Contribution of Rural Women in Dairy Income

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ABSTRACT
Background: It is now proven by the rural women that they not only play a key role in the dairy farming but also have a significant role in the socio-economic development in India. Milk production in India is mainly concentrated on marginal and small farm size group in rural areas as a subsidiary occupation to agriculture sector. In addition to this, there are a number of organized dairy farms under the cooperatives milk producers’ union. In this country, the low genetic potential of the animals results in the high cost and low milk production.

Methods: The present field-based survey work was carried out during the agricultural year 2017-18, by adopting purposive stratified simple random technique and data was collected with the help of pre-tested schedule from 80 rural dairy women respondents of eight villages from two blocks of Firozabad district to ascertain the determination of cost of milk production and contribution of rural women in dairying sector.

Result: The profit margin can be increased by decreasing the cost of production. The contribution of household women in the net income of the farms was 55.39 and 55.01 percent in case of marginal and small farm, while the total of 274.08 mandays employment generated on the farms through the adoption of dairying activity. The present work will be a complementary contribution of dairy sector.

Key words: Contribution, Cost, Milk, Production, Rural, Women.

INTRODUCTION
Agriculture is the main source of livelihood for more than 60.00 per cent of Indian population, all those who live in rural area directly or indirectly dependent on agriculture for their livelihood. The owned farmer directly dependent on agriculture while those who are landless work for the owned cultivation they perform the operation right from land preparation to harvesting and threshing or they perform the operation from dairy farm. Agriculture has contribution significant to India’s national income as indicate by the figures available right from the period 1950-51 the share of agriculture as a presently to GDP was 55.40 per cent in 1950-51, 30.90 per cent in 1990-91, 26.40 per cent in 1997-98, 13.90 per cent in 2013-2014 and 17.32 per cent in 2016-2017 the share of agriculture sector in the national income has been declining over the years (Yadav and Sharma, 2019).

Livestock enterprise in general and dairying in particular has manifold problem in India. Unlike other developed countries, India faced an acute problem of milk shortage. Even though it has nearly 25.00 per cent of world cattle population, the milk production is only 6.10 per cent of the total milk production of the world (Sharma 2006). The vegetarian nature of Indian people is the main of developing the dairy industry in our country. The religious traditions of people also restrict the development of dairy industry (Bargali and Shahi 2015).

Women as a class play a pivotal role in the process of economic development while at national level and regional level. Women’s role is mostly reflected as workers on at household level. Women’s are complex and multifarious the responsibilities of children and elderly person managing the family attending to the household chores and earning a livelihood for the family etc. have made the life of women distinct and challenging this is particularly so in development (Sharma, 2005; Dhakre and Sharma, 2009).

Today rural India is suffering from the various efforts done by the govt. for the improvement of these poor folk. Very little headway seems to have been made in this direction by now. It has become clear that the programs in the shape of spoon feeding to the poor could not achieve the goal of poverty eradication. It is also clear that the solution of rural people is not possible without establishment of the triangular relationship between man, land and livestock (Kulshreshtha and Yadav, 2007).

MATERIALS AND METHODS
The present research study was conducted in the Firozabad district purposively due to the sufficient numbers of dairy respondents category wise available and also rural women distinct and challenging this is particularly so in development. Additionally, a number of organized dairy farms under the cooperatives milk producers’ union were selected for the survey work.
four villages from each blocks were selected by simple random method and then from the selected ech villages 10 numbers of respondents were selected for the present study; altogether 80 numbers of respondents were selected by stratified simple random technique and finally categorized into two sub-groups viz; marginal (1-2 milch animal + 1 ha of land) and small (2-3 milch animals + 1.01 ha and above land holdings), respectively and then for the present research work data were collected through pre-structured interview schedule and then data were analyzed, tabulated and to find out the percentage etc.

RESULTS AND DISCUSSION
Table 1 reveals the total land holdings was 73.69 ha for 80 numbers of respondents, out of small farmers was having 47.24 ha (64.11 per cent) of total land holdings, marginal was 26.45 ha of land (35.89 per cent), while the average land holding size was 0.92 ha and minimum on small with 1.35 ha and minimum of 0.58 ha on marginal farm size groups, respectively. The average numbers of livestock reared on the selected farm size group, further data indicates that total numbers of animals were 151, respondents are found more 45 (56.25 per cent) on marginal farm size group and it was 35 (43.75 per cent), the numbers of animals rearing on the both farm shows the reverse trend that on small farm 88 (58.28 per cent) of total animal reared, however reaming 63 (41.72 per cent) were reared on marginal farm in the study area, respectively. The size of livestock is large in case if small farmer compare to marginal farmer. Similar trend were also reported by Sharma et al. (2000) and Dinesh and Sharma (2019). Table 2 reveals that total per family labour employed cost in the maintenance of milch animals was ` 53,658.86/- and on marginal and small farm size group it was `20,269.71/- and `33,389.15/-, respectively. The main findings of the study reveals that the female earning was more `29,595.75/- (55.16 per cent) as compare to male `24,063.12/- (44.84 per cent). On marginal farm it was recorded highest with `11,226.31/- (55.38 per cent) as compare to male with `9,043.40/- (44.62 per cent), while on the small farm, female are in increasing trend of earning with `18,369.44/- (55.02 per cent) as compare to male with Rs `15,019.72/- (44.98 per cent). The main finding of the research is that female labour are earning more as compare to male labour. Similar trend were also reported by Sharma et al. (1999) and Leah and Sharma (2018). Table 3 reveals that the production of milk in rainy, winter and summer season on different farm is estimated, the total

### Table 1: Average land holdings and milch animal on the sample farm.

| Farm size group | Respondents | Number of animal | Total Land holdings | Av. land holdings | Average herd size |
|-----------------|-------------|------------------|---------------------|-------------------|------------------|
| Marginal        | 45          | 63               | 26.45               | 0.58              | 1.40             |
|                 | (56.25)     | (41.72)          | (35.89)             | (35.81)           |                  |
| Small           | 35          | 88               | 47.24               | 1.35              | 2.51             |
|                 | (43.75)     | (58.28)          | (64.11)             | (64.19)           |                  |
| Total           | 80          | 151              | 73.69               | 1.93              | 3.91             |

(Figures in parentheses indicates percentage of total).

### Table 2: Family labour use in maintenance of milch animals per farm (Rs).

| Farm size group | Respondents | Male     | Female   | Total   |
|-----------------|-------------|----------|----------|---------|
| Marginal        | 45          | 9,043.40 | 11,226.31| 20,269.71|
|                 | (56.25)     | (44.62)  | (55.38)  | (100.00) |
| Small           | 35          | 15,019.72| 18,369.44| 33,389.15|
|                 | (43.75)     | (44.98)  | (55.02)  | (100.00) |
| Total           | 80          | 24,063.12| 29,595.75| 53,658.86|
|                 | (100.00)    | (55.16)  | (100.00) |         |

(Figures in parentheses indicates percentage of total).

### Table 3: Season wise milk production per farm.

| Farm size group | No. of Case | Rainy (Liters) | Winter (Liters) | Summer (Liters) | Total (Liters) |
|-----------------|-------------|----------------|-----------------|-----------------|----------------|
| Marginal        | 45          | 12,341.70      | 10,455.48       | 15,002.82       | 37,800         |
|                 |             | (32.65)        | (27.66)         | (39.69)         | (100.00)       |
| Small           | 35          | 16,982.68      | 29,217.76       | 10,999.56       | 57,200         |
|                 |             | (29.69)        | (51.08)         | (19.23)         | (100.00)       |
| Total           | 80          | 29,744.50      | 36,404.00       | 28,851.50       | 95,000         |
|                 |             | (31.31)        | (38.32)         | (30.37)         | (100.00)       |

(Figures in parentheses indicates percentage of total).
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Milk production per farm comes to 95,000 liters. During the winter season the milk production is highest i.e.; 36,404.00 liters, in summer season it comes to lowest i.e.; 28,851.50 liters and in rainy season it comes to 29,744.50 liters. In case of marginal farmers to production of milk per family comes to about 37,800 liters. In summer season it comes highest 15,002.82 liters, in winter season it comes lowest being 10,455.48 liters and in rainy season it comes being 12,341.70 liters. Whereas in case of small farmer to total production of milk per family it comes about 57,200 litres, in winter season it comes highest 29,217.76 litres and in summer season it comes lowest to 10,999.56 liters and rainy season it comes being 16,982.68 liters. Small farmers have its maximum production of milk as compared to marginal farmers. The overall milk production is highest in winter season and summer season it is lowest. Similar trend were also reported by Kanwat and Singh (2014).

Table 4 reveals that the net maintenance cost was high Rs 6,86,400.00 as compare to marginal farm Rs 4,72,500.00, this is mainly due to the less number of rearing livestock / animal on the farm, even in the same line the average milk production also less. Further the total cost of production per liter of milk is Rs 26.49 per liter cost and in case of marginal farmers is Rs 27.34 and in case of small farmers it comes to Rs 25.47. The cost of milk production per liter is greater in case of marginal farms as compared to small farms. The return from milk production is affected by the production of milk price of milk and cost the incurred in the production of milk. Similar trend were also reported by Jaisawal and Patel (2012); Sharma (2015) and Dinesh and Sharma (2019).

Table 5 reveals that the total quantity of milk consumed was 25,104.81 litres, out of that maximum 12,315.24 litres was consumed on marginal as compare to 10,856.56 litres being consumed by the small farm size groups, respectively. Further the in term of value it has follow the same trend. However the total milk sold was 70,025.19 litres, it was found maximum (46,343.44 litres) on small and minimum (25,484.76 litres), in values also following the same trend. The total 73.61 per cent of milk was sold and the sale of milk in the group of small farms was 81.02 per cent more than in case of marginal farmers 67.43 per cent. The consumption of milk was 32.58 and 18.98 per cent in case of marginal farmers and small farms respectively. The net income is obtained by deducting all the expenses from the gross income. Similar trend were also reported by Lal et al. (2000); Sharma (2012) and Dinesh and Sharma (2019).

Table 6 reveals that the total gross income was ` 25,19,994.00, out of that the maximum with ` 14,56,884.00/- (57.81 per cent) was on small farm followed with ` 10,33,452.00/- (42.19 per cent) on small farm size group, respectively. Whereas the total maintenance cost incurred

### Table 4: Cost of milk production Rs / Liter.

| Farm size group | Respondents | No. of animal | Net maintenance cost (\(\times\)) | Total milk production | Cost of milk production per Liter (Rs) |
|-----------------|-------------|---------------|----------------------------------|----------------------|---------------------------------------|
| Marginal        | 45          | 63            | 4,72,500.00                      | 37,800               | 27.34                                 |
| Small           | 35          | 88            | 6,86,400.00                      | 57,200               | 25.47                                 |
| Total           | 80          | 151           | 11,62,700.00                     | 95,130               | 26.49                                 |

(Figures in parentheses indicates percentage of total).

### Table 5: Total quantity and value of consumed and sold milk.

| Farm size group | Respondents | Consumed milk | Sold milk | Consumed | Sold |
|-----------------|-------------|---------------|-----------|----------|------|
|                 |             | Quantity (L)  | Value (\(\times\)) | Quantity (L) | Value (\(\times\)) | Milk (%) | Milk (%) |
| Marginal        | 45          | 12315.24      | 336698.70 | 25484.76 | 696753.30 | 32.58    | 67.42    |
| Small           | 35          | 10856.56      | 276516.60 | 46343.44 | 1180367.00 | 18.98    | 81.02    |
| Total           | 80          | 25104.81      | 665026.30 | 70025.19 | 1854967.00 | 26.39    | 73.61    |

(Figures in parentheses indicates percentage of total).

### Table 6: Maintenance cost and net income per farm.

| Farm size group | Respondents | Gross income (\(\times\)) | Maintenance cost (\(\times\)) | Net income (\(\times\)) |
|-----------------|-------------|---------------------------|-----------------------------|-------------------------|
|                 |             | (\(\times\))              | (\(\times\))              | (\(\times\))            |
| Marginal        | 45          | 10,33,452.00              | 4,72,500.00                 | 5,60,952.00             |
|                 |             | (42.19)                   | (45.72)                     | (54.28)                 |
| Small           | 35          | 14,56,884.00              | 6,86,400.00                 | 7,70,484.00             |
|                 |             | (57.81)                   | (47.11)                     | (52.89)                 |
| Total           | 80          | 25,19,994.00              | 11,62,700.00                | 13,57,294.00            |
|                 |             | (100.00)                  | (46.14)                     | (53.86)                 |

(Figures in parentheses indicates percentage of total annual value).
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Table 8: Contribution of women in family income.

| Particulars                  | Marginal          | Small             | Total              |
|------------------------------|-------------------|-------------------|--------------------|
| Net Income from Dairying (Rs) | 5,60,952.00(100.00) | 7,70,484.00(100.00) | 13,57,294.00(100.00) |
| Work per farm by Man (man-days) | 61.04 (44.61)  | 61.76 (44.99)     | 122.80 (44.80) |
| Work per farm by Female (female-days) | 75.76 (55.39) | 75.52 (55.01)     | 151.28 (55.20) |
| Contribution of Male (Rs)    | 9,043.40(44.62)  | 15,019.72(44.98)  | 24,063.12(44.84)  |
| Contribution of Female (Rs)  | 11,226.31(55.38) | 18,369.44(55.02)  | 29,595.75(55.16)  |

Table 7: Employment in dairy per farm (in mandays).

| Farm size group | Respondents | Male (Days) | Female (Days) | Total (Days) |
|-----------------|-------------|-------------|---------------|--------------|
| Marginal        | 45          | 61.04 (44.61)| 75.76 (55.39) | 136.80 (100) |
| Small           | 35          | 61.76 (44.99)| 75.52 (55.01) | 137.28 (100) |
| Total           | 80          | 122.80 (44.80)| 151.28 (55.20)| 274.08 (100.00) |

Table 8 (Figures in parentheses indicates percentage of total annual value).

Table 7 (Figures in parentheses indicates percentage of total annual value).

on the farm was `11,62,700.00 which was 46.14 per cent of the gross income, indicate towards the profit, it was found to be maximum with `6,86,400.00/- (47.11 per cent) on small, followed by marginal with `4,72,500.00/- (45.72 per cent), respectively. The total net income per farm was `13,57,294.00/- (53.86 per cent), it was found to be maximum `7,70,484.00/- (52.89 per cent) on small farm, followed by `5,60,952.00/- (54.28 per cent) on marginal farm size group, respectively. The net income per farm in small farms is higher and in case of marginal farms it is lowest. Similar trend were also reported by Sharma et al. (2008); Sharma (2013) and Jamir and Sharma (2018).

Table 7 reveals that per farm total of 274.08 mandays employment generated / available on the farms through the adoption of dairying activity, out of that the per farms employment availability on marginal and small farms is 136.80 mandays and 137.28 mandays respectively. The total manday generated employment was found to be maximum by female labour with 151.28 mandays (55.20 per cent) as compare to male labour 122.80 mandays (44.80 per cent), respectively. Similar trend were also reported by Mrinali and Sharma (2015) and Sharma et al. (2018). The female contribution is higher than male. The total family days spent in the upkeep of animal and crop production first converted in to standard unit (man-days) then the total net income of the family from dairying and crop production apportioned among the male and female percentage in the table given.

Table 8 reveals that out of total net income of the family the overall contribution of male and female is 44.84 percentages and 55.16 percentages and the contribution of household women in the net income of the family is 55.38 percentages and 55.02 percentage marginal and small farms respectively. On other hand the contribution of male in the family net income on marginal and small farmers is 44.62 and 44.98 percent respectively. The overall average contribution of women is higher on marginal and small farm compared to male in the family also contribute to the family income. therefore it may be concluded that family women participate not only in the work at home and field but they contribute directly or indirectly to the family income. Similar trend were also reported by Sharma et al. (2008) and Borah and Sharma (2015). It is rightly said that, “man and women are the two wheels of family cart”.

CONCLUSION

Livestock in general and dairying in particular may have foods problems in India. Unlike other development countries, India faced an acute problem of milk shortage. Even though it possesses nearly one-forth number of worlds cattle and 60 percentage of world buffalo population possessing a heavy burden on country limited resource. In addition to this, there are certain cultural binding in our country such as vegetarian nature of the large proportion of the population having milk as only source of animal protein and slaughter of even on productive cow is regarded as unreligious. The contribution of household women in the net income of the farms was 55.39 and 55.01 percent in case of marginal and small farms. While the male contribution 44.61 and 44.99 percent of the farms net income on marginal and small farms, respectively.

From the above facts it can be concluded that family women participation not only in the work at home and field but they contribute directly or indirectly to the family income. It is rightly said that, “man and women are the two wheel of life cart”.

REFERENCES

Bargali Kiran, Vibhuti and Shahi, Charu. (2015). Contribution of rural women in vegetable cultivation in homegardens of Nainital district, Kumaun Himalaya, India. Current
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Borah, Mrinali, Gogoi and Sharma, Amod. (2015). Impact of women labour and its utilization under different agro-climatic zones with reference to different farm size groups in state of Assam. Economic Affair. 60(2): 237-241.

Dhakre, D.S. and Sharma, Ammod. (2009). Agriculture development in Nagaland. Agriculture Science Digest. 29(2): 71-72.

Dinesh, V. and Sharma, Amod. (2019). A financial implication analysis of different layer poultry farms in Namakkal district. International Journal of Current Microbiology and Applied Sciences. 8(6): 938-946.

Dinesh, V. and Sharma, Ammod, (2019). Marketing margin, price spread and marketing efficiency analysis of different poultry farms. International Journal of Current Microbiology and Applied Sciences. 8(6): 1039-1046.

Jaisawal, Aparna and Patel, M.M. (2012). Entrepreneurial behaviour of Rural Women. Indian Res. J. Ext. Edu. 12(1): 45-55.

Jamir Imsunaro and Sharma, Amod, (2018). Impact on knowledge gain, income and employment through intervention of Krishi Vigyan Kendra Training Programmes in Nagaland. International Journal of Current Microbiology and Applied Sciences. 7(11): 2670-2678.

Kanwat, M. and Singh, P. (2014) Technological needs of farm women in dairy farming: A case of Udaipur district, Rajasthan. Indian Res. J. Ext. Edu. 14(3): 23-28.

Kulshrethta, R.K. and Yadav, D.S. (2007). Marketing of Milk in Firozabad District of Uttar Pradesh. National Seminar Organized by The Indian Society for Promotion of Agricultural Sciences (TISPAS), October 27th at Dimapur (NL): 59.

Lal, R.C., Singh, J., Sharma, A., Ogra, M. and Sharma, R. (2002). Women labour employment in goat rearing - A case study of revine area of Mathura district. Journal of Dairying, Foods and Home Science. 21(1): 56-59.

Leah and Sharma, Ammod. (2018). Prospects of women cut flower enterprise for sustainable approach: A case study. Economic Affair. 63(2): 325-330.

Mrinali Gogoi, Borah and Sharma, Ammod. (2015). Women Labour Participation in Rice Production - A case study in Assam. Journal of Interacademia. 19(2): 301-306.