

International Journal of Agriculture Extension and Social Development

Volume 9; SP-Issue 2; February 2026; Page No. 84-89

Received: 12-11-2025

Accepted: 15-12-2025

Indexed Journal

Peer Reviewed Journal

Study on socio-demographic profile and constraints faced by livestock farmers in relation to control of zoonotic diseases in the state of Tripura, India

¹Bipasha Paul, ²Debasish Saha, ³Debasis Ganguli, ⁴Sanjoy Datta, ⁵Chanchal Debnath and ⁶Santanu Bera

¹Ph.D. Scholar, Department of Veterinary & Animal Husbandry Extension Education, VAS, WBUAFS, 37 & 68 Kshudiram Bose Sarani, Belgachia, Kolkata, West Bengal, India

²Assistant Professor, Department of Veterinary & Animal Husbandry Extension Education, VAS, WBUAFS, 37 & 68 Kshudiram Bose Sarani, Belgachia, Kolkata, West Bengal, India

³Professor, Department of Veterinary & Animal Husbandry Extension Education, VAS, WBUAFS, 37 & 68 Kshudiram Bose Sarani, Belgachia, Kolkata, West Bengal, India

⁴Assistant Professor, Department of Animal Genetics and Breeding, VAS, WBUAFS, 37 & 68 Kshudiram Bose Sarani, Belgachia, Kolkata, West Bengal, India

⁵Professor, Department of Veterinary Public Health and Epidemiology, VAS, WBUAFS, 37 & 68 Kshudiram Bose Sarani, Belgachia, Kolkata, West Bengal, India

⁶Professor, Department of Livestock Production and Management, VAS, WBUAFS, 37 & 68 Kshudiram Bose Sarani, Belgachia, Kolkata, West Bengal, India

DOI: <https://doi.org/10.33545/26180723.2026.v9.i2Sb.3080>

Corresponding Author: Debasish Saha

Abstract

Tripura, a tiny, hilly state in northeast India with a large livestock population, is susceptible to zoonotic diseases that pose significant risks to public health, livestock production, and the livelihoods of farmers. About 60% of human infectious diseases are zoonoses, which have a disproportionate impact on rural farming communities with limited resources. The goal of the current study was to analyse the socioeconomic situation of livestock farmers in Tripura, as well as their understanding of One Health, their outlook, their perception of zoonotic diseases, and the challenges they encounter. Between March and October 2025, the study used a semi-structured questionnaire to interview a total of 100 livestock farmers from one district chosen from each of the state's four agro-climatic regions. IBM-SPSS 21.0 was used to conduct frequency and percentage analysis for descriptive study. The majority of respondents were found to be middle-aged, moderately educated male farmers with varied livelihoods. The main barriers were ignorance and misconceptions about zoonotic illnesses, the high expense of veterinary care, inadequate waste disposal, and a lack of quarantine facilities. The adoption of preventive techniques was greatly hampered by infrastructural and economic obstacles. The results highlight the critical need for a thorough One Health-based strategy to successfully manage zoonotic illnesses in Tripura, as well as for increased veterinary extension services and focused awareness campaigns.

Keywords: Zoonotic, one health, Tripura, livestock, constraints, etc

1. Introduction

The small, hilly state of Tripura can be found in the extreme southern region of northeast India. It borders Assam, Bangladesh, and Mizoram. Bangladesh encircles Tripura on the north, south, and west. According to 20th livestock census, the total livestock population in Tripura is 13.18 Lakh, total number of cattle in the State is 7.39 Lakh and total Poultry in the State is 41.68 Lakh. The word 'Zoonosis' (Pleural: Zoonoses) was introduced by Rudolf Virchow in 1880 to include collectively the diseases shared in nature by man and animals. Later WHO in 1959 defined that Zoonoses are "those diseases and infections which are naturally transmitted between vertebrate animals and man". Zoonoses include only those infections where there is either a proof or strong circumstantial evidence for transmission

between animals and man either through contaminated food, the environment, vectors like flies or ticks, or direct contact between people and diseased animals. Zoonotic diseases have historically significantly influenced human evolution, particularly among civilizations and societies that domesticated and raised animals for sustenance and apparel. According to FAO, Zoonotic diseases incidence is common, they represent 60 percent of infectious diseases in humans. They have significant impact on the health of livestock (and therefore on food security), the health of wild animals, public health and economies. Anthrax, plague, brucellosis, influenza, bovine tuberculosis, leptospirosis, salmonellosis, spotted fever caused by Rickettsiae, rabies, several common arthropod-borne viral infections (arboviral infection), certain parasitic diseases, particularly cysticercosis, hydatid

disease, trypanosomiasis, and toxoplasmosis, are examples of the traditional zoonotic diseases that still need special attention. Not all zoonotic illnesses that are disregarded in endemic environments are. Zoonotic diseases have a significant negative influence on livestock farmers' livelihoods by impairing their health and lowering the quantity and quality of animal products, which results in significant financial losses. One significant factor influencing the risk of zoonotic illnesses in both rural and urban regions is poverty. A comprehensive initiative was launched by WHO to manage rabies in India (WHO, 2015). As a result of this initiative, the economic impact of rabies in India has significantly decreased. If a similar initiative were executed for illnesses like leptospirosis and brucellosis, the financial losses associated with these diseases in terms of both human and animal health could also be reduced. To effectively carry out such a program, gaining insights into public knowledge, awareness, and animal husbandry practices may serve as valuable tools in executing a disease awareness and control initiative (Mosalagae *et al.* 2011) [6]. In this backdrop fact, the study was conducted to find out the Socio-economic, & Constraints faced by livestock farmers in relation to zoonotic disease in the state of Tripura, India.

Materials and Methods

The present research encompassed the entire state of Tripura. According to the agro-climatic conditions, Tripura has been divided into four specific agro-climatic zones: the Mild Tropical Plain high hill zone, like as the Mid Tropical plain high hill zone, the Mild Tropical Plain mid hill zone, and the Mild Tropical Plain mid to high zone. One district from each agro-climatic zone was randomly selected, and from each district a total of 25 livestock farmers were chosen randomly. In this process total one hundred numbers of livestock farmers were selected for the study. Every farmer was interviewed using a semi-structured questionnaire. This study was conducted in Tripura from March to October 2025. The participants were interviewed to door to door visit and their responses were collected accordingly in relation to their socio-demographic profile and constraints faced regarding control of zoonotic diseases. Suitable statistical test like frequency and percentage analysis were done to illustrate different variables. For the data analysis, IBM-SPSS version 21.0 was used for the study.

Results and Discussion

Distribution of livestock farmers according to Socio-demographic profile in different agro-climatic zones

The research was concerned to find out the different socio demographic profile of the study. According from the table - 1, a significant portion of the respondents from agro-climatic zones 1, 2, 3, and 4 were male (64%), while female farmers represented (36%), highlighting a male dominance in farming practices in Tripura. Comparable results were noted by Mir and Bhat (2020) [5], who found that livestock rearing is a domain primarily occupied by men and is sensitive to gender issues. Most farmers followed Hinduism (75%) and followed by Christianity (23%), suggesting religious diversity with Hindu predominance. Another study was done by Yasobant *et al.* (2021) revealed that majority (82.4%) belong to the Hindu religion. Same Patel and

Saxena (2019) [10] found that 89% of respondents were Hindu. A majority of respondents belonged to the general caste (62%), followed by Scheduled Tribe (25%) and Scheduled Caste (12%), indicating social heterogeneity. Most farmers were middle-aged group 26-50 years (69%), followed by elderly (26%), indicating that farming activities are largely managed by experienced age groups. Similar findings were observed by Aung *et al.* (2021) [2] observed that 75% were above 40 years of age. A large proportion of respondents (71%) belonged to small families, suggesting manageable household size among the farming community. The majority of farmers had education up to middle school level (43%), followed by primary education (28%), while only (6%) had graduate-level education, indicating moderate educational attainment. Phu *et al.* (2025) [11] through his study revealed that half of the participants had primary education or lower literacy (25.3% illiterate; 27.2% primary education), while 28.7% and 18.8% had secondary and higher education. Almost all respondents were married (96%), reflecting family-oriented household structures in the study area. Namusisi *et al.* (2021) [7] observed that the majority (80.8%) were married. Cultivation (24%) and business (21%) were the major occupations, followed by service (15%) and labour work (14%), indicating occupational diversity among farmers, like Ahmed *et al.* (2023) [1] through his study revealed that majority of the respondents were non-employees (30%), Employed (25%), House wife (23.8%) and self-employed (21.3%). Agriculture and business were the dominant income sources (32% each), followed by service (18%) and labour work (13%), highlighting mixed livelihood patterns. The herd size ranged from very small holdings (0.0001) to as high as 14 animals (according to Cattle equivalents ratio, NAS - 1961), showing the presence of both marginal and relatively larger livestock farmers in the study area. Hundal *et al.* (2016) [3] noted that 79.6% of the farmers in the chosen population were small-scale farmers with a herd size of 10 or fewer. The annual family income of the farmers was low (78%) and medium (19%) indicating a modest economic status among the respondents. Rajkumar *et al.* (2016) [12] indicates that the majority of the participants are small-scale farmers, and their monthly earnings were below Rs. 10,000. Most farmers clustered between education scores of 2.89-5.77, indicating that the majority belonged to families with middle to secondary level education. A considerable proportion of respondents (62%) had no farming experience, 33% had 1-20 years farming experience. Most of the respondents from agro-climatic zones in Tripura (99%) livestock Farmers not have radios because nowadays, most people get their news and information from TV and mobile phones. Livestock farmers (98%) not have laptop and washing machine because of high cost same (99% and 100%) farmers don't have AC, microwave and iPhone because of more costly. 50% only livestock farmers in Tripura have bike for easy transportation and 50% farmers not have bike. 93% farmers not have Car only 7% have car. 69% not have bicycle only 31% have bicycle because those don't have bike they used bicycle only. Overall study found that the respondents were predominantly middle-aged, moderately educated farmers with small family sizes and diversified livelihoods, providing a relevant base for assessing awareness and impact of veterinary extension services to control of zoonotic disease prevention.

Table 1: Distribution of livestock farmers according to their demographic profile in different agro-climatic zones:

Attributes	Parameters		Agroclimatic zone				Overall
			Mild Tropical Plain Mid to High zone	Mid tropical plain high hill zone	Mild tropical plain mid hill zone	Mild tropical plain high hill zone	
			Freq (%)	Freq (%)	Freq (%)	Freq (%)	
Gender	Male		19 (76)	13 (52)	15 (60)	17 (68)	64 (64)
	Female		6(24)	12 (48)	10 (40)	8 (32)	36 (36)
Religion	Hindu		25(100)	6 (24)	23 (92)	21 (84)	75 (75)
	Muslim		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Christian		0 (0)	19 (76)	2 (8)	2 (8)	23 (23)
	Others		0 (0)	0 (0)	0 (0)	2 (8)	2 (2)
Caste	Schedule Tribe		1 (4)	18 (72)	3 (12)	3 (12)	25 (25)
	Schedule Caste		0 (0)	3 (12)	6 (24)	4 (16)	12 (12)
	Other Backward		0 (0)	0 (0)	0 (0)	1 (4)	1 (1)
	General		24 (96)	4 (16)	16 (64)	18 (72)	62 (62)
Age	Young (Up to 25 yrs)		1 (4)	3 (12)	1 (4)	0 (0)	5 (5)
	Middle aged (26-50) yrs		12 (48)	14 (56)	19 (76)	24 (96)	69 (69)
	Elderly (51 yrs and above)		12 (48)	8 (32)	5 (20)	1 (4)	26 (26)
Family size	Small (Up to-5)		21 (84)	17 (68)	22 (88)	11 (44)	71 (71)
	Medium (6-7)		4 (16)	5 (20)	3 (12)	12 (48)	24 (24)
	Large (More than 7)		0 (0)	3 (12)	0 (0)	2 (8)	5 (5)
Education	Illiterate		2 (8)	2 (8)	0 (0)	0 (0)	4 (4)
	Can read only		2 (8)	1 (4)	2 (8)	0 (0)	5 (5)
	Can read & write		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Primary		9 (36)	6 (24)	6 (24)	7 (28)	28 (28)
	Middle		7 (28)	12 (48)	11 (44)	13 (52)	43 (43)
	High School		4 (16)	4 (16)	2 (8)	4 (16)	14 (14)
	Graduate and above		1 (4)	0 (0)	4 (16)	1 (4)	6 (6)
Marital status	Married		24 (96)	24 (96)	25 (100)	23 (92)	96 (96)
	Unmarried		1 (4)	0 (0)	0 (0)	2 (8)	3 (3)
	Widow		0 (0)	1 (4)	0(0)	0(0)	1 (1)
	Divorced		0 (0)	0 (0)	0(0)	0(0)	0 (0)
Occupation	Labour		5 (20)	2 (8)	5 (20)	2 (8)	14 (14)
	Caste Occupation		0(0)	0 (0)	0 (0)	0(0)	0 (0)
	Business		5 (20)	6 (24)	5 (20)	5 (20)	21 (21)
	Independent		5 (20)	0 (0)	3 (12)	0 (0)	8 (8)
	Cultivation		4 (16)	9 (36)	3 (12)	8 (32)	24 (24)
	Service		2 (8)	4 (16)	3 (12)	6 (24)	15 (15)
	A.H.		0 (0)	0 (0)	2 (8)	0(0)	2 (2)
	Any other		4 (16)	4 (16)	4 (16)	4 (16)	16 (16)
Major source of income	Agriculture		8 (32)	9 (36)	4 (16)	11 (44)	32 (32)
	Dairying/ Poultry/ any other livestock farming		1 (4)	0 (0)	3 (12)	0(0)	4 (4)
	Service		4 (16)	3 (12)	5 (20)	6 (24)	18 (18)
	Business		8 (32)	11 (44)	6 (24)	7 (28)	32 (32)
	As a labourer		4 (16)	2 (8)	7 (28)	1 (4)	13 (13)
	Any other		0 (0)	0 (0)	0 (0)	0(0)	0 (0)
Herd size (Cattle equivalents of livestock)	.0001-4.666		17 (68)	18 (72)	17 (68)	24 (96)	76 (76)
	4.667-9.333		8 (32)	6 (24)	7 (28)	1 (4)	22 (22)
	9.334-14.000		0 (0)	1 (4)	1 (4)	0(0)	2 (2)
Family income /annum	Low (15,000-1,76,666)		21 (84)	20 (80)	19 (76)	18 (72)	78 (78)
	Medium (1,76,67-3,53,23)		4 (16)	5 (20)	4 (16)	6 (24)	19 (19)
	High (3,53,24-5,00,000)		0 (0)	0 (0)	2 (8)	1 (4)	3 (3)
Family education	1.33-2.88		13(52)	12 (48)	4 (16)	3 (12)	32 (32)
	2.89-5.77		12 (48)	13 (52)	21 (84)	21 (84)	67 (67)
	5.78-6.00		0 (0)	0 (0)	0 (0)	1 (4)	1 (1)
Farming experience in years	No experience		8 (32)	19 (76)	16 (64)	19 (76)	62 (62)
	1-20 years		15 (60)	5 (20)	7 (28)	6 (24)	33 (33)
	More than 20 years		2 (8)	1 (4)	2 (8)	0(0)	5 (5)
Material possession	Radio	No	24 (96)	25 (100)	25 (100)	25 (100)	99 (99)
		Yes	1 (4)	0 (0)	0 (0)	0(0)	1 (1)
	TV	No	9 (36)	12 (48)	2(8)	4 (16)	27 (27)
		Yes	16 (64)	13 (52)	23(92)	21 (84)	73 (73)
	Android mobile	No	6 (24)	1 (4)	5(20)	0(0)	12 (12)
		Yes					

		Yes	19 (76)	24 (96)	20(80)	25 (100)	88 (88)
		No	25(100)	25 (100)	24 (96)	24 (96)	98 (98)
	Laptop	Yes	0 (0)	0 (0)	1 (4)	1 (4)	2 (2)
		No	13 (52)	15 (60)	11 (44)	11 (44)	50 (50)
	Bike	Yes	12 (48)	10 (40)	14 (56)	14 (56)	50 (50)
		No	25(100)	20 (80)	24 (96)	24 (96)	93 (93)
	Car	Yes	0 (0)	5 (20)	1 (4)	1 (4)	7 (7)
		No	17 (68)	17 (68)	15 (60)	12 (48)	61 (61)
	Refrigerator	Yes	8 (32)	8 (32)	10 (40)	13 (52)	39 (39)
		No	25(100)	25 (100)	24 (96)	25 (100)	99 (99)
	AC	Yes	0 (0)	0 (0)	1 (4)	0(0)	1 (1)
		No	25(100)	25 (100)	24 (96)	25 (100)	99 (99)
	Microwave oven	Yes	0 (0)	0 (0)	1 (4)	0(0)	1 (1)
		No	25(100)	24 (96)	25 (100)	24 (96)	98 (98)
	Washing machine	Yes	0 (0)	1 (4)	0 (0)	1 (4)	2 (2)
		No	12 (48)	19 (76)	17 (68)	21 (84)	69 (69)
	Bicycle	Yes	13 (52)	6 (24)	8 (32)	4 (16)	31 (31)
		No	25(100)	25 (100)	25 (100)	25 (100)	100 (100)
	iPhone	Yes	0 (0)	0 (0)	0(0)	0(0)	0 (0)
		No	25(100)	25 (100)	23 (92)	25 (100)	98 (98)
	Any other	Yes	0 (0)	0 (0)	2 (6)	0 (0)	2 (2)

Constraints faced by farmers in relation to control of zoonotic diseases of Tripura, India

An overwhelming majority (96%) of livestock farmers faced constraints due to the absence of quarantine facilities, limiting proper isolation and control of infected animals. Most respondents (92%) perceived diagnostic tool as expensive, highlighting economic barriers to timely disease control. Similar types of the study were found from Iversen *et al.* (2010) ^[4] identified that Farmers discovered a number of external barriers s including lack of knowledge and both cultural and economic pressure from society and industry. A large proportion of farmers (85%) reported lack of proper waste disposal as a constraint, increasing environmental and public health risks. More than four-fifths of the respondents (82%) experienced misunderstanding regarding biosecurity measure, indicating serious knowledge gaps. Nearly two-thirds of the respondents (63%) were reluctant to to change traditional farming practices, reflecting behavioral resistance. More than half of the farmers (56%) reported misconceptions regarding zoonotic diseases transmission, contributing to improper practices. Over half of the respondents (54%) perceived zoonotic diseases as complex disease regulation, making them difficult to understand and manage. Nearly half of the farmers (49%) reported lack of insurance as a constraint, increasing financial vulnerability during disease outbreaks. About 48% of respondents relied on traditional beliefs and cultural practices, which may hinder adoption of scientific disease control measures. More than two-fifths (43%) experienced delays in government response veterinary or extension services, affecting timely disease management. Like, Shekhawat *et al.* (2024) ^[13] found that a heterogeneous array of obstacles exists, encompassing insufficient awareness among agricultural producers, inadequate governmental assistance, and challenges related to prompt identification. About 42% of farmers faced constraints related to lack of adequate livestock housing, affecting management decisions. More than one-fourth (28%) reported lack of loan as a constraint

in disease prevention practices. About (26%) of respondents faced shortages of clean water, limiting hygiene and biosecurity practices. Where as Ngoshe *et al.* (2023) ^[9] observed that the most significant challenges identified include water scarcity, limited grazing land, livestock theft, and restrictions on animal movement, and animal diseases as the most significant challenges they faced regarding animal production. One-fifth of the farmers (20%) reported high cost of medicines as a constraint in treating zoonotic diseases. About 17% of respondents identified general economic loss due to mortality as a limiting factor in adopting preventive measures. A small proportion (12%) reported lack of clear government guidelines on zoonotic disease control. Only 9% of farmers identified Difficulty reaching veterinary services due to long distance as a constraint, indicating localized impact. Very few respondents (3%) reported poor roads as a constraint, suggesting limited infrastructural impact. Only 2% of farmers reported language barriers, indicating minimal communication issues related to language. A negligible proportion (2%) identified poor internet connectivity as a constraint. Only 1% reported vaccine cost as a constraint, suggesting vaccines were largely affordable or available. Transportation issues were reported by only 1% of respondents, indicating minor logistical barriers. Only 1% reported shortages of inputs, showing limited supply-side constraints. A negligible proportion (1%) reported lack of trust as a constraint. None of the respondents (0%) perceived weather as a constraint in zoonotic disease control. No farmers (0%) identified gender roles as a constraint, indicating no perceived gender-based barriers. From the study found that, farmers faced severe access-related, infrastructural, economic, and knowledge-based constraints, while technological and gender-related issues were minimal, clearly underscoring the need for stronger veterinary outreach, infrastructure development, and intensive One Health-based awareness programmes in Tripura.

Table 2: Constraints faced by livestock farmers in relation to control of zoonotic diseases of Tripura, India

Sl. No.	Constraints	Score	Rank
1.	Lack of quarantine facilities	96	I
2.	Expensive diagnostic tests	92	II
3.	Lack of proper waste disposal methods	85	III
4.	Misunderstand the biosecurity measures	82	IV
5.	Farmers reluctant to change traditional farming practices	63	V
6.	Misconceptions about disease transmission	56	VI
7.	Complex disease control regulations	54	VII
8.	Insurance unavailable	49	VIII
9.	Traditional beliefs and cultural practices	48	IX
10.	Delays in government responses	43	X
11.	Lack of livestock housing	42	XI
12.	Lack access to loans	28	XII
13.	Lack of water sources	26	XIII
14.	High cost of medications	20	XIV
15.	Economic losses due to mortality	17	XV
16.	Lack of government guidelines	12	XVI
17.	Difficulty reaching veterinary services due to long distances	9	XVII
18.	Poor road conditions	3	XVIII
19.	Language or literacy barriers	2	XIX
20.	Poor internet or mobile network	2	XX
21.	High cost of vaccines	1	XXI
22.	Difficulty transporting	1	XXII
23.	shortage Shortage veterinarians or paravets	1	XXIII
24.	Lack of trust between farmers and veterinary professionals	1	XXIV
25.	Extreme weather conditions	0	XXV
26.	Gender roles limit certain groups (e.g., women)	0	XXVI

Conclusion

The study revealed that, livestock farmers in Tripura struggle with significant infrastructural, economic, and informational obstacles in controlling zoonotic diseases. The health hazards to both animals and people are greatly increased by ignorance, misconceptions, and a dearth of quarantine and waste disposal infrastructure. Additionally, timely disease control is hampered by the high perceived costs of veterinary care. Even with few obstacles due to technology access and comprehension are still significant gaps. A One Health-based, awareness-driven strategy for improving veterinary extension services is vital for effectively preventing zoonotic diseases in Tripura.

References

- Ahmed ZA, Salah HM, Mohamed MOS, Mio JB. Public health awareness status of zoonotic diseases in Mogadishu-Somalia. *American Journal of Aquaculture and Animal Science*. 2023;2(1):7-12.
- Aung EEP, Htun NMM, Soe PP. Impact of health education on preventive measures of rabies among primary school teachers in Mandalay, Myanmar. *International Journal of Community Medicine and Public Health*. 2021;8:1558-1564.
- Hundal JS, Sodhi SS, Gupta A, Singh J, Chahal US. Awareness, knowledge, and risks of zoonotic diseases among livestock farmers in Punjab. *Veterinary World*. 2016;9(2):186-191.
- Iversen JE, Cook AJC, Watson E, Nielen M, Larkin L, Wooldridge M, *et al*. Perceptions, circumstances and motivators that influence implementation of zoonotic control programs on cattle farms. *Preventive Veterinary Medicine*. 2010;93:276-285.
- Mir I, Bhat AH. Knowledge and risks of zoonotic diseases among livestock farmers in Budgam district of Kashmir Valley, India. *International Journal of Current Microbiology and Applied Sciences*. 2020;9(4):2924-2934.
- Mosalagae D, Pfukenyi DM, Matope G. Milk producers' awareness of milk-borne zoonoses in selected smallholder and commercial dairy farms of Zimbabwe. *Tropical Animal Health and Production*. 2011;43:733-739.
- Namusisi S, Mahero M, Travis D, Pelican K, Robertson C, Mugisha L. A descriptive study of zoonotic disease risk at the human-wildlife interface in a biodiversity hot spot in South Western Uganda. *PLoS Neglected Tropical Diseases*. 2021;15(1):e0008633.
- National accounts statistics 1961. Cattle equivalents different categories of livestock. New Delhi: Central Statistical Organisation; 1961.
- Ngoshe YB, Etter E, Gomez-Vazquez JP, Thompson PN. Knowledge, attitudes, and practices of communal livestock farmers regarding animal health and zoonoses in far northern KwaZulu-Natal, South Africa. *International Journal of Environmental Research and Public Health*. 2023;20:511-520.
- Patel K, Saxena D. Self-reported selected zoonotic diseases among animal handlers in urban Ahmedabad, India. *Veterinary World*. 2019;12(1):176-182.
- Phu TG, Hung TG. The socioeconomic characteristics influencing knowledge, attitudes, and practices in toxocariasis prevention among the adult Khmer population in Tra Vinh province, Vietnam. *Asian Pacific Journal of Tropical Medicine*. 2025;18(12):541-550.
- Rajkumar K, Bhattacharya A, David S, Hari Balaji S, Hariharan R, Jayakumar M, *et al*. Socio-demographic

- study on extent of knowledge, awareness, attitude, and risks of zoonotic diseases among livestock owners in Puducherry region. *Veterinary World*. 2016;9(9):1018-1024.
13. Shekhawat SS, Tanwar M, Bishnoi P. A comprehensive study on the management of avian influenza outbreaks in poultry farms: Perspectives of veterinary practitioners in Rajasthan. *Veterinary Practitioner*. 2024;25(1):146-150.
 14. World Health Organization. Zoonoses. Geneva: World Health Organization; 2015.
 15. Yasobanta S, Bruchhausen W, Saxena D, Memon FZ, Falkenberg T. Health system contact and awareness of zoonotic diseases: Can it serve as one health entry point in the urban community of Ahmedabad, India? *Yale Journal of Biology and Medicine*. 2021;94:259-269.
 16. 20th livestock census. New Delhi: Department of Animal Husbandry and Dairying, Government of India; 2019.