P-ISSN: 2618-0723
E-ISSN: 2618-0731

NAAS Rating: 5.04
www.extensionjournal.com

International Journal of Agriculture Extension and Social Development

Volume 7; Issue 11; November 2024; Page No. 158-161

Received: 02-08-2024
Accepted: 04-09-2024

Indexed Journal
Peer Reviewed Journal

Adoption of scientific animal health practices among women dairy farmers in Himachal Pradesh: An ex post facto research study

[1]Devesh Thakur, [1]Rakesh Ahuja, [1]Manoj Sharma, [2]Krishanender Dinesh, [3]Madhu Suman Sambyal and [1]Sanjay Kumar Khurana

[1]Department of Veterinary and Animal Husbandry Extension Education, Dr. G.C. Negi College of Veterinary and Animal Sciences, Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishwavidyalaya, Palampur, Himachal Pradesh, India

[2]Department of Animal Genetics and Breeding, Dr. G.C. Negi College of Veterinary and Animal Sciences, Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishwavidyalaya, Palampur, Himachal Pradesh, India

[3]Department of Animal Nutrition, Dr. G.C. Negi College of Veterinary and Animal Sciences, Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishwavidyalaya, Palampur, Himachal Pradesh, India

DOI: https://doi.org/10.33545/26180723.2024.v7.i11c.1300

Corresponding Author: Devesh Thakur

Abstract

Adoption of new ideas and technologies is a vital decision to enhance output and efficiency while mitigating losses.Past research indicates that both technological characteristics and socio-demographic factors play important roles in determining the adoption of innovations. Consequently, it is imperative to study user behavior concerning adoption decisions. Women farmers play a central role in dairy farming in India. Understanding their adoption behavior can help in designing targeted interventions and support systems to facilitate the uptake of beneficial practices. The current study assesses the overall level and item-wise extent of adoption of scientific animal health practices by women dairy farmers in the Kangra district of Himachal Pradesh.Data were collected through semi-structured interview schedule from 150 women dairy farmers of small, medium, and large herd sizes.Results indicate varying levels of adoption among different herd sizes, with medium-herd sized women farmers demonstrating the highest adoption rates. Practices such as dung removal and vaccination were widely adopted, while others, like udder washing and allopathic medicine use, showed lower adoption rates. Socio-demographic factors were found to influence adoption behavior among women dairy farmers. Tailored interventions addressing these socio-demographic factors can facilitate widespread adoption among women dairy farmers and improve overall productivity in the dairy sector in the region.

Keywords: Adoption of new ideas, technological adoption, socio-demographic factors, innovation adoption, women farmers

Introduction

Dairy farming plays a vital role in the agricultural landscape, contributing significantly to food security, rural livelihoods, and economic growth. The adoption of scientific practices in dairy farming is crucial for enhancing productivity, improving animal welfare and ensuring the sustainability of the dairy industry. (Nimbalkar *et al*., 2021; Quddus, 2013) [6, 10]. With approximately 92.6 lakh women actively engaged in dairy farming across India, often alongside their household responsibilities, it is evident that women constitute a substantial and indispensable segment of the dairy farming (Patel and Mitra, 2015) [9]. Throughout India's dairy landscape, women assume pivotal roles in various facets of animal husbandry, milk production, and farm management, as underscored by previous studies (Lahoti *et al*., 2012; Pandya *et al*., 2014) [4, 8]. However, while their contributions are undeniable, understanding the factors that influence the adoption of scientific animal health practices among women farmers remains an area to be studied (Yami *et al*., 2024) [13]. Despite existing research providing valuable insights into various aspects of dairy farming and women's involvement therein, a notable gap persists in our understanding of the specific factors driving the adoption of scientific health practices among women dairy farmers. Addressing this gap is critical for devising effective strategies aimed at promoting sustainable dairy farming practices that align with modern scientific advancements. To achieve this objective, the study employed a comprehensive approach, encompassing data collection through semi-structured interviews, rigorous analysis of the collected data, and interpretation of findings. By systematically addressing these components, the research was planned to offer insights that can inform the development of targeted interventions aimed at enhancing the uptake of scientific animal health practices among women dairy farmers.

Materials and Methods

This study was carried out in the Kangra district of Himachal Pradesh, focusing on the two blocks of Palampur and Baijnath. These locations were selected due to their proximity to the state's only government veterinary college situated in Palampur. The Department of Veterinary & Animal Husbandry Extension Education of Dr. G.C. Negi

College of Veterinary & Animal Sciences organized five National Commission of Women (NCW)-funded on-campus dairy training programs between September 2022 and February 2023. Each training session spanned five consecutive days and provided participants with theoretical and practical exposure to scientific dairy health practices. The participants were selected from villages in both the Palampur and Baijnath blocks

A total of 150 women dairy farmers from ten nearby villages were involved in the training program. Out of 150 women dairy household farmers 131were residing close (less than 1 Km) to the nearest veterinary dispensary headed by a veterinary pharmacist. Likewise, 107out of 150 farmers had the nearest veterinary hospital within 5kilometers range of distance. For all the respondents, maximum observed extent of range for nearest veterinary dispensary, nearest veterinary hospital and veterinary college was under 5 Km, 10 Km and 20 Km, respectively.

These farmers were actively engaged in dairy farming, recommended by local veterinary or para-veterinary staff, and randomly chosen from a provided list. To evaluate the adoption of scientific dairy health practices, a semi-structured interview schedule was administered. Prior to the training, a schedule was developed to assess the existing level of adoption of scientific animal health management among women dairy farmers. Based on the number of milch bovines being reared in their dairy farms, farmers were categorized into three groups: small (1-2 milch animals), medium (3-5 milch animals), and large (more than 5 milch animals).

The interview schedule was developed as per the methodology provided by Kerlinger, 1973 [2]. The extent of item-wise adoption of each animal health practice was studied in three-point continuum scale and Total Score (TS) of each item statement was calculated by summing up the scores obtained by each farmer.

For each item statement of animal health practices, the mean score (MS) was calculated by dividing the total obtained score by the number of respondents.

Mean Score for each item statement= (Total Obtained Score/Number of Respondents)

Mean Percentage Score (MPS) was calculated by dividing the Mean Score by the maximum possible score of the category and then multiplying by 100

Mean Percent Score (MPS) = (Mean Score of the Category /Maximum possible Score) ×100

Ranking of various categories of information sources was done based on MPS. For interpretation of data, analyses such as percentage, mean score, standard error, correlation, were performed using Statistical Package for Social Sciences (SPSS).

Results and Discussion

Level of adoption of scientific animal health practices

Table 1 depicts that the majority (55.43%) of small farmers had a medium level of adoption regarding scientific animal health management practices. Similarly, the majority (64.86%) of medium-sized farmers exhibited a high level of adoption in this regard, while the majority (57.14%) of large farmers demonstrated a medium level of adoption. Furthermore, pooled analysis revealed that majority 47.33% of farmers had a medium level of adoption, followed by 37.33 and 15.33 percentage of farmers had a higher and lower level of adoption lower adoption level of scientific animal health management practices, respectively. The average adoption score of the respondents was 10.57. This indicates a significant proportion of farmers falling into the medium and high adoption categories, suggesting an overall positive trend towards the adoption of scientific animal health management practices. However, the presence of a considerable portion of farmers with lower adoption levels underscores the need for targeted interventions and support mechanisms to promote the uptake of modern practices across all herd sizes.

Item-wise extent of adoption of scientific Dairy Feeding Practices

Table 2 depicts item wise adoption trends among women dairy farmers across different categories. Among small-herd sized dairy farmers, the most adopted practices included the removal of cow dung around the animal or on its body and cleaning it (I), vaccinating animals against infectious diseases such as FMD (II), and administering deworming medicine to milch animals at intervals of 3 months (III).Medium-herd sized farmers also favored the removal of cow dung around the animal or on its body and cleaning it (I), isolation of sick animal from healthy animals etc. (II), and deworming to animals of all ages at intervals of 3 to 6 months (III).Among large herd sized farmers, the most adopted practices were the removal of cow dung around the animal or on its body and cleaning it (I), and administering deworming medicine to milch animals at intervals of 3 months (II) &vaccinating animals against infectious diseases such as FMD (III).

Pooled analysis revealed the highest adoption rates were observed for practices such as the removal of cow dung around the animal or on its body and cleaning it (I), vaccinating animals against infectious diseases like FMD (II) and administering deworming medicine to milch animals at intervals of 3 months. Jogal *et al.* 2021 [3] in their study in Rajkot Gujarat reported that cleaning and washing of animals was practiced by 90% of respondents. Thakur *et al.* (2024) [12] in their study reported that regions with ample veterinary access provide opportunities for women to access animal healthcare, vaccination, and training. Enhanced access to these resources positively influences adoption. Further, it can be concluded that basic hygiene practices like dung removal may be relatively easier and inexpensive to implement compared to more complex procedures.

Sathisha *et al.* (2018) [11] in their study involving commercial farmers in Karnataka reported that majority of respondents had adopted regular vaccination for FMD, HS and BQ, regular deworming and regular checking of animal for disease. Godara *et al.* (2018) [1] in their study in Bikaner, Rajasthan reported that highest adoption was found in vaccination of the animals among different health care practices with adoption index of 37.50 and ranked first. This might be due to the government run vaccination programme for cattle and buffaloes.

Conversely, practices like washing the udders of milch animals with KMNO4 before milking (VIII) and using allopathic medicines to protect milch animals from infection (VII) were the least adopted animal health management practices. These least adopted practices, such as washing udders with KMNO4 before milking, may face barriers related to accessibility, cost, or perceived efficacy. Similarly, use of allopathic medicines may be perceived as costly or unnecessary if farmers rely on traditional remedies or observe fewer instances of animal illness. In summary, the observed adoption trends reflect a complex interplay of factors including accessibility, cost, cultural beliefs, and perceptions of efficacy.

Relationship between personal attributes of women dairy farmers and their adoption of scientific animal health practices

In table 3 correlation analysis of adoption of scientific animal health practices with the socio-economic characteristics of women dairy farmers revealed that for small-herd sized farmers: those with higher exposure to mass media exhibited a negative and correlation with the adoption of scientific animal health practices. This suggests that mass media might hold merely entertainment value for these farmers, lacking educational impact, particularly for women farmers. Nwafor and Nwafor (2022) [7] reported that radio and television sources were scored low in accessing livestock related information by farmers in South Africa which underlines their poor perceived usefulness. Mdoda *et al*. 2022 reported that among smallholder farms, female farmers are 21% points less likely to use media for agricultural purposes relative to male farmers

In contrast, among medium-scale farmers, a negative and significant correlation was observed with age, while positive and significant correlations were found with education and social participation.

The overall correlation analysis highlights a positive and significant relationship between market orientation (5% level of significance) and the adoption of scientific animal health practices. Thus, it can be said that women dairy farmers with a stronger market orientation were more inclined to adopt scientific animal health practices. Thakur *et al*. 2024 [12] in their study in Kangra district also reported that market orientation was significantly correlated with scientific animal feeding practices (At a 1% level of significance).

Table 1: Level of adoption of scientific dairy health practices by women dairy farmers

Category	Small Farmers (92)		Medium Farmers (37)		Large Farmers (21)		Overall (150)	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Low (5-8)	15	16.30	5	13.51	3	14.29	23	15.33
Medium (9-12)	51	55.43	8	21.62	12	57.14	71	47.33
High (13-16)	26	28.26	24	64.86	6	28.57	56	37.33
Mean	10.66		1084		9.71		10.57	
SD	2.47		4.28		3.55		3.16	

Table 2: Item - wise extent of adoption of scientific animal health management practices among women dairy farmers

Sr. No.	Items/Areas	Small Farmers (92)				Medium Farmers (37)				Large Farmers (21)				Overall (150)			
		Total Score	MS	MPS	Rank	Total Score	MS	MPS	Rank	Total Score	MS	MPS	Rank	Total Score	MS	MPS	Rank
1.	I give deworming medicine to milch animals after interval of 3 months.	131	1.42	71.20	III	51	1.38	68.92	IV	30	1.43	71.43	II	212	1.41	70.67	III
2.	I give deworming medicine to animals of all ages at an interval of 3 to 6 months.	129	1.40	70.11	IV	45	1.22	60.81	VI	26	1.24	61.90	III	200	1.33	66.67	IV
3.	I vaccinate animals against infectious diseases (such as FMD, etc.)	133	1.45	72.28	II	56	1.51	75.68	III	26	1.24	61.90	III	215	1.43	71.67	II
4.	I wash the udders of milch animals with $KMNO_4$ before milking.	67	0.73	36.41	VIII	39	1.05	52.70	VIII	23	1.10	54.76	IV	129	0.86	43.00	VIII
5.	Before milking, I remove the cow dung around the animal or on the body of the animal and clean it.	182	1.98	98.91	I	65	1.76	87.84	I	35	1.67	83.33	I	282	1.88	94.00	I
6.	I use home remedy to protect my milch animals from external parasite infection.	116	1.26	63.04	VI	47	1.27	63.51	V	23	1.10	54.76	IV	186	1.24	62.00	VI
7.	I use allopathic medicines to protect my milch animals from infection.	106	1.15	57.61	VII	41	1.11	55.41	VII	21	1.00	50.00	V	168	1.12	56.00	VII
8.	Upon identification of a sick animal in the animal house, I separate it from other healthy animals and maintain it in a separate enclosure.	117	1.27	63.59	V	57	1.54	77.03	II	20	0.95	47.62	VI	194	1.29	64.67	V

Table 3: Correlation analysis of adoption of scientific animal health management practices with personal attributes of women dairy farmers

Independent variables	"r value"			
	Small	Medium	Large	Overall
Age	.000	-.327*	.320	-.042
Education	-.082	390*	.122	.097
Landholding Size	-.059	.256	-.131	.040
Annual Income	-.091	-.008	.172	.005
Caste	.185	-.212	.060	.039
Dairy Experience	-.021	-.029	-.279	-.087
Social Participation	-.081	.372*	-.411	.062
Mass Media Exposure	-.211*	.295	-.254	.019
Market Orientation	.041	.304	.260	.178*

*Significant at 5% level

Conclusions

Based on the findings presented, the adoption of scientific animal health management practices varied among different farm sizes, with medium-sized farmers exhibiting the highest adoption rates and both small and large farmers showing a medium level of adoption. The overall trend indicates a positive inclination towards adopting these practices, with a significant proportion falling into the medium and high adoption categories. Factors influencing adoption included accessibility, cost, awareness, and perceived efficacy, with practices deemed easier to implement and cost-effective being more widely adopted. Education and awareness programs are crucial to promote the uptake of modern practices, addressing misconceptions and providing information on alternatives. Personal attributes of women dairy farmers, such as age, education, social participation, and market orientation, correlated with adoption levels, with mass media exposure among small-scale farmers showing a negative and significant correlation. In conclusion, targeted interventions and support mechanisms are essential to promote sustainable dairy farming practices, ultimately improving livestock health, productivity, and livelihoods across the dairy sector.

Acknowledgments

The authors express their gratitude to the National Commission for Women, New Delhi, for providing financial assistance to conduct the study as part of the training program.

References

1. Godara P, Sharma N, Rajput D. Adoption of dairy management practices among the livestock owners of Bikaner district of Rajasthan. J Entomol Zool Stud. 2018;6(5):843-846.
2. Kerlinger FN. Review of research in education. 2nd ed. Itasca, IL: F. E. Peacock; c1973.
3. Jogal KV, Trivedi SM, Lakhlani CD. Adoption of improved animal husbandry practices by dairy farmers. Indian J Anim Sci. 2021;91(12):1115-1157.
4. Lahoti SR, Chole SR, Rathi NS. Role of women in dairy farming. Indian J Dairy Sci. 2012;65(5):442-446.
5. Mdoda L, Tshotsho A, Nontu Y. Adoption of mass media for agricultural purposes by smallholder farmers in the Eastern Cape Province of South Africa. South Afr J Agric Ext. 2022;50(2):117-136.
6. Nimbalkar V, Verma HK, Singh J. Dairy farming innovations for productivity enhancement. In: New advances in the dairy industry. IntechOpen; c2021.
7. Nwafor CU, Nwafor IC. Communication networks used by smallholder livestock farmers during disease outbreaks: Case study in the Free State, South Africa. Open Agric. 2022;7(1):808-819.
8. Pandya CD, Raval JK, Soni AN. Participation of tribal farm women in breeding, feeding, and management practices of milch animals in Tapi District of South Gujarat, India. Indian J Vet Sci Biotechnol. 2014;9(4):92-93.
9. Patel V, Mitra S. Preference for dairying among rural women engaged in domestic duties in India: An econometric analysis of unit-level data from NSS 68th Round Employment-Unemployment Survey. Indian Econ Rev. 2015;50(2):219-241.
10. Quddus M. Adoption of dairy farming technologies by small farm holders: Practices and constraints. Bangladesh J Anim Sci. 2013;41(2):124-135. DOI: 10.3329/bjas.v41i2.14132.
11. Sathisha MC, Tiwari R, Roy R. Adoption of good dairy farming practices among commercial dairy owners of Karnataka. Int J Livest Res. 2018;8(12):47-57. DOI: 10.5455/ijlr.20171211053352.
12. Thakur D, Ahuja R, Sharma M, Sambyal MS, Dinesh K, Khurana SK. Impact of veterinary institutional access on the adoption of scientific feeding practices among women dairy farmers in Himachal Pradesh, India. Indian J Vet Sci Biotechnol. 2024;20(1):83-86.
13. Yami M, Abioye O, Sore SZ, Mugisho A, Abdoulaye T. Factors influencing gender and youth integration in agricultural research and innovation in Africa. CABI Agric Biosci. 2024;5(1):1-12.