

ASSESSMENT OF TRAINING NEEDS OF PASTORALISTS OF PUNJAB

VEENU SHARMA, RAJESH KASRIJA*, JASWINDER SINGH, UDEYBIR SINGH CHAHAL,
DALJEET KAUR and NALLAPATI SAI ANJANA

Department of Veterinary and Animal Husbandry Extension Education College of Veterinary Sciences,
Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana

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ABSTRACT

Pastoralism, one of the world's oldest and most sustainable livestock management systems, remains integral to the livelihoods of several nomadic communities in India. In Punjab, pastoralist groups, especially the Gujjars, migrate seasonally from Jammu & Kashmir and Himachal Pradesh in search of better grazing lands. The present study aimed to assess the training needs of pastoralists in Punjab by examining their knowledge levels across six key areas of dairy farming: breeding, feeding, housing and management, healthcare, marketing, and government services. Data were gathered from 90 pastoralists across Majha (Group-I), Malwa (Group-II) and Doaba (Group-III) regions through structured personal interviews. The findings revealed significant regional differences in knowledge indices (at $P < 0.01$), with Group-II (Malwa) consistently outperforming other regions. Notably, government services emerged as the area with the lowest awareness, highlighting a pressing need for institutional outreach. The training needs order of pastoralists of Punjab was reported to be at I, II, III, IV, V and VI for government services, feeding, marketing, housing & management, healthcare and breeding, respectively. Feeding practices and marketing skills also ranked high in training priority, whereas breeding was identified as the least urgent. The study emphasizes the necessity of culturally sensitive, community-based training interventions, particularly in government schemes, feed management, and market linkages, to enhance the livelihoods and well-being of pastoralist communities in Punjab.

Keywords: Knowledge Index, Pastoralists, Punjab, Training Needs

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There are several indigenous groups in India known as tribes that have not yet adopted the ways of the modern world. India has the second-largest tribal population in the world, numbering about 84.4 million. Pastoralism is one of the most ancient, robust, and sustainable systems of raising livestock; it originated in Northeast Africa as early as 9000 B.P. (Dong, 2016). Pastoral groups in India are classified as nomadic tribes. Pastoralism is the branch of agriculture where pastoralists raise cattle for the purpose of making money off of their products (Djordjevic Milošević & Milovanović, 2020). This could be nomadic, which means relocating frequently in pursuit of water and grazing places in the form of new pasture, or stationary, which involves maintaining cattle in a semi-permanent region, typically close to farms and villages (Turner & Schlecht, 2019). About 200 million transhumant and nomadic pastoralists worldwide make a living in isolated, hostile areas where traditional farming is either impossible or very difficult.

Training needs assessment of pastoralists is important for pastoralists as it can increase output by optimizing nutritional strategies and herd oversight; protect community health by implementing sanitary milking protocols and effective pasteurization methods; promote animal well-being by training pastoralists in preventive health measures and disease management. Broaden market access by delivering training in cooperative governance, entrepreneurial skills, and product value-

addition techniques. Maximize adoption by embedding training within pastoralists' cultural contexts and everyday landscapes. There is scanty research literature regarding training needs assessment of pastoralists. So the present study was designed to assess the training needs of pastoralists of Punjab in a comprehensive manner.

MATERIALS AND METHODS**Location of study and sampling procedure**

A total of 90 pastoralists were selected from three regions Majha (Group-I), Malwa (Group-II) and Doaba (Group-III) of Punjab by purposive selection method since pastoralists do not have a fixed location of residence and practice transhumance. 30 pastoralists were selected from each region, respectively. The data was collected at their doorstep in different regions of Punjab with the help of pre-structured interview schedule by personal interview method to observe knowledge level of pastoralists. The total of 8 questions for breeding, 9 questions/items feeding, 7 questions for housing and management practices, 4 questions for marketing, 5 questions healthcare practices and 7 questions for government policies were finalized in interview schedule after discussion with subject matter expert, progressive farmers, field veterinarians and carefully examining research literature.

Measurement of Knowledge Index

The various knowledge indices for various farming practices- the breeding knowledge index (KIB), feeding

*Corresponding author: dr.rajesh.kasrija@gmail.com

knowledge index (KIF), housing and management knowledge index (KIHM), healthcare knowledge index (KIH), marketing knowledge index (KIM), government services knowledge index (KIG) - were determined by dividing the total score by the highest possible score and multiplying the result by 100.

$$KI = \text{Obtained score} / \text{Maximum possible score} \times 100$$

The Knowledge index on pastoralists was also calculated by using the following-

$$\text{Formula: } KIP = KIB + KIF + KIHM + KIH + KIM + KIG$$

The different knowledge indices were ranked in to order for different regions.

Assessing Training needs

The assessment of perceived training needs was based on the premise that a person's perceived training needs would decrease with increasing KI score. Training needs were also ranked in ascending order. A region's training requirements were determined using the knowledge indexes specific to that area.

RESULT AND DISCUSSION

Ranking of Knowledge Index

The results as presented in Table 1 shows the pastoralist's knowledge index on different dairy farming practices. Findings of the study showed with Group II having the highest overall KI followed by Group-III and Group-I. Among the six dairy farming practices, breeding recorded the highest overall KI, followed by healthcare, housing and management, marketing and feeding, while government services had the lowest KI. This ranking suggests that pastoralists exhibit the most knowledge in breeding and healthcare but dearth knowledge regarding government services. In terms of regional rankings, Group-II had the highest knowledge scores across most practices, particularly thriving in healthcare and marketing. Group-III have highest in breeding, but its knowledge in feeding was significantly lower than other. Group-I showed the lowest overall knowledge, with government services knowledge being completely void.

The overall Knowledge Index highlights Group-II as the most informed group (66.73%), followed by Group-III (43.62%) and Group-I (38.85%) indicating that Malwa-based pastoralists have comparatively higher knowledge across all domains, while Majha-based pastoralists are the most disadvantaged, particularly in accessing government resources as similar with findings of Gour et al. (2015) Sabapara (2012).

Ranking of Knowledge Indices and Training needs

From Fig. 1 and Table 2; the ranking of dairy farming

practices in three regions- Group-I, Group-II and Group-III according to their performance is made by rating their Knowledge Index (KI). The results show noticeable regional differences in knowledge levels, with Group-II having the highest overall KI followed by Group-III and Group-I. The training-needs rankings show a distinct hierarchy of capacity-building priorities as follows:

- Across all groups, government services have been identified as the most significant training need (Order I), indicating pervasive gaps in access to institutional frameworks for livestock management, veterinary extension and policy support.
- The fact that feeding practices came in second place (Order II) highlights the serious issue of seasonal forage shortages and nutritional deficiencies that restrict milk production in native herds.
- Marketing came in third place (Order III), emphasizing the necessity for pastoralists to improve their business organization, value-chain involvement and market connections.
- Following housing and management (Order IV), there was a moderate need for training to enhance shelter design, herd monitoring and general husbandry procedures.
- Healthcare came in fifth place (Order V), indicating the need for improved preventive medicine knowledge, mastitis management and fundamental veterinary care.
- Although breeding frequently appears prominently in other dairy-farmer assessments, it was consistently ranked lowest in training priority (Order VI), indicating that pastoralists view themselves as relatively more knowledgeable or deem it a less urgent need in this area.
- The top training needs for Group-I were identified as housing and management, which was followed by marketing, breeding, feeding, and healthcare. There is a clear gap in extension service outreach, as government services continue to be the most needed and least accessed area for intervention (Order I).
- Healthcare was the most important training need in Group-II, followed by marketing, breeding, feeding, and housing and management. Once more, the top training priority was determined to be Government Services. The group's active involvement in the livestock trade and increased awareness of disease-related losses are reflected in the strong emphasis on healthcare and market engagement.
- The highest training priority for Group-III was breeding, which also had the highest KI score. Healthcare, housing and management, marketing, and feeding came next. It is noteworthy that Government Services once more occupied the first order of need (Order I),

Table 1. Knowledge index about different practices

Parameter	Dairy farming practices	Group-I (n=30)	Group-II (n=30)	Group-III (n=30)	Total (N=90)
Knowledge index (Mean $\pm$ S.E.)	Breeding (8)	47.08 ^a $\pm$ 2.14	77.08 ^b $\pm$ 4.02	67.08 ^c $\pm$ 2.57	63.75 ^d $\pm$ 2.17
	Feeding (9)	45.55 ^a $\pm$ 2.57	76.29 ^b $\pm$ 3.40	37.03 ^c $\pm$ 1.63	52.96 ^d $\pm$ 2.34
	Housing and management (7)	54.28 ^a $\pm$ 2.77	69.53 ^b $\pm$ 2.72	45.24 ^c $\pm$ 3.22	56.35 ^d $\pm$ 1.97
	Healthcare (5)	48.67 ^a $\pm$ 3.13	80.67 ^b $\pm$ 1.51	47.33 ^c $\pm$ 2.03	58.89 ^d $\pm$ 2.10
	Marketing (4)	37.50 ^a $\pm$ 2.61	79.17 ^b $\pm$ 2.42	45.00 ^c $\pm$ 3.47	53.89 ^d $\pm$ 2.52
	Government services (7)	0.00 ^a $\pm$ 0.00	17.62 ^b $\pm$ 3.85	20.01 ^c $\pm$ 2.12	12.54 ^d $\pm$ 1.73
Overall KI (Mean $\pm$ S.E.)	38.85 ^a $\pm$ 2.20	66.73 ^b $\pm$ 2.99	43.62 ^c $\pm$ 2.51	49.23 ^d $\pm$ 2.14	

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

Table 2. Ranking of knowledge indices and training needs of pastoralists for different practices

Dairy farming practice	Group-I (n=30)			Group-II (n=30)			Group-III (n=30)			Overall (N=90)		
	KI	Ranking of KI	Training needs order	KI	Ranking of KI	Training needs order	KI	Ranking of KI	Training needs order	KI	Ranking of KI	Training needs order
Breeding	47.08 $\pm$ 2.14	III	IV	77.08 $\pm$ 4.02	III	IV	67.08 $\pm$ 2.57	I	VI	63.75 $\pm$ 2.17	I	VI
Feeding	45.55 $\pm$ 2.57	IV	III	76.29 $\pm$ 3.40	IV	III	37.03 $\pm$ 1.63	V	II	52.96 $\pm$ 2.34	V	II
Housing and management	54.28 $\pm$ 2.77	I	VI	69.53 $\pm$ 2.72	V	II	45.24 $\pm$ 3.22	III	IV	56.35 $\pm$ 1.97	III	IV
Healthcare	48.67 $\pm$ 3.13	II	V	80.67 $\pm$ 1.51	I	VI	47.33 $\pm$ 2.03	II	V	58.89 $\pm$ 2.10	II	V
Marketing	37.50 $\pm$ 2.61	V	II	79.17 $\pm$ 2.42	II	V	45.00 $\pm$ 3.47	IV	III	53.89 $\pm$ 2.52	IV	III
Government services	0.00 $\pm$ 0.00	VI	I	17.62 $\pm$ 3.85	VI	I	20.01 $\pm$ 2.12	VI	I	12.54 $\pm$ 1.73	VI	I

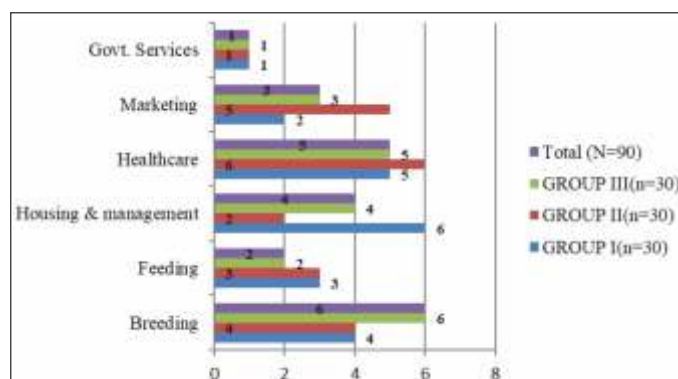


Fig. 1. Ranking of Training needs of Pastoralists of Punjab

suggesting that systemic barriers to accessing public veterinary and advisory services continue to affect even relatively better-informed groups.

CONCLUSION

According to the training requirements assessment, training about knowledge on government services should be given I ranking. The results on feeding revealed as second on the training priority list; suggesting that feeding management has lack of understanding, especially in Group-III and Group-I. The third most important area that needed training was marketing expertise. Given that breeding had the highest KI; it was ranked to be the lowest important for training. These results suggest for improving

government and extension services, tackling feed-management issues and cultivating market-oriented skills should be the primary goals of capacity-building programs for pastoralists. Although they can be adjusted as secondary priorities, support for housing, health and breeding should be maintained.

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