

Study on attitude and knowledge in animal husbandry practices among different tribes in Tripura, India

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Abstract

The study was conducted in Dhalai and Sepahijala district of Tripura, India, with a total of 120 sample populations randomly selected from four different tribal groups, i.e. Reang, Debbarma, Chakma and Jamatia, with equal proportions. With the pretested structured interview schedule, the data was collected and analyzed using tools like- frequency, percentage analysis, mean and standard deviation etc. to draw a specific conclusion. The study of the attitude and knowledge level of tribal farmers on animal husbandry practices is of utmost importance to know how they far depend on livestock-related farming and to know the awareness about new technology. Findings depicted that the majority of respondents were undecided about whether artificial insemination is a good practice in dairy farming, while less percentage disagreed and undecided about whether milch animals in a dry period can be neglected in feeding practices. So, regular training and exposure visits must be organized to encourage them and to develop a positive attitude towards dairy farming. Most respondents from the Debbarma tribe and all respondents from the Reang tribe were undecided about whether yearly drenching of crossbreed animals for internal parasites was a good practice. Whereas significant differences were observed among Reang, Jamatia and Debbarma tribes in case of knowledge on poultry farming. Compared to the other three tribes, the Debbarma tribe has greater knowledge of poultry farming. Significant difference was observed between estimates of Reang and Chakma. Considering the knowledge level of tribes in small animal farming, it was found that significant difference was observed between the estimates of Debbarma and Jamatia tribes with higher estimates for the Debbarma in the functional area of the study. Therefore, special attention must be given to Jamatia and Reang tribes for mainstreaming their better socio-economic development.

Keywords: Animal husbandry practices, Attitude, Knowledge, Tribal, Tripura

Highlights

- When comparing estimates of the knowledge levels of the Reang ($\mu=15.10$), Jamatia ($\mu=15.13$), and Debbarma ($\mu=20.17$) tribes regarding knowledge of poultry farming, a significant difference was found between the Debbarma ($\mu=12.63$) and Jamatia ($\mu=10.07$) tribes.
- The majority of respondents (73.3%) from the Debbarma tribe were undecided about milch animals not requiring green fodder in their feed, while 26.7% agreed.
- The greater numbers of tribal people (85%) were unsure whether routine immunization against Haemorrhagic Septicaemia and Rinderpest in dairy animals is necessary. They didn't participate in training and exhibitions, and didn't understand the procedure and immunization patterns.
- The majority of respondents were undecided about whether drenching crossbreed animals for internal parasites every year is a good practice or not, signifying that tribal respondents need to be trained regarding the management of external parasites.
- It was delineated that the respondents were keeping the animals in loose housing system, as it is cheaper than conventional housing system.

INTRODUCTION

Tribe is a group of people who live in jungle areas. Tribes live in the area, which is essentially undeveloped. They tend to live in isolated villages or hamlets. Tribal tribes are at various degrees of socio-economic, educational, and cultural development. There are a few tribal communities that have accepted

a mainstream way of life on one end of the spectrum, while others are still primitive on the other. The study of the attitude and knowledge level of tribal farmers on animal husbandry practices is of utmost importance in order to identify and mitigate the gap between the required knowledge and possessed knowledge. The farmers having a positive attitude tend to perform better

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and earn more from their resources. It was concluded by Arora and Rathore (2013) that the attitude of the users was better than that of non-users towards e-choupal. Gupta *et al.* (2020) found that 74% of the respondents had a neutral, and 18% had an unfavourable attitude toward dairy entrepreneurship. Garai *et al.* (2020) found that (71.11%) of the respondents had medium, high (15.56%) and low (13.33%) levels of knowledge regarding improved dairy farming practices. A scale for measuring the attitude of extension personnel was developed by Nagesh and Meti (2016) towards the Bhoochetana programme, which consists of 29 statements. A study conducted in Jammu and Kashmir state to assess the knowledge level of the Bakarwal tribe regarding sheep and goat-rearing practices revealed that 63.33% had medium, 25% had a low knowledge level (Choudhary *et al.*, 2018). Jeelani *et al.* (2015) conducted a study on Gujjars of Jammu and Kashmir and reported they were middle aged, had a poor formal education. Khateeb *et al.* (2015) reported that pastoralists were using indigenous knowledge for the treatment of animal diseases. A study revealed that (81.67%) had a moderate and 18.33% had a more favourable attitude towards the information and communication technology-based extension services (Kharmudai *et al.*, 2018). A cognitive learning scale was developed by Nanda *et al.* (2022) to test the knowledge level of veterinary students on information and communication technology, and it includes 34 items. Falola and Adewumi (2012) reported that farm income, education and membership of association were positively, the age of household head is negatively correlated with the mobile usage of the farmers for agricultural production activities. A study conducted in the Valsad district of Southern Gujarat revealed that the majority of dairy farmers had a medium knowledge level (Patel and Sabapara, 2023). Khode *et al.* (2018) revealed the impact of the training programme imparted by Krishi Vigyan Kendra on the attitude of dairy animal owners. It was evident from a study that 63.33% of the owners had moderate, 16.67%, and 8.34% less and most favourable attitudes towards vaccination in ruminants (Patel *et al.*, 2015). It was found from a study conducted by Paul *et al.* (2020) that 80.69% of illiterate people thought that 'providing the animals with a favourable environment' is important. A study revealed that traditions maintained by various cultural and social institutions of the Monpa community had a strong ethical base while harvesting plants and animals (Pandey *et al.*, 2020). Singh and Rampal (2016) reported that maximum knowledge of the trained dairy farmers was 72.50% in breeding aspect and untrained

farmers maximum knowledge index was 49% in miscellaneous management. It was found from a study conducted by Thakur *et al.* (2019) that 57.83% farmers undertook training was offering special dry feed to their animals. Jha *et al.* (2021) observed that 56.66% of farmers had favourable attitudes, and 22.50% had the most favourable attitudes towards information and communication technology-based extension services. A scale to measure the attitude developed by Sharma *et al.* (2021) to test the beneficiaries and non-beneficiaries of attracting and retaining youth in agriculture project towards poultry farming that includes 24 items. Jaiswal *et al.* (2023) found that 71% of farmers had poor, 16.33% had high and 9% of poultry farmers had a positive, and 26% had a negative attitude towards poultry farming. It was evident from the study that 69.17% of respondents had a moderate level of overall knowledge, followed by 15.83% with low and 15% with high knowledge (Mishra *et al.*, 2017). A study conducted in Madhya Pradesh state to assess the knowledge about diversified farming of tribal farmers revealed that 48% of respondents had a high level, 31% had a medium, and 21% had a low knowledge level (Rana *et al.*, 2021). Gour *et al.* (2015) observed that 64.37% of the respondents had a low level of knowledge, and 35.63% had a medium level of knowledge. A study conducted by Gautam *et al.* (2015) found that the average knowledge scores obtained by respondents were poor. A study revealed that 56.64% of dairy farmers possessed a medium level of knowledge, followed by 30.28% with a low and 14% with a high level of knowledge (Triveni *et al.*, 2018). Bharti and Sagar (2022) found that 42 items were selected for the last format of the knowledge test for scientific broiler farming practices. 48.60% of respondents were found to have medium, 43.20% and 8.20% had low and high levels of knowledge in backward poultry farming (Kumar *et al.*, 2023). Konch *et al.* (2023) reported that the majority (56.67%) of the respondents had medium, 26.67% had low, and 16.66% had high levels of knowledge on dairy farming practices, respectively.

MATERIALS AND METHODS

The present research was conducted in the months of September and October of 2022 in Dhalai and Sepahijala districts of the state of Tripura. Dhalai district is the largest district of Tripura, with an area of 2312.29 sq. km, and Sepahijala district has a total area of 1043 sq. km. The respondent was shown the schedule, and their responses were gathered in accordance. Prior to the interview, some time was spent to know the responders in each hamlet. The respondents were

selected randomly based on the fact that they must have some exposure to animal husbandry farming. Considering these criteria, 30 respondents, each from Reang and Chakma, were selected from the Dhalai district, and 30, each from Debbarma and Jamatia, were selected from the Sepahijala district in Tripura. In all, 120 respondents were selected for the study sample. Socio-psychological variables were the attitude of respondents towards dairy farming, knowledge level in small animal farming practices, and knowledge level about poultry farming. The attitude towards dairy farming scale of Gupta and Sohal (1976) was used to measure the attitude of the tribal people towards dairy farming. The scale consisted of statements. The knowledge test about small animal farming practices was measured by using a developed scale of Biswas *et al.* (2014). The statistical methods used in the study include- frequency, percentage analysis, and standard deviation. The software used was IBM-SPSS 25.0 for analyzing the data.

RESULTS

In the present study, the overwhelming majority of the Debbarma tribe (73.3%) was undecided about whether artificial insemination (AI) is a good practice in dairy farming, while 26.7% agreed with the concept the majority of Reang tribe (73.3%) was undecided about whether artificial insemination is a good practice in dairy farming, while only 16.7% agreed and 10% disagreed with the statement that, majority of Jamatia tribe (80%) was undecided about whether artificial insemination is a good practice in dairy farming, while only 13.3% agreed and 6.7% disagreed. In case of the Chakma tribe, 73.3% were undecided about whether artificial insemination is a good practice in dairy farming, while only 26.7% agreed.

The overwhelming majority of the Debbarma tribe (83.3%) respondents were undecided about whether milch animals in dry period can be neglected in the matter of their feeding; only 16.7% agreed about it. In case of Reang tribe, 93.3% of respondents were undecided about whether milch animals in a dry period can be neglected in the matter of their feeding; only 6.7% disagreed about it. According to the table, the majority of the Jamatia tribe, 76.7% of respondents, was undecided about whether milch animals in a dry period can be neglected in the matter of their feeding, and only 23.3% disagreed about it. In the Chakma tribe, 73.3% of respondents were undecided about whether milch animals in a dry period can be neglected in the matter of their feeding; only 23.3% agreed about it.

Most respondents (83.3%) from the Debbarma tribe were undecided about whether milk yield can be increased in dairy animals through scientific feeding,

with only 6.7% disagreeing. In the case of Reang, the majority of respondents (93.3%) were undecided about whether milk yield can be increased in dairy animals through scientific feeding, with only 6.7% disagreeing. Most respondents (70%) from the Jamatia tribe were undecided about whether milk yield can be increased in dairy animals through scientific feeding, with only 23.3% disagreeing. Similarly, in the case of the Chakma tribe, most respondents (83.3%) were undecided about whether milk yield can be increased in dairy animals through scientific feeding, with only 6.7% disagreeing.

According to the table, most of the Debbarma tribe (86.7%) was unsure whether vaccination against Hemorrhagic Septicaemia and Rinderpest in dairy animals was required on a regular basis. In the case of the Reang tribe, 96% were unsure whether vaccination against Hemorrhagic Septicaemia and Rinderpest in dairy animals was required on a regular basis. Only 73.3% were unsure whether vaccination against Hemorrhagic Septicaemia and Rinderpest in dairy animals is required on a regular basis in the case of the Jamatia tribe. In the Chakma tribe, 83.3% were unsure whether vaccination against Hemorrhagic Septicaemia and Rinderpest in dairy animals is required on a regular basis.

Most respondents (90%) from the Debbarma tribe were undecided about whether drenching crossbreed animals for external parasites every year was good practice, and only 10% agreed with this. In the case of the Reang tribe, all selected respondents (100%) were undecided about whether drenching crossbred animals for internal parasites every year is a good practice. The majority of respondents (70%) from the Jamatia tribe were undecided about whether yearly drenching of crossbreed animals for internal parasites is only good practice. The majority of respondents (80%) from the Chakma tribe were undecided about whether drenching crossbred animals for external parasites every year is good practice.

According to Table 1, the majority (70%) of the Debbarma tribe was unsure whether it is acceptable to keep animals loose in an enclosure in dairy farming, and only 30% agreed. 86.7% of respondents from the Reang tribe are unsure whether it is acceptable to keep animals loose in an enclosure in dairy farming, and only 3.3% disagree. In the case of the Jamatia tribe, 60% of respondents were unsure whether it is acceptable to keep animals loose in an enclosure in dairy farming, and only 13.3% disagreed. In the Chakma tribe, 63.3% of respondents were unsure whether it is acceptable to keep animals loose in an enclosure in dairy farming, and only 10% disagreed.

Table 1. Attitude level of the respondents towards dairy farming practices

Statements	Debarma		Reang		Jamatia		Chakma		Overall		
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	
In dairy farming artificial insemination is a good practice	Agree	8	26.7	5	16.7	4	13.3	8	26.7	25	20.8
	Undecided	22	73.3	22	73.3	24	80.0	22	73.3	90	75.0
	Disagree	0	0	3	10.0	2	6.7	0	0	5	4.2
Milch animal in dry period can be neglected in the matter of their feeding	Agree	5	16.7	0	0	0	0	7	23.3	12	10.0
	Undecided	25	83.3	28	93.3	23	76.7	22	73.3	98	81.7
	Disagree	0	0	2	6.7	7	23.3	1	3.3	10	8.3
Through scientific feeding in dairy animals milk yield can be increased	Agree	3	10.0	0	0	2	6.7	3	10.0	8	6.7
	Undecided	25	83.3	28	93.3	21	70.0	25	83.3	99	82.5
	Disagree	2	6.7	2	6.7	7	23.3	2	6.7	13	10.8
Vaccination against Haemorrhagic Septicaemia and Rinderpest in milch animal is not regularly needed	Agree	4	13.3	0	0	2	6.7	2	6.7	8	6.7
	Undecided	26	86.7	29	96.7	22	73.3	25	83.3	102	85.0
	Disagree	0	0	1	3.3	6	20.0	3	10.0	10	8.3
Drenching of crossbreed animal for internal parasites every year is good practice	Agree	3	10.0	0	0	2	6.7	5	16.7	10	8.3
	Undecided	27	90.0	30	100.0	24	80.0	21	70.0	102	85.0
	Disagree	0	0	0	0	4	13.3	4	13.3	8	6.7
In dairy farming, it is good to keep animals loose in an enclosure	Agree	9	30.0	3	10.0	8	26.7	8	26.7	28	23.3
	Undecided	21	70.0	26	86.7	18	60.0	19	63.3	84	70.0
	Disagree	0	0	1	3.3	4	13.3	3	10.0	8	6.7
Milch animals do not need green fodder to their feed	Agree	0	0	0	0	0	0	0	0	0	0
	Undecided	22	73.3	26	86.7	20	66.7	18	60.0	88	73.3
	Disagree	8	26.7	3	10.0	10	33.3	12	40.0	32	26.7
In dairy farming crossbred cows are not better than buffaloes	Agree	0	0	0	0	0	0	2	6.7	2	6.7
	Undecided	30	100.0	29	96.7	24	80.0	28	93.3	111	92.5
	Disagree	0	0	1	3.3	6	20.0	0	0	7	5.8

Table 2. ANOVA for significant differences in knowledge level (Mean±SE) among selected tribal communities in Tripura state of India

Knowledge level	Mean±SE				F value	p value
	Reang (30)	Debbarma (30)	Jamatia (30)	Chakma (30)		
Small animal farming	11.07 ^{ab} ±0.97	12.63 ^b ±0.85	10.07 ^a ±0.55	11.77 ^{ab} ±0.58	2.029	0.01*
Poultry farming	15.10 ^a ±1.32	20.17 ^c ±1.67	15.13 ^b ±1.14	18.17 ^{bc} ±1.79	2.708	0.05*

Mean±SE values with different alphabetical superscripts across a row differ significantly at 5% level using Duncan multiple range test (DMRT)

The majority of respondents (73.3%) from the Debbarma tribe were undecided about milch animals not requiring green fodder in their feed, while 26.7% agreed. The vast majority of respondents (100%) were unsure whether crossbred cows were superior to buffaloes in dairy farming. In the case of the Reang tribe, the majority of respondents (86.7%) were undecided about dairy animals not requiring green fodder in their feed, while 10% disagreed. The vast majority of respondents (96.7%) were unsure whether crossbred cows were superior to buffaloes in dairy farming, and only 3.3% disagreed about it. In the Jamatia tribe, the majority of respondents (66.7%) were undecided about dairy animals not requiring green fodder in their feed, while 33.3% disagreed. The vast majority of respondents (80%) were unsure whether crossbred cows were superior to buffaloes in dairy farming, and only 20% disagreed about it. Similarly, in the Chakma tribe, the majority of respondents (60%) were undecided about dairy animals not requiring green fodder in their feed, while 10% disagreed. The vast majority of respondents (93.3%) were unsure whether crossbred cows were superior to buffaloes in dairy farming, and only 6.7% agreed about it.

Knowledge level among selected tribal communities in Tripura state of India

In present study, significant difference ($p < 0.05$) was observed between the estimates of Debbarma ($\mu = 12.63 \pm 0.85$) and Jamatia ($\mu = 10.07 \pm 0.55$) tribes in case of knowledge level on small animal farming, whereas significant differences ($p < 0.05$) were observed among Reang ($\mu = 15.10 \pm 1.32$), Jamatia ($\mu = 15.13 \pm 1.14$) and Debbarma ($\mu = 20.17 \pm 1.67$) tribes in case of knowledge on poultry farming. Significant difference was observed between estimates of Reang and Chakma tribe in the present study.

DISCUSSION

Attitude is the positive or negative feelings of a person towards some object, idea or people. It has a great bearing on his success and failure in his endeavor

for career building or business venture. Therefore, in a study, it was quite justified to include attitudes towards dairy farming for exploiting the socio-psychological status of stakeholders in the functional area. According to Table 1, with respect to overall data, the majority of respondents (75%) were undecided about whether artificial insemination is a good practice in dairy farming, while only 4.2% disagreed. The tribal respondents were not adopting artificial insemination as seen in the results. Therefore, they were unaware of the fact that artificial insemination is a good practice. Overall, 81.7% of respondents were undecided about whether milch animals in a dry period can be neglected in the matter of their feeding; only 8.3% disagreed about it. The tribal respondents were still not aware of the advanced animal husbandry practices. Therefore, the response remained “undecided” when they were asked about the feeding practices to be followed during the dry period of the animals. This may be due to their unawareness of the importance of nutrition in animals and the pattern of feeding to be followed throughout the life of an animal.

Overall, most respondents (82.5%) were undecided about whether milk yield can be increased in dairy animals through scientific feeding, with only 10.8% disagreeing. This shows that tribal communities were still not aware of the effect of nutrition on milk yield. The policy makers and veterinarians must take proper steps to make them educated regarding these issues. It was also observed that the respondents did not attend any training, due to which they were illiterate regarding the scientific feeding practices.

Overall, only 85% of respondents were unsure whether vaccination against Hemorrhagic Septicaemia and Rinderpest in dairy animals is required on a regular basis. Due to a lack of participation in training, exhibitions, etc., they remain detached from the process and patterns of vaccination. This may be stated that they did not show interest towards adoption of the vaccination for animals as they did not know about the importance of it.

The majority of overall respondents (85%) were undecided about whether drenching crossbred animals

for internal parasites every year is a good practice. It was clear from the results that the tribal respondents needed to be given proper training regarding the management of external parasites. The farmers could improve their profit by decreasing illness in animals due to external parasites.

According to Table 1, 70% of the overall respondents were unsure whether it is acceptable to keep animals loose in an enclosure in dairy farming, and only 6% disagreed. The housing is a cost intensive affair in animal husbandry. Therefore, they never followed the conventional housing system. Thus, majority of respondents could not decide regarding keeping the animals in enclosure.

The majority of the overall respondents (92.5%) were undecided about dairy animals not requiring green fodder in their feed, while (5.8%) disagreed. The majority of respondents were unsure whether crossbred cows were superior to buffaloes in dairy farming, and only 6.7% agreed about it. In order to know about the economics of providing green fodder and decreasing the input cost, proper training is essential. This was very much lacking among the majority of the respondents, who remained undecided. However, some of the farmers did not agree to the practice of green fodder and opined that the animals can graze outside. Therefore, fodder cultivation was not required. Regular training and exposure visits must be organized to encourage them to follow the practice of green fodder cultivation. The results are in accordance with Gupta *et al.* (2020) found that 74% majority of the respondents had a neutral attitude, 18% had an unfavourable attitude, and the rest, 8%, had a favourable attitude toward dairy entrepreneurship.

The knowledge level of small animal and poultry farming of different tribes has been compared in Table 2. While studying the knowledge level of tribes in the case of small animal farming, it was found that significant differences were observed between the estimates of the Debbarma and Jamatia tribes, with higher estimates for the respondents of the Debbarma tribe. The study found that the Debbarma tribe has the

highest knowledge level among the different tribes under study. It was evident from the research that the Debbarma tribe was more progressive than the other three tribes under study. The said tribe generally resides more in city or township areas, giving them an edge over the other tribes. The results were in accordance with Garai *et al.* (2020) found that the majority (71.11%) of the respondents had a medium level of knowledge, followed by high (15.56%) and low (13.33%) levels of knowledge regarding improved dairy farming practices.

The findings could be very useful for the planners and policymakers of the functional area of the state to develop competent human resources through the training of stakeholders in order to enhance their knowledge and skills on different animal husbandry practices. The field veterinarians must be duly solicited to make the farmers aware of the advanced practices. It was also noted that Debbarma was a progressive tribe, and Reang and Chakma were comparatively backward. Similar research could also be conducted in other tribes in the state of Tripura, India.

Conflict of interest: The author declares no conflicts of interest pertaining to this research study.

Author's contribution: BP: Conducted the research; SB: Supervision and guidance; AG: Proofreading of the article; SMN: Analyzed the data. All authors read and approved the final manuscript.

Data availability statement: All the data supporting the research findings have been presented in this paper. The corresponding author is willing to provide the raw data upon reasonable request.

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REFERENCES

- Arora S and Rathore S, 2013. Attitude of farmers towards ITC's e-Choupal: comparison between users and non-users. *J Glob Commun*, 6(1): 64-68, doi: 10.5958/j.0976-2442.6.1.008
- Bharti R and Sagar MP, 2022. Construction and standardization of knowledge test for broiler farmers regarding scientific broiler farming practices. *Indian Res J Ext Edu*, 22(4): 89-93, doi: 10.54986/irjee/2022/oct_dec/89-93
- Biswas S, Goswami A and Mazumdar D, 2014. Development of cognitive knowledge test scale on small animal farming practices. *Int J Dev Res*, 4(4): 923-926
- Choudhary F, Khandi SA, Bafanda RA, Fahad S and Minhaj SU, 2018. Knowledge level of Bakarwal tribe regarding sheep and goat rearing practices in Jammu district of Jammu and Kashmir, India. *Pharma Innov J*, 7(11): 178-183
- Falola A and Dewumi MO, 2012. Constraints to use of mobile

- telephony for agricultural production in Ondo State, Nigeria. *J Res Forestry Wildlife Environ*, 4(2): 52-63
- Garai S, Maiti S and Meena BS, 2020. Knowledge level vis-à-vis improved dairy farming practices: An appraisal on the Santhal dairy farmers of Burdwan district (West Bengal). *Indian Res J Ext Edu*, 20(1): 1-4
- Gautam, Malik A and Kamaldeep, 2015. Measuring farmers knowledge regarding scientific dairy practices in Haryana. *Indian Res J Ext Edu*, 15(2): 114-118
- Gour S, Mandal MK and Singh R, 2015. Assessing knowledge of tribal farmers regarding scientific animal husbandry practices. *Indian Res J Ext Edu*, 15(2): 91-94
- Gupta CL and Sohal TS, 1976. A scale to measure dairy farmers' attitude towards dairy farming. *Indian J Ext Edu*, 13(3 & 4): 76
- Gupta RK, Sahu A, Tiwari PK and Gupta A, 2020. Correlates of the attitudes of tribal dairy farmers towards dairy entrepreneurship in Balrampur district of Northern hill region, Chhattisgarh. *J Community Mobilization Sustain Dev*, 15(2): 425-430, doi: 10.5958/2231-6736.2020.00023
- Jaiswal UK, Malik A, Bala A, Kumar R and Sharma R, 2023. Knowledge and attitude of poultry farmers towards poultry enterprise. *Indian Res J Ext Edu*, 23(3): 26-30, doi: 10.54986/irjee/2023/jul_sep/26-30
- Jeelani R, Khandi SA, Beig MY, Kumar P and Bhadwal MS, 2015. Adoption of improved animal husbandry practices by Gujjars of Jammu and Kashmir. *Indian J Dairy Sci*, 68(3): 287-292, doi: 10.5146/ijds.v68i3.44832
- Jha S, Kashyap SK, Ansari MA, Kamswari VLV, Singh S *et al.*, 2021. Attitude of farm women towards ICT tools based extension services. *Indian Res J Ext Edu*, 21(1): 96-98
- Kharmudai A, Sumi D and Jyothi SSP, 2018. Attitude of tribal farmers of Meghalaya towards ICT-based extension services. *Indian J Hill Farming*, Special issue: 71-75
- Khateeb AM, Khandi SA, Kumar P, Bhadwal MS and Jeelani R, 2015. Ethno-veterinary practices used for the treatment of animal diseases in Doda district, Jammu and Kashmir. *Indian J Trad Know*, 14(2): 306-312
- Khode N, Singh BP, Chander M and Bardhan D, 2018. Contributory influence of training intervention on attitude formation of dairy animal owners towards dairy farming. *Indian Res J Ext Edu*, 18(2): 72-77
- Konch K, Hazarika H and Hazarika D, 2023. Knowledge level of rural farm women about various scientific dairy management practices in Dhemaji district of Assam. *Pharma Innov J*, 12(5): 1579-1581
- Kumar P, Jha AK, Rajak SK and Singh PK, 2023. A study on knowledge level of the poultry farmers and its correlation with socio-personal factors in Bihar. *Pharma Innov J*, SP-12(6): 398-400
- Mishra P, Rajput DS, Sharma NK and Jain AK, 2017. Knowledge level of tribal livestock owners about different livestock management practices in Banswara district of Rajasthan. *Indian Res J Ext Edu*, 17(2): 36-39
- Nagesh and Meti SK, 2016. Development of scale for measuring attitude of extension personnel towards Bhoochetana programme. *Indian Res J Ext Edu*, 16(1): 155-159
- Nanda SM, Goswami A and Biswas S, 2022. Development of cognitive learning scale to test the knowledge level of veterinary students on ICT. *Indian Res J Ext Edu*, 22(1): 142-145
- Pandey NK, Somvanshi SPS, Prakash O and Kumar S, 2020. Indigenous knowledge of agriculture and animal husbandry practiced by Monpa tribes of Tawang Arunachal Pradesh. *Pharma Innov J*, 9(4): 1012-1016
- Patel PC and Sabapara GP, 2023. Knowledge level of improved dairy husbandry practices in tribal areas of Southern Gujarat. *Indian J Anim Product Manage*, 37(1): 32-38, doi: 10.48165/ijapm.2023.37.1.9
- Patel PC, Patel JB and Parmar NR, 2015. Dynamic profile of the tribal livestock owners and their attitude towards vaccination in ruminants. *Guj J Ext Edu*, 26(2): 173-177
- Paul AK, Shathi IJ and Biswas D, 2020. People's perception, attitude in relation to animal welfare and constraint of livestock rearing in Bangladesh. *Int J Res Rev*, 7(4): 506-514, doi: 10.4444/ijrr.1002/1931
- Rana KK, Kumar A, Parvex R and Singh SRK, 2021. Extent of knowledge about diversified farming of tribal farmers of Madhya Pradesh. *Indian J Ext Edu*, 57(2): 233-236
- Sharma S, Rathor RS and Sharma FL, 2021. A Scale to measure the attitude of beneficiaries and non-beneficiaries of ARYA project towards poultry farming. *Indian Res J Ext Edu*, 21(2 & 3): 16-19
- Singh P and Rampal VK, 2016. Extent of knowledge of trained and untrained dairy farmers of Malwa region of Punjab. *Int J of Bio-resour Stress Manag*, 7(6): 1383-1386, doi: 10.23910/ijbsm/2016.7.6.1622
- Thakur N, Singh P, Kasrija R and Kansal SK, 2019. Assessing the impact of training on knowledge level of dairy farmers of Punjab during transitional period. *Int J of Bio-resour Stress Manag*, 10(1): 019-022, doi: 10.23910/IJBSM/2019.10.1.1934
- Triveni G, Sharma GRK, Satyanarayana C, Rao KS and Rajhunanandhan T, 2018. Knowledge level of dairy farmers on adoption of dairy innovations in Andhra Pradesh- An analysis. *Indian Res J Ext Edu*, 18(1): 1-4