

Challenges for Rural Women in Nutritional Management of Dairy Animals

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The current study was carried out in four villages of Samrala Block, Ludhiana district under a project implemented by Plant clinic, PAU to encourage efficient dairy farming among rural women in order to address challenges of livelihood and nutritional security. Data were collected from 60 purposively selected rural women who were beneficiaries under the project, through personal interviews with a structured schedule. Data was analyzed using Garrett's ranking technique. The findings revealed that women faced multiple challenges in dairy nutrition management which included lack of access to land for cultivation of fodder crops, high cost of compounded feeds for dairy animals, limited access to technical knowledge, resources and markets, insufficient infrastructure at household level and lack of knowledge regarding balanced ration preparation, feed additives, bypass nutrients etc. In order to address these challenges it was necessary to hand hold them in terms of scientific training and guidance, easy approach to market for beneficial returns along with capacity building of these women in terms of skill development.

Keywords: Dairy farming, nutrition management, rural women, livelihood.

Introduction

Dairy farming serves as a vital income-generating activity, offering both employment opportunities and financial support to rural households. Livestock not only contributes to food and nutritional security for mankind but also plays an important role in utilization of non-edible agricultural byproducts. Milk production increased from 198.4 million tonnes in 2020 to 247.87 million tonnes during 2024-25 registering a growth of 3.58 % (BAHS 2025). Per capita availability of milk has sharply increased from 485 gm per day in 2025 (BAHS 2025). Sakthivel (2017) in a study reported that income from livestock rearing was the major contributor to rural household's income accounting for more than 50 % of the gross income for more than 60 percent of the households. Productive and reproductive performance of dairy cattle is mainly dependent on their nutritional status. The feeds alone contribute about 65 to 70% of the total cost of production. Animals are malnourished particularly with regards to micronutrients owing to lack of awareness among dairy farmers and lack of available information on micro and macro mineral status of soil, feed and dairy animals. A majority of the cattle owners do not prefer to feed commercial feeds because of higher cost. Due to variation in the dietary concentration owing to availability, season, location, the formulation of area wise mineral mixture becomes necessary. It is also observed that inspite of feeding liberally, the productivity is not achieved upto a desirable level. One of the reasons for this is the gap between availability of nutrients in the feedstuff and the requirements of nutrients by the animals.

Punjab is also a leading player in milk production in the country producing, 13.9 million tonnes of milk, of the total milk production in country which stands at 239.3 million tonnes (National Dairy Development Report 2023-2024). The scientific knowledge imparted through training, is crucial for the success of any enterprise. Dissemination of information on the latest developments in animal husbandry is necessary to support

decision making capacity of the livestock farmers to improve the productivity of their stocks (Singh *et al.* 2016).

Women's participation in small-scale dairy farming is an important tool in reducing poverty and very vital to livestock development in rural area. Women constitute about 69% of workforce engaged in livestock sector (Anonymous 2013). The role and contribution of women members of every rural family to dairying is not documented although known too well in rural India as significant. About 75 million women as against 15 million men are engaged in dairying in India (Thakur and Chander 2006). Women increasingly play an important role in fostering inclusive development by contributing to household income and promoting community well-being. In developing economies, even small-scale ventures offer women a pathway to socio-economic empowerment, improved household welfare, and greater participation in decision-making (Gupta 2025). Despite societal barriers, rural women continue to demonstrate resilience and innovation through micro-enterprises that integrate livelihood generation with household responsibilities. However, widespread challenges persist, addressing these barriers through training, infrastructure support, and market linkages is essential to unlock the full potential of women-led dairy enterprises.

Against this backdrop, the present study was conducted under the Project "Interventions of low cost technologies for upliftment of rural women in Punjab" to examine the farm nutritional challenges faced by rural women engaged in dairy farming and to document them. By capturing women's lived experiences the study seeks to inform targeted interventions that strengthen dairy farming as a sustainable livelihood option.

Data Collection

The study was conducted in four villages Bharthala, Gehlewal, Rahaun, Bamb of Samrala block, Ludhiana district, Punjab, where the Project "Interventions of low cost technologies for upliftment of

rural women in Punjab" was implemented from January, 2025 to January 2026. A purposive sample of 60 beneficiary rural women was drawn, comprising 15 respondents from each selected village. Data were collected through personal interviews using a structured interview schedule, supplemented with direct observations to ensure accuracy and reliability of responses.

Experimental Design

To examine the relative importance of various challenges faced by rural women engaged in dairy farming, Garrett's ranking technique was used for analysis of tabulated data.

According to Garrett's ranking technique by Garrett and Woodworth (1969), the respondents were asked to enlist and give ranks to different problems or constraints. This ranking helped in prioritizing the constraints based on their perceived importance. The orders of level as given by the interviewee were assigned ranks, with the help of following formula:

$$\text{Percent position} = [100 (R_{ij} - 0.50)]/N_j$$

Where,

R_{ij} = Rank given for i^{th} problem by j^{th} individual.

N = Number of problems ranked by the j^{th} individual.

After the respondents assigned ranks to the different problems, the percent position of each and every rank was transformed into scores by the use of Garrett's table. The counts for each and every responder were then totaled and divided by the total number of responders. This resulted in mean scores for each problem. Finally, the mean scores were arranged in descending order, and ranks were allotted to sort the constraints.

Statistical analysis

A perusal of Table 1 shows that limited scientific knowledge regarding various feeding technologies, lack of easy access to markets in addition to the high cost of compounded feeds for dairy animals was also impacting the day to day animal rearing activities by rural women. These problems necessitate supportive infrastructure, capacity building and resources tailored to their needs. Table 2 represent ranking pattern of responses of respondent women farmers for different constraints in Garrett's ranking technique. Table 3 represents Garrett value calculation and ranking of constraints perceived by rural women and enumerates the various challenges/problems faced by rural women in nutritional management of dairy animals. A significant number of respondents reported high cost of compounded feeds for dairy animals, had insufficient infrastructure at household level and had limited access to technical knowledge, resources. These were the major limiting factors. It was also seen that many rural women who were beneficiaries were also working with MNREGA scheme and hence could not manage to pay constant attention to care for animals and had to depend on other family members or relatives for the same. For some women (35 %), this support was also lacking and they were unable to provide the minimal resources required for dairy animals in some cases. This impacted their work efficiency and ability to make important decisions. Addressing these personal factors is crucial to ensure the wellbeing and productivity of women in rural areas. These findings agreed with those of many other researchers (Santosh *et al.*, 2021). Therefore, regular training and awareness programs on animal health management are essential to support rural farmers. Sharma and Singh (2008), Kumar *et al.*, (2019) and Pandey *et al.*, (2024) also reported similarly.

Table 1. Various challenges/problems faced by rural women (n=60)

Sr.No.	Challenges/problems	Percentage of respondents (n=60)
1	Lack of knowledge regarding balanced ration preparation	62.0
2	Lack of knowledge regarding area specific mineral mixture	71.0
3	Lack of knowledge regarding bypass nutrients and other feed additives	92.0
4	Lack of year round fodder availability	58.0
5	Unable to pay constant attention	76.0
6	Lack of support from family member	48.0
7	High cost of compounded feeds for dairy animals	84.0
8	Lack of access to land for cultivation of fodder crops	63.0
9	Insufficient infrastructure at household level	36.0
10	Lack of gender specific extension support	82.0
11	No preparation of silage and hay	44.0
12	Limited access to technical knowledge, resources	85.0
13	Limited access to markets and mass media	78.0
14	Awareness of feed additives, anti-nutritional factors	61.0

Table 2. Ranking pattern of responses from beneficiary rural women (n=60) for different challenges in Garrett's ranking technique

Challenges/problems	1st	2nd	3rd	4th	5th	6th
Lack of knowledge regarding balanced ration preparation	21	16	10	7	4	2
Lack of knowledge regarding area specific mineral mixture	22	11	10	95	3	
Lack of knowledge regarding bypass nutrients and other feed additives	14	20	16	4	3	3
Lack of year round fodder availability	78	13	8	10	1	4
Unable to pay constant attention	5	7	11	11	9	17

Lack of support from family member	6	6	12	11	10	15
High cost of compounded feeds for dairy animals	32	11	5	5	4	3
Lack of access to land for cultivation of fodder crops	14	20	16	4	3	3
Insufficient infrastructure at household level	24	14	10	8	3	1
Lack of gender specific extension support	22	14	9	7	5	3
No preparation of silage and hay	7	9	14	16	7	7
Limited access to technical knowledge, resources	22	11	10	9	5	3
Limited access to markets and mass media	14	20	16	4	3	3
Awareness of feed additives, anti-nutritional factors	16	14	10	6	7	7

Table 3. Calculation of Garret Value and Ranking by beneficiary women (n=60)

Challenges/ problems	Rank order						Total score	Average score	Rank
	1st	2nd	3rd	4th	5th	6th			
Lack of knowledge regarding balanced ration preparation	1785	1184	680	441	236	112	4438	73.97	III
Lack of knowledge regarding area specific mineral mixture	1870	814	680	567	295	168	4394	73.23	V
Lack of knowledge regarding bypass nutrients and other feed additives	1190	1480	1088	252	177	168	4355	72.58	VI
Lack of year round fodder availability	595	592	884	504	590	784	3949	65.82	IX
Unable to pay constant attention	425	518	748	693	531	952	3867	64.45	XI
Lack of support from family member	510	444	816	693	590	840	3893	64.88	X
High cost of compounded feeds for dairy animals	2720	814	340	315	236	168	4593	76.55	I
Lack of access to land for cultivation of fodder crops	1190	1480	1088	252	177	168	4355	72.58	VI
Insufficient infrastructure at household level	2040	1036	680	504	177	56	4493	74.88	II
Lack of gender specific extension support	1870	1036	612	441	295	168	4422	73.7	IV
No preparation of silage and hay	595	666	952	1008	413	392	4026	67.1	VIII
Limited access to technical knowledge, resources	1870	814	680	567	295	168	4394	73.23	V
Limited access to markets and mass media	1190	1480	1088	252	177	168	4355	72.58	VI
Awareness of feed additives, anti-nutritional factors	1360	1036	680	378	413	392	4259	70.98	VII

Conclusion

Women participation in managing livestock was significantly higher than men however the constraints limited the realization of their potential. Poor access to training, preoccupation with other household chores, lack of participation in decision making, costly inputs like feed, additives, veterinary services etc. for higher animal productivity were the major constraints faced by them. Therefore, women need to be provided with technical training on scientific livestock farming in order to strengthen and encourage their participation in livestock sector. These findings emphasize the need for targeted policy implementation and gender specific extension support to strengthen dairy farming as a sustainable and profitable enterprise for rural women.

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