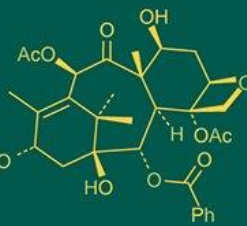
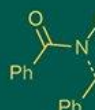


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Gender dynamics in livestock farming: Evidence from Sirohi district of Rajasthan

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Abstract

India ranks among the leading countries in global milk production, with livestock farming serving as a major source of livelihood for rural households. In Rajasthan, dairying and livestock rearing make a substantial contribution to the rural economy and women play a vital role in the day-to-day management of livestock. Despite their extensive involvement in livestock-related activities, women often have limited access to decision-making, marketing and other economically significant aspects of dairy farming. Addressing these gender disparities is therefore essential for promoting equitable participation and strengthening women's empowerment in the livestock sector. The present study was undertaken in Pindwara and Abu Road tehsils of Sirohi district, Rajasthan. The respondents were selected from villages based on the criteria that they owned at least two milch animals and were actively engaged in dairy farming activities. The results indicated that most of the respondents belonged to the 32-55 years age group. Women were predominantly engaged in routine and labour-intensive livestock activities, particularly cow dung collection and management, milking, care of newborn calves and preparation of milk products. In comparison, men were more actively involved in milk sale, maintenance of records related to milk and income, animal healthcare and cleaning and bathing of livestock. Overall, the findings demonstrated that women made a substantial contribution to dairy farming; however, their involvement was comparatively limited in marketing-oriented activities and other economically important functions. The study emphasizes the need for gender-responsive extension interventions, skill development, access to market information and greater involvement of women in decision-making processes to ensure their effective and equitable participation in livestock farming.

Keywords: Gender participation, livestock owners

Introduction

In India, livestock provides supplementary income to more than 70 million rural households, contributing about 15-40% of farm income. Small and marginal farmers constitute over 70% of landholders, while 15-20% of rural families are landless, making livestock an important source of livelihood and economic security. (Ahuja *et al.* 2003) ^[1]. Greater emphasis should be given to women's actual and potential contributions to national development. Agriculture provides employment to more than 85% of rural Indian households, while women play a vital role in the growth of livestock farming in developing countries. However, their participation remains constrained by persistent social, institutional and economic barriers.

Livestock farming is a vital component of India's rural economy, particularly in tribal and economically disadvantaged areas, providing rural households with employment, income and nutritional security. In this sector, women play a crucial role by actively participating in various livestock-related activities such as feeding, milking, cleaning and caring for animals. However, despite their significant contribution, their work is often not properly recognized. In recent years, the role of gender participation in livestock farming has received increasing attention because of its impact on productivity, livelihood security and women empowerment. Previous studies indicate that farm women make substantial contributions to dairy and livestock activities; however, their access to resources, participation in decision-making and extension services remains limited. (Chaudhari *et al.*, 2025; Kalsariya *et al.*, 2019; Bairwa *et al.*, 2020) ^[6, 9, 5]. It has also been observed that women's participation in livestock-based activities contributes positively to household income and overall socio-economic development (Chaudhari *et al.*, 2022; Jadoun, 2021) ^[7, 8].

Therefore, it is important to understand the extent and pattern of gender-wise participation in livestock activities so that suitable interventions and policies can be developed.

Women's participation in agriculture and livestock farming differs considerably across regions and is influenced by farming systems, caste, social class and socio-economic conditions (Swaminathan, 1985) [3]. In many parts of India, women from relatively privileged social groups have limited involvement in on-farm activities, whereas women from economically weaker households contribute substantially to farm and household work. Despite their significant contribution to rural livelihoods and household welfare, women's roles in economic and social development have often remained inadequately recognized. Therefore, the present study was undertaken to assess the extent of male and female participation in various livestock farming activities and to examine the influence of socio-economic factors such as age, education and landholding on women's participation in household and livestock-related activities in Sirohi district of Rajasthan.

Research Methodology

The present study was conducted in Sirohi district of Rajasthan. Tehsils Abu Road and Pindwara were selected for the study based on the highest population of tribes. A comprehensive list of all the villages under the respective tehsil was prepared through discussions with patwaris, tehsildar, Atal Seva Kendra and secondary sources. Four villages were selected randomly from each tehsil. A total of 15 families from each selected village were chosen based on having two or more milking animals and being actively involved in dairy farming activities. Thus, a total of 120 livestock families (60 men and 60 women) who possess livestock for their livelihood were selected as respondents for the present study. Data were collected by the investigator through personal interview technique, with the help of a semi-structured interview schedule. The collected data were tabulated and inferences were drawn. Appropriate statistical methods and tools, such as Percentage and frequency, Mean percent score (MPS), Standard deviation were used for the analysis of data.

Results and Discussion

Descriptive profile of respondents

The findings presented in Table 1 indicate that the majority of respondents belonged to the 32-55 years age group and had attained education up to the primary level. Less than half of the respondents possessed 5-7 cattle, while nearly half reported daily milk production ranging from 7-20 litres. The findings further showed that most respondents had received training. Regarding mass media exposure, more than half of the men exhibited a high level of exposure, whereas women predominantly had a medium level of exposure.

The data presented in Table 2 demonstrate clear gender differences in participation across various livestock farming activities. In feed-related activities, women showed substantially higher involvement, with 95.33%, 94.00% and 72.00% reporting regular participation in feed preparation (chaat), fodder chopping and green fodder harvesting, respectively. In contrast, male participation in these activities was minimal, accounting for 0.00%, 2.00% and 4.67%, respectively.

A similar pattern was observed in routine livestock maintenance. Most women were regularly involved in cleaning and bathing animals (94.00%) and providing water (82.67%), compared with 65.33% and 31.33% of men, respectively. However, fodder storage was predominantly performed by men, with 88.67% reporting regular participation compared with 41.33% of women.

Women also played a dominant role in dung management. All women (100%) regularly collected cow dung, while 95.33% were involved in preparing and storing dung cakes. In comparison, only 9.33% of men reported occasional participation in dung management activities.

Women's participation was particularly pronounced in milk management, with 98.67% regularly involved in milking and 97.33% in preparing milk products. Male participation was very limited, with only 3.33% regularly involved in milking and no reported participation in milk-product preparation.

Regarding animal health and disease management, all women (100%) and 78.67% of men reported regular involvement in animal healthcare. Women also showed very high participation in caring for newborn calves (98.67%) and sick animals (98.00%), whereas male participation was considerably lower at 2.00% and 7.33%, respectively. Overall, the findings highlight the predominantly gendered division of labour in livestock farming, with women undertaking most routine and labour-intensive activities, while men contributed more to selected management-oriented tasks such as fodder storage.

Marketing-related activities showed a clear gender-based pattern. All male respondents (100%) reported regular participation in milk sale and maintenance of records related to milk and income. In contrast, women's involvement in these activities was limited, with only 9.33% occasionally participating in milk marketing and 4.00% in maintaining milk and income records.

Overall, women demonstrated the highest participation in routine livestock activities, particularly cow dung collection and animal healthcare (100.00% each), followed by milking and care of newborn calves (98.67% each), care of sick animals (98.00%), preparation of milk products (97.33%), feed preparation or chaat (95.33%) and preparation and storage of dung cakes (95.33%).

Conversely, men were predominantly involved in economically and management-oriented activities, including milk sale and maintenance of milk and income records (100.00% each), fodder storage (88.67%), animal healthcare (78.67%) and cleaning and bathing of animals (65.33%). These findings clearly indicate a gender-based division of labour in livestock farming, with women primarily responsible for routine and labour-intensive activities, while men had greater involvement in marketing and record-keeping activities.

The data presented in Table 3 indicate a distinct gender-based pattern in participation in dairy farming activities. Women showed the highest participation in cow dung collection and animal healthcare (weighted mean score [WMS] = 3.00), followed by milking and care of newborn calves (WMS = 2.90) and care of sick animals (WMS = 2.98), with these activities occupying the highest ranks. Among men, the highest participation was observed in milk marketing and maintenance of milk and income records (WMS = 3.00), followed by fodder storage (WMS = 2.887) and animal healthcare (WMS = 2.767).

Women also showed substantial participation in the preparation of milk products (WMS = 2.973), preparation and storage of dung cakes (WMS = 2.953), chaffing of fodder (WMS = 2.933), cleaning and bathing of animals (WMS = 2.927), providing water to animals (WMS = 2.780), harvesting green fodder (WMS = 2.667), fodder storage (WMS = 2.287) and milk marketing (WMS = 1.047). In contrast, men's participation was comparatively higher in cleaning and bathing of animals (WMS = 2.567), providing water (WMS = 2.187) and care of sick animals (WMS = 1.600). Their participation was lower in chaffing fodder (WMS = 1.327), harvesting green fodder (WMS = 1.280), milking (WMS = 1.260), care of newborn calves

(WMS = 1.167), preparation and storage of dung cakes (WMS = 1.093), feed preparation (chaat) (WMS = 1.080), preparation of milk products (WMS = 1.047) and cow dung collection (WMS = 1.027).

Overall, the findings demonstrate a clear division of labour, with women contributing more extensively to routine livestock care, dairy processing and household-oriented activities, whereas men were more actively involved in marketing, record keeping, fodder storage and selected management activities. These findings are consistent with Kalsariya *et al.* (2019) ^[9], who reported substantial participation of women in livestock and farm-related activities.

Table 1: Descriptive statistics of the respondents n = 120

Sr. No.	Categories	Women (60)		Men (60)	
		Frequency	Percentage	Frequency	Percentage
1.	Age Group				
	Up to 32 years	31	20.67	26	17.33
	32-55 years	89	59.33	96	64.00
	Above 55 years	30	20.00	28	18.67
2.	Educational status				
	Illiterate	28	18.67	7	4.67
	Upto Primary	103	68.67	81	54.00
	Upto Secondary	19	12.67	47	31.33
	Senior Secondary	0	0.00	9	6.00
	Graduate	0	0.00	6	4.00
3.	Animal strength				
	2-4 Cattle	56	37.33	55	36.66
	5-7 Cattle	61	40.67	58	38.67
	Above 7	33	22.00	37	24.67
4.	Milk production				
	2-6 Litre	35	23.33	34	22.67
	7-20 Litre	82	54.67	72	48.00
	Above 20 Litre	33	22.00	44	29.33
5.	Training participation				
	Yes	91	60.67	137	91.33
	No	59	39.33	13	8.67
6.	Mass media exposure				
	Low (54-59)	51	34.00	27	18.00
	Medium (67-71)	79	52.67	40	26.67
	High (Above 72)	20	13.33	83	55.33

Extent of participation of rural men and women in dairy farming practices

Table 2: Distribution of respondents according to their participation in dairy farming activities n = 120

S. No.	Activities	Women(n = 60)						Men(n = 60)					
		Always		Occasionally		Never		Always		Occasionally		Never	
		F	%	F	%	f	%	f	%	F	%	f	%
A.	Feed related activities												
1	Harvesting of green fodder	108	72.00	34	22.67	8	5.33	7	4.67	28	18.67	115	76.67
2	Chaffing fodder	141	94.00	8	5.33	1	0.67	3	2.00	43	28.67	104	69.33
3	Prepare feed (chaat)	143	95.33	7	4.67	-	-	-	-	12	8.00	138	92.00
B.	Maintenance												
4	Storage of fodder	62	41.33	69	46.00	19	12.67	133	88.67	17	11.33	-	-
5	Cleaning and bathing of Animal	141	94.00	7	4.67	2	1.33	98	65.33	39	26.00	13	8.67
6	Offering water to animals	124	82.67	19	12.67	7	4.67	47	31.33	84	56.00	19	12.67
C.	Dung Management												
7	Cow dung collection	150	100.00	-	-	-	-	-	-	4	2.67	146	97.33
8	Preparing and storage of Dung cakes	143	95.33	7	4.67	-	-	-	-	14	9.33	136	90.67
D.	Milking and milk management												
9	Milking of animal	148	98.67	2	1.33	-	-	5	3.33	29	19.33	116	77.33
10	Preparing milk products	146	97.33	4	2.67	-	-	-	-	7	4.67	143	95.33
E.	Animal disease and management												
11	Health care of animals	150	100.00	-	-	-	-	118	78.67	29	19.33	3	2.00
12	Care of sick animals	147	98.00	3	2.00	-	-	11	7.33	68	45.33	71	47.33
13	Care of new born calves	148	98.67	2	1.33	-	-	3	2.00	19	12.67	128	85.33
F.	Marketing												
14	Selling of milk	-	-	14	9.33	136	90.66	150	100.00	-	-	-	-
15	Keeping record of milk and Money	-	-	6	4.00	144	96.00	150	100.00	-	-	-	-

Table 3: Ranking of respondents according to their participation in dairy farming activities

Sr. No.	Activities	Women(60)		Men(60)	
		WeightedMean Score	Rank	Weighted Mean Score	Rank
A. Feed related activities					
1.	Harvesting of green fodder	2.667	IX	1.280	VIII
2.	Chaffing fodder	2.933	VI	1.327	VII
3.	Prepare feed (chaat)	2.953	V	1.080	XII
B. Maintenance					
4.	Storage of fodder	2.287	X	2.887	II
5.	Cleaning and bathing of animal	2.927	VII	2.567	IV
6.	Offering water to animals	2.780	VIII	2.187	V
C. Dung Management					
7.	Cow dung collection	3.000	I	1.027	XIV
8.	Preparing and storage of dung Cakes	2.953	V	1.093	XI
D. Milking and milk management					
9.	Milking of animal	2.987	II	1.260	IX
10.	Preparing milk products	2.973	IV	1.047	XIII
E. Animal disease and management					
11.	Health care of animals	3.000	I	2.767	III
12.	Care of sick animal	2.980	III	1.600	VI
13.	Care of new born calves	2.987	II	1.167	X
F. Marketing					
14.	Selling of milk	1.047	XI	3.000	I
15.	Keeping record of milk and Money	1.040	XII	3.000	I

Table 4: Distribution of the respondents according to their overall participation in dairy farming activities (n = 120)

Sr. No.	Category	Mean Score	Women(n = 60)		Men(n = 60)	
			Frequency	Percentage	Frequency	Percentage
1	Low	Less than 26.95 MS	13	8.67	37	24.67
2	Medium	28-39 MS	59	39.33	81	54.00
3	High	More than 39.85 MS	78	52.00	32	21.33

Mean = 33.40; SD = 6.45

Table 4 shows that more than half of women (52.00%) had high participation in dairy farming activities, whereas 21.33% of men fall into this category. More than half of men (54.00%) and 39.33% of women had a medium level of participation. Only 8.67% of women and 24.67% of men had low participation. Similar results were reported by Chaudhari *et al.* (2025) ^[6] they found that farm women actively participated in various dairy farming activities.

Summery and Conclusion

It can be concluded from the above findings that women had high participation in dairy farming activities compared to men. The majority of women mainly participated in various activities such as cow dung collection, health care of animals, milking of animals, care of newborn calves, care of sick animals, preparing milk products, preparing and storing dung cakes and chaffing fodder, whereas men were mainly participated in various activities such as selling milk, keeping a record of milk and money, storage of fodder, health care of animals, cleaning and bathing of animals and offering water to animals. It is seen from the findings that although women had high participation in dairy farming activities, they had less participation in marketing-related activities. It may be due to a lack of education and less exposure, which should be improved.

Recommendations

Animal husbandry provides a more stable livelihood than agriculture due to its resilience to rain failure. The interdependence of agriculture and the dairy sector involves a workforce where over two-thirds are women. Women actively engage in various livestock activities, such as

fodder collection, feeding, water and health care management, milking and processing at home, including value addition and marketing. Despite significant contributions, gender inequalities persist in Indian villages, necessitating efforts to address gender injustice and empower women. Disparities in access to technology, loans, information, inputs and ownership of productive assets like land and livestock are evident. Analyzing social diversity through a gender lens is crucial for understanding inequality causes and identifying barriers to women's productivity in agriculture. In the livestock system, gender imbalances impacting productivity are clear, offering opportunities for change. Despite women's pivotal roles in smallholder dairy farming, information on gender roles in management, access and control over resources is insufficient. Women's contributions as dairy farmers often go unrecognized, particularly in financial decisions for the farm. They are actively involved in indoor feeding activities and animal health care. Findings reveal that women have high participation in dairy farming activities, with men having medium participation, but women are less engaged in marketing. To enhance women's participation in dairy cooperatives, KVKs, Veterinary University, the government's animal husbandry department should implement tailored training programs. Conducting studies to evaluate the impact of dairy centers on rural dairy farming and cross-cultural research on farm women's existing knowledge of dairy farming practices are essential.

Conflict of Interest

No conflict of interest among researchers.

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