ECONOMICS OF MILK PRODUCTION IN MURSHIDABAD DISTRICT OF WEST BENGAL

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The study revealed that cost of milk production from crossbred cow was significantly lower than that from local cow or buffalo. Milk production from local cow was not economically viable due to its low milk yield which was attributable to inadequate feeding and low genetic potential. In milk production from crossbred cow, landless labourers and marginal farmers were more efficient than large farmers.

INTRODUCTION

Dairying constitutes an important segment of farm sector in India. The information on costs and returns from dairying is crucial for policy planning to ensure that the producers get a remunerative price for their milk and consumers get milk and milk products at reasonable cost. Owing to wide variations in resource endowment, the cost and returns from milk production vary a great deal across states in India. Therefore, it becomes imperative to conduct studies on economics of milk production in different parts of the country. Several studies have been carried out in various states on economics of milk production from both buffalo and cow. Among others, Patel et al (1988) and Gangwar et at (1989) studied the economics of milk production in Haryana, Grover et al (1992) in Bathinda district of Punjab, Dev Raj and Gupta (1994) in Churu district of Rajasthan, Kumar and Balishter (1996) in Firozabad district of Uttar Pradesh, Gupta and Agarwal (1996) in Himachal Pradesh and Baruah et al (1996) in Assam. But no such study has been conducted in Murshidabad district of West Bengal which has the largest and most successful milk producers' co-operative union in eastern India and lies in the middle of the state.

The present study was carried out to bridge this vital gap in information about dairying for regional policy planning with the following objectives:

1. To ascertain the cost of milk production for different species of milch animals among different categories of milk producers.
2. To study the net returns from milk production accruing to different classes of households.

MATERIAL AND METHODS

Multi-stage stratified random sampling technique was employed for selecting the sample households for the study. Murshidabad district comprises 26 Community Development Block and is divided by the river Bhagirathi into two halves, each of which is having a different soil type, cropping pattern and irrigation facilities. These two halves of the district were, therefore, treated as two zones. From each zone, one development block was selected at random. Then, two villages were randomly selected from each of the selected blocks ensuring that one of the two villages was more developed and the other one relatively less developed. Further, all the milk producing households in each selected village were enumerated alongwith the size of their operational land holdings. The

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households were divided into four categories, viz. lanless labourers, marginal farmers (upto 1 ha.), small farmers (1-2 ha.) and large farmers (above 2 ha.) @. A total sample of 100 households consisting of 20 landless labourers, 31 marginal farmers, 23 small farmers and 26 large farmers was selected on the basis of probability proportional to the total number of households in each selected village for detailed investigation. The data for the study were collected by the survey method of enquiry for the period 1997-98 relating to the quantity and price of green fodder, dry fodder and concentrates fed to the milch animals, labour used in milk production, wage rates of labour, veterinary and medical expenses, miscellaneous expenditure such as electricity expenses on chaff-cutting, purchase of ropes, chains and tools, machine repairs, etc., present market value of milch animals, dairy equipment and cattle shed, interest on fixed capital, milk yield and its sale price in respect of local cows, crossbred cows and buffaloes maintained by different groups of dairy farmers. To compute the maintenance cost of each type of milch animals, all the costs incurred in rearing the animal were aggregated. The fodder and feed costs were worked out at the prevailing market prices. In the case of grasses, the cost was estimated as per the cost of labour in fetching them. Since only the family labour was used in milk production in the study area, its cost was imputed on the basis of the average wage paid to permanent hired labour. The cot of feeding a calf was assumed to be equivalent to the appreciation in the value of the calf (Kumar and Gupta, 1992).

Depreciation on animal, diary equipment and cattle shed was calculated by the straight line method. The net cost of maintenance was arrived at by deducting the income from dung from the gross cost of maintenance. The cost per litre of milk production was computed by dividing the per day maintenance cost by the milk yield per day per animal. Finally, the net returns per litre of milk production were obtained by deducting the cost of milk production from the sale price of milk for different types of animals.

RESULTS AND DISCUSSION

Maintenance cost :

It may be observed from Table 1 that the average maintenance cost of crossbred cow in the study area was Rs.36 per day. It varied from Rs.30 in the case of landless labourers to Rs.39 in the case of large farmers. The maintenance cost increased with increase in the size of holding as the higher category of farmers incurred higher feed cost which they could afford owing to their better resource endowment.

As regards local cow, the average maintenance cost hovered around Rs.25 in the case of marginal, small and large farmers, while it was about Rs.23 in the case of landless labourers. On the whole, there was no significant difference in the maintenance cost of local cow across different household categories.

In the case of buffalo, the average maintenance cost worked out to Rs.37 per day. But there was significant variation in maintenance cost as between the different categories of farmers. The small farmers had the lowest cost (Rs.27) as their expenditure on feed cost and labour cost was the minimum whereas the large farmers who incurred the highest feed cost bore the highest cost of maintenance (Rs.42). The landless labourers did not rear buffaloes.

It is therefore, obvious that the maintenance cost of crossbred cow and buffalo is nearly the same while that of local cow is almost two-thirds of it in the study area.

Table 1. Per day maintenance cost (in rupees) and milk yield of crossbred cow, local-cow and buffalo in different household categories

	Green fodder	Dry fodder	Concen-trates	Labour	Vety. & misc. expen.	Depre-ciation*	Interest on fixed capital	Gross cost	Income from dung	Net cost	Milk yield@ (in litres)
Crossbred Cow :											
Landless labourers (19)	9.26	6.53	6.58	5.96	0.20	3.04	2.16	33.73	3.59	30.14	5.84
Marginal farmers (36)	9.47	6.70	7.87	7.53	0.21	2.88	2.22	36.88	3.71	33.17	6.18
Small farmers (39)	10.59	6.96	9.39	7.61	0.22	2.98	2.38	46.16	3.79	36.37	6.43
Large farmers (56)	10.97	7.10	11.13	7.74	0.24	3.07	2.92	43.17	3.84	39.33	6.68
Overall (150)	10.30	6.90	9.32	7.43	0.22	3.00	2.52	39.68	3.76	35.92	6.28
Local Cow :											
Landless labburers (10)	5.69	6.72	5.27	4.99	0.19	2.12	1.04	26.02	2.66	23.36	1.85
Marginal farmers (11)	5.56	6.74	5.35	5.67	0.17	2.18	1.18	26.85	2.64	24.21	2.72
Small farmers (23)	6.06	6.83	5.41	5.69	0.18	1.93	1.37	27.47	2.84	24.63	3.00
Large farmers (23)	6.64	6.73	5.38	6.14	0.18	1.78	1.87	28.72	3.04	25.68	3.44
Overall (67)	6.12	6.77	5.37	5.74	0.18	1.95	1.46	27.58	2.85	24.73	3.00
Buffalo :											
Landless labourers (nil)	-	-	-	-	-	-	-	-	-	-	-
Marginal farmers (1)	8.57	6.83	10.38	9.65	0.27	3.06	2.95	41.71	3.75	37.96	4.82
Small farmers (2)	7.05	6.46	6.12	4.79	0.23	2.62	2.65	29.92	3.21	26.71	3.82
Larger farmers (4)	11.62	7.68	11.37	7.91	0.25	3.40	3.24	45.47	3.69	41.78	5.04
Overall (7)	9.88	7.21	9.73	7.27	0.25	3.13	3.03	40.49	3.56	36.93	4.56

Note: Figures in parentheses represent the number of animals in milk
* Includes depreciation on animal, cattle shed and dairy equipment.
@ Milk yield is per milch animal per day.

Milk yield :

The milk yield per milch animal per day was found to be the highest in the case of crossbred cows (6.28 litres). It varied from 5.84 litters in the case of landless labourers to 6.68 litres in the case of large farmers thereby indicating that the milk yield of crossbred cow increased with increase in the size of land holding. The higher milk yield obtained by the large farmers was attributable to the higher feed cost incurred by them as well as the better quality of animals reared by them.

The milk yield of local cow (3 litres) was, however, less than half that of the crossbred cow. From local cows also the highest milk yield (3.44 litres) was recorded by the large farmers. But the significantly lower milk yield of local cows was indeed in consonance with the lower cost of feeding them as compared to crossbred cows.

As regards buffalo the milk yield (4.56 litres) was considerably higher than that of local cow, but it was significantly less than that of crossbred cow. In the case of buffaloes too, the highest milk yield was obtained by the large farmers (5.04 litres) as they incurred higher cost of feeding than marginal and small farmers.

Economics of milk production :

As revealed by Table 2 the average cost of milk production from crossbred cow was Rs.5.56 while the sale price of cow milk was Rs.7.75 per litre. Thus, the net returns worked out to Rs.2.19 per litre of milk. It is interesting to observe that the highest net returns (Rs.2.59) accrued to the landless labourers as their cost of production (Rs.5.16) was the lowest while the lowest net returns (Rs.1.86) were obtained by the large farmers for having incurred the highest cost of milk production (Rs.5.89).

Further, the net returns from crossbred cow were significantly higher than those from other types of milch bovines. In the case of local cow, the cost of milk production was substantially higher as compared to that from crossbred cow, and thus the milk producers of all categories, except the large farmers who barely covered the cost of production, suffered losses. The losses per litre of milk production ranged from Rs.0.44 in the case of landless labourers to Rs.1.15 in the case of marginal farmers. The average loss in the production of local cow milk was computed to be Rs.0.66 per litre. Patel *et al* (1988) and Grover *et al* (1992) found net losses in cow milk production in Karnal district of Haryana and Bathinda district of Punjab, respectively.

As far buffalo milk production, it was found that the average cost per litre (Rs.7.78) was somewhat less than that in the case of local cow, but considerably higher as compared to the crossbred cow. The sale price of buffalo milk being higher at Rs.8.50 per litre, the average net return per litre worked out to be Rs.0.72. The highest net returns per litre accrued to the small farmers. (Rs.1.51) and the lowest to the large farmers (Rs.0.21). In a way, for the large farmers there was nothing to choose between a buffalo and a local cow as the net returns were just marginal in either case.

However, if the cost of family labour is not taken into account in calculating the cost of milk production, there is significant increase in net returns which may be termed as family labour income. In the case of crossbred cow, the highest family labour income is earned by the landless labourers and the marginal farmers while in the case of buffalo it accrues to small and marginal farmers.

In the case of local cow, the negative net returns turn into positive family labour income for all categories of households, although the level of family labour income is quite low..

Table 2. Cost and returns per litre of milk production from crossbred cow, local cow and buffalo

(in rupees)

	Cost of milk production	Sale price	Net returns	Cost excluding family labour	Family labour income
Crossbred Cow :					
Landless labourers	5.16	7.75	2.59	4.14	3.61
Marginal farmers	5.37	7.75	2.38	4.15	3.60
Small farmers	5.66	7.75	2.09	4.47	3.28
Large farmers	5.89	7.75	1.86	4.73	3.02
Overall	5.56	7.75	2.19	4.54	3.21
Local Cow :					
Landless labourers	8.19	7.75	-0.44	6.45	1.30
Marginal farmers	8.90	7.75	-1.15	6.82	0.93
Small farmers	8.21	7.75	-0.46	6.31	1.44
Large farmers	7.43	7.75	0.32	5.68	2.07
Overall	8.41	7.75	-0.66	6.33	1.42
Buffalo :					
Landless labourers	-	-	-	-	-
Marginal farmers	7.87	8.50	0.63	5.87	2.63
Small farmers	6.99	8.50	1.51	5.74	2.76
Large farmers	8.29	8.50	0.21	6.72	1.78
Overall	7.78	8.50	0.72	6.50	2.00

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