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Status of Rural Women in Dairy Farming in Amritsar District of Punjab

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Authors' contributions

This work was carried out in collaboration among all authors. Author PK designed the study, wrote the protocol, author LK wrote the first draft of the manuscript, performed the statistical analysis and author A managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

The present study examines the status of rural women in dairy farming in Amritsar district of Punjab. The study was based on the primary data collected for 2019-20 year from female dairy farmers selected through multistage purposive sampling technique. The data was analysed by using simple tabular analysis and other statistical tools. All the activities related to dairy farming was performed by female dairy farmers. Small size female dairy farmers performed all the activities related to dairy farming ranging from disposal of cow dung to care of sick and new born animals. Large size female dairy farmers hired labour for dairy activities due to higher income of the households and large number of animals. The role of rural women in decision making is paradoxical to their contribution in dairy farming. For various dairy related decisions like feeding of milch animals, management of milch animals, sale of milk and utilization of amount obtained from dairy farming rural women either only consulted or had no role in decision making. Independent decision making by rural women in dairy related activities was negligible in the study area. The major factors affecting the income of female dairy farmers was education, operated area and herd size. The main problems faced by female dairy farmers were negligible role of dairy farm women in decision making, non availability of adequate veterinary services, illiteracy of dairy farm

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women, lack of staff at government hospitals and lack of capital. The study suggested that to increase the income of rural women from dairy rural women should be more educated and empowered through extension facilities by government. Due to stagnation in growth of agriculture, dairy can be used as an alternative for marginal and small farmers for increasing their income. Marginal and small female dairy farmers should be give more subsidies, loan and training for dairy business. Strict rules should be made regarding working of veterinary hospitals as the doctors were not available in the government veterinary hospitals in the study area.

Keywords: Rural; women; dairy farming; decision; independent.

1. INTRODUCTION

Women play an important role in animal husbandry activities as manager, decision makers and skilled workers. They help in farm operations, taking them for grazing, look after the sale of milk, and in addition, perform the function related to house management. Rural women contribute a share of more than 75 per cent in animal husbandry operations like feeding, milking and sale of milk. Many of the important tasks in animal husbandry activities are performed by women besides fulfilling their responsibilities as home makers. Rural women remain busy from dawn to dusk in various agriculture activities and livestock management. Women's active involvement in decision making is considered essential for rapid economic development of the country [1]. Dairy cooperatives have been creating more employment and income generating opportunities to rural women. So, women participation in business activities and day affair of dairy cooperative is an essential and need for their overall progress out of total milk union functioning in Punjab [2].

Dairy farming of the important enterprise which dominate the economic activities of the women in the rural area of India. Increasing demand for milk and milk products in recent years intensifies dairy farming as profitable enterprise for rural women. The women entrepreneurs have been confronting to several constraint in the sector which hinder their way poor development. The major constraints faced by women dairy entrepreneur were high cost of concentrate, lack of availability of veterinary literature in the villages, non remunerative price of milk. Dairy in India plays a crucial role in the rural economy that has the highest potential of generating income and employment through augmenting productivity of milch animals. Planners and policy makers have viewed it as an effective instrument of social and economic change. [3].

Dairy farming has a significant contribution to agriculture GDP. Dairy farming is common

practiced by the small and marginal farmers because these farmers have very small area of land to fulfill their needs, so they domesticate animals. Although dairy farming is not specialized commercial activity but it provides regular income to farmers throughout the year and has a significant role in generating employment for women. Animal husbandry and dairy is an important source of income and employment for millions of landless and play an important role in the socio-economic development in rural area [4]. A study conducted by Kacker [5] also revealed that majority (85 percent) of persons engaged in dairy production is women. Majority (68.75 percent) of border women in Punjab has medium knowledge level on various recommended dairy farming practices [6].

Much research work has not been done in Punjab on role of rural women in dairy enterprise. So present study was conducted in Amritsar district of Punjab with following objectives in view; to determine the participation level of rural women in dairy activities in the selected area, to find out the factors affecting the income rural female farmers from dairy and to find out the problem faced by rural women and suggest measure thereof.

2. METHODOLOGY

The study was conducted in Amritsar district of Punjab in 2019- 2020 year. The three stage random sampling technique was followed to select sample of development blocks at first stage, villages at second stage and the ultimate grower as the final stage of sampling. At first stage of sampling blocks namely, Ajnala and Majitha were selected randomly. At second stage two village namely Bhoeywali and Jethuwal were selected Ajnala and Majitha blocks. A complete list of all the households adopting dairy business in each selected villages was prepared along with the dairy units. The households were arranged in ascending order of dairy units. Only those dairy households were selected who take dairy as business. Three categories were made

from list of dairy farming households. In each category sample was selected according to probability proportion to size method. At final stage of sampling 40 small dairy farmers, 40 medium dairy farmers and 40 large dairy farmers were selected.

Primary data was collected from female member of selected rural households to find out their role in decision making in dairy farming and their actual physical involvement in dairy business. To find out the role of women in decision making and their actual participation in dairy activities sample averages, percentages and ratios were worked out. For achieving second objective i.e. factors affecting the income rural female farmers from dairy, step wise multiple regression was used.

3. RESULTS AND DISCUSSION

It was found that as the size of dairy units increased the physical participation done by female dairy farmers decreased. It was due to the fact the large female dairy farmers units had kept hired labour for dairy related activities in the study area. Small female dairy farmers performed all the dairy related activities themselves. The major activities performed by small female dairy farmers were disposal of cow dung (100 percent), milking (100 percent), care of sick animals (88 percent), care of new born (83 percent), care of pregnant animals (75 percent), processing of milk into milk products (100 percent), cleaning of animals sheds (88 percent), feeding the animals (63 percent). Among medium dairy units the major activities performed by female dairy farmers were processing of milk into milk products (87.5 percent), care of sick animals (75 percent), milking of animals (87.5 percent), making cow dung cakes (75 percent), disposal of cow dung (65 percent). The results were in line with the findings of the study [7] and [8] who found that women were fully involved and responsible for the jobs related to care and management of their domestic animals, in milking, caring of new born animals, cleaning of animal sheds, feeding and disposal of dung, watering the animals, storage of feed and fodder, feeding the animals. Large female dairy farmers hired labour for dairy activities of milch animals, the physical involvement of female dairy farmers were negligible as compared to small and medium dairy farmers. (Kaur 2015); [9].

Decision making of the female dairy farmers in various aspects of dairy farming included

general aspects of dairy farming, feeding of milch animals, breeding of milch animals, management of milch animals, sale of milk, preparation of milk products and utilization of amount obtained from dairy farming. Decision making of farm women in general aspects of dairy farming involved choosing of animals, taking loan, purchase and sale of animals. Overall 8.6 percent female dairy farmers took self-decision, 48.0 percent were consulted in decision making, 43.3 percent had no role in decision regarding choosing of animals, taking loan etc.. Decision regarding feeding of milch animals included cultivation of green fodder crops, green fodders to be fed or not, quantity of green fodders to be fed or not, silage or hay making, purchase of roughages, preparing concentrate mixture at home, purchase of concentrate mixture, minerals mixture are to be fed or not, frequency of feeding minerals, colostrums to be fed to the new born calf or not. In this aspect of decision making female dairy farmers had little say in decision making. Similarly in breeding decision of milch animals female had negligible say in decision making as only 10 percent took self decision in breeding of milch animals. Decisions regarding breeding of milch animals included decision regarding breeding choice method to be used, adoption of artificial insemination, pregnancy diagnosis, calling veterinary doctors during reproductive disorders. The status of female dairy farmers in decision making in management of milch animals were same as in other aspects of dairy farming. For management decisions like weaning of calves, animals are to be kept open in shed or not, shed to be disinfected or not, number of dairy animals to be kept only 9.5 percent female dairy farmers took self decision. For preparation of milk products the rural female farmers took independent decision. For utilization of amount obtained from dairy farming small size female dairy farmer had much say in decision making than medium size and large size female dairy farmer. Above table clearly reveals that though female dairy farmer performed all the dairy activities but their independent decision making in dairy farming is negligible.

Step wise multiple regression analysis was used to find out the factor affecting the income of female dairy farmers from dairy farming.. Three important determinants of income came out to be significant i.e. education, operated area and herd size (Table 4). With one more addition of education level of female dairy farmer the

Table 1. Categorization of dairy units in the basis of milch animals in the study area

Category	No of milch animals
Small	2-3
Medium	4-7
Large	7 and above

Table 2. Contribution of female dairy farmers on the basis of actual physical participation in dairy farming

S. No	Activities	Small N=40	Medium N=40	Large N=40	Overall N=120
1	Taking animals for grazing	12 (30)	6 (15)	2 (5)	18 (15)
2	Fodder collection	14 (35)	6 (15)	NIL	20 (16.7)
3	Chaffing fodder	15 (37.5)	8 (20)	NIL	23 (19.1)
4	Soaking of concentrates	20 (50)	10 (25)	NIL	30 (25)
5	Mixing green fodder with roughage	23 (57.5)	11 (27.5)	NIL	34 (28.3)
6	Feeding the animals	25 (62.5)	12 (30)	NIL	37 (30.8)
7	Harvesting the fodder crops	5 (12.5)	2 (5)	NIL	7 (5.8)
8	Storage of feed and fodder	15 (37.5)	7 (17.5)	NIL	22 (18.3)
9	Watering the animals	25 (62.5)	16 (40)	2 (5)	43 (35.8)
10	Carrying the harvested fodder	20 (50)	5 (12.5)	NIL	25(20.8)
11	Cleaning of animals shed	35 (87.5)	29 (72.5)	6 (15)	70 (58.3)
12	Washing and grooming of animals	35 (87.5)	30 (75)	NIL	67 (55.8)
13	Disposal of cow dung	40 (100)	26 (65)	NIL	66 (55)
14	Milking	40 (100)	35 (87.5)	25 (62.5)	100 (83.3)
15	Care of sick animals	35 (87.5)	30 (75)	6 (15)	71 (59.1)
16	Care of new born	33 (82.5)	12 (30)	5 (12.5)	50 (41.6)
17	Care of pregnant animals	30 (75)	16 (40)	5 (12.5)	51 (42.5)
18	Taking animals for treatment	28 (70)	10 (25)	3(7.5)	48 (40)
19	Processing of milk into milk products	40 (100)	40(100)	40(100)	120 (100)
20	Making cow dung cakes	40 (100)	30 (75)	5 (12.5)	75 (62.5)

Source: Field survey

Table 3. Decision making of the female dairy farmers in various aspects of dairy farming

S. No.	Particulars	Small (N=40)			Medium (N=40)			Large (N=40)			Overall N=120		
		Took Self-decision	Consulted in Decision	No role in decision	Took Self-Decision	Consulted in Decision	No role in Decision	Took Self-Decision	Consulted in Decision	No role in Decision	Took self-decision	Consulted in decision	No role in decision
1	General aspects of dairy farming	2.3 (5.82)	15.1 (37.9)	22.5(56.2)	4.5(11.2)	2.8(52.08)	14.6(36.6)	3.5(8.7)	21.6(54.1)	14.8(37.08)	10.3(8.6)	57.6(48.05)	52(43.3)
2.	Feeding of milch animals	1.2 (3)	8.4 (21)	30.4 (76)	1.9(4.7)	14(35)	24.1(60.2)	0.8(27)	10.8(27)	28.4(71)	3.9(3.25)	33.2(27.6)	83.3(69.4)
3.	Breeding of milch animals	2.5 (6.2)	7 (17.5)	30.7(76.8)	5.5(13.7)	13(32.5)	21.5(53.7)	4(10)	10.5(26.2)	25.5(63.7)	12(10)	30.2(25.1)	77.7(64.4)
4	Management of milch animals	3.6 (9.1)	17.1 (42.9)	19.1(47.9)	5(12.5)	23(57.5)	12(30)	2.8(7.07)	20.5(51.2)	16.6(41.6)	11.5(9.5)	60.6(50)	47.8(39.8)
5	Sale of milk	30 (75)	7 (17.5)	3(7.5)	25(62.5)	10(25)	5(12.5)	20(50)	15(37.5)	5(12.5)	75(62.5)	32(26.6)	13(10.8)
6	Preparation of milk products	40 (100)	Nil	Nil	40(100)	Nil	Nil	40(100)	Nil	Nil	120(100)	Nil	Nil
7	Utilization of amount obtained from dairy farming	12 (30)	15 (37.5)	13(32.5)	7(17.5)	24(60)	9(22.5)	15(37.5)	14.5(36.2)	11(27.5)	34(28.30)	53.5(44.5)	33(27.5)

Source: Field survey

Table 4. Factors affecting the income of dairy female farmer from dairy farming

Variable	Beta	SE(Beta)	t-value	p-value	Significance
Constant	58347.74	6747.86	8.647	< 0.0001	***
Education	6543.65	1985.03	3.296	0.00130	**
Operated area	12612.41	1269.23	9.937	< 0.0001	***
Herd Size	-9549.92	1277.19	7.477	< 0.0001	***
Family size	3471.67	3367.18	1.031	0.30470	NS

$R^2 = 0.5334$; Adj. $R^2 = 0.5172$; F-Value for R^2 (at 4 & 115 d.f.) = 32.868***; p-Value < 0.0001; (Note: *** Significant at 0.1% probability level; ** Significant at 1% probability level; NS Non-significant)

Table 5. Constraint faced by female dairy farmers in the study area

S. No.	Items	Small N=40	Medium N=40	Large N=40	Overall N=120
1	Negligible role in decision making of dairy related activities	35 (87.5)	35 (87.5)	40 (100)	110 (91.6)
2	Non availability of adequate veterinary services	30 (75)	25 (62.5)	14 (35)	69 (57.5)
3	Shortage of feed and fodders	35 (87.5)	20 (50)	15 (37.5)	70 (58.3)
4	Illiteracy of dairy farmers	35 (87.5)	20 (50)	10 (25)	65 (54.1)
5	Non availability and high cost of medicines	36 (90)	20 (50)	10(25)	66 (55)
7	No provision for testing of animals	36 (90)	24 (60)	13 (32.5)	73 (60.8)
8	Lack of staff at Government hospitals	37 (92.5)	30 (75)	25 (62.5)	92 (76.6)
9	Lack of capital	35 (87.5)	15 (37.5)	NIL	50 (41.6)
	Total	335 (93.05)	237 (61.6)	144 (40)	716 (66.2)

Source: Field survey

expected income will increase by Rs 6543.65 on the condition that rest of variables are held at same level. Operational land also affected the annual dairy income as with increases in one unit of land the expected income will increase by Rs 12612.41 on the condition that rest of variable are held at same level. Per herd size had negative effect on income of dairy farmers. With one unit increase in herd size the expected income decreased by Rs 9549.92. This might be due to reason that with increase in herd size the efficiency of dairy unit decreases. The computed value of R^2 (i.e., the coefficient of multiple determination) was 0.5334, which implied that 53.34 percent of the total variation in the dependent variable (i.e., dairy income per herd) was occurring because of these four variables. This value of R^2 was tested (through F-test) to be statistically highly significant (at 0.1% probability level).

The major constraints faced by small female dairy farmers were no provision for testing of animals (90 percent), lack of staff at Government hospitals (93 percent), non-availability and high cost of medicines (90 percent), no role in utilization of income from dairy by female dairy farmers (90 percent), lack of capital (88 percent) (Table 4). Among medium female dairy farmers major constraints were lack of staff at Government hospital (75 percent). Similarly among large female dairy farmers major constraints were lack of staff at Government hospitals (63 percent).

Overall the major problems faced by all female dairy farmers were lack of staff at Government hospitals (76.6 percent), no role in utilization of income from dairy by female dairy farmers (71.6 percent), no provision for testing of animals (60.8 percent), shortages of feed and fodder (58.3 percent).

4. SUMMARY AND CONCLUSIONS

All the activities related to dairy farming were performed by female dairy farmers. Small size female dairy farmers performed all the activities related to dairy farming ranging from disposal of cow dung to care of sick and new born animals. Large size female dairy farmers hired labour for dairy activities due to higher income of the households and large number of animals. The role of rural women in decision making is paradoxical to their contribution in dairy farming. For various dairy related decisions like feeding of

milch animals, management of milch animals, sale of milk and utilization of amount obtained from dairy farming rural women either only consulted or had no role in decision making. Independent decision making by rural women in dairy related activities was negligible in the study area.

The major factors affecting the income of female dairy farmers were education, operated area and herd size. The main problems faced by female dairy farmers were negligible role of dairy farm women in decision making, non-availability of adequate veterinary services, illiteracy of dairy farm women, lack of staff at government hospitals and lack of capital. The study suggested that to increase the income of rural women from dairy rural women should be more educated and empowered through extension facilities by government. Due to stagnation in growth of agriculture, dairy can be used as an alternative for marginal and small farmers for increasing their income. Marginal and small female dairy farmers should be given more subsidies, loan and training for dairy business. Strict rules should be made regarding working of veterinary hospitals as the doctors were not available in the government veterinary hospitals in the study area.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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