CHAPTER-V: COST OF PRODUCTION OF MILK

CHAPTER-V

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CHAPTER-V

COST OF PRODUCTION OF MILK

5.1 Introduction

It is essential to focus on cost of production of milk. This chapter attempts to analyse individual item of Fixed and Variable cost incurred in dairy enterprise. In the case of 1st income group, milk producers i.e., income below Rs. 5,000/- 2nd income group of milk producers, i.e., income from Rs. 5,001/- to Rs. 12,000/-, 3rd income group of milk producers i.e., income from Rs. 12,001/- to 24,000/- and 4th income group of milk producers whose income is above Rs. 24,000/- p.a. In addition, cost structure is taken into consideration. For convenience this Chapter is divided into three sections. The first section is devoted to the analysis of fixed cost of dairy animals. The second deals with various factors of variable cost and third section throws light on the cost of production of milk for each income group.

Section-I

5.2 Fixed Cost

The fixed cost is of fixed nature and does not change with volume of production. The total fixed costs in the context of dairy enterprise may be defined as those costs which are incurred on the investment of dairy animals, sheds and dairy equipments. This definition, however, is not useful for analysis

inasmuch as total costs defined above are confined to a longer period since we have chosen a period of one year to analyse cost structure, revenue composition and profitability. The aforesaid definition needs to be modified. Therefore, total input costs for the purpose of analysis may be defined as those which include:

a) Depreciation on the value of dairy animals, animal shed and dairy equipments,

b) Interest on investment, in dairy animals, shed and dairy equipment.

While estimating depreciation on investment in dairy animals, two factors have been taken into consideration. They are:

i) Milking life of the dairy animals,

ii) Value of investment in dairy animals.

5.2.1 Dairy Animals and Their Milking Life

While fixing the fixed cost of dairy animals, it is essential to take into consideration the dairy animals' milking life. All the selected milk producers from different income groups from different areas had 409 dairy animals. Out of these 409 dairy animals, 182 B. 208 C.C. and only 19 D.C. The following table shows the classification of dairy animals according to different income groups of milk producers.

Table No. 5.1

Classification of dairy animals according to different income groups of milk producers*

Sr. No.	Type of Dairy Animals	Income groups of milk producers					
		1st I.G.	2nd I.G.	3rd I.G.	4th I.G.	Total	Percentage
1	Buffaloes	10	70	80	022	182	44.49
2	Cross-breed cows	-	02	66	140	208	50.85
3	Deshi cows	01	04	05	009	019	4.66
	Total	11	76	151	171	409	100.00
Percentage		2.68	18.58	36.91	41.83	100	

The Above Table No. 5.1 clearly shows that first income group possessed 11 dairy animals consisting of 10 buffaloes and 1 Deshi cow. Because of lack of capital they were unable to have a single crossbreed cow. This income group possessed 2.68 per cent of the total dairy animals taken into consideration.

Second group of income possessed totally 76 dairy animals, consisting of 70 buffaloes, 02 crossbreed cows and 4 Deshi cows. They possessed 18.58 per cent of the total dairy animals.

Third income group had 80 buffaloes, 66 crossbreed cows and 05 Deshi cows. Moreover, it is to be noted that out of 151 dairy animals they had 43.7 per cent of crossbreed cows, which are well

known for more milk production. In all they possessed 36.91 per cent dairy animals.

The fourth income group possessed 171 dairy animals, consisting of 22 buffaloes, 140 crossbreed cows and 9 Deshi cows. The percentage of crossbreed cows possessed is 80.4. Totally they possessed 41.83 per cent dairy animals.

All income groups of milk producers had approximately more or less equal number of buffaloes, while the third and fourth income groups milk producers had more crossbreed cows as compared to other income group of milk producers. The proportion of Deshi cows was very small in the case of all the income groups of milk producers.

First income group had one buffalo, second income group had 2 to 3 buffaloes. In the 3rd income group it was found that they had four buffaloes and three crossbreed cows, whereas in the last income group 2 buffaloes, 16 crossbreed cows and one Deshi cow were there. This classification is to be supported by the agewise classification of animals which helps us to determine fixed cost.

Table No. 5.2

Agewise classification of dairy animals

Age in years	Buffaloes	Cross-breed cows	Deshi cows	Total of A+B+C	% to total
4	02	65	02	69	16.87
5	02	71	03	76	18.58
6	42	52	07	101	24.69
7	40	08	05	53	12.95
8	26	06	-	32	07.82
9	18	04	-	22	05.37
10	16	02	02	20	04.88
11	13	-	-	13	03.17
12	09	-	-	09	02.20
13	07	-	-	07	01.70
14	05	-	-	05	01.22
15	02	-	-	02	00.48
Total	182	208	019	409	100.00
Percentage	44.49	50.85	4.66	100	

This table shows that the majority of the animals fall in the age group of four to seven years. This age group is known for efficient milk-production. As far as buffaloes are concerned the number of buffaloes in the range of 6 to 10 years is little big. Same is found in the case of crossbreed cows. Deshi cows are tamed

with a view to have bullock and to respect Indian religious feelings and not for the purpose of milk production.

5.2.2 Investment in Their Dairy Animal by Sample Milk Production

Source of animal is to be considered while fixing the cost; for that purpose animals were classified under two categories: (1) Home breed, and (2) Market purchase.

Table No. 5.3

Sourcewise classification of dairy animals

Sr. No.	Type of dairy animal	Home breed	Percentage	Market purchase	Percentage	Total	Percentage
1	Buffaloes	111	61.00	071	39.00	182	100
2	C.C.	046	22.10	162	77.90	208	100
3	D.C.	010	52.63	009	47.37	019	100
Total		167		242		409	
Percentage		40.83		59.17		100	

It is seen that 40.83 per cent animals belong to first category and 59.17 per cent in second category. In the case of buffaloes 61 per cent were homebreed and 39 per cent were purchased in market. Similarly in the case of crossbreed cow 22.1 per cent were homebreed and 77.9 per cent were market purchased.

The value of milking animal is also to be fixed though there are 242 homebreed animals; still we have to assume certain value for the purpose. Unless we do so, it is difficult to come to the cost of production.

Table No. 5.4 given on the following page gives classification of dairy animals according to their values of investment.

Investment range in Rs.	I IG.				II IG.				III IG.				IV IG.				Total
	B	CC	DC	%	B	CC	DC	%	B	CC	DC	%	B	CC	DC	%	
Upto 500	01	-	01	18.1	1	-	1	2.6	-	-	1	0.7	-	-	1	0.6	06
501 to 1000	04	-	-	36.4	1	-	2	3.8	1	-	3	2.6	-	-	3	1.7	14
1001 to 1500	04	-	-	36.4	6	-	1	9.2	2	-	1	2.0	-	-	3	1.8	17
1501 to 2000	01	-	-	9.1	15	-	-	20.0	4	-	-	2.6	-	-	2	1.2	22
2001 to 2500	-	-	-	-	28	-	-	68.8	34	-	-	22.5	-	-	-	-	62
2501 to 3000	-	-	-	-	14	-	-	18.4	18	2	-	13.2	-	-	-	-	34
3001 to 3500	-	-	-	-	05	-	-	6.6	09	5	-	9.3	2	2	-	2.3	23
3501 to 4000	-	-	-	-	-	1	-	13.0	12	6	-	11.9	2	3	-	2.9	24
4001 to 4500	-	-	-	-	-	1	-	1.3	-	2	-	1.3	4	2	-	3.5	09
4501 to 5000	-	-	-	-	-	-	-	-	-	2	-	1.4	8	3	-	6.4	13
5001 to 5500	-	-	-	-	-	-	-	-	-	3	-	2.0	6	3	-	5.3	12
5501 to 6000	-	-	-	-	-	-	-	-	-	3	-	2.0	-	4	-	2.3	07
6001 to 6500	-	-	-	-	-	-	-	-	-	18	-	18.9	-	16	-	9.4	34
6501 to 7000	-	-	-	-	-	-	-	-	-	23	-	15.2	-	42	-	24.6	65
7001 to 7500	-	-	-	-	-	-	-	-	-	1	-	0.7	-	35	-	20.5	36
7501 to 8000	-	-	-	-	-	-	-	-	-	1	-	0.7	-	30	-	17.6	31
	10	-	01	100	70	02	04	100	80	66	05	100	22	140	09	100	409
Total Dairy Animals		11					76			151				171			409

B. Buffalo, C.C. = Cross breed cow, D.C. = Deshi cow.

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Table No. 5.4

Classification of dairy animals according to their values of investment

Table No. 5.4 shows that the members of 1st income group invested on an average Rs. 977 [Average investment is arrived at 500 x 2 + 750 x 4 + 1250 x 4 + 1750/11 = Rs. 977/-]. The members of the second income group have invested on an average Rs. 2,157 per dairy animal.

The members of the third income group have invested on an average Rs. 2,504/- per dairy animal and the remaining fourth income group have invested on an average Rs. 6,061/- per dairy animal.

Now Table No. 5.5 shows the depreciation and interest on value of dairy animals.

Table No. 5.5

Depreciation and investment on value of dairy animals.

Income group	Investment on	Depreciation	Interest at
First I.G.	977	97.70	127.00
Second I.G.	2157	215.70	280.41
Third I.G.	2504	250.40	325.52
Fourth I.G.	6061	606.10	787.93

Notes: 1. It is assumed that depreciation charge at 10 per cent and interest rate at 13 per cent p.a.

2. I.G. = Income Group.

5.2.3 Investment in Roof and Equipments

While fixing cost of production of milk we must consider the cost of roof and other equipments which is shown in Table No. 5.6.

Table No. 5.6

Classification of roof according to income groups.

Sr. No.	Type of roof	1st I.G.	2nd I.G.	3rd I.G.	4th I.G.	Total	Percentage of total
1	Cement	-	-	01	05	06	9.23
2	Iron sheets	-	01	03	04	08	12.32
3	Tiles	-	12	12	-	24	36.92
4	Hay roofing	10	12	05	-	27	41.53
5	Others	-	-	-	-	-	-
	Total	10	25	21	09	65	100

The first I.G. has used hay roofs, 2nd I.G. has added tiles in Hay roofs, whereas third I.G. has used tiles. Three members of this group have iron sheets, whereas fourth income group has used cement as well as iron sheets.

Table No. 5.7

Income Groupwise investment in roofing.

Investment of range in Rs.	1st I.G.	2nd I.G.	3rd I.G.	4th I.G.	Total	Percentage of total
Upto 500	10	-	-	-	10	15.38
501 to 2,000	-	-	-	-	-	-
2,001 to 3,500	-	-	-	-	-	-
3,501 to 5,000	-	09	04	-	13	20.00
5,001 to 6,500	-	15	13	-	28	43.07
Above 6,501	-	01	04	09	14	21.55
Total	10	25	21	09	65	100

The above table shows the investment made by members of various income groups. First income group has invested upto Rs. 500/-, 2nd income group has invested Rs. 3,500/- to Rs. 6,500/- on shed. The average invested is Rs. 5,240/-. Third income group has invested from Rs. 3,500/- to Rs. 6,500/- on this purpose. The average investment is Rs. 5,607/-.

The fourth income group has invested above Rs.6500/-.

Table No. 5.8

Depreciation and interest on investment on roofing.

Income Group	Investment on roofing	Depreciation at 10%	Investment at 13%
First I.G.	500.00	50.00	65.00
Second I.G.	5,240.00	524.00	681.02
Third I.G.	5,607.00	566.70	728.91
Fourth I.G.	6,500.00	650.00	845.00

Note: It is assumed that depreciation charges are at 10% and interest rate at 13% p.a.

Table 5.9

Investment in Dairy Equipments

Sr. No.	Range in Rs.	Ist I.G.	2nd I.G.	3rd I.G.	4th I.G.	Total	Percentage
1	Upto 100	08	04	-	-	12	18.46
2	101 to 200	02	11	-	-	13	20.00
3	201 to 300	-	04	03	-	07	10.76
4	301 to 400	-	04	06	-	10	15.38
5	401 to 500	-	02	09	02	13	20.00
6	501 to 600	-	-	02	02	04	6.16
7	601 to 700	-	-	01	02	03	4.62
8	Above 700	-	-	-	03	03	4.62
	Total	10	25	21	09	65	100

First income group has invested Rs. 110/-, second income group Rs. 214/-, third income group has invested Rs. 411/- and fourth income group has Rs. 600/-.

Table No. 5.10

Depreciation and interest on investment of equipments.

Income Group	Investment in equipment	Depreciation at 10%	Interest at 13%
First I.G.	110	11.00	14.30
Second I.G.	214	21.40	27.82
Third I.G.	411	41.10	53.43
Fourth I.G.	600	60.00	78.00

Note: It is assumed that depreciation charges are 10% and interest at 13% p.a.

5.3 Section No. II (Variable cost)

Variable cost includes feeds and fodder costs, labour charges, insurance, veterinary charges etc. Variable costs alter with the changes in output. Consequently there is direct relationship between the former and the latter. Here it is pertinent to analyse each component of variable costs to estimate cost structure in the last section of this chapter.

5.3.1 Feed and Fodder Cost

Feeds and fodder play a vital role in the livestock production in general and milk production in particular. Shortage of feeds and fodders may reduce the productive capacity and fertility of livestocks and bring about their degeneration. The milk producers in general follow their own feeding practices which largely depend upon the seasonal availability of feeds and fodders.

Sources of Feeds and Fodders

There are two sources of feeds and fodders:

i) Domestic source, and

ii) Market purchase source.

Table No. 5.11

Sources of feeds and fodders.

Sr. No.	Sources	1st I.G.	2nd I.G.	3rd I.G.	4th I.G.	Total	Percentage
1	Domestic	06	12	15	06	39	60
2	Market purchase	04	13	06	03	26	40
	Total	10	25	21	09	65	100

From the above table it appears that 60 per cent milk producers had their domestic sources and 40 per cent milk producers had purchased feeds and fodders from market. Moreover

it is considerable to note that though first income group is landless some of them get feeds and fodder for their dairy animals free of charge from their employers.

Table No. 5.12

Seasonwise classification of feeds and fodders according to income group of milk producers

Income Group	Total Milk producers	Rainy season				Winter season				Summer season			
		Dry	Green	Cattle Feed	Meadow grass	Dry	Green	Cattle Feed	Meadow grass	Dry	Green	Cattle Feed	Meadow grass
First Income group	10	02	10	02	05	02	04	02	5	10	-	2	05
Second Income group	25	02	25	15	10	04	20	15	10	25	10	15	02
Third Income group	21	03	21	21	02	06	18	21	02	21	15	21	-
Fourth Income group	09	03	09	09	-	09	09	09	-	09	09	09	-
Total	65	10	65	47	17	21	51	47	17	65	34	47	07
Per-centage		15.35	100	72.30	26.15	32.30	78.46	72.30	26.15	100	52.30	72.30	10.76

Table No. 5.12 clearly shows that in rainy season all the milk producers give green feed. Only 15.35 per cent give dry fodder and 72.30 per cent give cattle feed and 26.15 per cent give meadow grass.

Similarly in winter season 78.46 per cent milk producers give green grass, 32.30 per cent give dry feed, 72.30 per cent give cattle feed and 26.15 per cent give meadow grass.

In summer season all the milk producers give 100 per cent dry fodder, and nearabout 52.30 per cent milk producers give green grass; 72.30 per cent give cattle feed and 10.76 per cent give meadow grass.

Moreover, it is clearly seen that only the fourth income group has given all types of feed and fodder to their dairy animals during the whole year.

The third income group has given constantly cattle feed during the whole year to their dairy animals.

Now it is essential to take into consideration how much feed and fodders are given to dairy animals in terms of Kilograms.

Table No. 5.13

Quantity of feed and fodder in terms of weight per cattle per day.

Range in Kg.	1st I.G.	2nd I.G.	3rd I.G.	4th I.G.	Total	Percentage
Upto 20	08	-	-	-	08	12.31
21 to 30	02	16	07	-	25	38.46
31 to 40	-	09	12	08	29	44.62
41 to 50	-	-	02	01	03	04.61
Total	10	25	21	09	65	100

The above table shows that out of total milk producers 12.31 per cent milk producers had given feed and fodder upto 20 (30) Kg. per day per cattle. Nearabout 38.46 per cent milk producers had given feed and fodder from 21 Kg. to 30 Kg. at the time 44.62 per cent milk producers had given feed and fodder upto 40 Kg and 4.61 per cent milk producers had given feed and fodder upto 50 Kg. On an average in the range of 21 to 40 Kg. feed and fodder had been given to a cattle per day.

After taking into account source of feed and fodders as well as quantity of feeds and fodders in the terms of Kg. per cattle per day, it is essential to deal with the expenditure for feeds and fodders per cattle per year.

Table No. 5.14

Income groupwise annual average of fodder expenditure per dairy animal

Range in Rs.	1st I.G.	2nd I.G.	3rd I.G.	4th I.G.	Total	Percentage to total
Upto Rs. 1000	08	01	-	-	09	13.85
1001 to 2000	02	14	02	-	18	27.69
2001 to 3000	-	09	05	-	14	21.54
3001 to 4000	-	01	06	-	07	10.76
4001 to 5000	-	-	04	02	06	9.24
5001 to 6000	-	-	04	04	08	12.30
6001 to 7000	-	-	-	01	01	1.54
7001 to 8000	-	-	-	01	01	1.54
Above 8000	-	-	-	01	01	1.54
Total	10	25	21	09	65	100

The Table No. 5.14 shows that on an average first income group makes expenditure on feeds and fodders per cattle per year upto Rs. 1,100/-, second income group of milk producers spends Rs. 1,920/- per cattle per year, the third one income group of milk producers makes expenditure on an average upto Rs. 3,642.85 and the 4the income group of milk producers makes expenditure on feeds and fodders on an average upto Rs. 5,888.88.

5.3.2 Labour Cost

Next to feeds and fodders input labour input plays significant role in the field of dairy animals. Labour input performs various functions such as -

1) to bring fodder,
2) to feed the fodder,
3) to clean sheds
4) watering, clearing and milking dairy animals,
5) selling milk,
6) Grazing dairy animals etc.

Table No. 5.15

Sources of labour supply

Sr. No.	Sources	1st I.G.	2nd I.G.	3rd I.G.	4th I.G.	Total	Percentage to total
1	Domestic	10	24	16	01	51	78.5
2	Hired	-	01	05	08	14	21.5
	Total	10	25	21	09	65	100

There are two sources of labour supply - one domestic and other hired. From the Table No. 5.15 it seems that 78.5 per cent milk producers used their own household labours, whereas only 21.5 per cent milk producers had hired labour out of which major part is hired by fourth income group.

Now it is essential to consider expenditure on labour. While making focus on it, it is assumed that though milk producers used their own household labours. They have to pay labour charges as per the rate of wages for hired labour.

Table No. 5.16

Annual expenditure on labour.

Range in Rs.	1st I.G.	2nd I.G.	3rd I.G.	4th I.G.	Total	Percentage to total
Upto Rs. 1000	08	06	03	-	17	26.15
1001 to 2000	02	09	06	-	17	26.16
2001 to 3000	-	08	04	-	12	18.46
3001 to 4000	-	02	05	01	08	12.30
4001 to 5000	-	-	03	04	07	10.78
5001 to 6000	-	-	-	03	03	4.62
Above 6000	-	-	-	01	01	1.54
Total	10	25	21	09	65	100

The above table shows that first income group of milk producers make expenditure on an average Rs. 1,100/- on labour per annum. The second income group milk producers make expenditure on labour about Rs. 1,860.00, while the third and fourth income groups make expenditure on labour on an average Rs. 2,523.80 and 4,888.88 respectively.

5.3.3 Employment Generation in Dairy Business

The dairy business is believed to be employment intensive and income bright. Therefore the planners and policy makers advocate dairying particularly for ameliorating the economic conditions of the weaker section of the society, i.e., I, II, III, and IV income groups. Moreover dairying is an enterprise which requires constant attention and needs more delicate management. There is greater degree of indoor activity in the case of dairy enterprise. Therefore, there is a great scope for family labour especially women and children to participate in the work. However, the mere availability of family labour is not enough. It is the willingness to participate that matters. In this sense small and marginal farmers are better placed to take up this enterprise.

Although the relatives share of labour input in dairy in the total cost is less, yet the absolute magnitude of labour employment turns out to be much higher. In order to estimate employment generation in dairy business labour hours required for various dairying activities have been taken into consideration.

1) It may be revealed that on an average 1.30 hours per day were required for bringing feeds and fodders per milk producer.

2) On an average one hour per day was required in order to provide fodders and feeds.

3) The activity of cleaning the sheds was required nearabout one hour per day per milk producer.

4) For watering and cleaning amount of time required amounted to one hour.

5) Milking activity required 45 minutes per day.

6) On an average 30 minutes per day were required for the milk producers for selling the milk.

7) Activity of grazing animals required 1.20 hours.

Thus on an average nearabout 7 hours per milk producer were required for all activities of dairy business.

Yearly Employment Generation

From the above per day hours per milk producer we can estimate per year hours in the following ways:

Per year hours = Per day hours x number of days in the year
= 7 hours x 365 days
= 2555 hours.

Assumption

By assuming that 8 hours is equal to one man day employment the generation of mandays employment per producer per year:

= per year Hrs ÷ 8 Hrs

= 2555 Hrs ÷ 8 Hrs

= 319.4 mandays.

It may be concluded that in the dairy business on an average each milk producer in a year generates employment to the extent of 320 man days. Therefore dairying is employment intensive.

5.3.4 Veterinary Charges

Veterinary charges are necessary as dairy animals may suffer from various types of diseases such as feet and mouth diseases, black quarter, tympany, tiva etc.

Table No. 5.17

Classification of milk producers according to per year expenditure on veterinary charges

Expenditure range in Rs.	1st I.G.	2nd I.G.	3rd I.G.	4th I.G.	Total	Percentage to total
Upto 50	06	10	08	-	24	36.92
51 to 100	02	10	04	-	16	24.61
101 to 150	02	03	04	01	10	15.38
151 to 200	-	02	02	02	06	9.23
201 to 250	-	-	02	02	04	6.16
251 to 300	-	-	01	02	03	4.62
Above 300	-	-	-	02	02	3.08
Total	10	25	21	09	65	100

The foregoing table shows that first income group incurred expenditure on medicine for dairy animals on an average Rs. 70/-, second income group incurred expenditure on medicine for dairy animals on an average Rs. 79/-, whereas third income group and fourth income group of milk producers incurred expenditure on medicine for dairy animals on an average Rs. 113.09 and Rs. 230/- respectively.

Table No. 5.18

Classification of milk producers according to Insurance governing their dairy animals.

Kind of dairy animals	1st I.G.	2nd I.G.	3rd I.G.	4th I.G.	Total	Percentage of total
Insured D.A.	-	-	04	09	13	20
Uninsured D.A.	10	25	17	-	52	80
Total	10	25	21	09	65	100

From the Table No. 5.18 it is seen that only 20 per cent milk producers insured their dairy animals, while the remaining 80 per cent did not insure their dairy animals. This implies that insurance scheme is not fully implemented to cover all dairy animals. This is because milk producers do not consider insurance scheme to be important

Section III

Cost Structure

In this section cost structure of dairying in the case of first income group, second income group, third income group and fourth income group is discussed. Total cost has been divided into two components, namely fixed cost and variable cost.

Fixed cost comprises:

i) Depreciation on value of dairy animals, sheds, dairy equipment.

ii) Interest on the values of dairy animals, animal shed and dairy equipment.

Variable cost comprises:

i) Feeds and fodders
ii) Labour charges
iii) Veterinary medicine charges
iv) Insurance charges.

Per animal cost structure in the case of different categories of milk producers is presented in the Table No. 5.19 on the following page.

Table No. 5.19

Incomegroupwise cost of production of milk per dairy animal

Cost Items	1st I.G.	2nd I.G.	3rd I.G.	4th I.G.
A) Fixed Cost	365.00	1750.35	1966.06	3027.03
1) Depreciation on investment	97.70	215.70	250.40	606.10
On d.a., roofing and equipment	50.00	524.00	566.70	650.00
At 10 per cent p.a.	11.00	021.40	041.10	060.00
	158.70	761.10	858.20	1316.10
2) Interest on investment	127.00	280.41	325.52	787.93
On d.a., roofing, equipment	065.00	681.02	728.91	845.00
At 13 per cent p.a.	14.30	27.82	53.43	78.00
	206.30	989 .25	1107.86	1710.93
% of fixed cost in total cost	13.86	31.20	23.84	31.56
B) Variable Cost				
1) Feeds & fodders	1100.00	1920.00	3642.85	5888.88
2) Labour	1100.00	1860.00	2523.80	4888.88
3) Medicine	0070.00	0079.00	0113.09	0230.00
	2270.00	3859.00	6279.74	11007.76
% of variable cost in total cost	86.14	68.80	76.16	78.44
Cost of Production of milk per dairy	2635.00	5609.35	8245.80	14034.79
Animal (A + B) Percentage	100	100	100	100

The Table No. 5.19 clearly shows that first income group of milk producers have to incur 13.86 per cent expenditure per annum as fixed cost and 86.14 per cent expenditure p.a. as variable cost for cost of production of milk per dairy animal. Second income group milk producers have to incur expenditure p.a. nearabout 31.20 per cent and 68.86 per cent for fixed cost and variable cost respectively for cost of production of milk per dairy animal, whereas third income group has to incur 23.84 per cent expenditure p.a. as fixed cost and 76.16 per cent as variable cost and fourth income group of milk producers have to incur 21.56 per cent as variable cost and fourth income group of milk producers have to incur 21.56 per cent expenditure p.a. as fixed cost and 78.44 per cent expenditure p.a. as variable cost for cost of production of milk per dairy animal.

The Table No. 5.19 also clearly shows that variable cost is comparatively more in the case of all categories of milk producers except second income group accounting for nearly 68.80 per cent of total cost, while the fixed cost is relatively smaller in the case of all categories.

From the above table analysis, it may be concluded that variable costs were larger in the case of first, third and fourth income groups. They were larger owing to two reasons:

i) The proportion of crossbreed cows to total dairy animals was comparatively large in the case of third and fourth

income group of milk producers, which naturally required large expenditure for feeds and fodder and labours for crossbreed cows compared to other categories. Consequently, this resulted in increasing variable cost and;

ii) The variable cost is higher in the case of first income group of milk producers to other categories owing to the fact that each landless labourer on an average does not have optimum size of dairy animals (average per head 1.1). Therefore, the labour capacity is not fully utilized. Moreover, they have to purchase all feeds and fodder from market, which in turn causes increased higher level of variable cost.

5.5 Revenue From Per Dairy Animal

After taking into consideration the cost of production of milk per dairy animal, it is essential to make focus on revenue from per dairy animal consisting of two main factors i.e., average cost of production per dairy animal during the period of 15 months and average milk production per dairy animal during the period of 15 months.

The following table shows the average cost of production per dairy animal during the period of 15 months.

Table No. 5.20

Income-groupwise average cost of production of dairy animals during the period of 15 months.

Period	Cost of production of milk per dairy animal (in Rs.)			
	1st I.G.	2nd I.G.	3rd I.G.	4th I.G.
Milking period	2,635	5,609	8,245	14,635
Dry period	487	1,156	1,590	2,682
Total	3,122	6,765	9,835	17,317

(Note: It is assumed that fixed cost of milk production during the dry period remains constant but variable cost of milk production during the dry period is reduced upto 30%, e.g., for 1st income group cost of milk production per dairy animal during the dry period (on an average 3 months))

* Fixed cost = 365 ÷ 12 x 3 = 090/-

** Variable cost = 2,270 ÷ 12 x 3 x $\frac{100}{70}$ = 397/-

Cost of milk production during the dry period

(Rs. 90 + Rs. 397 = Rs. 487 = Table No. 5.19)

Now we have to consider the second factor i.e., average milk production per dairy animal during the period of 15 months, and revenue from each dairy animal.

1) On an average revenue from per dairy animal to first income

group milk producer during the period of 15 months.

A) Milk Production

Number of months = Litres x days x months = Total litres

For 1st 6 months = 4 x 30 x 6 = 720

For next 3 months = 2 x 30 x 3 = 180

For last 3 months = 1 x 30 x 3 = 090

Total milk production : 990 Litres

B) Gross Income

Gross income = Total milk production x rate of milk per litre in Rs.

= 990 x 4 = Rs. 3,960/-

(Rs. 3,960 gross income)

C) Revenue

Gross income - cost of production = Revenue

Rs. 3,960 - Rs. 3,122 = Rs. 838.

Thus first income group gets totally on an average net income of Rs. 838 as revenue from per dairy animal.

2) On an average revenue from per dairy animal to second income group milk producer during the period of 15 months.

A) Milk production

Number of months = Lts. x days x months = Total litres

For 1st 6 months = 7 x 30 x 6 = 1,260

For next 3 months = 5 x 30 x 3 = 0450

For last 3 months = 4 x 30 x 3 = 0360

Total milk production ..... 2,070 Lts.

B) Gross income

Total milk production x rate in Rs per Ltr. = Gross income

2,070 x 4 (Rs.) = Rs. 8,280/-

C) Revenue

Gross income = cost of production = Revenue

Rs. 8,280/- - Rs. 6,765 = Rs. 1,515

Thus second income group milk producer gets totally on an average net Rs. 1,515/-, as revenue from per dairy animal.

3) On an average revenue from per dairy animal to third income group milk producer during the period of 15 months.

A) Milk Production

Number of months = Lts. x days x months = Total Lts.

For 1st 6 months = 12 x 30 x 6 = 2,160

For next 3 months = 8 x 30 x 3 = 720

For last 3 months = 5 x 30 x 3 = 450

Total milk production: 3,330 Ltrs.

B) Gross income

Total milk production x rate in Rs. per Ltr. = Gross income

3,330 x Rs. 3.50 = Rs. 11,655

C) Revenue

Gross income - cost of production = Revenue

Rs. 11,655/- - Rs. 9,835/- = Rs. 1,820.

Thus third income group of milk producer gets totally on an average Rs. 1,820 as revenue from per dairy animal.

4) On an average revenue from per dairy animal to fourth income group of milk producer during the period of 15 months:

A) Milk production

Number of months	= Lts. x days x months	= Total Ltrs.
For first 6 months	= 17 x 30 x 6	= 3,060
For next 3 months	= 14 x 30 x 3	= 1,260
For last 3 months	= 09 x 30 x 3	= 810
Total milk production ...		= 5,130 Ltrs.

B) Gross Income

Total milk production x rate in Rs. per litre = Gross income

5,130 x 3.50 (Rs.) = Rs. 17,955.

C) Revenue

Gross income - cost of production = Revenue

Rs. 17,955 - Rs. 17,317 = Rs. 638

Thus fourth income group of milk producers gets totally on an average Rs. 638/- as revenue from per dairy animal.

Notes: 1) Cost of production = Table No. 5.20

2) I & II income groups hold only buffaloes, whose rate of milk per litre is Rs. 4/- only.

3) III & IV income groups hold buffaloes and crossbreed cows. Rate of milk per litre (buffalo) is Rs. 4/- and Rs. 3/- for per litre of cow's milk. Thus on an average rate of milk is Rs. 3.50 ($\frac{4 + 3}{2}$)

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