm$ 0.56 <sup>ab</sup>	Low
Zone III (n=20)	6.25 $\pm$ 0.82 <sup>bc</sup>	Medium
Zone IV (n=20)	4.70 $\pm$ 0.68 <sup>abc</sup>	Low
Zone V (n=20)	6.80 $\pm$ 0.86 <sup>c</sup>	Medium
Zone VI (n=20)	3.15 $\pm$ 0.47 <sup>a</sup>	Low
Over all (n=120)	4.99 $\pm$ 0.30	Low

(Values with different superscript differ significantly at  $P < 0.05$ )



**Figure 3:** Housing knowledge score of goat farmers in different agro-climatic zones of Punjab

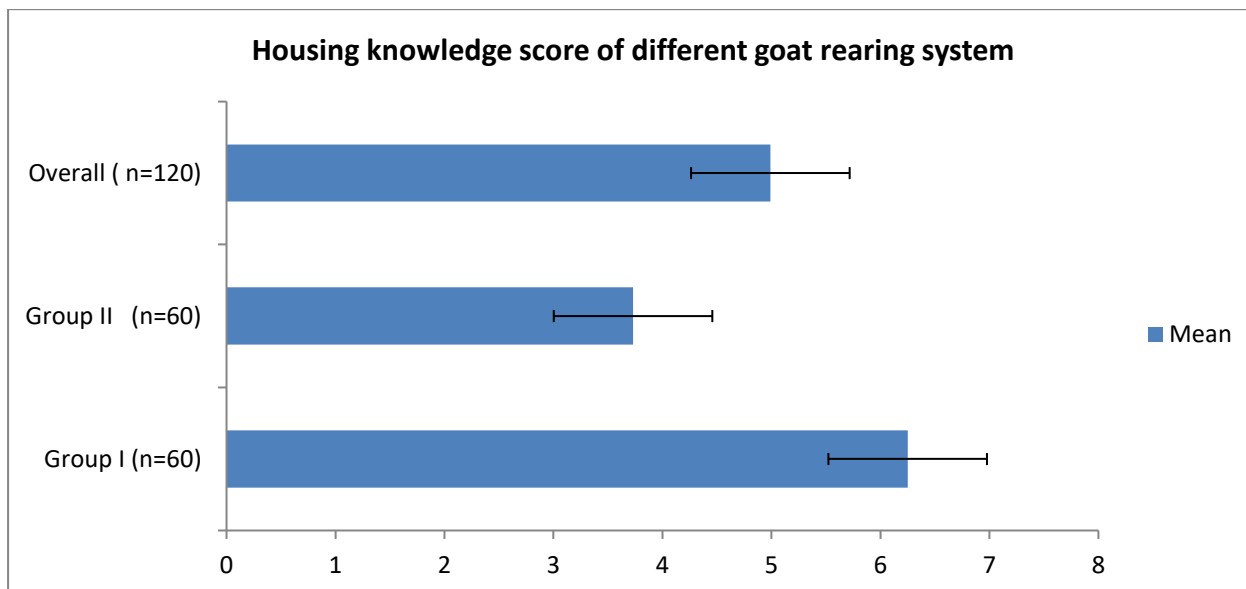
It is clear from Table 5 and Figure 3 that housing knowledge score of goat farmers in different agro-climatic zones differ significantly at  $P < 0.05$  level. Zone V has maximum housing knowledge followed by Zone III and is in medium knowledge category for both Zone V and III. Zone VI has lowest housing knowledge. The knowledge level of Zone I, II, IV, VI and overall Punjab falls in low knowledge category.

Table 6 and Figure 4 shows that housing knowledge score of goat farmers in Group I is significantly higher ( $P < 0.01$ ) than Group II. The housing knowledge level of Group I goat farmer falls under medium knowledge category, while for Group II and overall Punjab, there is low knowledge level.

**Table 6:** Housing knowledge score (Mean  $\pm$  S.E.) of goat farmers (based on rearing system) in Punjab

Rearing system	Housing knowledge score (Mean $\pm$ S.E.)	Housing Knowledge level
Group I (n=60)	6.25 $\pm$ 0.50 <sup>a</sup>	Medium
Group II (n=60)	3.73 $\pm$ 0.28 <sup>b</sup>	Low
Over all (n=120)	4.99 $\pm$ 0.30	Low

(Values with different superscript differ significantly at  $P < 0.01$ )

**Figure 4:** Housing knowledge of goat farmers (based on rearing system) in Punjab

## Conclusion

It can be concluded that housing knowledge level of stall-fed goat farmers and extensive rearing goat farmer in Punjab was medium and low respectively. Also, there is significant difference ( $P < 0.01$ ) in their knowledge level. Also, the housing knowledge level varies significantly ( $P < 0.05$ ) for stall fed goat farmers and non-significantly for extensive rearing goat farmers. There is dire need to organize more extension campaigns to educate goat farmers about scientific housing practices. The housing knowledge level of goat farmers belonging to a particular area/zone should be kept in mind before organizing knowledge enrichment programmes for goat farmers.

## Conflict of Interests

There is no conflict of interest.

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