Analysis of cost and returns of milk production in Rajasthan

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ABSTRACT

The present study was undertaken to find out the cost and returns of milk production. Milk production in India is mainly concentrated on small farms in rural areas as a subsidiary occupation to agriculture. In addition to this, there are a number of organized dairy farms under the cooperatives milk producers' union. In this country, the low genetic potential of the animals results in the high cost and low milk production. The profit margin can be increased, by decreasing the cost of production. The average cost of production per litre milk was ₹ 14.27 and the average net return per litre of milk was ₹ 8.28. The input-output ratio was worked out 1.58 at overall level. The cost C was ₹ 1867599.61 per dairy farm and 333449.99 per milch animal and the net income was ₹ 1053011.60 per dairy farm and ₹18803.77 per animal. The average dairy milk yield of local cow was 8.20litre. It was 10.50 litres, 11.53 and 15.80 litres for buffalo, Jersey cow and Holstein Friesian cow, respectively.

Keywords: Cost, returns, milk, profit, Rajasthan

Milk production in the country was stagnant during the 1950s and 1960s; annual production growth was negative in many years. The annual compound growth rate in milk production during the first decade after independence was about 1.64 per cent, during the 1960s, this growth rate declined to 1.15 per cent. During the late 1960s, the Govt. of India initiated major policy changes in the dairy sector to achieve self- sufficiency in milk production. Producing milk in rural areas through producer cooperatives and moving processed milk to urban demand centres becomes the cornerstone of the government dairy development policy. This policy initiative gave a boost to dairy development and initiated the process of establishing the much needed linkages between rural producers and urban consumers. In global context, the performance of the Indian dairy sector appears impressive in term of livestock population and total milk production but extremely poor in term of productivity. The main reasons for low yields are inadequate availability of timely and good animal health care practices and lack of breeding services and credit. The average milk productivity per year per cow

Access this article online	
Publisher	Website: http://www.ndpublisher.in
	DOI: 10.5958/0976-4666.2016.00010.3

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increased from 731 kg. in 1989-91 to about 1,0441 kg. in 1999. Although average annual milk production per animal has improved substantially, it is far below the world average (2071 kg per year) and that of countries such as Israel (8785 kg), the United States (8,043 kg.) and Denmark (6565 kg.). The available data on milk yield indicate that average productivity went up substantially in the case of cows during the 1970s and 1980s. There is an increase in the yield of buffaloes also, but it is less sharp than that of cows. A key factor accounting for the sharper increase in cow milk yield is the increasing proportion of crossbred cows. As in milk production and availability; there are wide inter-state variations in milk yields. In general, buffaloes have higher yields than indigenous cows, but crossbred cows are more productive than either indigenous cows or buffaloes. In 2000-01, the average productivity of local cows is highest in Haryana. The India dairy sector industry is poised for dramatic growth in the coming decades. The population growth, urbanization, income growth, high income elasticity of demand and changes in food habits that fuelled the increase in milk consumption are expected to continue well into the new millennium, creating a veritable livestock revolution, environmental sustainability, public health and ethical concerns about the treatment of animals.

Database and Methodology

Bikaner district was purposively selected for the study. The selection of dairy farm was done randomly. As a whole, five dairy farms were selected, having herd size of ≥ 20 milch animals. The interview schedules were prepared for collecting the data from dairy owners. The data were collected for the period of January 2009 to February 2010.The analysis of data were done by using Statistical techniques of averages, percentage and ratios etc. Information on recommended management practices were revealed from College of Veterinary and Animal Sciences Bikaner. Dairy farming costs (D-costs) have been calculated as:

(i) D-cost A = Cost of feed, fodder, concentrates, up-keep labour (hired), medicines, veterinary and other costs and depreciation on livestock, livestock equipment and cattle-shed.

(ii) D-cost B = D-cost A + interest on fixed investment on dairy animals, shed, equipment etc.

(iii) D-cost C = D-cost B + imputed value of family labour.

Dairy Incomes have been calculated as:

(i) Dairy Gross Receipts (DGR) = Value of milk + Value of dung.

(ii) Dairy Farm Business Income (DFBI) = D.G.R. – D-cost A.

(iii) Dari Family Labour Income (DFLI) = D.G.R. – D-cost B.

(iv) Dairy Net Income (DNI) = D.G.R. – D-cost C.

Results and Discussion

Total cost and returns of per milch animal per year is presented in table 1. The analysis indicated that all breeds of milch animals maintained were profitable at all the dairy owners. The minimum returns per litre was recorded ₹ 0.86 from local cow to maximum ₹ 11.81 from Holstein Friesian. Similarly the input – output ratio was also found minimum (1.04) in local cow and maximum 2.11 in Holstein Friesian cow. The study reveals that the buffalo was not much profitable even in comparison to local cows. The input-output ratio was recorded only 1.20 to 1.21 in case of both dairy owners having buffaloes in their dairy farms. Thus the study revealed that cows were superior to buffaloes in generating income on all dairy farms. The cost and returns per dairy farm was also work out by multiplying the number of milch animals maintained respective breed and cost and returns occurred on per milch animal and presented in table 2. The total cost and quantity of milk yield per dairy farm depend upon the total number of milch animals maintained on each dairy farm. It can be observed from the table that cost per litre (₹ 13.18 to 15.69) of milk production was not much differ among all the dairy farms. Returns per litre on milk production was highest recorded on dairy farm 4 (₹ 9.26) and minimum on dairy farm 2 (₹ 6.94). Similarly input-output ratio was also found highest (1.70) on dairy farm 4 and minimum on dairy farm 2 (1.44). The overall average return per dairy farm on per litre milk production was observed ₹ 8.28 and input output ratio was recorded 1.58 at overall level.

Table 1: Cost and returns of different milch animals on different dairy farms

(₹/Animal/Year)

Dairy Farm		Total cost	Milk Yield	Returns from milk	Returns from dung	Gross Returns	Net returns	Cost/Litre	Return/Litre	Input output ratio
1.	Local	44736.3	2245.83	49408.26	1460	50868.26	6131.96	19.92	2.73	1.14
	H.F.	67376.2	5666.67	124666.74	2190	126856.74	59480.54	11.89	10.49	1.88
	Jersey	59534	3718	81796	1825	83621	24087	16.01	6.48	1.40
2.	Local	45998.41	2311.17	50845.74	1460	52305.74	6307.33	19.90	2.73	1.14
	H.F.	66438.51	4781.33	105189.26	2190	107379.26	40940.75	13.89	8.56	1.62
	Jersey	66438.51	4294.83	94486.26	1825	96311.26	29872.75	15.47	6.95	1.45
	Buffalo	64343.81	3029.67	75741.75	1825	77566.75	13222.94	21.24	4.36	1.20
3.	Local	46280.19	2295	50490	1460	51950	5669.81	20.16	2.47	1.12
	H.F.	63513.59	5672.83	124802.26	2190	126992.26	63478.67	11.20	11.19	1.99
	Jersey	59642.29	3910	86020	1825	87845	28202.71	15.25	7.21	1.47
4.	Local	47252.75	2166.67	47666.74	1460	49126.74	1873.99	21.81	0.86	1.04
	H.F.	61315.55	5244	115368	2190	117558	56242.45	11.69	10.72	1.92
	Jersey	55486.75	4164	91608	1825	93433	37946.25	13.32	9.11	1.68
5.	Local	45897.75	2270.33	49947.26	1460	51407.26	5509.51	20.22	2.43	1.12
	H.F.	54282.95	5115	112530	2190	114720	60437.05	10.61	11.81	2.11
	Jersey	53727.8	3740.83	82298.26	1825	84123.26	30395.46	14.36	8.12	1.56
	Buffalo	65947.7	3120	78000	1825	79825	13877.3	21.14	4.45	1.21

Table 2: Cost and returns of different milch animals on different dairy farms

(₹/Dairy Farm/Year)

Dairy Farm	Total cost	Milk Yield	Returns from milk	Returns from dung	Gross Returns	Net returns	Cost/Litre	Return/ Litre	Input output ratio
1.	1246805.3	88255	1941614	39785	1981398.96	734593.66	14.13	8.32	1.58
2.	2738167.65	174425	3864615.9	84315	3948930.93	1210763.3	15.69	6.94	1.44
3.	1484064.45	112444	2473767.1	48545	2522312.12	1038247.7	13.19	9.23	1.69
4.	1647143.75	124972	2749384.4	56210	2805594.44	1158450.7	13.18	9.26	1.70
5.	2221816.9	146774	3275834.4	68985	3344819.38	1123002.5	15.14	7.65	1.50
Total	9337998.05	646870	14305216	297840	14603055.83	5265057.8	71.34	41.42	7.93
Average	1867599.61	129374	2861043.2	59568	2920611.16	1053011.6	14.27	8.28	1.58
Av./animal	60245.14	4173.35	92291.715	1921.54	94213.26	33968.11	14.43	8.14	1.56

Table 3: Dairy farming costs and incomes (₹ /Year)

S. No.	Total number of animals	Dairy farming costs			Dairy farming incomes			
		Cost A	Cost B	Cost C	DGR	DFBI	DFLI	DNI
1.	34	819798.80	843234.80	1246805.30	1981398.96	1161600.20	1138164.16	734593.66
2.	84	1759547.70	1798959.15	2738167.65	3948930.93	2189383.20	2149971.78	1210763.30
3.	45	1018669.95	1042972.20	1484064.45	2522312.12	1503642.20	1479339.92	1038247.70
4.	60	1082294	1108568	1647143.75	2805594.44	1723300.40	1697026.44	1158450.70
5.	57	1499293.15	1540453.15	2221816.90	3344819.38	1845526.20	1804366.23	1123002.50
Total	280	6179603.60	6334187.30	9337998.05	14603055.83	8423452.20	8268868.53	5265057.80
Average/ dairy farm	56	1235920.70	1266837.50	1867599.61	2920611.16	1684690.40	1653773.71	1053011.60
Average/animal		**22070.01**	**22622.10**	**33349.99**	**52153.77**	**30083.75**	**29531.67**	**18803.77**

Cost and returns on per dairy farm according to various cost-concepts is presented in Table 3. The table shows that the on an average, cost A, was ₹ 1235920.70 in the study area. The cost B was worked out to be ₹ 1266837.50 per dairy farm. The cost C was estimated to be ₹ 1867599.61 per dairy farm. The gross receipts included receipt from milk production and dung produced. On an average, the gross returns were ₹ 2920611.16 for each dairy farm. The farm business income which was obtained after deducting cost A from gross returns was ₹ 1684690.40 per dairy farm. Family labour income (cost B deducted from gross receipts) was ₹ 1653773.71 per dairy farm. The net income, which was obtained after deducting cost C from gross receipts, was ₹ 1053011.60 for each dairy farm. On an average cost A, cost B and cost C per animal were ₹ 22070.01, ₹ 22622.10 and ₹ 33349.99 respectively. Per animal gross receipts, farm business income, family labour income and net income were ₹ 52153.77, ₹ 30083.75, ₹ 29531.67 and ₹ 18803.77, respectively. Dairy farm no. 1 had low cost and low income. Dairy farm No. 2 had the highest costs and returns (Cost C- ₹ 2738167.65 and net income- ₹ 1210763.3), because it had the highest number of animals.

Conclusion

The results of the study clearly indicated that feed was the major cost component in total variable cost followed by labour cost. Dry fodder was the major feed item for all types of milch animals followed by concentrates. The profit margin can be increased, by decreasing the cost of production. The average cost of production per litre milk was ₹ 14.27 and the average net return per litre of milk was ₹ 8.28. The input-output ratio was worked out 1.58 at overall level.

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