

KNOWLEDGE LEVEL OF SHEEP FARMERS ABOUT IMPROVED SHEEP MANAGEMENT PRACTICES

Divya Choudhary¹, R. K. Verma² and Kamlesh Choudhary¹

¹ Ph.D. Research Scholar, Department of Agricultural Extension and Communication, SKRAU-COA, Bikaner-334006

² Professor, Department of Agricultural Extension and Communication, SKRAU, Bikaner- 334006

Email: choudharydivya433@gmail.com

ABSTRACT

The research investigation was carried out in hyper arid partially irrigated western plain zone (Ic) of Rajasthan. Selected zone covered viz. Jaisalmer, Bikaner and some parts of Churu districts. On the basis of highest sheep population Jaisalmer and Bikaner district were selected for this research study. Three tehsils were chosen for the research study on the basis of the highest population of sheep in three tehsils from each district. Consequently, a total of six tehsils were chosen from the two districts. Each tehsil's five villages were chosen based on which village had the highest number of sheep. For the objective the research, thirty villages were therefore deliberately chosen from six tehsils in the Jaisalmer and Bikaner districts. 150 sheep farmers were chosen from each district and 10 sheep farmers from each village were included in the proportional random sample used to choose the respondents. With the use of a structured questionnaire, 300 sheep, a mix of small, medium, and large sheep farmers were questioned. Under the objective 'Knowledge level of sheep farmers about improved sheep management practices' the findings showed that 63.67 per cent of sheep farmers had a medium level of knowledge. They had higher knowledge about improved sheep management practices by feeding and breeding practices. There also existed a significant difference regards to knowledge level of small, medium and large sheep farmers. To enhance sheep production in the Rajasthan, for effective utilization of training programmes and animal fair must be conducted at village level and free of cost and information about Government programmes related to sheep development should be provided through veterinary institutions, extension agencies and mass media.

Keywords: knowledge, breeding, feeding, health & hygiene and housing

INTRODUCTION

Sheep are important to rural Indian households' socio-economic and cultural livelihoods since they are small ruminants. Sheep farming has been done since ancient times and is seen as a promising commercial potential. Because of its small size, easy handling, high production rate, early sexual maturity, cheap input needs, inexpensive initial investment, and relatively simple marketing, this profession is widely practiced globally. For rural populations, raising sheep has greater benefits than raising cattle or buffaloes because of these features.

Sheep farming has a long history in Rajasthan, India's largest state, which is predominantly arid or semi-arid, including a portion of the Thar Desert. In Rajasthan, more than 80 per cent of rural households raise animals. The state has a significant animal wealth of 56.8 million, comprising 11.27 per cent of India's total animal population (535.78 million), ranking second in the country. The livestock sector contributes 10.21 per cent to the state's G.D.P. In Rajasthan, the number of sheep increased by 14.13 per cent from the 2012 livestock census., accounting for almost 13.8 per cent

of all livestock (Anonymous, 2021). Rajasthan is the most populous state in terms of camels and goats, second in terms of buffalo and other animals, third in terms of horses, and fourth in terms of sheep. According to the results of the 20th livestock census, there were 74.26 million sheep in India as of 2019, with Rajasthan having 7.9 million of them, the most after Telangana, Andhra Pradesh, and Karnataka.

This study is mainly intended to find out the knowledge, adoption level and constraints of the sheep farmers in Jaisalmer and Bikaner districts of Rajasthan. So far this type of research study has not been conducted in this zone. The findings of the research study help the veterinary scientist, extension agents and in formulating different strategies suited for the appropriate sheep management practices. This study also helps to understand how the sheep farmers profile characteristics influence the production level, scientific management practices and income. The research study also helps in understanding the constraints faced by sheep farmers of Jaisalmer and Bikaner districts of Rajasthan. The findings of the study about the extent of knowledge and adoption of improved sheep management practices will

provide guidelines to the Government, policy maker, research and development agencies for planning the future strategy of sheep development programme.

OBJECTIVE

Knowledge Level of Sheep Farmers about Improved Sheep Management Practices in hyper arid partially irrigated western plain zone Ic of Rajasthan

METHODOLOGY

Selection of Zone

Out of ten Rajasthan agro climatic zones, Hyper Arid Partial Irrigated Western Plain Zone (Ic) was chosen for the research study on the basis of having highest sheep population. The selected zone Ic covers three districts viz. Bikaner, Jaisalmer and some parts of Churu. Out of these, Bikaner and Jaisalmer districts were selected purposely for the research study because of highest sheep population among agro climatic zones.

Bikaner district has 9 tehsils, they are Kolayat, Nokha, Bikaner, Bajju, Sridungargarh, Chhatargarh, Poogal, Lunkaransar and Khajuwala. Jaisalmer district has 4 tehsils, viz. Jaisalmer, Pokaran, Bhaniyana and Fatehgarh. Out of these, three tehsils from each district were purposely selected for the research study based on the highest sheep population. Thus, six tehsils from the two districts were selected. On the basis of highest sheep population, 5 villages from each selected tehsil were selected. Hence, 30 villages were purposely selected from six selected tehsils of Jaisalmer and Bikaner district.

All the sheep respondents from selected villages were pooled separately district wise. On the basis of the number of sheep having by the farmers were categorized into three groups namely, small, medium and large sheep farmers having the flock size of 1-50, 50 -100 and more than 100, respectively. From these identified categories, 150 sheep farmers were selected through proportionately random sampling from each district. Total of 300 sheep farmers have been chosen.

For this research study, With the use of an interview schedule, the investigator used a personal interviewing strategy to gather data and information. Following data tabulation, many statistical measures were employed to draw certain conclusions, including frequency, percent, mean, mean percent scores, rank, standard deviation, ranking correlation, null hypothesis, alternate hypothesis and “z” test.

RESULT AND DISCUSSION

(i) Classification of sheep farmers on the basis of their knowledge level about improved sheep management practices

The Knowledge level of sheep farmers about improved sheep management practices was determined by a set of six aspects. The sheep farmers were divided into three categories namely; Low level of knowledge, medium level of knowledge and high level of knowledge on the basis of knowledge score obtained by them and as presented in Table 1. The data presented in Table 1 and Fig 1 show that out of 300 sheep farmers, the majority (63.67%) had a medium level of knowledge about improved sheep management practices. Only 46 respondents (15.33%) had a high level of knowledge about improved sheep management practices, while 63 respondents (21.00%) had a low level of knowledge. Based on further exploration of Table 1, the distribution of knowledge levels among sheep farmers in Jaisalmer and Bikaner districts is as follows: In Jaisalmer district, 64.00 per cent of sheep farmers had a medium level of knowledge about improved sheep management practices, 20.00 per cent had a high level of knowledge, and the remaining 16.00 per cent had a low level of knowledge. In Bikaner district, 63.33 per cent of sheep farmers had a medium level of knowledge, 22.00 per cent had a high level of knowledge, and the remaining 14.67 per cent of sheep farmers had a low level of knowledge.

(ii) Aspect-wise knowledge level of sheep farmers about improved sheep management practices

A critical look at Table 2 indicated that sheep farmers had highest knowledge regarding “Feeding” aspect (78.22 MPS), hence it was assigned rank first. The second highest knowledge of the sheep farmers was awarded to “Breeding” aspect (77.68 MPS) and ranked second. This was followed by “Housing” (75.83 MPS), “Health & Hygiene” (75.34 MPS) and “Shearing” (72.23 MPS) which ranked third, fourth and fifth respectively. Whereas “Marketing Practices” (71.10 MPS) was found the last position of the knowledge level of sheep farmers about improved sheep management practices.

The results presented in Table 2 also illustrated that in case of Jaisalmer district sheep farmers, “Feeding” (77.96 MPS) perceived as highest knowledge and assigned rank first. The second highest rank was assigned to “Breeding” (76.48 MPS), subsequently “Housing” (76.19 MPS), “Health & Hygiene” (75.23 MPS) and “Shearing” (72.73 MPS) aspects were assigned rank third, fourth and fifth, respectively. While “Marketing Practices” (68.13 MPS) perceived as least level of knowledge of sheep farmers and was assigned the six ranks.

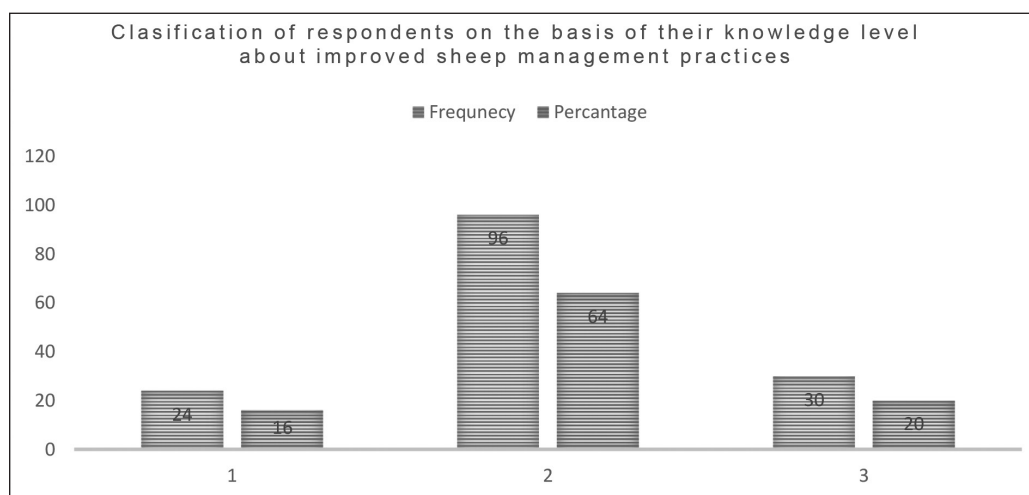


Fig 1. Classification of sheep farmers on the basis of their knowledge level about improved sheep management practices

Table 1: Classification of sheep farmers on the basis of their knowledge level about improved sheep management practices (n= 300)

Sr. No	Knowledge Categories	Jaisalmer District (n= 150)								Bikaner District (n=150)								Overall (N=300)	
		Small Framers q		Medium Farmers (n=61)		Large Farmers (n=65)		Total (N=150)		Small Framers (n=49)		Medium Farmers (n=65)		Large Farmers (n=36)		Total (N=150)			
		F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
1	Low level (Less than 100.48 score)	09	37.50	05	08.20	10	15.38	24	16.00	12	24.49	04	6.15	06	16.67	22	14.67	46	15.33
2	Medium (From 100.48 to 115.77 score)	14	58.33	40	65.57	42	64.62	96	64.00	34	69.39	41	63.08	20	55.56	95	63.33	191	63.67
3	High level (More than 115.77 score)	01	04.17	16	26.23	13	20.00	30	20.00	03	6.12	20	30.77	10	27.78	33	22.00	63	21.00
Total		24	100	61	100	65	100	150	100	49	100	65	100	36	100	150	100	300	100

Mean= 108.13, SD= 7.64, F = Frequency, % = Per cent

In case of overall aspect-wise knowledge of sheep farmers in Bikaner district, It was evident from Table 2 that respondents had the highest level of knowledge about “Breeding” (78.88 MPS) as ranked first followed by “Feeding” (78.48 MPS) was assigned second rank. Whereas, “Housing” (75.47 MPS), “Health & Hygiene” (75.45 MPS) and “Marketing Practices” (72.58 MPS) were assigned third, fourth and fifth ranks, respectively. However, the last position stands for “Shearing” (71.74 MPS) and assigned six ranks.

An effort was also made to find out the relationship between the ranks assigned by the small, medium and large in Jaisalmer district and Bikaner district sheep farmers by

applying rank correlation test. The value of rank correlation (rs) between knowledge level of small and medium sheep farmers in Jaisalmer and Bikaner district were 0.54 and 0.61 which shows positive correlation. The significance of rs was tested by ‘t’ test and it was observed that calculated ‘t’ (1.29) was lower than its tabulated value in both districts. This leads to conclusion that there was no similarity in the ranking pattern of knowledge possessed by small and medium sheep farmers about improved sheep management practices. The value of rank correlation (rs) between medium and large sheep farmers was 0.88 in Jaisalmer and 0.77 in Bikaner district. The significance of rank correlation was tested by ‘t’ test and it was observed that calculated value of ‘t’ (3.81) in

(n=300)

Table 2: Aspect-wise knowledge level of sheep farmers about improved sheep management practices

Sr. No	Aspects	Jaisalmer District (n= 150)										Bikaner District (n= 150)										Overall (N=300)	
		Small Framers (n=24)		Medium Farmers (n=61)		Large Farmers (n=65)		Total (N=150)		Small Framers (n=49)		Medium Farmers (n=65)		Large Farmers (n=36)		Total (N=150)							
		MPS	Rank	MPS	Rank	MPS	Rank	MPS	Rank	MPS	Rank	MPS	Rank	MPS	Rank	MPS	Rank	MPS	Rank				
1	Breeding	71.75	3	79.41	1	78.29	2	76.48	2	76.73	2	80.64	1	79.25	1	78.88	1	77.68	2				
2	Feeding	75.91	1	79.29	2	78.68	1	77.96	1	77.10	1	80.56	2	77.77	3	78.48	2	78.22	1				
3	Management a. Housing	75.75	2	76.52	5	76.29	4	76.19	3	69.38	5	78.74	4	78.28	2	75.47	3	75.83	3				
4	b. Shearing	69.16	5	77.04	4	72.00	5	72.73	5	67.61	6	74.46	5	73.14	6	71.74	6	72.23	5				
5	c. Health & Hygiene	71.55	4	77.41	3	76.73	3	75.23	4	71.00	3	78.85	3	76.48	4	75.45	4	75.34	4				
6	d. Marketing Practices	64.88	6	75.87	6	68.13	6	69.63	6	70.26	4	74.06	6	73.41	5	72.58	5	71.10	6				
Pooled		71.50		77.59		75.02		74.70		72.01		77.89		76.39		75.43		75.07					

rs= Rank Correlation

MPS= Mean Percent Score

rs = 0.54 rs = 0.82 rs = 0.88

t = 1.29^{NS} t = 2.95^{**} t = 3.81^{**}

rs= 0.66

t= 1.75^{NS}

rs= 0.54

t= 1.28^{NS}

rs= 0.77

t= 2.41^{*}

rs= 0.88

t= 2.66^{**}

Jaisalmer district and 't' (2.41) in Bikaner district. This leads to conclusion that was similarity in ranking of various aspect of knowledge of improved sheep management practices. It means both categories (Medium and Large farmers) of sheep farmers very in having knowledge about improved sheep management practices.

The value of rank correlation (rs) between large and small sheep farmers was 0.82 in Jaisalmer and 0.54 in Bikaner district. The significance of rank correlation was tested by 't' test and it was observed that calculated value of 't' (2.95) in Jaisalmer district and 't' (1.28) in Bikaner district. This leads to conclusion that there was similarity in the ranking pattern of knowledge possessed by large and small sheep farmers in Jaisalmer district. In Bikaner district observed that calculated 't' (1.28) was lower than its tabulated value. This leads to the conclusion that there was no similarity in the rank assigned pattern of knowledge possessed by small and medium sheep farmers about improved sheep management practices.

An effort was also made to identify the relationship

(iii) Aspect wise comparison of knowledge level of medium and small sheep farmers about improves sheep management practices

Table 3: Aspect wise comparison of knowledge level of medium and small sheep farmers about improves sheep management practices (n=300)

Sr. No.	Improved sheep management practices	Jaisalmer District					Bikaner District				
		Medium sheep farmers (n=61)		Small sheep farmers (n=24)		Z' Value	Medium sheep farmers (n=65)		Small sheep farmers (n=49)		Z' Value
		Mean±	S.D.	Mean±	S.D.		Mean±	S.D.	Mean±	S.D.	
1	Breeding	35.73	04.86	32.29	05.78	2.58**	36.29	04.50	34.53	05.13	1.89 ^{NS}
2	Feeding	26.95	02.31	25.81	02.84	1.75 ^{NS}	27.39	02.26	26.21	02.66	2.48*
3	Management Housing	08.41	01.21	08.33	01.43	0.25 ^{NS}	08.66	01.04	07.63	01.28	4.56***
4	Shearing	11.55	01.32	10.37	01.52	3.33**	11.16	01.19	10.14	01.94	3.25***
5	Health & Hygiene	22.45	02.77	20.75	02.77	2.54**	22.86	02.62	20.59	03.31	3.93***
6	Marketing Practices	05.31	01.14	04.54	01.14	2.79**	05.18	00.91	04.91	01.10	1.36 ^{NS}
Overall		18.40	02.27	17.01	02.58	2.21*	18.59	02.09	17.33	02.57	2.91***

NS= non-significant, **= Significant at 0.01 level of probability, *= Significant at 0.05 level of probability

The data related to aspect-wise level of knowledge of both medium and small sheep farmers in Jaisalmer and Bikaner district incorporated in Table 3, pointed out that calculated 'Z' value was higher than the tabulated value at 1 per cent level of significance in four aspects viz. "Breeding", "Shearing", "Health & Hygiene" and Marketing practice) of improved sheep management practices in Jaisalmer district and In Bikaner district three aspects i.e. "Housing", "Shearing" and "Health & Hygiene" show significant at 1 per cent level of significance regards improved sheep management practices. This indicated that in four and three aspects of sheep farmers, medium and small respondents in Jaisalmer and Bikaner district had wide knowledge level. It means that medium sheep farmers possessed more knowledge as compared to the small sheep farmers in the

between the ranking assigned by the overall Jaisalmer (n=150) and Bikaner (n=150) sheep farmers by applying the rank correlation test. The value of rs (Rank Correlation) was 0.88 which indicated a positive and significant at one per cent level of significance. The significance of rs was tested by the 't' test and it was observed that the calculated 't' value (2.66) was higher than the calculated 't' value. This leads to the conclusion that there was a similarity in the ranking assignment pattern of knowledge possessed by the sheep farmers about sheep management practice.

The present findings are in accordance with the finding of Sharma and Reddy (2000), Verma and Sharma (2009), Kumar *et al.* (2011), Sudhakar Rao (2012), Pokharkar (2013), Kumari, N. (2014), Shaik (2015), Shirsat *et al.* (2019) and Islam *et al.* (2021) Ghasura and Bhatt (2022) and Jadav *et al.* (2024); Patel *et al.* (2023); Vegad *et al.* (2021) who also concluded that most of the sheep farmers possessed medium level of knowledge about improved sheep management practices.

above mentioned three in Jaisalmer district aspects and four in Bikaner district aspect regrading improved sheep management practices. In reminding two aspects of improved sheep management practice viz., "feeding" and "housing", the value of 'Z' test was found non-significant. It means that there is no difference in the knowledge level of both categories as well as overall knowledge of sheep farmers about sheep management practices. The table also depicts that one aspects of sheep management practices i.e., "Feeding" significant at 5 per cent level of significance and remaining two aspects i.e., "Breeding" and "Marketing practices" was found non-significant in Bikaner district. Its means that medium sheep farmers possessed more knowledge as compared to small sheep farmers in the above-mentioned practices as well as overall knowledge about improved sheep

Table 4: Aspect wise comparison of knowledge level of medium and large sheep farmers about improved sheep management practices (n=300)

Sr. No.	Improved sheep management practices	Jaisalmer District				Z' Value	Bikaner District				Z' Value
		Medium sheep farmers (n=61)		Large sheep farmers (n=65)			Medium sheep farmers (n=65)		Large sheep farmers (n=36)		
		Mean±	S.D.	Mean±	S.D.		Mean±	S.D.	Mean±	S.D.	
1	Breeding	35.73	04.86	35.23	05.29	0.55 ^{NS}	36.29	04.50	35.66	04.74	0.64 ^{NS}
2	Feeding	26.95	02.31	26.75	01.85	0.54 ^{NS}	27.39	02.26	26.44	02.63	2.18*
3	Management Housing	08.41	01.21	08.39	01.17	0.12 ^{NS}	08.66	01.04	08.61	01.04	0.23 ^{NS}
4	Shearing	11.55	01.32	10.8	01.175	2.41*	11.16	01.19	10.97	01.37	0.72 ^{NS}
5	Health & Hygiene	22.45	02.77	22.25	02.13	0.38 ^{NS}	22.86	02.62	22.18	01.37	1.35 ^{NS}
6.	Marketing Practices	05.31	01.14	04.76	01.01	2.79**	05.18	00.91	05.13	00.99	0.22 ^{NS}
Overall		18.40	02.27	18.03	02.10	1.13 ^{NS}	18.59	2.09	18.16	2.02	0.89 ^{NS}

NS= non-significant, **= Significant at 0.01 level of probability, *= Significant at 0.05 level of probability

management practices. This difference in knowledge level of sheep farmers might be due to the reason that medium sheep farmers often have more knowledge than small sheep farmers, as they are closely involved in day-to-day operations and farmers had better social participation, entrepreneurial behaviour, participation in training providing by animal's department like ARC, Bikaner, Department of Animal Husbandry, Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), KVK *etc.* They typically manage fewer animals, giving them deeper insight into the behavior, health and needs of the herd, allowing them to observe and respond to individual issues more quickly and effectively.

(iv) Aspect wise comparison of knowledge level of medium and large sheep farmers about improved sheep management practices

The mean value further indicated in Table 4 data related to aspect-wise level of knowledge of both medium and large sheep farmers in Jaisalmer and Bikaner district incorporated in Table 4, pointed out that calculated 'Z' value was higher than the tabulated value at 1 per cent level of significance in one aspects *viz.* "Marketing practice" and at "Shearing" at 5 per cent level of significance of improved sheep management practices in Jaisalmer district and In Bikaner district only one aspects *i.e.* "Feeding" show significant at 5 per cent level of significance regards improved sheep management practices. The remaining four aspects *i.e.*, "Breeding", "Feeding", "Housing", and "Health & Hygiene" was found non-significant in Jaisalmer district. In Bikaner district "Breeding", "Housing", "Shearing", "Health & Hygiene" and "Marketing practices" was found non-significant. This means that there is no difference in the knowledge of both categories as well as overall knowledge of sheep farmers

about improved sheep management practices. It may be due to the reason that both categories (medium and large respondents) give almost same weightage in these aspects.

(v) Aspect wise comparison of knowledge level of large and small sheep farmers about improved sheep management practices

The result related to level of knowledge of both large and small sheep farmers in Jaisalmer and Bikaner district incorporated in the Table 5 show that calculated 'Z' value was higher than the tabulated value at 5 per cent level of significance in two aspects *viz.*, "Breeding" and "Health and Hyenine", large and small sheep farmers had difference in their knowledge level. It means that large sheep farmers possessed more knowledge as compared to small sheep farmers about improved sheep management practices. In remaining four aspects *viz.*, "Feeding", "Housing", "Shearing" and "Marketing practices" as well as overall sheep farmers, the value of 'Z' test was found non-significant in Jaisalmer district.

In Bikaner district results show that calculated 'Z' value was higher than the tabulated value at 1 per cent level of significance in two aspects *i.e.*, "Housing" and "Health & Hygiene" and at 5 per cent level of significance in one aspect *i.e.*, "Shearing" large and small respondents had wide difference in their knowledge level. In remaining three aspect *viz.*, "Breeding", "Feeding" and "Marketing Practice", the value of 'Z' test was found non-significant. It means that large and small sheep farmers having same knowledge about improved sheep management practices in these aspects. This means that there is no difference in the knowledge of both categories as well as overall knowledge of sheep farmers about improved sheep management practices.

Table 5: Aspect wise comparison of knowledge level of large and small sheep farmers about improved sheep management practices

(n=300)

Sr. No.	Improved sheep management practices	Jaisalmer District				Z' Value	Bikaner District				Z' Value
		Large sheep farmers (n=61)		Small sheep farmers (n=24)			Large sheep farmers (n=65)		Small sheep farmers (n=49)		
		Mean±	S.D.	Mean±	S.D.		Mean±	S.D.	Mean±	S.D.	
1	Breeding	35.23	05.29	32.29	05.78	2.17*	35.66	04.74	34.53	05.13	1.04 ^{NS}
2	Feeding	26.75	01.85	25.81	02.84	1.50 ^{NS}	26.44	02.63	26.21	02.66	0.39 ^{NS}
3	Management Housing	08.39	01.17	08.33	01.43	0.18 ^{NS}	08.61	01.04	07.63	01.28	3.87**
4	Shearing	10.8	01.175	10.37	01.52	1.04 ^{NS}	10.97	01.37	10.14	01.94	2.30*
5	Health & Hygiene	22.25	02.13	20.75	02.77	2.23*	22.18	01.37	20.59	03.31	2.57**
6	Marketing Practices	04.76	01.01	04.54	01.14	0.85 ^{NS}	05.13	00.99	04.91	01.10	0.96 ^{NS}
Overall		18.16	2.02	17.01	2.58	1.33 ^{NS}	18.03	2.10	17.33	2.57	1.85 ^{NS}

NS= non-significant, **= Significant at 0.01 level of probability, *= Significant at 0.05 level of probability

(vi) Overall comparison of Jaisalmer and Bikaner districts sheep farmers according to knowledge level about improved sheep management practices

Table 6 show that the calculated 'Z' value was found less than the tabulated value which is statistically non-significant. So, the null hypothesis 'There is no significant difference between the respondents of Jaisalmer and Bikaner districts about improved sheep management practices' was accepted and alternate hypothesis was rejected. It means that sheep farmers of both districts had more or less or similar knowledge towards improved sheep management practices in the research study.

Table 6: Overall comparison of Jaisalmer and Bikaner districts sheep farmers according to knowledge level about improved sheep management practices (n=300)

Sr. No.	Districts	Sample size	Mean ±	S.D.	'Z' Value
1	Bikaner	150	108.48	7.93	0.368 ^{NS}
2	Jaisalmer	150	108.13	7.64	

CONCLUSION

It might be concluded that most of respondents were belonged to group of medium level of knowledge of improved sheep management practices. Attributed to the fact that they had social economic status, well educational attainment, frequent use of mass medium, regular interaction with veterinary offices and possessed cosmopolitan nature may have contributed to their increased understanding of the level of sheep farming practices and increased knowledge about improves sheep management practices compared to respondents with low and high level of knowledge. Jaisalmer and Bikaner sheep farmers likely have the same knowledge level about improved sheep management practices due to

several factors. Both regions have similar socio-economic and environmental conditions, which influence the accessibility and dissemination of agricultural information. Government and non-government organizations often implement uniform training programs and extension services across neighboring regions, leading to a consistent spread of knowledge. Additionally, farmers from these areas might attend common livestock fairs and workshops, facilitating the exchange of information and practices. The shared cultural and traditional practices in sheep farming further contribute to a homogeneous knowledge base.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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