Open Access

Check for updates

Research Article

Journal of Veterinary and Animal Sciences
ISSN (Print): 0971-0701, (Online): 2582-0605
https://doi.org/10.51966/jvas.2025.56.2.240-246

Attitude towards conservation of native cattle among the keepers of Vilwadri cattle in Kerala

V. Vinaya[1*], Subin K. Mohan[1], M. Manoj[2*], Marykutty Thomas[3], R.S. Jiji[1] and P. Vidya[1]

[1]Department of Veterinary and Animal Husbandry Extension, [2]Department of Animal Genetics and Breeding, [3] Centre for Advanced Studies in Animal Genetics and Breeding, College of Veterinary and Animal Sciences, Mannuthy, Thrissur-680 651, Kerala Veterinary and Animal Sciences University, Kerala, India.

Citation: Vinaya, V., Mohan, S.K., Manoj, M., Thomas, M., Jiji, R.S. and Vidya, P. 2025. Attitude towards conservation of native cattle among the keepers of Vilwadri cattle in Kerala. *J. Vet. Anim. Sci.* **56** (2):240-246

Received: 30.09.2024 Accepted: 22.03.2025 Published: 30.06.2025

Abstract

The study assessed the cattle keepers' attitudes towards the conservation of Vilwadri cattle. The Vilwadri cattle keepers were identified using key informant and snowball sampling methods, as the animals were disaggregated from their natural breeding tracts and were difficult to locate. Thirty-three Vilwadri cattle keepers with 248 cattle population were identified. The data were collected by personal interview method using a pre-scheduled questionnaire. Vilwadri cattle keepers were predominantly male and fell within the age range of 30 to 50 years. Vilwadri cattle keepers generally possess higher educational qualifications, graduation or higher. Additionally, the cattle keepers were largely affiliated with the Hindu faith and belonged to forward communities, living in nuclear family structures. The majority of Vilwadri cattle keepers (63.63 %) demonstrated a more favourable attitude towards conservation. Statistical analysis using the chi-square test revealed a significant association between the age and gender of respondents and their attitudes toward the conservation of Vilwadri cattle. Among the middle-aged category, 42.42 per cent showed a more favourable attitude towards conservation. The majority (60.61%) of male respondents showed a more favourable attitude towards conservation.

Keywords: Attitude, conservation, Vilwadri, native cattle, Kerala, India, cattle keepers

The conservation of indigenous cattle breeds is critical for maintaining genetic diversity, promoting agricultural sustainability, and ensuring the resilience of livestock populations against challenges such as disease and climate change. These breeds serve as invaluable reservoirs of genetic traits uniquely adapted to local environmental conditions, making them essential for safeguarding the long-term viability of livestock systems. The National Bureau of Animal Genetic Resources (NBAGR) led efforts to conserve and monitor these breeds. It emphasises the need for breed-specific censuses, the identification of at-risk populations, and strategies to preserve genetic material.

Among Kerala's indigenous cattle, one of the undistinguished populations is Vilwadri, but it holds significant regional value (Jayadevan *et al*., 2015). Cattle such as the Kasaragod and Vilwadri exhibit genetic distinctiveness, reflecting unique evolutionary adaptations (Radhika *et al*., 2021). This genetic diversity, coupled with their cultural importance, underscores the urgent need for targeted conservation strategies addressing both genetic preservation and the

**Corresponding author: subin.mohan@kvasu.ac.in, Ph: 90895900936*

socioeconomic and cultural dimensions that influence the lives of local cattle keepers. The unregulated introduction of foreign breeds and indiscriminate crossbreeding have contributed to the gradual erosion of indigenous genetic resources (Tapesh *et al*., 2005). So, conserving indigenous breeds is not only a scientific and genetic imperative; it is deeply connected to genetic potential, cultural heritage, and traditional practices. Conjointly, the conservation of indigenous animals represents both a biological and cultural commitment of its stakeholders. This cultural significance shapes the attitudes and behaviours of farmers, affecting their willingness to participate in conservation efforts (Johnson *et al*., 2022). Ancestral knowledge surrounding these breeds has been passed down through generations, enriching the agricultural identity of regions like Kerala, where cattle play a central role in traditional farming systems.

To prevent further erosion of Indigenous genetic resources, institutional policies must shift towards recognising the value of native breeds, both ecologically and economically. Recommendations include forming a "National Consortium of Partners" to coordinate breeders, communities, and NGOs in conservation efforts (Srivastava *et al*., 2019). Integrating Indigenous knowledge with scientific research is essential for developing culturally sensitive conservation strategies, as societal attitudes significantly influence the success of such initiatives (Boettcher *et al*., 2011). By protecting these breeds, India can safeguard genetic diversity, cultural heritage, and the resilience of its livestock populations. Keeping the view of the aforesaid findings, the work was undertaken.

Materials and methods

Despite the evident segregation of the cattle in the Thiruvilwamala region, detailed information regarding the livestock keepers remained scarce. Moreover, there was a dispersion of cattle from its native breeding tract. Hence, the snowball technique was employed to identify respondents for the research. This data was typically collected through surveys, and experiments using pre structured interview schedule by personal interviews. A total population of 33 Vilwadri cattle keepers, with 248 animals were identified

A scale was adopted from Sreelakshmi *et al*. (2013), which was a sophisticated measurement tool that was successfully put into practice. This tool was meticulously crafted to meet specific requirements and provide accurate measurements. Its implementation marked a significant advancement in the field, enabling researchers and professionals to gather precise data effectively.

The scale consisted of twenty statements with a three-point continuum agree, undecided, and disagree with scores of 3,2, and 1 in the cases of positive statements. In the case of negative statements, the scoring was in reverse order. The total score obtained by each respondent was then computed by summing up the scores for each statement depending on his/her response to each statement. Cattle keepers were classified into 3 categories keepers shown more favourable attitude towards conservation, moderate attitude towards conservation and less attitude towards conservation. The association between socio-economic demographics and attitude towards conservation was calculated.

Results and discussion

Distribution of Vilwadri cattle keepers based on age

Table 1 showed that more than half of the cattle keepers (51.51%) were between 30 and 50 years old, followed by those over 50 years (42.42%), while only 6.06 per cent were under 30 years old. This age group is often viewed as ideal for livestock management due to their blend of energy, experience, and adaptability to new technologies. Individuals in this demographic typically possess established knowledge and skills in farming and show a readiness to innovate and adopt sustainable practices. This finding aligns with the research by Bashir *et al.* (2010), which indicated that most native cattle keepers fall within the 30-50 years of age range.

Distribution of Vilwadri cattle keepers based on gender

From Table 1, it was apparent that among the 33 respondents, 29 individuals (87.88%) were male, whereas only 4 (12.12%) respondents were female. According to Dossa *et al.* (2016) in terms of gender, it reflects a broader trend in rural India where livestock farming is largely male-dominated due to cultural norms and the physical demands of managing cattle.

Distribution of Vilwadri cattle keepers based on education

The data presented in Table 1 clearly indicated that the majority of respondents (54.55%) possessed graduation or higher, while only 24.24 per cent of the respondents had completed primary and secondary education and 18.18 per cent completed higher secondary education. A minority of respondents were found to have no formal education, accounting for 3.03 per cent. According to Jessica *et al*. (2021) higher educational levels among farmers are often linked to a better understanding of modern farming practices and a greater willingness to adopt new technologies. According to of Kavitha *et al*. (2021) 16.50 per cent of them had more than higher secondary level of education like graduate, post graduate and diploma etc.

Distribution of Vilwadri cattle keepers based on religion

The data presented in Table 1. indicated that the majority (87.88 %) of respondents were affiliated with the Hindu faith whereas, Christian and Muslim adherents accounted for 6.06 per cent each. During the survey the stakeholders of Vilwadri cattle mentioned that the name "Vilwadri" is derived from the revered deity of the Thiruvilwamala temple, 'Vilwadrinathan.' During the study, it was noted that the Vilwadri cattle of the Thiruvilwamala region are closely associated with the Thiruvilwamala temple and Hindu beliefs. The temple has also played a role in the conservation of Vilwadri cattle from crossbreeding initiatives. Many cattle owners contribute milk, ghee, dung, urine, and ash to nearby temples, considering these offerings sacred when derived from native cattle. Cow dung was traditionally used for temple cleaning, reflecting cultural and religious practices. In contrast, dung from crossbred cattle tends to have an unpleasant odour, prompting a preference for the odourless dung of Vilwadri cattle. The Vilwadri temple and its surroundings embody a cultural significance that emphasises the importance of cattle, providing "prasadam" for wandering cattle and featuring numerous water troughs for them nearby.

Distribution of Vilwadri cattle keepers based on caste

The data presented in Table 1. indicated that the majority (72.73%) of respondents were under the general category, with the SC/ST category comprised of 6.06 per cent, and 21.21 per cent belonged to OBC category.

Distribution of Vilwadri cattle keepers based on type of family

The majority of respondents belonged to nuclear families, accounting for 69.70 per cent, while the remaining respondents, comprised of 30.30 per cent, were part of joint families. This aligned with the study of Kavitha *et al*. (2021) which reported that more than half of the respondents (65 per cent) were living in nuclear family setup and the remaining 35 per cent of the respondents were in joint family setup

Distribution of Vilwadri cattle keepers based on house hold size

The data presented in the Table 1 indicated that the majority of the respondents (72.73%) resided in households with up to 5 members, with the second largest group having household sizes ranging from 5 to 7 individuals (21.21%), followed by those with more than 7 members (6.06%). This result aligned with the study of Kavitha *et al*. (2021).

Distribution of Vilwadri cattle keepers based on major occupation

The data presented in Table 1. indicated that a significant proportion of the participants were primarily engaged in business activities, accounting for 42.42 per cent of the total. This was followed by individuals who were working in other sectors, which comprised 18.18 per cent. Those in government services, made up 15.15 per cent. Livestock rearers represented 12.12 per cent of the respondents, while agriculture and coolies accounted for 9.1 per cent and 3.03 per cent, respectively. According to of Kavitha *et al*. (2021) majority of respondents belonged to agricultural sector primarily and about seven per cent of the respondents belonged to jobs like business, self-employed etc. This finding was in line with Verma *et al*. (2014).

Distribution of Vilwadri cattle keepers based on subsidiary occupation

The data presented in the Table 1. indicated that the majority (69.70 %) of respondents were engaged in a secondary occupation related to livestock rearing, with agriculture (27.27 %) and business (3.03 %) following closely behind. None of them belonged to services. Cent per cent of the respondents had subsidiary occupations. Vilwadri cattle keepers identified business as their primary occupation, which aids farmers in managing input costs such as feed, healthcare, labour, and infrastructure while maximising profit margins through value addition.

Distribution of Vilwadri cattle keepers based on herd size

In Table 1. Vilwadri cattle keepers accounting for 42.42 per cent, reported a herd size ranging from 4 to 15 and 39.40 per cent mentioned having less than 4 animals while 18.18 per cent reported having more than 15 animals. While conducting the study, it was identified that some Vilwadri cattle keepers and influential stakeholders owned larger herds ranging from 50 to 100 animals. According to of Kavitha *et al*. (2021) about 43.00 per cent of the respondents possessed medium level about three to five animals.

Distribution of Vilwadri cattle keepers based on land owned

The Table 1 illustrated that over half of the respondents (57.58%) possessed less than one acre of land whereas, 21.21 per cent had a land possession of 1-2 acres of land and over two acres of land. These small landholdings pose challenges for large-scale cattle farming and highlight the need for developing intensive and sustainable farming practices (Kumar *et al*., 2017). Similar findings were obtained from Kavitha *et al*. (2021) that more than half of the respondents (58.00 per cent) were having 2.5 to 5 acres of land and belonged to small farmers category.

Distribution of Vilwadri cattle keepers based on years of experience

Table 1. Socio-demographic variables

Sl. No.	Socio-demographic variables	Socio-demographic variables	Number of respondents (N=33)	Per cent (%)
1.	Age	Less than 30	2	6.06
2.		30-50 yrs	17	51.51
3.		More than50 yrs	14	42.42
4.	Gender	Male	29	87.88
5.		Female	4	12.12
6.	Education	Illiterate	1	3.03
7.		Primary and secondary	8	24.24
8.		Higher secondary	6	18.18
9.		Graduate and above	18	54.55
10.	Religion	Hindu	29	87.88
11.		Christian	2	6.06
12.		Muslim	2	6.06
13.	Caste	General	24	72.73
14.		SC/ST	2	6.06
15.		OBC	7	21.21
16.	Type of family	Joint family	10	30.30
17.		Nuclear family	23	69.70
18.	Household size	Up to 5	24	72.73
19.		5-7	7	21.21
20.		Greater than 7	2	6.06
21.	Major occupation	Agriculture	3	9.1
22.		Livestock rearing	4	12.12
23.		Business	14	42.42
24.		Government service	5	15.15
25.		Coolie	1	3.03
26.		Others	6	18.18
27.	Subsidiary occupation	Agriculture	9	27.27
28.		Livestock rearing	23	69.70
29.		Business	1	3.03
30.		Services	0	0.0
31.		No subsidiary occupation	0	0.0
32.	Herd size	Less than 4	13	39.40
33.		4-15	14	42.42
34.		More than 15	6	18.18
35.	Land owned	Less than1 acre	19	57.58
36.		1-2 acre	7	21.21
37.		More than 2 acres	7	21.21
38.	Years of experience	Less than 5	4	12.12
39.		5-10	10	30.30
40.		10-20	4	12.12
41.		20-50	9	27.28
42.		More than 50	6	18.18
43.	Annual income	Up to 1 lakh	15	45.45
		2-10 lakh	17	51.52
		More than 10 lakhs	1	3.03

Table 2. Distribution of respondents based on attitude score

Sl. No.	Attitude class	Score	Frequency(f)	Per cent (%)
1	Less favourable	Less than 47	1	3.04
2	Moderately favourable	47-52	11	33.33
3	More favourable	Greater than 52	21	63.63

The Table 1 illustrated that 30.30 per cent of the respondents had 5-10 years of experience in raising Vilwadri cattle, followed by 20-50 years (27.28%), over 50 years (18.18%), 10-20 years (12.12%), and less than 5 years (12.12%) respectively. 6.06 per cent of the respondents had an experience of less than 5 years indicating new farmers were also attracted to Vilwadri cattle production. The findings were aligned with the study of Kavitha *et al*. (2021) which reported that the majority (63.50 per cent) of respondents had medium experience in Kangayam cattle farming.

Distribution of Vilwadri cattle keepers based on annual income

The data presented in the Table 1 clearly illustrated that the majority of respondents had an annual income ranging from 2 to 10 lakhs (51.52%). This was followed by individuals with an income up to 1 lakh (45.45%) and those earning more than 10 lakhs, representing 3.03 per cent. Income is invaluable as most of the farmers are integrating it with organic farming as its contribution to the soil fertility and productivity, the quality of milk and milk products. It was evident that a few respondents received an amount Rs. 3500/kg of ghee and Rs. 200/lr of milk. Similar findings were observed by Kavitha *et al*. (2021) who reported that majority of the respondents had a medium category of annual income of 3.06 lakhs to 4.05 lakhs.

Distribution of Vilwadri cattle keepers' based on attitude score

Data represented in Table 2. indicated a significant proportion of Vilwadri cattle keepers (63.63%) demonstrated a highly favourable attitude towards conservation, while a moderate attitude towards conservation was exhibited by 33.33 per cent of the respondents; conversely, a mere 3.04 per cent a less favourable attitude towards conservation of native cattle. Approximately two-thirds of participants supported Nattukuttai cattle preservation (Athilakshmy *et al*., 2023). Over one-third of Vechur cattle farmers showed moderate favourability, while another third strongly supported conserving native breeds (Anjali *et al*., 2020). Verma *et al*. (2014) similarly found a favourable attitude toward Kherigarh cattle conservation.

Relationship between socio-demographic characters of the farmers and their attitude towards conservation in Vilwadri cattle

Table 3. showed that as per the chi-square test, there was a significant association between the age of respondents and their attitude towards conserving Vilwadri cattle. Among the middle-aged category 42.42 percent of be middle-aged category shows a more favourable attitude towards conservation. The data given above showed that there was a significant association between gender and attitude towards conservation of Vilwadri cattle. 60.61 per cent of male respondents showed a high attitude towards conservation. The table also indicates no significant association between other socio-demographics and attitude towards conservation. According to Sreelakshmi *et al*. (2013). Herd size and communication sources positively influenced attitude towards conservation of Kasaragode cattle

Conclusion

More than half of Vilwadri cattle keepers were aged 30-50 years, suggesting an active, working population engaged in cattle rearing alongside other economic activities. There was a notable gender imbalance, with the majority of respondents were male, reflecting traditional gender roles in rural agricultural practices among cattle keepers. Educationally, more than half of Vilwadri cattle keepers were graduates or held higher degrees indicating that cattle rearing was often an informed choice influenced by education rather than merely a traditional occupation. Religion and caste played significant roles in this community, the majority of Vilwadri cattle keepers belonged to Hindu and the majority of respondents belonged to forward castes, suggesting that cattle rearing might carry cultural and religious significance, particularly within the context of Hindu reverence for cattle. Caste dynamics could also influence resource access and networking within the cattle-rearing community.

Economically, the majority of Vilwadri cattle keepers primarily engaged in business, indicating that cattle rearing was likely a supplementary source of income. Majority of the Vilwadri cattle keepers engaged in secondary activities related to livestock rearing. The herd sizes ranged from 4 to 15 animals in Vilwadri, suggesting small to medium-scale operations, possibly motivated by both economic and cultural preservation. More than half of the respondents in cattle-keeping systems were small landholders, owning less than one acre of land. More than half of Vilwadri cattle keepers earned between 2 to 10 lakhs anually, reflecting moderate financial security supported by diversified occupations.

Table 3. Relationship between socio-demographics and attitude towards conservation

Sl. No.	Socio-demographic		Attitude score class			*p-value*
			More favourable attitude	Moderately favourable attitude	Less favourable attitude	
1	Age in years	Less than 30	0	2	0	0.037
		30-50	0	3	14	
		Above 50	1	6	7	
2	Gender	Male	0	9	20	0.040
		Female	1	2	1	
3	Education	Illiterate	0	1	0	0.222
		Primary & Secondary	1	3	4	
		Higher Secondary	0	3	3	
		Graduate and Above	0	4	14	
4	Religion	Hindu	1	10	18	0.812
		Christian	0	1	1	
		Muslim	0	0	2	
5	Caste	General	0	8	16	0.085
		SC/ST	1	1	0	
		OBC	0	2	5	
6	Type of family	Joint Family	0	3	7	1.000
		Nuclear family	1	8	14	
7	House hold size	Up to 4	18	3	3	0.884
		5-7	6	1	0	
		More than 7	2	0	0	
8	Major occupation	Agriculture	0	2	1	0.349
		Livestock rearing	1	1	2	
		Business	0	3	11	
		Govt service	0	2	3	
		Coolie	0	1	0	
		Any other	0	2	4	
9	Subsidiary occupation	Agriculture	1	2	6	0.227
		Livestock rearing	0	8	15	
		Business	0	1	0	
10	Herd size	Less than 4	1	5	7	0.701
		4-15	0	5	9	
		More than15	0	1	5	
11	Land owned	Less than 1 acre	1	6	12	0.487
		1-2 acres	0	4	3	
		More than 2 acres	0	1	6	
12	Years of experience	Less than 5	0	3	1	0.206
		5-10	0	2	8	
		10-20	0	0	4	
		20-50	1	4	4	
		More than 50	0	2	4	
13	Annual income	Up to 1 lakh	1	5	9	0.904
		1-10 lakh	0	6	11	
		More than 10 lakhs	0	0	1	

(P<0.05*)

The majority of Vilwadri cattle keepers had a highly favourable attitude, 33.33 per cent showed moderate favourability, and 3.04 per cent had a less favourable attitude toward conservation. A chi-square test revealed a significant association between age and gender with attitude towards the conservation of Vilwadri cattle, with middle-aged and male respondents displaying a highly favourable attitude. No other socio-demographic factors showed significant associations

References

Anjali, K.B. and Senthilkumar, R. 2020. Attitude of Vechur Cattle farmers towards the conservation of native cattle. J. *Pharm. Innov.* **9**: 4-6

Athilakshmy, P., Manivannan, C., Vimalrajkumar, N., Kumaravelu, N. and Kathiravan, G. 2023. Development and standardization of a qualitative tool to measure the attitude of farmers towards the conservation of Nattukuttai cattle. *Indian J. Anim. Sci.* **93**: 116-119.

Bashir, B.P. 2010. Adoption of indigenous and modern animal husbandry practices among the tribes of Attapaddy in Palakkad district. *M.V.Sc thesis,* Kerala Veterinary and Animal Sciences University, Pookode, 169p.

Boettcher, P.J. and Hoffmann, I. 2011. Protecting indigenous livestock diversity. *Science* **334**: 1058-1058.

Dossa, L.H. and Vanvanhossou, F.U.S. 2016. The indigenous Somba cattle of the hilly Atacora region in North-West Benin: threats and opportunities for its sustainable use. *Trop. Anim. Health Prod.* **48**: 349-359.

Jayadevan, N., Sadana, D.K. and Abraham, B.L. 2015. Community conservation of AnGR and its role in the rural livelihood security of Kerala. In: *Compendium*, *International Symposium on Sustainable Management of Animal Genetic Resources for Livelihood Security in Developing Countries and XII Annual Convention of Society for Conservation of Domestic Animal Biodiversity*; 13th to 14th February, 2015, Chennai. Tamilnadu Veterinary and Animal Sciences University and Society for Conservation of Domestic Animal Biodiversity. pp. 179-182.

Fishman, J., Yang, C. and Mandell, D. 2021. Attitude theory and measurement in implementation science: a secondary review of empirical studies and opportunities for advancement. *Implement. Sci.* **16**: 1-10.

Kavithaa, N.V., Manivannan, C., Rajkumar, N.V., Kumarasamy, P. and Manokaran, S., 2021. Socio-economic profile of Kangayam cattle farmers of Tamil Nadu. *Pharma. Innov. J*. **10**: 147-150.

Kumar, S., Subash, S., Jangir, R. and Prasad, D. 2017. Constraints Faced by Farmers in Adoption of Indigenous Technical Knowledge Associated with Indigenous Cattle Dairy Farming in Rajasthan. *J. Community Mobilization Sustain. Dev.* **12**: 249-252.

Radhika, G., Aravindakshan, T.V., Anilkumar, K., Manoj, M. and Thomas, S. 2023. Genetic diversity analysis of cattle genetic groups of Kerala state using microsatellite data. Anim. Biotech. 34: 1154-1162.

Sreelakshmi, C.M. 2013. Attitude towards conservation and adoption of practices among the keepers of Kasaragod cattle. *M.V.Sc thesis*, Kerala Veterinary and Animal Sciences University, Pookode, 190p.

Srivastava, A.K., Patel, J.B., Ankuya, K.J., Chauhan, H.D., Pawar, M.M. and Gupta, J.P. 2019. Conservation of indigenous cattle breeds. *J. Anim. Res.* **9**: 1-12.

Tapesh, M. 2005. Conservation and improvement of indigenous cattle in Rajasthan state. *Int. J. Cow Sci.* **1**:83-86.

Verma, A.K. and Niranjan Lal, N.L. 2014. Efforts of livestock farmers in conservation of indigenous cattle breed-Kherigarh. *Indian Res. J. Ext. Edu*. **14**: 128-130.

Verma, A. K., Lal N., Avhad, S.R., Hari R. 2014. Socio - economic status of farmers rearing Kherigarh, an indigenous breed of cattle. *Asian J. Anim. Sci*. **9:**134-137

■