



Dairying : Immense scope to women work

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ABSTRACT : Dairy development in India has taken place under a well known programme known as Operation Flood. Co-operative and private dairy being an integral part of the Operation Flood Programme, have played a major role in the production and marketing of milk. A study was carried out to estimate the contribution of dairy and crop production enterprise towards employment and income in relation to different herd size groups in Western Maharashtra of Maharashtra state. To assess the change in employment and income due to dairy enterprise the non-dairy farmers were selected purposively from the three districts of the study area. The non-dairy sample cultivators were selected purposively for a sample of 90 consisting of 30 each of small, medium and large size groups having similar area holding of as like the selected milk producers. In order to it a comparative study a sample of 90 non-dairy cultivators who did not had any linkage with dairy enterprise, were taken randomly from selected villages of Western Maharashtra. The total employment of adult male was 313.95 days and for female 301.71 days for dairy households, respectively. Dairy enterprise has generated more employment of 21 per cent for male and 43 per cent for female. The total employment of adult male and adult female, at the overall level 297.19 days for male and for female 255.59 days, respectively of which 44 per cent for male and 34 per cent for female were derived from crop production enterprise. The proportion of income from dairy enterprises in the total farm income was relatively high on dairy sample households as compared to the non-dairy sample households. It was mainly due to the adoption of dairy enterprise that resulted into higher income. Dairy enterprise absorbs the major portion of the available labour force particularly the women. Therefore, the training programmes on dairy management for women be arranged.

KEY WORDS : Employment, Income though dairy enterprise

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INTRODUCTION

Dairying is one of the important subsidiary occupation in rural area of India, next agriculture. Dairy development has assumed a paramount importance in the rural economy of India because of its immense potential for supplementing the income to small farmers, marginal farmers and landless agricultural labours for augmenting the employment to the rural masses (Atibudhi, 1995). Its provide income and employment not only to the weaker section of the society but also to the farming from small holdings can be maximized by proper combination of dairy enterprise with crop production. Dairy development in

India has taken place under a well known programme known as Operation Flood. Co-operative and private dairy being an integral part of the Operation Flood Programme, have played a major role in the production and marketing of milk (Gavali, 2001 and Kaware, 2011). India ranks first in the World and Maharashtra State ranks sixth in India in milk production. During 2012-13, the production of milk at the State level was 8.7 million M.T. and the per capita daily availability was 209 g, while the production of milk at all-India level was 132 million MT and the per capita daily availability was 290 g (Singh, 1999).

In Maharashtra State the share of animal husbandry in Gross State Domestic Products of agriculture and allied activity during the year 2012-13 was 24 per cent. The total livestock in the State was 3.72 crores in the year 2013. State has made a remarkable progress in milk production through the maintenance of crossbred cows and establishment of co-operative and private dairy units aimed of selling milk and milk products at remunerative prices. The dairy industry has witnessed the

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increase in livestock population and milk production particularly in Western Maharashtra. The milk production in Maharashtra State and Western Maharashtra was 87.34 lakh tones and 50.54 lakh tons during the year 2012-13, respectively. The share of Western Maharashtra in the State was 57.86 per cent. Keeping this view in mind, present study attempts to analyze “Dairying: Immense scope to women work”.

Objectives :

The present study was confined to the following specific objectives :

- To examine employment and income pattern in dairy and non-dairy worker in Western Maharashtra.
- The changes in employment and income due to dairy enterprise in Western Maharashtra.

MATERIAL AND METHODS

The micro-level data at milk producers level were obtained by conducting personal interview of selected 270 sample milk producers for the year 2007-08. The Ahmednagar, Pune and Kolhapur districts of Western Maharashtra were purposively selected for present study. Milk producer sample household selling milk to co-operative dairy unit and private dairy unit and sample household selling milk to consumer were selected purposively. Milk producers of each selected dairy units were classified into three herd size categories *viz.*, small (1 to 2 milch animals), medium (3 to 4 milch animals) and large (above 5 milch animals) using random sampling method. Thus, total sample were 270 milk producers consisting of 90 milk producers selling milk to co-operative dairy units, 90 milk producers selling milk to private dairy units and 90 milk producers selling milk to consumers, which were selected purposively.

To assess the change in employment and income due to dairy enterprise the non-dairy farmers were selected purposively from the three districts of the study area. The non-dairy sample households were selected purposively for a sample of 90 consisting of 30 each of small, medium and large size groups having similar area holding of as like the selected milk producers. In order to it a comparative study a sample of

90 non-dairy cultivators who did not had any linkage with dairy enterprise, were taken randomly from selected villages of Western Maharashtra.

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

Employment pattern of dairy and non-dairy worker :

The employment pattern of dairy and non-dairy worker of sample households is given in Table 1. Though the dairy enterprise is capital intensive, yet the requirement of labours is heavy as there are several operations which cannot be handled without adequate labour. While taking up dairying as complementary or supplementary enterprise along with crop production, human labour absorption in crop farming increase because land under fodder cultivation which require more labour, increases and also family members find additional work of producing milk (Pawar and Kale, 1990 and Choudhan *et al.*, 1995).

The total employment of adult male was 313.95 days and for female 301.71 days for dairy households, respectively. Dairy enterprise has generated more employment of 21 per cent for male and 43 per cent for female.

Farm activity is the major source of employment to the member of non-dairy households. The main activity of the cultivators is to cultivate their own land by growing crops in such a manner that they should maximize their income by using intensive use of labours. The non-dairy sample households, the total employment of adult male and adult female, at the overall level 297.19 days for male and for female 255.59 days, respectively of which 44 per cent for male and 34 per cent for female were derived from crop production enterprise. Off-farm employment has generated heavy employment of 22 per cent for male and 21 per cent for female in non-dairy farm. On other farm employment for non-dairy worker derived relatively low of 8 to 11 per cent for male and 10 to 11 per cent for female worker (Kumar *et al.*, 1999 and Gupta and Kaware, 2008).

Table 1 : The employment pattern of dairy and non-dairy worker of sample households (Days/ annum)

Sr. No.	Particulars	Dairy households		Non -dairy households	
		Male	Female	Male	Female
1.	Crop production	163.79 (44.87)	88.89 (24.35)	161.53 (44.25)	123.65 (33.88)
2.	On other farm	–	–	27.50 (7.53)	27.68 (7.58)
3.	Own dairy enterprise	75.77 (20.76)	158.16 (43.33)	–	–
4.	Maintenance of other livestock	37.51 (10.28)	47.09 (12.90)	29.65 (8.12)	27.12 (7.43)
5.	Off-farm employment	35.88 (9.83)	7.57 (2.07)	78.51 (21.51)	77.14 (21.13)
	Total employment	313.95 (86.01)	301.71 (82.66)	297.19 (81.42)	255.59 (70.02)
	Period of unemployment/ Social/ housing	51.05 (14.09)	63.29 (25.43)	67.81 (18.57)	109.41 (29.97)
	Total	365.00 (100)	365.00 (100)	365.00 (100)	365.00 (100)

Figures in parentheses are the percentages to the total employment

Dairying is one of the important subsidiary occupations in the rural areas of India, next only to agriculture. Dairy development has assured a position of paramount importance in the rural economy of India because of its immense potential for supplementing the income of small and marginal farmers and landless agricultural labours and for augmenting the employment of the rural people.

Employment function :

The employment function of small, medium and large herd size households was worked out separately. The variables included in the model were number of milch animals, number of adult earners, off-farm employment and gross cropped area. Thus, in all four variables included in employment function jointly explained 89, 83 and 87 per cent variation for small, medium and large herd size households, respectively. The highest contribution came from number of milch animals and adult earners for all categories of herd size sample households. The variables viz., number of milch animals (X_1), number of adult earners (X_2) and gross cropped area (X_4) were highly significant at one per cent level indicating large potential for expansion of employment in all categories of sample households. The variable off-farm employment (X_3) was found positive and significant at 1 and 5 per cent in small, medium and large size sample households, respectively. It has indicated that there was positive significant effect of off-farm employment on total employment of households.

Looking to the regression co-efficients of individual variables, it is seen that, other things remaining the same;

addition of one milch animals would create additional employment of 70.85, 69.29 and 60.56 days to the working members of small, medium and large herd farm households, respectively. The regression co-efficient in the case of working adult workers variable for small, medium and large herd size farm families were 103.22, 133.21 and 182.34 and found highly significant at one per cent level (Table 2). From the elasticities of variable *i.e.* off-farm employments were positively significant at 5 and 1 per cent level in small, medium and large herd size group farm families. It has indicated that there was positive significant effect of off-farm employment on total employment of farm families.

The addition of one hectare of gross cropped area would create additional employments of 41.83, 33.26 and 32.39 day in small, medium and large herd size groups farm families, respectively which indicate that the addition by one unit variable would increase employment of families of respective herd size group.

Income pattern of dairy and non-dairy families :

At the overall level, it is seen that the total income from crop production, milk production activities, wage earning, goat and poultry rearing and service and business activities was the Rs. 1,83,088 for dairy household while, non-dairy households was Rs. 1,25,184 farm family. It was observed that, the contribution of income from crop production increases with the farm size (Table 3). The share of income from crop production was the highest 60.15 per cent followed by 32.19 per cent milk production activity and it was 3.81 per cent for service and

Table 2 : Results of estimated employment function

Sr. No.	Particulars	Small	Medium	Large
1.	Intercept (a)	125.40	120.48	119.31
2.	No. of milch animals (X_1)	70.8558*** (10.7579)	69.2923*** (15.1548)	60.5693*** (10.8900)
3.	No. of adult earner (X_2)	103.2212*** (17.9968)	133.2138*** (20.9276)	182.3457*** (15.4111)
4.	Off-farm employment (days) (X_3)	0.3806** (0.0632)	0.4223*** (0.1272)	0.2803*** (0.1511)
5.	Gross cropped area (ha) (X_4)	41.8386** (8.3169)	33.2676*** (10.3880)	32.3982*** (8.1107)
	R ²	0.89	0.83	0.87
	F- value	188.63	107.79	148.72

Figures in the parentheses are the standard errors of regression co-efficients
 *, ** and *** indicate significance of values at P=0.1, 0.05 and 0.01, respectively

Table 3 : Income pattern of dairy and non- dairy families

Sr. No.	Particulars	(Rs./household)			
		Dairy households		Non-dairy households	
		Rs.	Per cent	Rs.	Per cent
1.	Crop production activity	110124	60.15 %	109230	87.25 %
2.	Milk production activity	58928	32.19 %	-	-
3.	Wage earning	2120	1.16 %	4855	3.88 %
4.	Goat and poultry rearing	4944	2.70 %	2676	2.12 %
5.	Service and business	6972	3.81 %	8423	6.73 %
	Total income	183088	100 %	125184	100 %
	Additional income gained through dairy enterprise	57904		-	-

business of dairy sample farm family.

For non-dairy sample households at the overall level, it is seen that the total income from crop production, wage earning, goat and poultry rearing and service and business was the Rs. 1,25184 for non-dairy households. It was observed that, the contribution of income from crop production increases with the farm size. The income from crop production was the highest 87.25 per cent followed by service and business 6.73 per cent and it was wage earning 3.88 per cent, 2.12 per cent for goat and poultry rearing of non-dairy sample households.

The proportion of income from dairy enterprises in the total farm income was relatively high on dairy sample households as compared to the non-dairy sample households. Hence, in the light of these findings it could be said that dairying offers a vast scope for increasing the income opportunities in all categories of sample households. The study further revealed that, the adoption of dairy enterprise raised the income levels of the beneficiaries by Rs. 57904.

The results indicated that the dairy enterprise; in combination with crop farming, offered considerable scope for increasing the net returns as well as employment potential of the farmers.

It is significant that the milk producers generally earn higher income from dairy enterprise compared to non-dairy farmers. Alternatively, the share in income earning from dairy enterprise is more prominent on the dairy farm. This is attributed to size of dairy herd, better animal management practices, stability and fairness in dairy income receipt from the dairy co-operative societies and some other reasons.

Income function :

The income function of small, medium and large herd size dairy households was worked out separately. The variables included in the model were number of milch animals, number of adult, off-farm income and gross cropped area. Thus, in all four variables included in income function and they jointly explained 86, 83 and 69 per cent variation for small, medium and large herd size dairy households, respectively (Table 4). The highest contribution came from number of milch animals, number of

adult earners and gross cropped area for all categories of sample households. The variables viz., number of milch animals (X_1), number of adult earner (X_2) and gross cropped area (X_4) were highly significant at one per cent level indicating large potential for expansion of income in all categories of sample households. The variables off-farm income (X_3) was found positive and highly significant at one per cent level in small and medium herd size sample households indicated that there was positive significant effect of off-farm income on total income of sample households.

The regression co-efficient of number of milch animals (X_1) were 30421.51, 33234.52 and 34311.96 and found significant at 10 and 5 per cent level in small, medium and large herd size groups, respectively. This can be interpreted that an increase in additional one milch animal, the total annual income would increase by Rs. 30421.51, Rs. 33234.52 and Rs. 34311.96 in small, medium and large herd size dairy households, respectively. The co-efficient of number of adult earners (X_2) was found significant. This indicated that the additional by one unit of variable would increase annual income of families of respective herd size groups.

Similarly, the regression co-efficients of gross cropped area (X_4) were 19537.78, 10120.00 and 20071.40 at 1 and 10 level significant thereby stating that an increase in gross cropped area by one hectare, there will be significant increase in the family income of small, medium and large households, respectively.

Conclusion :

The proportionate employment in crop production activity to the total employment showed increasing trend with in the farm/herd size. It was also noticed that the share of livestock employment from 21 per cent and 43 per cent in the case of male and female workers, respectively. The crop production and dairy enterprise being labour intensive offered sufficient employment opportunities particularly women. The female labour contribution in dairying was about 43 per cent higher than crop production.

The non-dairy sample households, the total employment

Table 4 : Results of family income function

Sr. No.	Particulars	Small (1-2 milch animals)	Medium (3-4 milch animals)	Large (5 and above milch animals)
1.	Intercept (a)	16733.30	31631.10	37655.90
2.	No. of milch animals (X_1)	30421.51* (15489.53)	33234.52** (15902.32)	34311.96* (18261.65)
3.	No. of adult earner (X_2)	34722.70** (15178.96)	34473.88** (15372.95)	32017.01* (17568.65)
4.	Off-farm income (Rs.) (X_3)	0.233 ^{NS} (0.4090)	0.1388 ^{NS} (0.8098)	0.7411 ^{NS} (0.4602)
5.	Gross cropped area (ha)(X_4)	19537.78*** (3202.09)	10120.00* (5030.71)	20071.40*** (5792.59)
	R ²	0.86	0.83	0.69
	F- value	132.87	105.12	48.87

Figures in the parentheses are the standard errors of regression co-efficients
*, ** and *** indicate significance of values at P=0.1, 0.05 and 0.01, respectively
NS=Non-significant

of adult male and adult female, at the overall level 297.19 days for male and for female 255.59 days, respectively of which 44 per cent for male and 34 per cent for female were derived from crop production enterprise. Off-farm employment has generated heavy employment of 22 per cent for male and 21 per cent for female in non-dairy farm.

The per farm income has increased through dairy enterprise by 32.19 per cent at overall level due to adoption of modern dairy enterprise resulted into higher income. The highest contribution came from number of milch animals, number of adult earners and gross cropped area for all categories of sample households. The variables viz., number of milch animals, number of adult earners and gross cropped area were highly significant at one per cent level indicating large potential for expansion of income in all categories of sample households (Jayachandra, 1991) also worked on the related topic.

Policy implications :

The dairy enterprise is good source to absorb the available labour force particularly the women. They should be given proper guidance to take up the dairy enterprise as a gainful activity. Therefore, large number of training programmes on dairy management, specially for women be arranged.

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