

The Economics of Milk Production in the Operation Area of the Senjeri Co-operative Buffalo Improvement and Milk Society, Coimbatore District

L.P. SWAMINATHAN¹, V. RAJAGOPALAN² and S. RAJAKUTTY²

The average annual milk yield was 1355 litres, with a net income of Rs. 179 per annum. The cost of production of milk per litre was Rs. 0.91 with a profit margin of 9%. The residual productivities of roughages, concentrates and labour were 1.62, 1.47 and 1.46 respectively. The average capital productivity was Rs. 1.48, 1.37 and 1.35 for roughages, concentrates and labour respectively. The improvement of existing animals by cross breeding in the exotic breeds and educational programmes to impart skill for better management of quality animals are recommended.

To cushion the loss sustained by farmers due to crop failures caused by drought and other risks, mixed farming is suggested. Dairying is one of the most important mixed farming practices. The economic investigations hitherto conducted in different parts of the country have been useful in two ways firstly to identify the economic problems facing the dairy enterprise and secondly to explore the opportunities open to farmers in developing this enterprise. Studies conducted in different parts of the country show that our milch animals are poor yielders. The average annual milk yield of a cow in India is 175 kg. and that of the buffalo is 440 kg. This is very low when compared to 4085 kg. of milk per cow in the United States of America. The progressive urbanisation and expansion

of cities and towns and growing awareness of milk as a nutritive diet have resulted in increasing demand for milk. Milk production is a complex phenomenon involving many factors, there is need for studies on the input-output relationships in milk production. Hence a study was conducted with the objectives of estimating the cost of production of milk, the productivity of the resources used in the milk production and input-output ratios of the enterprise.

MATERIALS AND METHODS

The study was conducted in the operational area of the Senjeri Co-operative Buffalo Improvement and Milk Society Limited, Sulthanpet, Coimbatore District. The operational area of the Society has 42 milk collection cen-

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1 - 3 : Department of Agricultural Economics,
Tamil Nadu Agricultural University, Coimbatore-641 003.

tres of which 15 were selected at random, and the study was limited to owners with one buffalo. This has eliminated the difficulty in the apportionment of feed costs among the animals when there are more than one animal and thus, minimising the errors in the estimation of feed costs. Besides, selection of buffalo above eliminated breed differences common among cows.

All the producers who maintained one buffalo each in the study area, numbering 100, were selected for the study. The analysis of variance test revealed that there was no significant difference in milk yield between the selected collection centres.

The unit cost of production was on the lines suggested by Panse *et al* (1961) who calculated the unit cost of production as,

$$\frac{\text{Cost of main-tenance} - \text{Returns from Farm yard manure}}{\text{No. of litres of milk produced.}}$$

The variable cost consisted of the cost of feeds and labour and they were valued at market prices. The enterprise was mainly looked after by family labour and the prevailing wage rates were imputed for the family labour. The labour input was converted into man-day units according to the ratio 8:12:16 for men, women and children employed. The interest on variable cost was calculated at the rate of 7.8 per cent. The other variable cost considered here are the values of secondary items like ropes and baskets.

Fixed cost : Depreciation and interest on the assets were worked out as suggested by Sarweswara Rao (1966).

RESULTS AND DISCUSSION

The average annual milk yield was 1355.10 litres. The gross income per animal per annum worked out to Rs. 1,335-10 (at Re. 1/- per litre prevailing market rate) While the net cost of maintenance (cost of production) being Rs. 1,176-06. The producers earned a net income of Rs. 179-09 per annum. The cost of production per litre of milk worked out to Rs.0.91 and the profit margin is nine per cent. One animal could give per day a net income of Rs. 0-48. This is contrary to the findings of Singh (1965) who showed that milk producers in Delhi area incurred a loss of Rs. 275-83 per animal per annum.

Several of earlier studies revealed that feeds and feeding costs accounted for the largest share in the cost of production of milk and this study also confirmed the same which worked out to Rs. 53.17 per cent. The percentage share of labour (27.85 per cent) to the total cost in this study is higher when compared to earlier studies. This might be due to the problems of apportioning of labour for production of milk since the family labour was a main factor with a variety of works to attend to. As the farmer also could not respond with correct information some information bias could be suspected to.

In order to circumvent this problem an alternate method which excluded the family labour was used, to compute

TABLE I. Average cost of milk production including family labour

Item	Average production cost per litre of milk		Average maintenance cost per animal		
	Paise	Percentage	Per year Rs. P.	Per day Rs. P.	Percentage
Roughages	24	25.32	272-54	0-78	22-13
Concentrates	26	27.85	359-15	0-97	29-23
Labour	26	27.85	357-37	0-96	28-98
Interest	11	11.39	141-57	0-38	11-62
Depreciation	7	7.59	98-27	0-26	8-04
Gross cost	95	100	1229-80	3-37	100-00
FYM	4	—	53-89	0-14	
Net cost excluding FYM	91	—	1176-01	3-23	
Average milk yield in litre	—	—	1355-10 (litres)	3-71 (litres)	
Gross income at the rate of Re. 1/- litre	—	—	1355-10	3-71	
Net income	—	—	179-09	0-48	
Profit margin	—	9%			

cost and returns and the same is presented below.

When the value of unpaid family labour was excluded the annual cost per buffalo worked out to Rs. 844-61 and the net cost to Rs. 790-72 (less the value and farmyard manure). Of the various components of cost of production of milk, the largest share was on the concentrates which worked out to 40.35 per cent and the roughages 35.09 percent which followed immediately. The net cost of production (gross cost less returns from farm yard manure) per litre of milk was Rs. 0.65 and when the prevailing market rate for milk was Re. 1/- litre, the profit margin was 35

per cent. The net income per annum for one buffalo was Rs. 584.38 as against Rs. 179-09 when the unpaid family was included.

To provide a clear picture of the differences in the share of different components of cost, a comparative picture is also presented in Table III.

Resource Productivity : The productivities of different factors were analysed and estimated by residual productivity method. Except for resources in question total value of all other resources was subtracted from the value of output and the remainder was the value of residual product which when divided

TABLE II. Average cost of production of milk (excluding labour)

Item	Average production cost of milk		Average maintenance cost per animal		
	Paise	Percentage	Per year Rs. P.	Per day Rs. P.	Percentage
Roughages	24	35.09	272.54	0.75	32.25
Concentrates	28	40.35	359.15	0.98	42.46
Interest	10	14.04	114.65	0.32	13.61
Depreciation	7	10.52	98.27	0.27	11.68
Gross cost	69	100.00	844.61	2.31	100.00
FYM	4		53.89	0.15	
Net cost excluding FYM	65		790.72	2.15	
Average milk yield in litres			1355.10	3.17	
Gross income at the rate of Rs. 1/- litre			1355.10	3.17	
Net income			584.38	1.55	
Profit margin		35			

TABLE III. Comparative statement of share of different components of cost

Components	Production cost per litre of milk			
	Including family labour		Excluding family labour	
	Amount paise	Percentage	Amount paise	Percentage
Roughages	24	25.32	24	25.09
Concentrates	26	27.85	28	40.35
Labour	26	27.85	—	—
Interest	11	11.39	10	14.04
Depreciation	7	7.59	7	10.52
Gross cost	95	100.00	69	100.00
Value of FYM	4		4	
Net cost	91		65	

by the quantity of input gives the residual productivity of resource in consideration. The residual productivities of roughages, concentrates, and labour were worked out to be 1.62, 1.47 and 1.46 respectively. Studies by Meeakshisundaram (1964) and Reddy (1970) revealed a higher residual productivity of labour while this study showed for roughages. Under the condition existing in the area studied, it could be inferred that the resources roughages was used more rationally by the milk producers. Further, the basic improvement in methodology by selecting single animal instead of a herd as done in other studies has plausibly had overcome the problem of common feeding.

The average capital productivity was worked out as Rs. 1.48, 1.36, 1.35

for roughages, concentrates and labour respectively.

Total value of capital services: Cost of resources was more or less similar for all these resources.

The value of product out put per rupee of capital invested as inputs was worked out to 1-14. However, higher rate (1-35) was obtained by Meenakshisundaram (1964) under mixed farming condition of Coimbatore taluk. As the difference between average residual productivities of roughages and concentrates was fifteen paise there is a scope for reorganisation by substituting these resources.

The animals are primarily poor yielders having an average milk yield of 3.17 litres per day. The per day net income from an animal is only Rs. 1.55 even after excluding family labour cost which is very low and when it is included the income is only Rs. 0-48.

So in order to augment the milk production the milk producers should be encouraged to upgrade their non-descriptive milk animals with bulls of exotic breeds made available by government. As the high yielding milch animals are costly the state and other financing agencies like co-operatives and commercial banks should extend liberal credit facilities to large number

of small milk producers to purchase quality milch animals.

The co-operative milk societies should also launch continuous education programme on a massive scale to impart skill and competency to milk producers in the techniques of better management of quality animals. Initially such projects could be undertaken in potential milk producing areas to generate much needed wide spread impact

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