A scale to measure attitude of farmers regarding scientific wool and pelt production

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Abstract

Attitude plays a pivotal role in shaping an individual's behavior towards the adoption of innovations in agriculture and allied sector. In the context of wool and pelt production, farmers' willingness to embrace scientific practices is significantly influenced by their underlying attitudes. Recognizing the absence of a standardized tool to measure such attitudes, the present study was undertaken to develop and validate a reliable attitude scale specific to scientific wool and pelt production. A Likert's Summated Rating Scale methodology was adopted following established procedures. An initial pool of items was generated through literature review, expert consultation, and field observations, resulting in a comprehensive set of statements covering key dimensions such as housing, breeding, feeding, health care, government schemes, training and capacity building, marketing, ITKs and pelt production. The draft scale was subjected to expert evaluation for relevancy, followed by item analysis and checking the reliability and validity for precision and consistency of the results using responses from a pilot sample of 60 farmers. Based on statistical criteria (t-values above 1.75), the final scale comprised 40 statements with 26 positive and 14 negatives. The reliability of the scale was established through the split-half method (0.871) and Spearman-Brown formula (0.813), while internal consistency was assessed using Cronbach's alpha (0.88). Content validity was also ensured. The resulting scale offers a scientifically sound instrument to assess farmers' attitudes, which can guide future interventions, policy formulation, and extension strategies aimed at enhancing adoption of scientific wool and pelt production practices.

Keywords: Attitude scale; Wool; Pelt; Reliability

Introduction

The livestock sector plays a critical role in sustaining rural livelihoods and contributing to the agricultural economy. Sheep farming provides substantial earning to marginal farmers across the world (Rebollo-Morales et al., 2021; Yulashbaev & Demurova, 2021). Profitability of sheep farming depends on quality of the products and byproducts like wool and pelt and price fetched by the sheep farmers for these products (Djimon et al., 2024). The wool and pelt industry hold significant potential, particularly in regions like the Jammu and Kashmir, where sheep rearing is traditionally practiced. Despite technological advancements and improved scientific practices in sheep husbandry, the adoption of recommended methods for wool and pelt production remains suboptimal among many farmers. This gap is often attributed not only to knowledge or resource constraints but also to the farmers' attitudes, their predispositions, beliefs, and openness toward adopting modern practices.

Understanding and measuring farmers' attitudes toward scientific wool and pelt production is essential for designing effective extension programs and policy interventions. However, a standardized, valid, and reliable tool to quantify such attitudes has been lacking. Therefore, this study was undertaken to develop and validate an attitude scale specifically designed to assess the attitudes of sheep farmers toward scientific practices in wool and pelt production.

Materials and methods

The development of this scale involved a systematic process, including the generation of relevant statements, expert validation, field testing, and statistical analysis to ensure content validity and reliability. Various steps and procedures used in computing and standardizing a scale to measure the attitude of sheep rearers towards wool and pelt production using the 'Likert' method of summated rating have been discussed (Likert, 1932) and presented in the following sections. This methodology is also followed by Kumar *et al*. (2023), Gupta *et al.* (2022), Patel *et al.* (2022) and Vinaya *et al.* (2018).

Collection of statements

First, statements representing the universe of content in sheep farming with respect to wool and pelt production were prepared in order to construct the attitude scale. The standardized books like Sheep Wool and Mutton: Production and Value Addition by MANAGE, Scientific Sheep Farming by M.N. Hassan, ICAR publications on Sheep farming as well as online available literature formed the basis for the subject matter of the attitude scale for formulating the statements that covered various aspects of sheep farming. As a result, a comprehensive list of 91 statements covering various aspects of sheep rearing was compiled, including housing, breeding, feeding, health care, government schemes, training and capacity building, marketing, Indigenous Technical Knowledge (ITKs) related to wool based niche products as well as for treating common ailments of sheep by shepherds themselves and pelt production. These statements were carefully edited in light of Edwards' (1957) 14 criteria, resulting in a total of 75 statements.

Relevancy of statements by experts

A total number of 75 statements were sent to 150 experts from ICAR institutes, State Agricultural Universities (SAUs), and research scholars. The statements were sent through Google Forms via email to 126 experts while 24 experts were given the forms in person. Out of all, 72 experts provided complete responses (54 online and 18 offline). The judges were requested to examine each statement and to determine their relevancy on a three-point continuum *viz.,* most relevant, relevant and least relevant with the score of 3, 2 and 1. Based on their expert judgment, statements were identified as relevant based on mean relevancy percentage, mean relevancy weightage and mean relevancy score (Dhenge *et al*., 2025). After duly recording their judgments, the statements were considered for the analysis. Following the analysis, some statements were rewritten again in light of the criticism and comments of the experts.

Relevancy percentage (RP): It is the number of respondents who rated the statements as "most relevant", "relevant" and "least relevant", which is converted into percentage.

$$\text{RP} = \frac{\text{FS}}{\text{Maximum Possible Score (MPS)}} \times 100$$

Where,

FS= Frequency score of most relevant and relevant

$FS=(F_{MR}\times 3) + (F_{R}\times 2) + (F_{LR}\times 1)$

Maximum Possible Score (MPS) = Number of experts × 3

Relevancy Weightage (RW): It is the ratio of actual score obtained to the maximum possible scores obtainable for each statement.

$$\text{RW} = \frac{\text{MR} \times 3 + \text{R} \times 2 + \text{LR} \times 1}{\text{Maximum Possible Score}}$$

Where,
MRR = Most relevant response
RR = Relevant response
LRR = Least relevant response
MPS=Maximum possible scores obtainable for the statement = Number of experts × 3

Mean Relevance Score: It is the ratio of actual score obtained by each respondent to the number of judges responded for the variable.

$$\text{Mean relevancy score} = \frac{\text{R} \times 3 + \text{R} \times 2 + \text{LR} \times 1}{\text{Number of judges (i.e. 72)}}$$

Using these three criteria the statements were screened for their relevancy. Accordingly, statements having relevancy percentage >70, relevancy weightage > 0.70 and mean relevancy score >2 were considered for final selection of statements (Thakur *et al.,* 2017). Table 1 presents all 75 statements along with their corresponding values of relevancy percentage (RP), Relevancy weightage (RW) and Mean relevancy score (MRS), as assessed by expert judges during the item validation process.

Table 1. Selection of statements based on Relevancy Percentage (RP), Most Relevancy Score (MRS) and Relevancy Weightage (RW) score.

Statements	RP	RW	MRS
HOUSING			
Despite being labor-intensive, sheep rearing is a rewarding occupation	88.2	0.88	2.79
Investing in proper housing for sheep is essential for maintaining wool quality and overall animal health.	91.5	0.91	2.12
Well-maintained and ventilated housing is crucial for maximizing wool yield and minimizing disease risks.	87.3	0.87	2.67
Separate housing for lambing and lactating ewes is an unnecessary expense in sheep farming.	72.3	0.72	1.85
Proper drainage and cleanliness in sheep housing are crucial for preventing health issues and maintaining wool quality.	75.6	0.75	2.80
The cost of building and maintaining specialized housing for sheep does not justify the returns in wool production. *	89.0	0.89	2.83
Traditional open grazing systems are sufficient for sheep without the need for investing in structured housing. *	78.1	0.78	2.05
Proper night shelter is essential to protect sheep from predators and harsh weather, ensuring better wool growth.	80.4	0.80	2.89
Specialized flooring and bedding for sheep housing is unnecessary and doesn't impact wool production. *	86.5	0.86	2.80
Providing adequate space for sheep in housing reduces overcrowding and stress, leading to improved wool yield.	65.7	0.65	2.05
BREEDING MANAGEMENT			
Selective breeding for improved wool quality should be prioritized over traits of meat production.	86.7	0.86	2.64
Introducing high-quality rams into the flock significantly improves wool characteristics in the offspring.	70.01	0.70	2.32
Inbreeding is not a major concern for small-scale sheep farmers. *	77.5	0.77	2.79
Crossbreeding improves both wool quality and overall flock productivity.	69.4	0.69	2.10
Sheep breeds known for their high wool yield should be preferred for breeding programs over local breeds.	89.3	0.89	2.93
Wool production can be enhanced by focusing on lamb growth and health during early life stages through careful breeding management.	84.2	0.84	2.45
Maintaining uniform wool characteristics through good breeding practices is key to gaining market acceptance.	87.9	0.87	2.78
Crossbreeding with Rambouillet sheep improves higher wool yields, better fiber length, wool fineness and fleece weight.	82.6	0.82	2.30
Merino and Rambouillet rams are not practical for small flocks. *	76.4	0.76	2.83
FEEDING AND NUTITION			
A balanced diet with essential nutrients is critical for improving both sheep health and wool quality.	90.1	0.90	2.96

Supplementing sheep diets with minerals and vitamins significantly boosts wool production.	88.7	0.88	2.81
Natural grazing is enough to meet the nutritional needs of sheep, without the need for additional feeding	76.9	0.76	2.84
Providing high-protein feed during key growth periods is essential for better wool yield and quality.	73.1	0.73	2.28
Over-reliance on concentrates for sheep feeding leads to unnecessary expenses without significant wool benefits. *	79.8	0.79	2.03
Feeding practices should be adjusted based on seasonal changes to maintain consistent wool quality.	69.9	0.69	1.87
Nutritional deficiencies in sheep can lead to weaker wool fibers, affecting marketability.	87.4	0.87	2.67
I am confident in identifying harmful grazing areas for my flock. *	81.3	0.81	2.25
CARE AND HEALTH MANAGEMENT			
Sheep rearing is a risky enterprise for anyone as sheep easily get infected by diseases.*	80.6	0.80	2.14
Regular health check-ups are essential to maintain high wool quality in sheep flock.	70.5	0.70	2.19
It is not necessary to conduct regular deworming; sheep flock seem healthy without it too. *	76.2	0.76	2.74
Nutritional health of sheep is important, believing it directly impacts wool yield and quality.	71.6	0.71	2.07
Using natural remedies for common ailments is sufficient for maintaining the health of my flock. *	78.4	0.78	2.98
Regular observation and record-keeping of my sheep's health help me make better management decisions.	85.1	0.85	2.49
It is acceptable to neglect minor health issues as they do not impact wool quality significantly. *	74.7	0.74	2.61
Access to clean water and proper feeding practices are crucial for maintaining my sheep's health and wool quality. *	89.2	0.89	2.92
GOVERNMENT SCHEMES			
I believe that government schemes provide essential support for improving sheep farming practices.	86.9	0.86	2.65
I actively seek information about government schemes that can enhance wool production in my flock.	68.0	0.68	1.90
Accessing government subsidies for veterinary care has positively impacted my flock's health.	83.1	0.83	2.41
Unavailability of government resources for marketing my wool has limited my ability to reach a wider customer base. *	80.3	0.80	2.05
It is challenging to understand the eligibility criteria for various government schemes. *	78.7	0.78	2.91
I believe that the financial assistance provided by the government for purchasing quality breeding stock isn't enough to sustain the successful flock. *	82.4	0.82	2.30
I believe that there is a lack of awareness about available government schemes among sheep farmers in my community. *	85.6	0.85	2.68
MARKETING			
I believe that understanding the wool market is crucial for maximizing profits.	88.0	0.88	2.87
Participating in local exhibitions and fairs is a great way to market farmers' wool products.	81.7	0.81	2.27
Government and NGOs' support in marketing can significantly improve wool sales of producers.	73.1	0.73	1.28
Selling directly to consumers rather than through local vendors is more beneficial for my income.	84.1	0.84	2.45
I think networking with other farmers helps in gaining insights about effective marketing strategies.	68.7	0.68	1.11
I feel that local vendors often do not provide fair prices for the wool. *	79.4	0.79	2.10
I believe that utilizing social media platforms can help reach more potential buyers for wool.	83.9	0.83	2.44
I feel that the demand for wool products is declining due to the rise of synthetic alternatives. *	76.5	0.76	2.75
TRAINING AND CAPACITY BUILDING			
Training programs significantly improve sheep farming skills and knowledge.	87.2	0.87	2.75
I believe practical training sessions are more beneficial than theoretical lectures for my learning.	84.6	0.84	2.55
Government-sponsored training initiatives are crucial for the development of local sheep farmers as they adequately address the current challenges faced by sheep farmers.	86.3	0.86	2.62
Farmers have enough access to training programs in sheep farming offered by local organizations.	78.1	0.78	2.89
Continuous education in sheep husbandry is essential for improving wool production.	69.2	0.69	1.88
Training on marketing strategies can significantly increase the income from sheep farming.	82.8	0.82	2.31
Need based training programmes should be more targeted to meet the issues of sheep farmers in the region.	85.9	0.85	2.61
INDIGENOUS TRADITIONAL KNOWLEDGE (ITKS)			
Traditional practices play a vital role in sheep health management and should be passed down to younger generations.	80.7	0.80	2.15
Utilizing home remedies can be effective in treating common sheep diseases.	66.5	0.66	1.04

Combining traditional knowledge with modern veterinary practices leads to better sheep management.	84.4	0.84	2.46
ITK practices are often overlooked and underappreciated in modern sheep farming. *	77.2	0.77	2.78
Sharing indigenous knowledge with other farmers can enhance overall sheep care practices.	64.8	0.64	2.10
Awareness programs about indigenous practices can improve the health of sheep in my community.	79.9	0.79	2.04
Traditional sheep farming techniques are sustainable and beneficial for the environment.	83.3	0.83	2.33
Indigenous knowledge helps in reducing economic burden of veterinary services on the farmers	86.0	0.86	2.61
PELT			
Proper slaughtering techniques are essential to maintain the quality of pelts.	82.7	0.82	2.39
Salting and drying pelts immediately after skinning is unnecessary. *	76.3	0.76	2.75
The breed of sheep plays a crucial role in determining pelt quality	63.1	0.63	1.28
Scientific processing of pelts improves their durability and market value.	60.5	0.60	1.19
Quality certification of pelts is unnecessary for getting a good market price. *	74.9	0.74	2.62
Investing in modern tanning techniques is beneficial for long-term profitability	84.8	0.84	2.56
Farmers should collectively market their pelts to get better bargaining power.	81.5	0.81	2.26
Establishing direct links with artisans and industries can improve the profitability of pelt marketing.	79.2	0.79	2.09
Sustainable tanning methods should be promoted to reduce environmental pollution.	68.5	0.68	2.19
Using chemical-based tanning processes does not harm the environment*	75.8	0.75	2.73

*Negative Statements

Selection of items

Following the judges' critical evaluations and responses, 57 statements were finally selected based on the above three criteria. These selected statements were then administered to 60 sheep rearers, 30 each from non-sample blocks of Kathua and Udhampur districts of Jammu Division via direct interview.

Item analysis

Item analysis is a crucial step in developing a valid and reliable scale, as it helps determine which items should be retained in the final version. The respondents were asked to rate their level of agreement on a five-point scale of strongly agree, agree, undecided, disagree and strongly disagree, with weightages of 5, 4, 3, 2, 1 for positive statements and 1, 2, 3, 4, 5 for negative statements. A respondent's attitude score was calculated by adding the scores of all items. As a result, each respondent's total score was calculated, ranging from '57' to '285,' and the scores were arranged in descending order. Item analysis was performed on 25% of the respondents with the highest total scores and 25% of the respondents with the lowest total scores as suggested by *Edwards (1957)*. Thus, out of 60 farmers to whom the items were administered for the item analysis, 15 farmers with the lowest and 15 farmers with the highest total scores were identified and these two groups served as the criterion groups for conducting item analysis (individual statement evaluation). A ratio was calculated by comparing the responses of the high and low groups to the individual statements. A critical ratio, i.e. 't value' was a measure of how well a given statement distinguishes between high and low groups of subjects for each statement (Dhenge *et al.*, 2025). It was calculated by using the formula suggested by *Edward (1957).*

$$t = \frac{\overline{X}_H - \overline{X}_L}{\sqrt{\frac{\Sigma(X_H - \overline{X}_H)^2 + \Sigma(X_L - \overline{X}_L)^2}{n-(n-1)}}}$$

$$\Sigma(X_H - \overline{X}_H)^2 = \Sigma X_H^2 - \frac{(\Sigma X_H)^2}{n}$$

and

$$\Sigma(X_L - \overline{X}_L)^2 = \Sigma X_L^2 - \frac{(\Sigma X_L)^2}{n}$$

$\sum XH^2$ = Sum of the squares of the individual scores in the high group
$\sum XL^2$ = Sum of the squares of the individual scores in the low group
$\bar{X}H$ = Mean score on a given statement for the high group
$\bar{X}L$ = Mean score on a given statement for the low group
n = number of respondents in each group

Table 2 presents the 't' values for all 57 statements evaluated by farmers as part of the item analysis.

Table 2. Statements of item analysis by farmers of non-sample area

STATEMENTS	t-value
Despite being labour-intensive, sheep rearing is a rewarding occupation	1.767
Investing in proper housing for sheep is essential for maintaining wool quality and overall animal health.	3.400
well-maintained and ventilated housing is crucial for maximizing wool yield and minimizing disease risks.	2.785
Proper drainage and cleanliness in sheep housing are crucial for preventing health issues and maintaining wool quality.	2.438
The cost of building and maintaining specialized housing for sheep does not justify the returns in wool production.	1.039
Traditional open grazing systems are sufficient for sheep without the need for investing in structured housing.	5.632
Proper night shelter is essential to protect sheep from predators and harsh weather, ensuring better wool growth.	1.562
Specialized flooring and bedding for sheep housing is unnecessary and doesn't impact wool production.	3.729
Introducing high-quality rams into the flock significantly improves wool characteristics in the offspring.	0.619
Inbreeding is not a major concern for small-scale sheep farmers.	1.662
Sheep breeds known for their high wool yield should be preferred for breeding programs over local breeds.	3.490
Maintaining uniform wool characteristics through good breeding practices is key to gaining market acceptance.	1.501
Crossbreeding with Rambouillet sheep improves higher wool yields, better fiber length, wool fineness and fleece weight.	4.896
Merino and Rambouillet rams are not practical for small flocks.	1.723
A balanced diet with essential nutrients is critical for improving both sheep health and wool quality.	3.609
Supplementing sheep diets with minerals and vitamins significantly boosts wool production.	2.683
Providing high-protein feed during key growth periods is essential for better wool yield and quality.	1.871
Over-reliance on concentrates for sheep feeding leads to unnecessary expenses without significant wool benefits.	3.369
Nutritional deficiencies in sheep can lead to weaker wool fibers, affecting marketability.	2.296
I am confident in identifying harmful grazing areas for my flock.	0.928
Sheep rearing is a risky enterprise for anyone as sheep easily get infected by diseases.	2.564
It is not necessary to conduct regular deworming; sheep flock seem healthy without it too.	3.004
Using natural remedies for common ailments is sufficient for maintaining the health of my flock.	3.306
Regular observation and record-keeping of my sheep's health help me make better management decisions.	1.307
It is acceptable to neglect minor health issues as they do not impact wool quality significantly.	3.601
Access to clean water and proper feeding practices are crucial for maintaining my sheep's health and wool quality.	2.068
I believe that government schemes provide essential support for improving sheep farming practices.	1.925
Accessing government subsidies for veterinary care has positively impacted my flock's health.	2.724
Unavailability of government resources for marketing my wool has limited my ability to reach a wider customer base.	1.597
It is challenging to understand the eligibility criteria for various government schemes.	1.969
I believe that the financial assistance provided by the government for purchasing quality breeding stock isn't enough to sustain the successful flock	3.507
I believe that there is a lack of awareness about available government schemes among sheep farmers in my community.	3.751
I believe that understanding the wool market is crucial for maximizing profits.	2.495

Participating in local exhibitions and fairs is a great way to market farmers' wool products.	1.319
Selling directly to consumers rather than through local vendors is more beneficial for my income.	0.466
I feel that local vendors often do not provide fair prices for the wool.	3.132
I believe that utilizing social media platforms can help reach more potential buyers for wool.	7.379
I feel that the demand for wool products is declining due to the rise of synthetic alternatives.	1.054
Training programs significantly improve sheep farming skills and knowledge	2.920
I believe practical training sessions are more beneficial than theoretical lectures for my learning.	2.587
Government-sponsored training initiatives are crucial for the development of local sheep farmers as they adequately address the current challenges faced by sheep farmers.	3.652
Farmers have enough access to training programs in sheep farming offered by local organizations.	1.661
Training on marketing strategies can significantly increase the income from sheep farming.	1.308
Need based training programmes should be more targeted to meet the issues of sheep farmers in the region.	3.197
Traditional practices play a vital role in sheep health management and should be passed down to younger generations.	0.642
Combining traditional knowledge with modern veterinary practices leads to better sheep management.	2.307
ITK practices are often overlooked and underappreciated in modern sheep farming.	2.080
Awareness programs about indigenous practices can improve the health of sheep in my community.	3.850
Traditional sheep farming techniques are sustainable and beneficial for the environment.	5.071
Indigenous knowledge helps in reducing economic burden of veterinary services on the farmers	1.119
Proper slaughtering techniques are essential to maintain the quality of pelts.	2.702
Salting and drying pelts immediately after skinning is unnecessary.	1.464
Quality certification of pelts is unnecessary for getting a good market price.	3.230
Investing in modern tanning techniques is beneficial for long-term profitability	2.895
Farmers should collectively market their pelts to get better bargaining power.	2.674
Establishing direct links with artisans and industries can improve the profitability of pelt marketing.	2.460
Using chemical-based tanning processes does not harm the environment	1.855

A critical ratio (t-value) of 1.75 or above was considered as the threshold for retaining items, indicating a statistically significant difference in responses between the high and low scoring groups. Based on this criterion, a total number of 40 statements comprising of 26 positive and 14 negative were found to effectively discriminate between the two groups and were thus retained in the final version of the attitude scale (Table 3).

Table 3: Selected statements for final scale development

STATEMENTS	SA	A	UD	D	SD
Despite being labor-intensive, sheep rearing is a rewarding occupation.					
Investing in proper housing for sheep is essential for maintaining wool quality and overall animal health.					
Well-maintained and ventilated housing is crucial for maximizing wool yield and minimizing disease risks.					
Proper drainage and cleanliness in sheep housing are crucial for preventing health issues and maintaining wool quality.					
Traditional open grazing systems are sufficient for sheep without the need for investing in structured housing. *					
Specialized flooring and bedding for sheep housing is unnecessary and doesn't impact wool production. *					
Sheep breeds known for their high wool yield should be preferred for breeding programs over local breeds.					
Crossbreeding with Rambouillet sheep improves higher wool yields, better fiber length, wool fineness and fleece weight. *					
A balanced diet with essential nutrients is critical for improving both sheep health and wool quality.					
Supplementing sheep diets with minerals and vitamins significantly boosts wool production.					
Providing high-protein feed during key growth periods is essential for better wool yield and quality. *					

Over-reliance on concentrates for sheep feeding leads to unnecessary expenses without significant wool benefits.					
Nutritional deficiencies in sheep can lead to weaker wool fibers, affecting marketability.					
Sheep rearing is a risky enterprise for anyone as sheep easily get infected by diseases. *					
It is not necessary to conduct regular deworming; sheep flock seem healthy without it too. *					
Using natural remedies for common ailments is sufficient for maintaining the health of my flock.					
It is acceptable to neglect minor health issues as they do not impact wool quality significantly. *					
Access to clean water and proper feeding practices are crucial for maintaining my sheep's health and wool quality.					
I believe that government schemes provide essential support for improving sheep farming practices.					
Accessing government subsidies for veterinary care has positively impacted my flock's health.					
It is challenging to understand the eligibility criteria for various government schemes. *					
I believe that the financial assistance provided by the government for purchasing quality breeding stock isn't enough to sustain the successful flock. *					
I believe that there is a lack of awareness about available government schemes among sheep farmers in my community. *					
I believe that understanding the wool market is crucial for maximizing profits.					
I feel that local vendors often do not provide fair prices for the wool. *					
I believe that utilizing social media platforms can help reach more potential buyers for wool.					
Training programs significantly improve sheep farming skills and knowledge					
I believe practical training sessions are more beneficial than theoretical lectures for my learning.					
Government-sponsored training initiatives are crucial for the development of local sheep farmers as they adequately address the current challenges faced by sheep farmers.					
Need based training programmes should be more targeted to meet the issues of sheep farmers in the region.					
Combining traditional knowledge with modern veterinary practices leads to better sheep management.					
ITK practices are often overlooked and underappreciated in modern sheep farming. *					
Awareness programs about indigenous practices can improve the health of sheep in my community.					
Traditional sheep farming techniques are sustainable and beneficial for the environment.					
Proper slaughtering techniques are essential to maintain the quality of pelts.					
Quality certification of pelts is unnecessary for getting a good market price. *					
Investing in modern tanning techniques is beneficial for long-term profitability.					
Farmers should collectively market their pelts to get better bargaining power.					
Establishing direct links with artisans and industries can improve the profitability of pelt marketing.					
Using chemical-based tanning processes does not harm the environment. *					

*Negative statements

SA: Strongly agree A: Agree UD: Undecided D: Disagree SD: strongly disagree

Standardization of the scale

To ensure the quality and accuracy of the developed scale, standardization was carried out by assessing both its reliability and validity.

Reliability

Reliability refers to the consistency with which a scale measures what it is intended to, yielding stable and repeatable results across different instances. As defined by *Kerlinger (1964)*, reliability is the degree to which a measuring instrument produces consistent results. In this study, the split-half method was used to assess the reliability of the scale. The 57 selected items were divided into two sets based on odd and even-numbered statements and administered to a sample of 60 farmers. Two separate sets of scores were generated, and the correlation between them was calculated using Karl Pearson's product-moment correlation coefficient, resulting in a value of 0.871. The reliability estimate was further adjusted using the Spearman-Brown prophecy formula, yielding a value of 0.813, indicating a high level of reliability. In addition, Cronbach's alpha was calculated to assess internal consistency among the items, and the value obtained was 0.88, indicating a high level of coherence

among the scale items. These results confirm that the instrument is reliable for measuring farmers' attitudes toward scientific wool and pelt production.

Validity

The content validity of the scale was established to ensure that the statements accurately represented all relevant aspects of scientific wool and pelt production. Content validity assesses how well the content of the scale reflects the conceptual domain it is meant to measure. In the present case, the items were carefully generated through comprehensive literature reviews, expert consultations, and field observations to ensure thorough coverage of the subject. Given that the scale incorporated key dimensions such as housing, breeding, feeding, health care, government schemes, marketing, indigenous traditional knowledge, training, and pelt processing, it was deemed to have strong content validity.

Grading of Farmers Based on Attitude Scores

To facilitate interpretation of the results, the total attitude scores obtained from all respondents were used to classify farmers into three categories based on the mean (M) and standard deviation (SD) values of the distribution. Farmers having scores above (M + SD) were classified as having a highly favourable attitude, those between (M ± SD) as having a moderately favourable attitude, and those below (M – SD) as having an unfavourable attitude toward scientific wool and pelt production. This classification enables comparison of attitude levels across different groups and helps in identifying target farmers for focused extension interventions.

Practical utility of the scale

The developed attitude scale aims to serve as a diagnostic and evaluative tool for researchers, extension personnel, policymakers to assess the attitude of sheep rearers toward adopting scientific wool and pelt production practices. By understanding farmers' attitudes, extension personnel can plan need-based interventions, organize awareness campaigns, and provide customized training to enhance adoption of improved technologies in the wool sector.

Conclusion

The adoption of scientific practices in wool and pelt production is not gaining much attention among sheep farmers. Understanding their attitude toward these practices is essential for improving extension strategies and policy design. The scale developed in this study serves as a useful tool to assess farmers' attitudes across various dimensions of wool and pelt production. It can also be adapted and applied in different geographic regions or farming contexts with suitable modifications. This standardized scale will aid researchers, extension workers, and policymakers in identifying attitudinal barriers and formulating interventions that promote the scientific advancement of the wool and pelt sector.

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