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Constraints faced by livestock farmers of Braj during the prevalence of zoonotic diseases and utilization of podcast

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Abstract

Introduction: The livestock sector in India has experienced significant growth due to evolving consumer preferences for animal-source foods. This surge has positioned the livestock sector as a major contributor to agricultural GVA, driving economic development. However, the expansion has also heightened interactions at the livestock-wildlife-human interface, increasing the risk of zoonotic disease transmission, particularly in low-income regions where shared grazing lands are common.

Objective: To assess the constraints faced by livestock farmers of Braj during the prevalence of zoonotic diseases and utilization of podcast.

Methodology: The study was conducted in Uttar Pradesh, selected for its highest livestock population and milk production in India. It focused on Agra and Aligarh Divisions, with four districts purposively chosen. The sample included 80 livestock farmers (20 from each district) who owned at least two livestock units, had a minimum of two years of experience in animal husbandry, and used ICT tools for information. Data was collected through face-to-face interviews using a semi-structured interview schedule.

Results and Discussion: Data from 80 farmers revealed that the unavailability of veterinarians, high medication costs, and a lack of awareness about zoonotic risks were the most critical challenges. Moderately ranked issues included insufficient testing, inadequate training and poor stakeholder collaboration. Findings underscore the need for improved veterinary services, enhanced farmer education and accessible information dissemination via digital tools and localized training. Empowering farmers with practical knowledge and resources is essential to mitigate zoonotic risks, safeguard animal and human health and sustain economic growth. Proactive measures will ensure resilience in the livestock sector against emerging and re-emerging diseases.

Keywords: Zoonotic diseases, constraints, ICT tools, podcast

Introduction

Driven by changes in consumer preferences towards animal-source foods India's livestock sector has seen robust growth. Between 2010-11 and 2019-20, the GVA from the livestock sector grew at an unprecedented annual rate of 7.60%. This growth rate is comparable to the overall economic growth, but it exceeds the agricultural growth rate by twice and the growth rate of the dominant crop sector by five times. The livestock sector has become a key driver of agricultural growth increasing its share to nearly 30.00% of the agricultural GVA (Birthal, 2022) [3]. The expansion of livestock production to meet rising demands has heightened interactions at the interface of livestock, wildlife and humans creating more opportunities for the transmission of zoonotic diseases. Zoonoses, infectious diseases that have crossed from animals to humans can be bacterial, viral, parasitic or involve unconventional agents and can spread through direct contact with contaminated food, water or the environment as stated by the World Health Organization

(WHO, 2010) [10]. Particularly in low-income countries where livestock farming is prevalent and communities rely heavily on shared grazing lands near protected areas, zoonotic diseases impose significant burdens due to population pressures. Recent outbreaks of diseases among livestock have led to considerable economic and social losses for farmers. The rise in emerging and re-emerging diseases has had profound effects on livestock farmers affecting their health and diminishing the quantity and quality of animal products leading to substantial economic losses. This economic downturn further impairs the livestock product market due to decreased consumer confidence (Awosanya and Akande, 2015) [1]. The social costs associated with animal infectious diseases can be substantial, encompassing direct losses in terms of human and animal health, as well as indirect losses stemming from reduced business activity and environmental impacts during and after epidemic events. Previous reports revealed that about 50.00% of the farmers have medium level of adoption

of farm biosecurity measures whereas 20.00% reported a low level of biosecurity (Panda *et al.*, 2024) ^[7]. Additionally, the costs of preventive measures such as culling of farm and wild animals and implementing monitoring and preparedness strategies further add to the economic burden.

Methodology

The present study was undertaken in the state of Uttar Pradesh. The said area was purposively selected as it is having highest livestock population and highest milk producer in the country (BAHS, 2023) ^[2]. The Braj region was selected purposively which spans parts of western Uttar Pradesh and includes areas deeply linked to the life of Lord Krishna. Its core lies in Mathura and Vrindavan, extending to nearby towns like Barsana, Gokul, Nandgaon, and Govardhan. Additionally, parts of Agra, Aligarh, Hathras, Etah, and Mainpuri are considered under Braj's cultural influence. Agra and Aligarh Division of Uttar Pradesh were chosen for the study. Two districts from each division were purposively selected for study namely Agra, Mathura from Agra Division and Aligarh, Hathras from Aligarh division. The sample for the study were livestock farmers who possessed at least 2 livestock unit/cattle equivalent at their doorstep and had minimum 2 years of experience in animal keeping and is using ICT tools for availing information. From each district, 20 farmers were chosen randomly for data collection making the total sample size of 80. Data collection tool used for the survey was face-to-face interview through semi-structured interview schedule. Constraints are the problems perceived by the farmers during the prevalence of zoonotic diseases. It was estimated with the help of following formula.

Constraints encountered during the prevalence of zoonotic diseases were estimated by using Rank Based Quotient (RBQ) test. RBQ was estimated using the RBQ formula developed by Sabarathnam and Vennila (1996).

$$RBQ = \frac{\sum_{i=1}^n (F_i)(n+1-i)}{Nn} \times 100$$

Where,

F_i = Frequency of farmers for the i^{th} rank of the technological need

N = Number of farmers

n = Number of ranks

Σ = it directs to sum the multiplication factor

Results

Possession of ICT tool

The data presented in 1 highlight distinct patterns in the adoption of Information and Communication Technology (ICT) tools among respondents. Notably only 6.25% of respondents own a radio indicating its declining prevalence. In contrast television and Android mobile phones are universally owned by all respondents (100.00%) underscoring their widespread accessibility and significance. Similarly laptops or computers are owned by only 10.00% of respondents indicating that these devices are less common among the group.

Table 1: Possession of ICT tool

S. No.	Possession of ICT tool	Frequency	Percentage
1.	Radio	5	6.25
2.	Television	80	100.00
3.	Mobile (Android)	80	100.00
4.	Laptop/Computer	8	10.00

Constraints related to prevalence of zoonotic diseases

The analysis of constraints related to zoonotic diseases in animal husbandry reveals several key issues and presented in Table 2. It is observed that the most significant constraint is the non-availability of veterinarians at the village level (RBQ 72.81) ranking first followed by the high cost of medicine (RBQ 68.59) and lack of awareness and inadequate knowledge among farmers regarding the risks of zoonotic diseases (RBQ 65.94) which ranks second and third respectively. The moderately concerning issues identified were testing animals for zoonotic diseases before purchase (RBQ 50.47), the lack of training on zoonotic diseases provided by state-run extension agencies (RBQ 50.31) and poor collaboration among relevant stakeholders and extension agencies (RBQ 48.13). On the other hand, the absence of self-vaccination practices among farmers when handling animals with zoonotic diseases (RBQ 47.50) and the lack of personal hygiene and protective measures among farmers (RBQ 46.25) were regarded as the least concerning constraints by the respondents.

Table 2: Ranking of constraints faced by respondents during the prevalence of zoonotic diseases according to RBQ

S. No.	Constraint	RBQ	Rank
1	Lack of awareness and inadequate knowledge regarding risk of zoonotic diseases	65.94	III
2	No testing of animals for zoonotic diseases before purchasing	50.47	IV
3	No self-vaccination of farmers while handling zoonotic disease animals	47.50	VII
4	Lack of personnel hygiene and personnel protection	46.25	VIII
5	Poor collaboration among all relevant stakeholders and extension agency	48.13	VI
6	Lack of training regarding zoonotic diseases provided by state run extension agencies	50.31	V
7	Non availability of Veterinarian at village level	72.81	I
8	High cost of medicine	68.59	II

Constraints related to use of podcast

The analysis of Table 3 reveals several significant issues or constraints faced by users in utilizing podcasting platforms. The primary constraint is the inability to find relevant

content (RBQ 81.56) rank first followed by disturbances due to unwanted advertisements (RBQ 80.31) rank second and unsuitable and incomprehensible information (RBQ 79.38) ranks third.

Table 3: Ranking of constraints faced by respondents using podcast according to RBQ

S. No.	Constraint	RBQ	Rank
1	Inadequate information about podcasting platforms	67.03	VI
2	Unable to find relevant content	81.56	I
3	Lack of skills to use ICT gadgets	73.44	IV
4	Disturbance due to unwanted advertisement	80.31	II
5	Unable to understand due to language issue	59.22	IX
6	Poor network and speed	61.09	VII
7	High consumption of data/High cost of data pack	69.38	V
8	Interrupted power supply	60.94	VIII
9	Inadequate time to use	55.16	X
10	Unsuitable and incomprehensible information	79.38	III

The moderately concerning issues included a lack of skills in using ICT gadgets (RBQ 73.44), high data consumption and the associated cost of data packs (RBQ 69.38), inadequate information about podcasting platforms (RBQ 67.03) and poor network quality and speed (RBQ 60.94). On the other hand, difficulty in understanding podcasts due to language barriers (RBQ 59.22) and insufficient time to use the platforms (RBQ 55.16) were the least concerning problems faced during use of podcast.

Discussion

The consistent results were recorded by Gamit *et al.* (2021) ^[4] in Uttar Pradesh that Non-availability of timely treatment facilities and lack of knowledge of common contagious diseases, their prevention and control measures were the major constraints encountered by respondents additionally Singh *et al.* (2017) mentioned that among dairy farmers in Uttar Pradesh unavailability of timely treatment facilities followed by a lack of knowledge regarding common contagious diseases and their prevention and control measures were the most significant problems. Hence, it is of paramount importance that farmers be aware about the disease prevention measures to be practiced to maintain good health of animals and improve the quality of production (Panda *et al.*, 2023) ^[8]. Close findings were reported by Minhaj *et al.* (2019) ^[6] in dairy farmers of Doda district that high treatment costs for animals (ranked 1st) and the distant location of veterinary hospitals/centers (ranked 2nd) were the top constraints. Sheikh *et al.* (2019) ^[9] also revealed that the high cost of treatment as the most significant constraint concerning healthcare practices followed by the distant location of veterinary hospitals.

Highlights

- **ICT Tool Possession:** All respondents owned a television and an android mobile phone, indicating these are the most accessible ICT tools. In contrast, only 6.25% had a radio and 10% owned a laptop/computer, highlighting limited access to more traditional and advanced devices.
- **Zoonotic Disease Constraints:** The top constraints in managing zoonotic diseases were non-availability of veterinarians in villages (RBQ 72.81), high cost of medicine (RBQ 68.59), and lack of awareness about disease risks (RBQ 65.94).

Podcast Use Challenges: The major issues with podcast platforms included inability to find relevant content (RBQ 81.56), disturbances from advertisements (RBQ 80.31), and

unsuitable or incomprehensible information (RBQ 79.38), reflecting content and accessibility concerns.

Conclusion

Among the eight enlisted constraints, the respondents reported that the non-availability of veterinarians at the village level followed by the high cost of medicine and lack of awareness and inadequate knowledge among farmers regarding the risks of zoonotic diseases were the major constraints. Focus should be given towards efficient door step veterinary service delivery by veterinary professionals. Enhancing knowledge across various dimensions of disease control and prevention is essential for effective implementation and adoption. This can be achieved by providing credible and well-structured information, coupled with targeted training programs. Such initiatives play a crucial role in building awareness, improving understanding, and fostering compliance among stakeholders. To maximize the impact of these efforts, it is vital to create innovative and accessible sources of information that cater to diverse audiences. User-friendly formats, such as interactive digital platforms, video tutorials, and mobile applications, can make complex concepts more comprehensible and engaging. Additionally, localized content tailored to specific cultural and regional contexts will ensure that the information is relevant and relatable. Workshops, simulations, and on-site demonstrations can provide hands-on experience, reinforcing theoretical understanding. Collaboration with experts, institutions, and local communities will further enhance the credibility and reach of these initiatives.

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