

International Journal of Agriculture Extension and Social Development

Volume 9; SP-Issue 1; January 2026; Page No. 91-94

Received: 02-10-2025
Accepted: 07-11-2025

Indexed Journal
Peer Reviewed Journal

Human resource contribution to goat rearing systems in Nagaur District, Rajasthan

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DOI: <https://www.doi.org/10.33545/26180723.2026.v9.i1Sb.2897>

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Abstract

The present study was conducted in Nagaur district of Rajasthan, which was purposively selected due to its prominence in goat rearing and the significant dependence of rural households on goat farming as a livelihood under arid conditions. Out of the total tehsils of Nagaur district, Ladnu and Nagaur tehsils were selected to represent the district. From each selected tehsil, two villages were selected randomly, making a total of four villages for the study. From each selected village, 30 goat keepers were selected at random, resulting in a total sample size of 120 respondents.

The study focused on the distribution of human resource involvement in various goat management activities, including feeding, cleaning of sheds, milking, grazing, marketing of goats, care of young stock, breeding, treatment of sick animals and control of ecto- and endo-parasites. The findings revealed a clear gender-based division of labour in goat rearing practices. Women played a dominant role in most household-level activities. Women were involved in feeding goats at home after grazing in 73.13 per cent of the cases, whereas men and children participated in 18.75 per cent and 8.12 per cent, respectively. In cleaning activities, women contributed 74.38 per cent, followed by men (15.62 per cent) and children (10.00 per cent). Women's participation in milking was the highest, accounting for 83.75 per cent of the households.

Keywords: Human resources management activities such as feeding, washing, milking, grazing, sales of cattle, young stock care, breeding, sick animal care

Introduction

Small ruminants play a crucial role in strengthening rural livelihoods and supporting the backbone of the agrarian economy in India. Among them, goats occupy a prominent position due to their low input requirements, quick returns, and adaptability to diverse agro-climatic conditions. In Rajasthan, goat rearing is a major occupation for a large proportion of rural households and has become an integral part of farming systems, particularly in arid and semi-arid regions where crop production is uncertain (Devendra, 2012; Pathak *et al.*, 2020) ^[4, 8].

For landless labourers, marginal farmers, and economically weaker sections, goats serve as an important source of income, nutritional security, and financial resilience. Goats are capable of surviving on poor-quality forage and can withstand extreme temperatures and prolonged droughts, making them well suited to the harsh climatic conditions of Rajasthan. The increasing demand for goat meat and frequent marketing of live animals to neighbouring states have further contributed to the growth of the goat population in the region (Birthal & Taneja, 2006; Meena *et al.*, 2021) ^[2, 7].

Thus, goat rearing has emerged as a reliable livelihood option in drought-prone areas, providing employment and income security to rural households. Understanding the management practices and human resource involvement in goat rearing is therefore essential for improving productivity and promoting sustainable development of the sector in Rajasthan (Sharma & Kumar, 2020) ^[12].

Materials and Methods

The present study was conducted in Nagaur district of Rajasthan, which was purposively selected due to its prominence in goat rearing and the significant dependence of rural households on goats as a source of livelihood under arid and semi-arid conditions. Nagaur district is characterized by low and erratic rainfall, frequent droughts, and limited crop production, making goat rearing an important and reliable component of the farming system. Out of the total tehsils of Nagaur district, two tehsils, namely Ladnu and Nagaur, were selected to represent the district. These tehsils were selected due to their considerable goat population and the active involvement of farmers in

goat rearing activities. From each selected tehsil, two villages were selected randomly, resulting in a total of four villages for the study.

From each selected village, 30 goat keepers were selected randomly, thereby constituting a total sample size of 120 respondents for the present investigation. Thus, the sampling procedure ensured adequate representation of goat keepers from different parts of Nagaur district.

The data were collected with the help of a pre-tested structured interview schedule through personal interviews conducted by the researcher with the selected goat keepers. The study focused on the involvement of human resources in various goat management activities such as feeding, cleaning of sheds, milking, grazing, care of young stock, breeding, marketing, treatment of sick animals, and control of ecto- and endo-parasites.

Results and Discussion

1. Role of Human Resources in Goat Rearing

One of the significant components of livestock rearing in India is the use of surplus family members. Although the study is carried out on the distribution of management activities such as feeding, washing, milking, grazing, animal sales, young stock care, breeding, sick animal care, ecto-parasites and endo-parasites, where findings are presented as follows:

1.1 Feeding

The data presented in Table 1 reveals that women were involved in feeding goats at home after grazing in 73.33 per cent of the cases, whereas men and children were involved in 19.17 per cent and 7.50 per cent of the cases, respectively. Tehsil-wise data show that women played a major role in feeding operations, accounting for 75.00 per cent in Nagaur tehsil and 71.67 per cent in Ladnu tehsil. On the other hand, men were involved in feeding goats to the extent of 21.67 per cent in Ladnu tehsil and 16.67 per cent in Nagaur tehsil. The role of children in feeding operations was found to be comparatively low, contributing 6.66 per cent in Ladnu tehsil and 8.33 per cent in Nagaur tehsil. These findings are closely related to the results reported by Gurjar and Pathodiya (2004) ^[6, 9] and Pathodiya (2003) ^[9].

Table 1: Role of human resources for feeding operation at home (n=120)

Tehsils	Men		Women		Children		Total	
	F	%	F	%	F	%	F	%
Ladnu	13	21.67	43	71.67	4	6.66	60	100.00
Nagaur	10	16.67	45	75.00	5	8.33	60	100.00
Overall	23	19.17	88	73.33	9	7.50	120	100.00

1.2 Cleaning

The data presented in Table 2 reveal that women were mainly involved in cleaning of goat sheds in 75.00 per cent of the cases, whereas men and children were involved in 15.83 per cent and 9.17 per cent of the cases, respectively. Tehsil-wise analysis shows that women played a major role in shed cleaning, contributing 78.34 per cent in Nagaur tehsil and 71.67 per cent in Ladnu tehsil. On the other hand, men were involved in cleaning activities to the extent of 18.33 per cent in Ladnu tehsil and 13.33 per cent in Nagaur tehsil. The role of children in this operation was

comparatively low, accounting for 10.00 per cent in Ladnu tehsil and 8.33 per cent in Nagaur tehsil. The results of the theses are consistent with the results of Pathodiya (2003) ^[9] and Gurjar and Pathodiya (2004) ^[6, 9].

Table 2: Role of human resources in cleaning of goat sheds (n=120)

Tehsils	Men		Women		Children		Total	
	F	%	F	%	F	%	F	%
Ladnu	11	18.33	43	71.67	6	10.00	60	100.00
Nagaur	8	13.33	47	78.34	5	8.33	60	100.00
Overall	19	15.83	90	75.00	11	9.17	120	100.00

1.3 Milking

The data in Table 3 show that women were predominantly involved in milking operations, contributing 85.00 per cent overall. Tehsil-wise, women accounted for 85.00 per cent in Nagaur and 85.00 per cent in Ladnu. Men's participation was 15.00 per cent in Nagaur and 8.33 per cent in Ladnu, while children contributed 0.00 per cent and 6.67 per cent, respectively. These results indicate that milking is mainly a women-dominated activity, with minor assistance from men and minimal involvement of children. These comparable findings were reported by Gurjar and Pathodiya (2004) ^[6] and Pathodiya (2003) ^[9].

Table 3: Role of human resources in milking operations (n=120)

Tehsils	Men		Women		Children		Total	
	F	%	F	%	F	%	F	%
Ladnu	5	8.33	51	85.00	4	6.67	60	100.00
Nagaur	9	15.00	51	85.00	0	0.00	60	100.00
Overall	14	11.67	102	85.00	4	3.33	120	100.00

1.4 Grazing

The data in Table 4 indicate that grazing of goats is mainly performed by men, contributing 73.33 per cent overall. Women's participation was 9.17 per cent, while children contributed 17.50 per cent. Tehsil-wise, men accounted for 70.00 per cent in Ladnu and 76.67 per cent in Nagaur, showing that grazing is largely a male-dominated activity, with minor involvement of women and some participation of children. The present observation of the results is comparable to the Samanta (2002) ^[11] and Rangnekar and Rangnekar studies (1992) ^[10].

Table 4: Role of human resources in grazing operations (n=120)

Tehsils	Men		Women		Children		Total	
	F	%	F	%	F	%	F	%
Ladnu	42	70.00	7	11.67	11	18.33	60	100.00
Nagaur	46	76.67	4	6.67	10	16.66	60	100.00
Overall	88	73.33	11	9.17	21	17.50	120	100.00

1.5 Sale of animals

The data in Table 5 indicate that men are predominantly involved in the sale of animals, contributing 89.17 per cent overall. Women's participation was 10.83 per cent, while children did not participate (0.00 per cent). Tehsil-wise, men accounted for 86.67 per cent in Ladnu and 91.67 per cent in Nagaur, showing that selling goats is a male-dominated activity, with limited assistance from women and no involvement of children. These results are closely related to the findings of Gurjar and Pathodiya (2004) ^[6, 9] and

Pathodiya (2003) ^[9].

Table 5: Role of human resources in sale of animals (n=120)

Tehsils	Men		Women		Children		Total	
	F	%	F	%	F	%	F	%
Ladnu	52	86.67	8	13.33	0	0.00	60	100.00
Nagaur	55	91.67	5	8.33	0	0.00	60	100.00
Overall	107	89.17	13	10.83	0	0.00	120	100.00

1.6 Care of young stock

The data in Table 6 show that women mainly take care of young stock, contributing 67.50 per cent overall. Men's participation was 25.83 per cent, while children were involved only 6.67 per cent. In Ladnu, women's share was 68.33 per cent and in Nagaur 66.67 per cent, indicating that caring for young animals is mostly done by women, with some help from men and very little from children. These results are in line with Pathodiya's findings (2003) ^[9].

Table 6: Role of human resources in care of young stock (n=120)

Tehsils	Men		Women		Children		Total	
	F	%	F	%	F	%	F	%
Ladnu	14	23.33	41	68.33	5	8.34	60	100.00
Nagaur	17	28.34	40	66.67	3	5.00	60	100.00
Overall	31	25.83	81	67.50	8	6.67	120	100.00

1.7 Breeding operation

The data presented in Table 7 indicate that women were mainly responsible for breeding operations, contributing 62.50 per cent overall. Men accounted for 29.17 per cent, while children contributed 8.33 per cent. Tehsil-wise, women's participation was higher in Ladnu (66.67%) compared to Nagaur (58.33%), whereas men were more involved in Nagaur (33.33%) than in Ladnu (25.00%). This shows that breeding activities are largely managed by women, with moderate support from men and limited involvement of children. The present observation findings are comparable to the Deoghare (1992) and Pathodiya studies (2003) ^[9].

Table 7: Role of human resources in breeding operations (n=120)

Tehsils	Men		Women		Children		Total	
	F	%	F	%	F	%	F	%
Ladnu	15	25.00	40	66.67	5	8.33	60	100.00
Nagaur	20	33.33	35	58.33	5	8.34	60	100.00
Overall	35	29.17	75	62.50	10	8.33	120	100.00

1.8 Care of sick animal

The data in Table 8 indicate that women were mainly responsible for the care of sick animals, contributing 76.67 per cent overall. Men accounted for 16.67 per cent, while children's involvement was limited (6.66 per cent). Tehsil-wise, women's participation was higher in Ladnu (80.00%) than in Nagaur (73.33%), whereas men were more involved in Nagaur (18.33%). This shows that care of sick animals is largely managed by women, with some support from men and minimal participation of children. These findings are in line with the results of Gurjar and Pathodiya (2004) ^[6, 9] and Pathodiya (2003) ^[9].

Table 8: Role of human resources in care of sick animals (n=120)

Tehsils	Men		Women		Children		Total	
	F	%	F	%	F	%	F	%
Ladnu	9	15.00	48	80.00	3	5.00	60	100.00
Nagaur	11	18.33	44	73.33	5	8.34	60	100.00
Overall	20	16.67	92	76.67	8	6.66	120	100.00

1.9 Ecto-parasites

The results presented in Table 9 indicate that women played a dominant role in ecto-parasite control, accounting for 73.33 per cent overall. Men contributed 19.17 per cent, while children's involvement was limited to 7.50 per cent. At the tehsil level, women's participation was higher in Ladnu (78.33%) than in Nagaur (68.33%), whereas men were more actively involved in Nagaur (23.33%) compared to Ladnu (15.00%). These findings suggest that ecto-parasite management is largely undertaken by women, with men providing supportive assistance and children having minimal participation. Similar results were also reported by Sagar and Deoghare (2000).

Table 9: Role of human resources in control of ecto-parasites

Tehsils	Men		Women		Children		Total	
	F	%	F	%	F	%	F	%
Ladnu	9	15.00	47	78.33	4	6.67	60	100.00
Nagaur	14	23.33	41	68.33	5	8.34	60	100.00
Overall	23	19.17	88	73.33	9	7.50	120	100.00

1.10 Endo-parasites

The data presented in Table 10 reveal that women played a major role in endo-parasite control, contributing 77.50 per cent overall. Men accounted for 15.83 per cent, while children contributed only 6.67 per cent. Tehsil-wise, women's participation was higher in Ladnu (81.67%) compared to Nagaur (73.33%), whereas men were more involved in Nagaur (18.33%) than in Ladnu (13.33%). This indicates that endo-parasite management is largely handled by women, with limited support from men and minimal involvement of children. These findings are consistent with the results of Sagar and Deoghare.

Table 10: Role of human resources in control of endo-parasites

Tehsils	Men		Women		Children		Total	
	F	%	F	%	F	%	F	%
Ladnu	8	13.33	49	81.67	3	5.00	60	100.00
Nagaur	11	18.33	44	73.33	5	8.34	60	100.00
Overall	19	15.83	93	77.50	8	6.67	120	100.00

1.11. Housing and shed management of goats

The data presented in Table 11 indicate that women played a major role in housing and shed management of goats, contributing 54.17 per cent overall. Men accounted for 39.17 per cent, while children's participation was limited to 6.66 per cent. Tehsil-wise, women's involvement was higher in Ladnu (56.67%) than in Nagaur (51.67%), whereas men were more involved in Nagaur (41.67%) compared to Ladnu (36.67%). This suggests that routine housing and shed management activities are mainly handled by women, with men assisting in structural and maintenance-related tasks, and minimal involvement of children.

Table 11: Role of human resources in housing and shed management of goats

Tehsils	Men		Women		Children		Total	
	F	%	F	%	F	%	F	%
Ladnu	22	36.67	34	56.67	4	6.66	60	100.00
Nagaur	25	41.67	31	51.67	4	6.66	60	100.00
Overall	47	39.17	65	54.17	8	6.66	120	100.00

Summary and Conclusion

The study conducted in Nagaur district of Rajasthan revealed that women played a major role in routine management practices such as feeding, shed cleaning, milking, care of young stock, breeding, health care, and control of ecto- and endo-parasites, while men were mainly involved in grazing, sale of animals and housing maintenance. Children's participation was found to be minimal in most activities. The findings highlight that goat rearing largely depends on family labour with women contributing significantly to daily management but having limited involvement in decision-making and service access. Strengthening women-oriented training, extension support, and their participation in decision-making can enhance productivity and promote sustainable goat farming in the arid region of Nagaur district.

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