CHAPTER - VI

ECONOMICS OF DAIRY FARMING

Production, marketing and animal health care facilities in the district were discussed in the previous chapter. The economics of dairy farming is analysed in the present chapter. A study of the economics of milk production is of great importance to give an insight into cost and returns of dairy farming and in fixing a price which is remunerative to the producers and fair to the consumers. The task of estimating accurately the production cost of milk and its various components is very complicated because production techniques and dairy management practices of the farmers greatly differ according to breed, season, place and market for milk. Even then an attempt is made in this chapter to analyse costs of and returns from different milch animals of the sample households in Idukki district.

As well-developed and commercialised dairying exists only in the society area, the study of cost of production of milk is confined to the society area. Both production and marketing are inefficient and unscientific in the non-society area and so a study of cost of production of milk there, will not give a clear picture of real cost. Hence, no attempt is made to study cost of production of milk in the non-society area.

Cost analysis is done under two different methods. Firstly, by taking into account fixed and variable costs during the lactation

period only. This analysis is done both by excluding and including labour cost. As lactation period is followed by a dry period ranging from about two to six months, costs during dry period also must be taken into account for getting a clear picture of cost of production of milk. So, such an analysis of cost, taking into account costs during lactation period and dry period, both excluding and including labour cost is also done in this study.

The cost of production of milk can be generally divided into two groups viz., variable and fixed costs. Cost of green and dry fodder, concentrates and compounded feed, veterinary expense and labour charge are the important items of variable costs, whereas interest and depreciation on milch animals, cow-shed and equipment are the important fixed costs.

6.1 Variable Costs

6.1.1 Cost of Fodder

Fodder cost is an important element in the maintenance cost of a milch animal. Fodder is of two categories - green and dry fodder. In Idukki district, green fodder, especially green grass is available more or less sufficiently except during summer season. The lion's share of the required green grass is collected by the farmers either from their own land or from elsewhere. While a few farmers purchase green grass, about 50 percent of the farmers cultivate green grass either in a limited area or along border side. It has been found that majority of the farmers purchase dry fodder, ie., paddy

straw, for feeding during the summer months. Details of daily feeding on green and dry fodder are given in table 6.1

Table 6.1

Feeding Expense of Green/ Dry Fodder

Lactation period

Sl.No.	Item	Price per kg.	Quantity per day (kg)			Expense per day (Rs)		
			C.B	L.C	Buff.	C.B	L.C.	Buff.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	Cultivated grass	—	1.22	0.41	1.45	—	—	—
2.	Collected grass	—	14.45	11.89	23.87	—	—	—
3.	Purchased grass	0.50	0.36	0.14	0.58	0.18	0.07	0.29
4.	Paddy straw	2.00	2.71	1.64	3.74	5.42	3.28	7.48
	Total		18.74	14.08	29.64	5.60	3.35	7.77
	Dry period							
5.	Cultivated grass	—	0.85	0.28	0.90	—	—	—
6.	Collected grass	—	12.78	7.21	22.10	—	—	—

(contd.....)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7.	Purchased grass	0.50	—	—	—	—	—	—
8.	Paddy straw	2.00	1.83	1.17	3.16	3.66	2.34	6.32
	Total during dry period		15.46	8.66	26.16	3.66	2.34	6.32

Note: C.B - Cross breds

L.C - Local cows

Buff - Buffaloes

Source: Sample Survey.

Table 6.1 shows that cost of paddy straw forms the major part of fodder cost. Farmers purchase paddy straw mainly from Tamil Nadu which costs Rs.7 per bundle, popularly known as a Kanni. The fodder cost for cross breds, local cows and buffaloes are Rs. 5.60, Rs. 3.35 and Rs. 7.77 respectively during the lactation period and Rs. 3.66, Rs.2.34 and Rs. 6.32 respectively during the dry period. It appears that fodder cost can be reduced considerably if farmers cultivate green fodder in their own land.

6.1.2 Cost of Feed

Green and dry fodder must be supplemented by sufficient quantity of concentrates and compounded feed for proper growth of the animal

and for more milk yield. Groundnut cake, compounded feed, bajra, tamrind seed, rice, rice bran, cotton seed, coconut oil cake and minerals are the important kinds of feed given by the farmers in the district. Details of quantity and expense on these items are given in table 6.2.

Table 6.2

Feeding Expense of Concentrates and Compounded Feed

Sl. No.	Item	Price per kg.	Quantity per day (kg) C.B	L.C	Buff	Expense per day (Rs) C.B	L.C	Buff.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Lactation Period								
1.	Groundnut cake	6.75	0.68	0.48	0.96	4.59	3.24	6.48
2.	Compounded feed	4.25	0.73	0.28	0.92	3.10	1.19	3.91
3.	Bajra	4.50	0.39	0.19	0.21	1.76	0.86	0.95
4.	Tamarind seed	4.20	0.35	0.12	0.42	1.47	0.51	1.76
5.	Rice	5.75	0.22	0.27	0.18	1.27	1.55	1.04
6.	Rice bran	3.00	0.27	0.53	0.59	0.81	1.59	1.77
7.	Cotton seed	5.20	0.13	—	—	0.68	—	—
8.	Coconut oil cake	6.40	0.09	—	—	0.58	—	—
9.	Minerals	50.00	0.004	—	—	0.20	—	—
			2.9	1.87	3.28	14.66	8.94	15.91

(contd.....)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dry Period								
10.	Groundnut cake	6.75	0.41	0.21	0.47	2.77	1.42	3.17
11.	Rice bran	3.00	0.37	0.29	0.66	1.11	0.87	1.98
12.	Compounded feed	4.25	0.34	0.08	0.23	1.45	0.34	0.98
13.	Tamarind seed	4.20	0.13	—	0.18	0.55	—	0.76
	Total during the dry period	—	1.25	0.58	1.54	5.88	2.63	6.89

Source: Sample Survey.

From table 6.2, it can be seen that groundnut cake is the most prominant feed for all kinds of milch animals during lactation period where as rice bran is the most important item during the dry period. Largest quantity of feed is given to buffaloes and the lowest quantity to local cows. The total per day feeding expenses of cross-breds, local cows and buffaloes during lactation period are Rs.14.66, Rs.8.94 and Rs.15.91 respectively whereas they are only Rs.5.88, Rs.2.63 and Rs.6.89 respectively during the dry period. This fall in the feeding cost during the dry period is because during this period only lower quantity of feed is given and rice bran, which is the prominant feed, costs only Rs.3 per kg.

6.1.3 Labour Cost

Dairy farming is labour intensive in nature. Fodder collection, feeding, milking, marketing, bathing the cattle and cleaning the cowsheds and utensils are the important activities in dairying, requiring labour service. Among the various activities in dairying, except bathing all other activities are done more than once daily. It was found in the study that all the activities in dairying together generate about half a day's employment per milch animal. Details of time devoted in dairying are given in table 6.3.

Table 6.3

Details of Time Devoted to Dairying per Milch Animal
(in Minutes)

Sl.No.	Description	Lactation period		Dry period	
		Time	Percentage	Time	Percentage
(1)	(2)	(3)	(4)	(5)	(6)
1.	Fodder collection	95	35.2	80	54.8
2.	Feeding	40	14.8	35	24.0
3.	Milking	27	10.0	—	—
4.	Marketing	62	23.0	—	—
5.	Bathing	12	4.4	5	3.4
6.	Cleaning	18	6.7	12	8.2
7.	Other activities	16	5.9	14	9.6
	Total	270	100.0	146	100.0

Source: Sample Survey.

Table 6.3 indicates that dairying requires about 270 minutes' work during lactation period and about 146 minutes' during dry period per milch animal. Of all the works, fodder collection is the most time-consuming work requiring about 35 percent of the total time during the lactation period and about 54 percent of time during the dry period. Marketing is the second most time - consuming job because farmers have to go about two kms for reaching the marketing centres in the morning and evening. In certain societies long queues were observed adding to the time spent for marketing. Bathing is the least time consuming activity because it is usually done once in a day and dry animals are not bathed daily.

Labour cost is calculated by multiplying the labour time required for dairying by the average wage rate of agricultural labourers in Idukki district. The average wage rate of male labourers' in the district is Rs.36 and that of female labourers', is Rs.23 per day. It has been found in the study that 67 percent of works related to dairying during lactation period is done by women and 33 percent by men. The corresponding figures are 72 and 28 respectively during dry period. So the wage rate also is calculated according to the percentage of work done by men and women. The wage rates so calculated are Rs.27.29 during lactation period and Rs.26.64 during dry period per day.

6.1.4 Veterinary Expenses

Veterinary expense is another item of variable cost involved in dairy farming. There are two kinds of veterinary expenses, viz., for emergency treatments and for ordinary minor treatments. Average veterinary expenses including artificial insemination or natural service charges are calculated to be Rs.196.27 for cross-breds, Rs.134.72 for local cows and Rs.123.45 for buffaloes. Veterinary expenses are comparatively lower for local cows and buffaloes because of their higher resistance power and the resulting lower disease-rates.

6.2 Fixed Costs

6.2.1 Interest on Cost of Milch Animals

The cost of milch animal expressed as price per litre of milk yield is based on the delivery order of the animal. The average cost of milch animal per litre of milk in the district, both for cross-breds and local cows, is Rs.1250 for cows at first, second and third delivery, Rs.1100 for cows at fourth and fifth delivery and Rs.1000 for cows at sixth delivery and above. Among cross-breds there are 137 cows in the first group, 55 cows in the second group and 22 in the third group. The average cost of cross-breds so calculated is Rs.1186 per litre. Among local cows there are 15 in the first group, 17 in the second group and four in the third group. The average cost so calculated is Rs.1151 per litre.

The average cost of buffaloes in the district per litre of milk is Rs.1600 for buffaloes at first, second and third delivery, Rs.1400 for those at fourth and fifth delivery and Rs.1200 for those at sixth delivery and above. There are 20 buffaloes in the first group, 11 in the second and two in the third. The average cost of buffaloes so calculated is Rs.1510 per litre.

The cost of milch animal is usually determined based on the morning yield at the starting of lactation period. It has been found in the study that the average morning yield is 6.32 litres for cross-bred cows, 3.63 litres for local cows and 4.97 litres for buffaloes. The average cost of milch animal calculated by multiplying average morning yield with price per litre is Rs.7496 for cross-bred cows, Rs.4178 for local cows and Rs.7188 for buffaloes.

Interest on cost of milch animal is calculated at the rate of 12 percent per year because it is the rate of interest charged by banks. Interest on cost of milch animals so calculated is Rs.825.10 for cross-bred cows, 426.91 for local cows and Rs.879.91 for buffaloes during the lactation period.

6.2.2 Interest on Cost of Cow shed .

There are two kinds of cow sheds viz., tiled permanent sheds and thatched sheds. There are 97 permanent sheds with an average cost of Rs.8540 per shed and 153 thatched sheds with an average cost of Rs.2231 per shed. The average cost of cow shed per bovine

is Rs.1353.9. Interest on cowshed at the rate of 12 percent per year is calculated as Rs.149.05 for cross-bred cows, Rs.138.36 for local cows and Rs.165.88 for buffaloes during the lactation period.

6.2.3 Interest on Cost of Equipments

Dairy farming requires various kinds of equipments such as buckets, mugs, ropes, vessels, jars and grass cutting knives. The average value of such equipments is Rs.465 per sample household. Interest on the value of equipments is Rs.51.18 for cross-breds, 47.51 for local cows and 56.96 for buffaloes during the lactation period.

6.2.4 Depreciation on Milch Animals

Depreciation on milch animals is calculated as shown below. Firstly, the expected average number of delivery is calculated. It is eight for cross breds while nine for both local cows and buffaloes. Secondly, the present average order of delivery is found out. It is three for both cross-breds and buffaloes whereas it is four for local cows. Therefore the expected remaining number of delivery before selling the milch animals at meat value is 5 for both cross-breds and local cows and 6 for buffaloes. This would require a period of 74.95 months for cross-breds, 83.15 months for local cows and 104.4 months for buffaloes because the calving interval is 14.99 months for cross-breds, 16.63 for local cows and

17.40 months for buffaloes. While the present value of milch animals is Rs.7496 for cross-breds, Rs.4178 for local cows and Rs.7183 for buffaloes their expected meat value is Rs.1834, Rs.1311 and Rs.1969 respectively. Thus the depreciated value is Rs.5662 for cross breds, Rs.2867 for local cows and Rs.5214 for buffaloes. The average depreciated value so calculated is Rs.831.51 for cross breds, Rs.352.44 for local cows and Rs.611.79 for buffaloes per lactation period.

6.2.5 Depreciation on Cow shed

Permanent cow sheds are assumed to depreciate by 60 percent of its value[1] during a period of 20 years. Depreciation is calculated to be Rs.256.20 per cow shed, and it is Rs.74.13 per milch animal per year. So the depreciation of cow shed calculated during the lactation period is Rs.68.00 for cross breds, Rs.63.12 for local cows and Rs.75.67 for buffaloes. It has been found that thatched sheds incur an average maintenance cost of Rs.68.3 per year per milch animal. Therefore, the average maintenance cost during the lactation period is calculated to be Rs.62.65 for cross-breds, Rs.58.16 for local cows and Rs.69.72 for buffaloes.

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1. Cost of permanent cowshed is calculated to be Rs.8540 per shed.

6.2.6 Depreciation on Equipments

Most of the equipments required in dairy farming are semi-durable. So they are assumed to be used for a period of 3 years. This results in an average depreciation cost of Rs.142.18 for cross breds, Rs.131.98 for local cows and Rs.158.23 for buffaloes.

6.3.1 Total Cost during the Lactation Period (Excluding Labour Cost)

After the analysis of the important items of fixed and variable costs in the previous sections, the total cost involved in dairying per milch animal during the lactation period excluding labour cost is calculated here. This is given in table 6.4.

Table 6.4

Total Cost during the Lactation Period (Excluding Labour Cost)

(Rs)

Sl.No.	Items	Cross-bred	Local cows	Buffaloes
(1)	(2)	(3)	(4)	(5)
	Variable Costs:			
1.	Green / Dry fodder	1874.88	1041.18	2895.10
2.	Concentrates and compounded feed	4908.19	2778.55	5928.07
	Total feeding expense	6783.07	3819.73	8823.17

(contd.....)

(1)	(2)	(3)	(4)	(5)
3.	Veterinary expenses	180.03	114.71	126.02
4.	Miscellaneous expenses@	77.05	55.35	89.83
	Total Variable costs	7040.15	3989.79	9039.02
	Fixed Costs			
1.	Interest on:			
a)	Cost of milch animal	825.10	426.91	879.91
b)	Cow shed	149.05	138.36	165.88
c)	Equipments	51.18	47.51	56.96
2.	Depreciation on:			
a)	Milch animal	831.51	352.44	611.79
b)	Cow shed	68.00	63.12	75.67
c)	Equipments	142.18	131.98	158.23
d)	Maintenance cost of cow shed	62.65	58.16	69.72
	Total fixed costs	2129.67	1218.48	2018.16
	Total cost (fixed and variable)	9169.82	5208.27	11057.16

@ Expenses like insurance

Source: Sample Survey.

From table 6.4, it can be seen that total cost is Rs.9169.82 for cross breds, Rs.5208.27 for local cows and Rs.11057.18 for buffaloes. Among the various items of costs, feeding cost accounts for 73 to 80 percent of the total cost. Interest and depreciation on milch animals constitute the second and third important items of costs respectively. The table also reveals that variable costs account for about 75 percent of the total cost.

An analysis of breed-wise cost reveals that local cows have the lowest cost during lactation whereas buffaloes have the highest cost. The total cost of local cows and cross breds is less than the total cost of buffaloes by Rs.5848.91 and Rs.1887.36 respectively. The higher cost of buffaloes is due to its higher feeding cost. It can be seen from the table that while the feeding cost of buffaloes is Rs.8823.17, it is only Rs.3819.73 for local cows, and Rs.6783.07 for cross-breds.

6.3.2 Cost Per Litre of Milk

Cost per litre of milk can be found out by taking into account both total cost and total production. Total cost, total production and average cost per litre of milk of cross-breds, local cows and buffaloes are given in table 6.5

Table 6.5

Cost per Litre of Milk (Excluding labour cost)

Sl.No.	Description	Total cost (Rs)	Total production (litre)	Average cost (Rs)
(1)	(2)	(3)	(4)	(5)
1.	Cross-bred cows	9169.82	2089.15	4.39
2.	Local cows	5208.27	1202.80	4.33
3.	Buffaloes	11057.18	1851.82	5.97

Source: Sample Survey.

Table 6.5 shows that average cost is the lowest for local cows and it is the highest for buffaloes. Average cost per litre of milk is Rs.4.39 for cross-breds, Rs.4.33 for local cows and Rs.5.97 for buffaloes.

It has been found in the study that the average price of cow's milk (local and cross-bred) is Rs.6.66 per litre and that of buffaloes' milk, Rs.7.95 per litre. When the average cost of milk is subtracted from the average price of milk, the average profit per litre of milk is obtained. It is Rs.2.27 for cross-breds, Rs.2.33 for local cows and Rs.1.98 for buffaloes.

6.3.3 Net Income from Dairying

Net income from dairying is calculated by subtracting total cost from total income. Total income from dairying consists of income from milk, income from dung and income from calves. Details of net income from dairying is given in table 6.6

Table 6.6

Net Income from Dairying (Excluding Labour Cost)

Sl.No.	Description	Cross-breds	Local cows	Buffaloes
(1)	(2)	(3)	(4)	(5)
1.	Income from milk	13913.74	8010.65	14721.97
2.	Income from dung	946.00	827.00	1254.00
3.	Income from calves	805.00	635.00	695.00
4.	Total income	15664.74	9472.65	16670.97
5.	Total cost	9169.82	5208.27	11057.18
6.	Net income	6494.92	4264.38	5613.79

Source: Sample Survey.

Table 6.6 reveals that total income is the highest for buffaloes, that is, Rs.16670.97 and the lowest for local cows, that is,Rs.9472.65. It is Rs.15664.74 for cross-breds. Net income is found to be the highest for cross-bred cows. While net income is Rs.6494.92 for cross-breds, it is Rs.4264.38 for local cows and Rs.5613.79 for buffaloes. It can be seen from the table that net income from local cows is lower than the net income from cross-breds by about 35 percent.

The net income from buffaloes is also lower than the net income from cross-breds by 14 percent. From the above analysis it can be seen that cross-breds are more profitable than local cows and buffaloes in the district.

6.4.1 Total cost during Lactation Period (including Labour Cost)

As dairy farming is highly labour intensive in nature, labour cost also must be considered for getting a clear picture of cost of production of milk. It has been found that an average of 4.5 hours per day are required per milch animal during the lactation period. Total labour cost calculated at the rate of Rs.27.29 for eight hours per day is Rs.5139.18 for cross-breds, Rs.4770.78 for local cows and Rs.5719.41 for buffaloes during the lactation period. Table 6.7 gives the details of total cost during lactation period including labour.

Table 6.7

Total Cost during Lactation Period (Including Labour Cost)

Sl.no.	Items	Cross-bred	Local cows	Buffaloes
(1)	(2)	(3)	(4)	(5)
1.	Variable cost excluding labour	7040.15	3989.79	9039.02
2.	Labour cost	5139.18	4770.78	5719.41
3.	Total variable cost	12179.33	8760.57	14758.43
4.	Total fixed cost	2129.67	1218.48	2018.16
	Total Cost	14309.00	9979.05	16776.59

Source: Sample Survey.

Table 6.7 reveals that labour cost is Rs.5139.18 for cross-breds, Rs.4770.78 for local cows and Rs.5719.41 for buffaloes. It is interesting to note that while variable and fixed costs of local cows are significantly less than that of cross-breds and buffaloes, this difference is only about 10 percent in the case of labour cost. The total cost including variable and fixed costs is Rs.14309 for cross-breds, Rs.9979.05 for local cows and Rs.16776.59 for buffaloes.

6.4.2 Cost per Litre of Milk

Cost of production of milk is calculated by dividing total cost including labour cost by the total production during the lactation period. This is given in table 6.8

Table 6.8

Cost per Litre of Milk (Including Labour Cost)

Sl.No.	Description	Total cost	Total production	Average cost
(1)	(2)	(3)	(4)	(5)
1.	Cross-bred cows	14309.00	2089.15	6.85
2.	Local cows	9979.05	1202.80	8.30
3.	Buffaloes	16776.59	1851.82	9.06

Source: Sample Survey.

From table 6.8, it can be seen that when labour cost is imputed, the average cost per litre of milk of cross-breds, local cows and buffaloes becomes Rs. 6.85, Rs.8.30 and Rs.9.06 respectively. This shows that labour cost constitutes 35.9 percent, 47.8 percent and 34.1 percent respectively of the average cost per litre of milk of

cross-breds, local cows and buffaloes.

6.4.3 Net Income from Dairying

Net income is calculated by subtracting total cost from total income. Net income including labour cost is given in table 6.9

Table 6.9

Net Income from Dairying (Including Labour Cost)

Sl.No.	Description	Cross-breds	Local cows	Buffaloes
(1)	(2)	(3)	(4)	(5)
1.	Total income	15664.74	9472.65	16670.97
2.	Total cost	14309.00	9979.05	16776.59
	Net income	1355.74	-506.40	-105.62

Source: Sample Survey.

Table 6.9 shows that when labour cost is imputed net income is Rs.1355.74 for cross-breds and it becomes negative for local cows and buffaloes. This implies that when labour cost is imputed, dairy farming is not at all profitable expecially in the case of local cows and buffaloes.

6.5 Total Cost during Lactation and Dry Period (Excluding Labour Cost)

Lactation period is followed by a dry period of about two to six months. During dry period too farmers have to incur various costs for dairying. Infact, yield during the lactation period, to a large extent, depends upon the feeding and dairy management during the dry period. So, for getting a more clear picture of cost of production of milk, it is essential to consider expenses during dry period too. It has been found in the study that the average dry period is 3.83 months for cross-breds, 6.27 months for local cows and 4.98 months for buffaloes. This dry period together with an average lactation period of 11.16 months for cross-breds, 10.36 months for local cows and 12.42 months for buffaloes constitute an average calving interval of 14.99 months, 16.63 months and 17.40 months respectively. Details of cost during the calving interval (lactation and dry period) are given in table 6.10

Table 6.10

Total Cost Including Expenses during Dry period

Sl.No.	Items	Cross-breds	Local cows	Buffaloes
(1)	(2)	(3)	(4)	(5)
I.	Variable cost during dry period			
1.	Green / Dry fodder	420.53	440.15	944.21
2.	Concentrates and compounded feed	675.61	494.70	1029.37
3.	Veterinary expenses	47.07	45.33	31.39
4.	Miscellaneous expenses	26.44	33.50	36.02
5.	Total variable cost	1169.65	1013.68	2040.99
II.	Fixed cost during dry period			
1.	Interest on:			
	a) Milch animal	283.16	258.37	353.06
	b) Cow shed	51.15	83.74	66.51
	c) Equipments	17.57	28.76	22.84
2.	Depreciation on:			
	a) Milch animal	285.37	213.30	245.31
	b) Cow shed	23.34	38.20	30.34
	c) Equipments	48.79	79.88	63.44
	d) Maintenance cost of cow shed	21.50	35.20	29.96

(contd.....)

(1)	(2)	(3)	(4)	(5)
III.	Total fixed cost	730.88	737.45	811.46
IV.	Total cost during dry period	1900.53	1751.13	2852.45
V.	Total cost during lactation period	9169.82	5208.27	11057.18
VI.	Grand Total	11070.35	6959.40	13909.63
VII.	Cost per litre:	5.30	5.79	7.51

Source: Sample Survey.

Table 6.10 reveals that the total cost is Rs.11070.35 for cross-breds, Rs.6959.40 for local cows and Rs.13909.63 for buffaloes resulting in an average cost of Rs.5.30, Rs.5.79 and Rs.7.51 respectively per litre of milk of these animals. The total cost during the dry period is Rs.1900.53, Rs.1751.13 and Rs.2852.45 respectively for cross-breds, local cows and buffaloes. This constitutes 17.17 percent, 25.16 percent and 20.51 percent respectively of their total cost.

So far the analysis was based on cost of production per litre of milk, first by taking into account cost during lactation period alone both excluding and including labour cost, and then by including cost during dry period. The following analysis is made based on cost per litre of milk by taking into account all costs,

including labour cost and cost during dry period.

6.6 Total Cost Including Labour Cost and Cost during Dry Period

A complete analysis of cost of production of milk requires the inclusion of labour cost and cost during the dry period along with the cost during the lactation period, which, in other words, means taking the full cost of production. Labour cost is a major item of cost in dairying which constitutes 33 to 47 percent of the total cost. While labour cost accounts for 33 to 35 percent of the total cost of buffaloes and cross-breds, it constitutes about 47 percent of the total cost of local cows. Every factor contributing to the total production must be duly rewarded and so the cost of family workers must also be included in the total cost. Labour cost during the dry period is calculated to be Rs.730.88 for cross-breds, Rs.737.45 for local cows and Rs.811.46 for buffaloes.

Cost during dry period also must be taken into account because farmers have to incur considerable cost during dry period. It constitutes 17.17 percent, 25.16 percent and 20.51 percent respectively of the total cost of cross-breds, local cows and buffaloes. Total cost and income from one lactation period to another is given in table 6.11

Table 6.11

Total Cost and Income from Dairying (Including All Costs)

Sl.No.	Items	Cross-breds	Local cows	Buffaloes
1.	Total cost during lactation period	14309.00	9979.05	16776.59
2.	Total cost during dry period	2831.22	3274.74	4062.52
3.	Grand Total cost	17140.22	13253.79	20839.18
4.	Income from milk	13913.74	8010.65	14721.97
5.	Other income:			
	a) Dung	1271.00	1225.00	1757.00
	b) Calf	1081.00	1019.00	974.00
6.	Total income from dung and calf	2352.00	2244.00	2731.00
7.	Grand Total income	16265.74	10254.65	17452.97
8.	Net cost after subtracting income from dung and calf	14788.22	11009.79	18108.18
9.	Cost per litre of milk	7.08	9.15	9.78

Source: Sample Survey.

From table 6.11, it can be seen that total cost of cross-breds is Rs.17140.22, of local cows, Rs. 13253.79 and of buffaloes, Rs.20839.18. On the other hand, total income is Rs.16265.74, Rs.10254.65 and Rs.17452.97 respectively for cross breds, local cows and buffaloes. For calculating net cost, subsidiary income

from dairying, viz, income from dung and calves is subtracted from the total cost. Net cost so calculated comes to Rs.14788.22 for cross-breds, Rs.11009.79 for local cows and Rs.18108.18 for buffaloes. Average cost per litre of milk is calculated by dividing the net cost by the total milk production during the lactation period. Average cost per litre of milk so calculated in this study is Rs.7.08 for cross-breds, Rs.9.15 for local cows and Rs.9.78 for buffaloes.

6.7 Profitability of Dairy Farming

The previous analysis in this chapter was largely to trace the cost of production of milk by excluding and including labour cost incurred during the dry period. In the following pages an analysis of profitability of dairy farming is made on the basis of the above cost information.

If labour cost and cost during dry period are excluded, dairying is highly profitable because net income constitutes about 70 percent, 81 percent and 50 percent respectively of the total costs of cross-breds, local cows, and buffaloes. This would however, not indicate the true viability of dairy farming.

A theoritically sound analysis of the profitability of dairy farming must include all the costs and revenues involved in dairying. Details of net income from dairying including all costs are given in table 6.12.

Table 6.12

Net Income from Dairying (Including All Costs)

Sl.No.	Items	Cross-breds	Local cows	Buffaloes
(1)	(2)	(3)	(4)	(5)
1.	Total income	16265.74	10254.65	17452.97
2.	Total cost	17140.22	13253.79	20839.18
3.	Net income	⁻874.48	⁻2999.14	⁻3386.21

Source: Sample Survey.

Table 6.12 reveals that dairy farming is not at all profitable when all costs including labour costs and costs during dry period are taken into account. The net income is found to be negative for cross-breds, local cows and buffaloes. It is Rs.⁻874.48 for cross-breds, Rs.⁻2999.14 for local cows and Rs.⁻3386.21 for buffaloes. The loss is found to be more in the case of buffaloes and less in the case of cross-breds.

6.8 Money Costs and Benefits from Dairying

A full cost analysis of profitability of dairy farming in the district as shown above indicates that it is not economically viable

in the district. At the same time, large number of farmers are following dairying for their livelihood. This seems paradoxical. The fact behind this situation is that dairy farmers in the district generally consider only the out of pocket costs which include the feeding cost primarily. As far as dairy farmers are concerned, they consider the feeding cost during the lactation period, and total income from milk. Details of income from milk, feeding cost during lactation period and net income earned are shown in table 6.13

Table 6.13

Feeding Cost and Net Income from Dairying

Sl.No.	Items	Cross-breds	Local cows	Buffaloes
(1)	(2)	(3)	(4)	(5)
1.	Income from milk	13913.74	8010.65	14721.97
2.	Feeding cost	6783.07	3819.73	8823.17
3.	Net income	7130.67	4190.92	5898.8

Source: Sample Survey.

Table 6.13 reveals that cross-breds are more profitable than local cows and buffaloes. Net income from cross-breds is about 40 percent higher than that from local cows, and nearly 20 percent

higher than that from buffaloes. Local cows are the least profitable and that is why their percentage is decreasing in the district.

6.9 Fair Price of Milk

As majority of the sample households are not satisfied with the present price given by dairy co-operatives, an attempt is made here to study the fair price of milk. Fair price of milk must be remunerative to dairy farmers and it should be based on all the costs involved in dairying. Fair price in this study is calculated based on the net cost and total income from one lactation period to another. Net cost is calculated by subtracting the subsidiary income from total cost. This net cost is then divided by total yield during lactation period to get the unit cost or cost to be covered by fair price. Table 6.14 gives details of fair price estimated.

Table 6.14

Fair Price of Milk

Sl.No.	Items	Cross-breds	Local cows	Buffaloes
(1)	(2)	(3)	(4)	(5)
1.	Total cost	17140.22	13253.79	20839.18
2.	Income from dung and calf	2352.00	2244.00	2731.00
3.	Net cost (1-2)	14788.22	11009.79	18108.18
4.	Total yield (litre)	2089.15	1202.80	1851.82
5.	Fair price/ litre (3-÷-4)	7.08	9.15	9.78

Source: Sample Survey.

Table 6.14 shows that fair price per litre of milk should be Rs.7.08 for cross-breds, Rs.9.15 for local cows and Rs.9.78 for buffaloes. The average price of milk received by dairy farmers in the district at present is Rs.6.66 for cross-breds and local cows and Rs.7.95 for buffaloes. This shows that the present price per litre of milk is less by Rs.0.42 for cross-breds, Rs.2.49 for local cows and Rs.1.83 for buffaloes.

The selling price of milk acknowledged by Kerala Co-operative Milk Marketing Federation being Rs.9 per litre[2], it is not possible to raise the procurement price of milk of local cows, and buffaloes to Rs.9.15 and 9.78 respectively. As the fair price of milk of cross-breds is only Rs.7.08 per litre, it is desirable to concentrate on cross-breds by substituting local cows and buffaloes. Moreover, it is essential to raise the procurement price of milk by dairy co-operatives (KCMMF) to an average of Rs.7.10 per litre which is 44 paise higher than the present procurement price of cross-bred cow's milk. Even if KCMMF raises the procurement price to Rs.7.10 per litre, there remains a price margin of Rs.1.90 per litre. In addition to the above margin, KCMMF gets about Re.1 per litre by extracting the extra fat above three percent. Thus even after the payment of Rs.7.10 per litre, KCMMF would get a total price margin of Rs.2.90 per litre which amounts to about 40 percent of the suggested price of Rs.7.10 per litre. At present KCMMF takes an average price margin of Rs.3.28 per litre including the extracted fat value and this forms about 48 percent of the price given to the farmers.

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2. KCMMF raised the selling price of milk to Rs.10 per litre in February 1995.