Original Research Article

COMPARATIVE ECONOMICS OF TRADITIONAL AND MODERN DAIRY FARMS IN EASTERN U.P.

ABSTRACT

A sample of total 270 dairy respondents were selected from the selected district and purposive cum random sampling technique was adopted for the study. It was observed that over all the categories of sample farm groups selected, the gross total investment was found in decreasing trend at Rs. /Animal i.e., Rs. 1660335.42, Rs. 176674.52 and Rs. 122801.01 for marginal, medium and large category of dairy farms respectively. Overall Net returns per litre of milk produced was found Rs. 12 on traditional farm and Rs. 12.73 on modern farm. In the similar trend, the overall per day returns from traditional and modern dairy farms was found Rs. 241.09 and Rs. 262.56 respectively. Overall study reveals that enhanced income can be enjoyed by adopting modern approach of dairy farming.

Keywords: Dairy, milk, traditional farm, modern farm.

INTRODUCTION

India being the world's largest producer of dairy products by volume, accounting for holds about more than 13 per cent of world's total milk production and also accounts the world's largest dairy herd (Singh, *et al.,* 2019). Dairy industry along with its processing can play a crucial role in altering the socio-economic development of India. Dairying is an integral part of farming system and plays a major role in boosting rural economy (Chale *et al*., 2018). Therefore, dairy as livelihood should be promoted (Feroze *et al.,* 2019). However, India accounts for less than 1 per cent of worldwide milk trade. So, it can be a net exporter of all dairy products in future (Kumawat *et al.,* 2014). Rising demand for milk and its products will put India under constant pressure to maintain the existing growth in milk production. Any deceleration in growth meets its domestic requirements for milk in the long run (Kumari *et al.,* 2017). With the current trend in the country India will be able to produce about 217 MT of milk by 2025. There is an ample room for promotion, production and distribution of liquid milk and its products, which policy makers and dairy industry can use it in their favour (Acharya *et al.,* 2020). The dairy sector provides employment opportunities directly or indirectly to 15 million people in India (Jaiswal *et al.,* 2017). Government should intervene in this sector and make development interventions (Mihret *et al.,* 2017).

METHODOLOGY

The study was conducted during the session 2020-21 in district Sant Kabir Nagar of eastern Uttar Pradesh from the Chandra Shekhar Azad University of Agriculture and Technology, Kanpur. Research was done through survey method and adopted purposive cum random sampling technique. Objective of the study was to analyse the status of the dairy practices in the selected area. Since, the district has rural based population and agricultural practices are dominant. Therefore, role of livestock rearing plays a major role in creation of additional income sources for the dairy practitioners (Meena *et al.,* 2019). 270 dairy farmers were selected from the 9 blocks of the entire district to collect the primary data on the basis of their agricultural land holding and studied in three categories i.e., marginal, medium and large dairy farmers. The investment pattern of dairy farmers was studied of all the 270 farmers. Further, traditional and modern dairy farmers were separated on the basis of their adopted farm practice, tools and implements used in their dairy farms and it was found that only 25 dairy respondents (14 marginal, 8 medium and 3 large) had adopted modern techniques in their farms. All the details of the investment done by the dairy farmers for their dairy farm was collected along with the cost incurred and returns generated by the produce on per animal and per day basis. Descriptive statistics was used to analyse the data collected along with the simple cost concepts of economics for drawing the results.

RESEARCH FINDINGS

Per farm animal Investment Pattern on Different Size Group of Sample Milk Producers:

The investment pattern (Rs. /animal) on different size groups of sample milk producer farmer presented in Table 1 disclose that the total Rs. Per animal investment on an overall was Rs. 346249.43 for all the farms jointly. The highest contribution was found in the investment of land i.e., Rs. 290738.03 per animal at total which was contribution of residential and cattle shed of Rs. 261860.66 and Rs. 2887.37 respectively per animals at overall. Investments per animal on buildings was found of Rs. 28546.12 at total on overall which was found contribution of Kaccha and Pacca residential, go down and Kaccha and Pacca cattle shed of Rs. 1305.64, Rs. 22681.17, Rs. 1687.18, Rs. 102.39 and 2769.75 respectively per animal. Per animal investment on dairy animals was Rs. 23071.51 at total on overall holding Rs. 20806.04 for milch and Rs. 2265.47 for other animals on overall. Investment on machinery and equipment in total was found Rs. 3893.78 per animal on dairy farms which was contribution of both traditional and modern dairy farms and was of Rs.

184.16 and Rs. 3709.62 invested Rs. /Animal on overall. If we look the per cent investment on the Rs. /Animal at dairy farm categories, it was found that maximum investment was on Land i.e., 83.47 per cent, followed by investment on Buildings 8.24 per cent and 6.66 per cent on dairy animals, lastly 1.12 per cent on the investment of machinery and equipment. On separately all categories of sample farm groups, the gross total investment was found in decreasing trend at Rs. /Animal i.e., Rs. 1660335.42, Rs. 176674.52 and Rs. 122801.01 for marginal, medium and large category of dairy farms respectively.

Cost and returns on different size group of Traditional Milk Producers per day:

Cost and returns on different size groups of dairy farms for Traditional milk producers in Table 2 reveals that on an overall the cost of feed for dairy animals was found Rs. 137.48 per day which was having constituents of fodder, roughage and concentrate of Rs. 9.54, Rs. 6.45 and Rs. 21.93 per day respectively. Total Variable cost including the feed cost was found Rs. 202.24 per day on an overall average. Veterinary, Labor wages, and Miscellaneous cost were found Rs. 1.96, Rs. 47.57 and Rs. 7.45 on overall respectively. On an overall, TWC and IWC was found Rs. 194.46 and Rs. 7.78 per day. Rental value of land which was the land acquired by the dairy farmers for dairy practice holds rent of Rs. 136.43 per day on an overall. On an overall, the interest on fixed capital, Depreciation on fixed assets, Total overhead cost and Gross cost was found Rs. 10.96, Rs. 12.94, Rs. 160.32, and Rs. 362.57 respectively. Ne cost on an overall was found Rs. 354.96 per day. Gross returns and Net returns were found Rs. 596.05 and Rs. 291.09 per day. In cost per litre and Net returns per litre was found Rs. 25.37 and Rs. 12.00 per day. Upon observation over individual categories of farm group i.e., Marginal, Medium and large the results were quite differed in behaviour. In marginal category, total variable cost was Rs. 165.97 per day, Total Overhead cost was found Rs. 57.86 per day. Jointly Gross cost was found Rs. 230.47 per day. Gross returns and Net returns were found Rs. 339.60 and Rs. 115.54 per day. Finally, cost per litre of milk was found 24.98, however net returns per litre was Rs. 12.88 per day. In Medium category, Gross cost and Gross returns was found Rs. 386.00 and Rs. 444.00 per day. Net returns, Cost per litre and Net returns per litre was found Rs. 66.29, Rs. 31.90 and Rs. 5.60 per day respectively. Large category of milk producers found Rs. 222.47 per day on Variable cost, Rs. 1250.22 of Gross returns and Rs. 726.02 of Net returns per day. Cost per litre and Net returns per litre per day to milk producers in large category was found Rs. 15.25 and Rs. 21.12 respectively.

Cost and returns on different size group of Modern Milk Producers per day:

In Table 3 we can see that on an overall, cost of feed for dairy animals was found Rs. 230.93 per day which was having constituents of fodder Rs. 54.90 per day, roughage Rs. 51.30 per day and concentrate Rs. 124.73 per day. The maximum feed cost was found under marginal producer of 64.70 per cent followed by medium and large producer which was 49.24 per cent and 37.85 per cent respectively. Overall variable cost/operational cost was found to be Rs. 294.07 per day which constituted veterinary, labor wages, miscellaneous, total working capital and interest on working capital which was Rs.2.01, Rs.41.41, Rs.8.41, Rs.282.76, and Rs.11.31 per day respectively. Among different size groups of variable cost, marginal producers were having highest variable cost i.e., 82.14 per cent, followed by medium producer 62.84 per cent and lastly large producer having 48.58 per cent. If we throw some light on total fixed cost/ overhead cost, we can see that, large producers having maximum share of fixed cost i.e., 51.42 per cent, followed by 37.16 per cent for medium dairy producers and 17.86 per cent for marginal producers. Rental value of farm was found at Rs. 98.96 per day, interest on fixed capital was Rs.14.85 per day and depreciation on fixed assets was Rs. 16.06 per day. So, total fixed cost / overhead cost for modern milk producers goes up to Rs. 129.88 per day. Gross cost of modern milk producers was highest in larger group producers i.e., Rs.621.10 per day followed by medium Rs. 471.94 per day and Rs. 354.27 per day for marginal producers. On an overall the net cost of dairy animals was found Rs. 416.21 per day, which constitutes marginal, medium, large producers having Rs.346.98, Rs. 463.71 and Rs. 612.60 per day respectively. On an overall gross return and net return was found Rs. 678.77 per day and Rs. 262.56 per day respectively. It was observed that the cost per liter of milk was highest in marginal producers i.e., Rs. 27.54 per litre followed by medium producers at Rs. 23.78 per litre and large producers having Rs.15.05 cost per litre. So, overall cost per litre of milk was found to be Rs. 24.84. On an overall net return was Rs. 12.73 per litre constitutes marginal producers having return Rs. 10.32 per litre, medium producers return was Rs. 13.72 per litre and lastly large producers having highest return per litre i.e., Rs. 21.32.

Comparison in between cost and returns of Traditional and Modern Dairy Farms from the different size group of Milk Producers per day:

Comparison in between Traditional and Modern dairy farms from different size group of milk producers presented in Table 4 reveals that on an overall Gross cost was found Rs.

362.57 and Rs. 423.94 per day for Traditional and Modern milk producers. Net income from the dairy farm by milk production was Rs. 241.09 and Rs. 262.56 per day and Rs. 87997.85 and Rs. 95834.40 per year for Traditional and Modern milk producers respectively.

Table 1.V-20 Investment Pattern on Different Size Group of Sample Milk Producer Farms

(Rs/animal)

S.No.	Particulars	Marginal	%	Medium	%	Large	%	Overall	%
A.	**Dairy animals**								
	Milch	16582.15	1.00	15600.91	8.83	25528.67	20.79	**20806.04**	6.01
	Others	1944.38	0.12	2705.52	1.53	2047.81	1.67	**2265.47**	0.65
	Total	18526.52	1.12	18306.42	10.36	27576.48	22.46	**23071.51**	6.66
B.	**Land**								
	Residential	1587168.74	95.59	85226.81	48.24	40261.38	32.79	**261860.66**	75.63
	Cattle shed	32671.00	1.97	32921.81	18.63	25137.14	20.47	**28877.37**	8.34
	Total	1619839.74	97.56	118148.62	66.87	65398.52	53.26	**290738.03**	83.97
C.	**Buildings**								
	Residential								
	Kaccha	4150.57	0.25	1281.63	0.73	585.51	0.48	**1305.64**	0.38
	Pacca	16602.27	0.10	30309.90	17.16	19017.99	15.49	**22681.17**	6.55
	Godown	0	0	187.76	0.11	3163.79	2.58	**1687.18**	0.49
	Cattle shed								
	Kaccha	269.66	0.02	144.22	0.08	30.19	0.02	**102.39**	0.03
	Pacca	0	0	1820.86	1.03	4148.38	3.38	**2769.75**	0.80
	Total	21022.50	1.27	33744.37	19.10	26945.86	21.94	**28546.12**	8.24
D.	**Machinery, equipment** etc.								
	Traditional	548.96	0.03	200.01	0.11	78.76	0.06	**184.16**	0.05
	Modern	397.70	0.02	6275.09	3.55	2801.38	2.28	**3709.62**	1.07
	Total	946.66	0.06	6475.10	3.66	2880.15	2.35	**3893.78**	1.12
	Gross Total Investment	**1660335.42**	100	**176674.52**	100	**122801.01**	100	**346249.43**	**100**

Table 2.V-21 Cost and returns on different size group of Traditional Milk Producers

(Rs. /Day)

S. No.	Particulars	Size Group of Dairy Producers						Overall	%
		Marginal	%	Medium	%	Large	%		
	Fodder	35.06	15.21	35.22	9.12	32.76	6.15	**34.58**	9.54
	Roughage	21.45	9.31	25.6	6.63	22.78	4.28	**23.38**	6.45
	Concentrate	68.49	29.72	87.36	22.63	84.09	15.79	**79.53**	21.93
	Total Feed Cost	**125**	54.24	**148.18**	38.39	**139.63**	26.22	**137.48**	37.92
	Veterinary	1.63	0.71	1.98	0.51	2.46	0.46	**1.96**	0.54
	Labour Wages	32.45	14.08	52.26	13.54	63.72	11.96	**47.57**	13.12
	Miscellaneous	6.89	2.99	7.6	1.97	8.1	1.52	**7.45**	2.06
	Total Working Capital	**165.97**	72.01	**210.02**	54.41	**213.91**	40.16	**194.46**	53.64
	Interest on Working Capital	6.64	2.88	8.40	2.18	8.56	1.61	**7.78**	2.15
	Total Variable Cost/Operational Cost	**172.61**	74.89	**218.42**	56.59	**222.47**	41.77	**202.24**	55.78
	Rental Value of Land of Farm	32.88	14.27	143.84	37.26	287.67	54.01	**136.43**	37.63
	Interest on Fixed Capital	12	5.21	10.84	2.81	9.51	1.79	**10.96**	3.02
	Depreciation on Fixed assets	12.98	5.63	12.9	3.34	12.95	2.43	**12.94**	3.57
	Total Fixed Cost/Overhead Cost	**57.86**	25.11	**167.58**	43.41	**310.13**	58.23	**160.32**	44.22
	Gross cost	230.47	100	386.00	100	532.60	100	**362.57**	100
	Value of Dung	6.4		8.29		8.4		**7.61**	
	Net Cost	224.07		377.71		524.20		**354.96**	
	Sale price of Milk (Rs/Ltr.)	37.86		37.5		36.37		**37.37**	
	Milk Production	8.97		11.84		34.38		**16.11**	
	Gross Returns	339.60		444.00		1250.22		**596.05**	
	Net Returns	115.54		66.29		726.02		**241.09**	
	Cost per Litre of Milk (Rs/Ltr.)	**24.98**		**31.90**		**15.25**		**25.37**	
	Net Returns per Litre (Rs/Ltr.)	12.88		5.60		21.12		**12.00**	

Table 3. V-22 Cost and returns on different size group of Modern Milk Producers

(Rs. /Day)

S. No.	Particulars	Size Group of Dairy Producers						Overall	%
		Marginal	%	Medium	%	Large	%		
	Fodder	54.34	15.34	55.22	11.70	56.66	9.12	**54.9**	12.95
	Roughage	53.93	15.22	48.55	10.29	46.36	7.46	**51.3**	12.10
	Concentrate	120.94	34.14	128.63	27.26	132.04	21.26	**124.73**	29.42
	Total Feed Cost	**229.21**	64.70	**232.40**	49.24	**235.06**	37.85	**230.93**	54.47
	Veterinary	1.93	0.54	2.10	0.44	2.13	0.34	**2.01**	0.47
	Labour Wages	40.54	11.44	42.20	8.94	43.36	6.98	**41.41**	9.77
	Miscellaneous	8.12	2.29	8.46	1.79	9.60	1.55	**8.41**	1.98
	Total Working Capital	279.80	78.98	285.16	60.42	290.15	46.72	**282.76**	66.71
	Interest on Working Capital	11.19	3.16	11.41	2.42	11.61	1.87	**11.31**	2.67
	Total Variable Cost/Operational Cost	**290.99**	82.14	**296.57**	62.84	**301.76**	48.58	**294.07**	69.36
	Rental Value of Land of Farm	32.88	9.28	143.84	30.48	287.67	46.32	**98.96**	23.34
	Interest on Fixed Capital	14.30	4.04	15.48	3.28	15.77	2.54	**14.85**	3.50
	Depreciation on Fixed assets	16.10	4.54	16.05	3.40	15.90	2.56	**16.06**	3.79
	Total Fixed Cost/Overhead Cost	**63.28**	17.86	**175.37**	37.16	**319.34**	51.42	**129.88**	30.64
	Gross cost	**354.27**	100	**471.94**	100	**621.10**	100	**423.94**	100
	Value of Dung	7.29		8.23		8.50		**7.74**	
	Net Cost	346.98		463.71		612.60		**416.21**	
	Sale price of Milk (Rs/Ltr.)	37.86		37.50		36.37		**37.57**	
	Milk Production	12.60		19.50		40.70		**18.18**	
	Gross Returns	477.04		731.25		1480.26		**678.77**	
	Net Returns	130.05		267.54		867.66		**262.56**	
	Cost per Litre of Milk (Rs/Ltr.)	**27.54**		**23.78**		**15.05**		**24.84**	
	Net Returns per Litre (Rs/Ltr.)	10.32		13.72		21.32		**12.73**	

Table 4.V-23 Comparison in between Traditional and Modern Dairy Farms from the different size group of Milk Producers

(Rs. /Day)

S. No.	Category	Type of dairy Producer							
		Traditional Producer				Modern Producer			
		Marginal	Medium	Large	Overall	Marginal	Medium	Large	Overall
1.	Gross Cost	230.47	386.00	532.60	**362.57**	354.27	471.94	621.10	**423.94**
2.	Gross Revenue	339.60	444.00	1250.22	**596.05**	477.04	731.25	1480.26	**678.77**
3.	Net Income	115.54	66.29	726.02	**241.09**	130.05	267.54	867.66	**262.56**
4.	Net Income (Rs. / Year)	42170.42	24195.56	264998.18	**87997.85**	47469.71	97653.41	316696.10	**95834.40**

CONCLUSION

From the results it was found that the gross total investment was found in decreasing trend over different respective farm size groups (Rathod *et al.,* 2020). Cost and returns over traditional and modern farms showed almost similar behavior. Traditional farms showed dairy farming as a less profitable when compared to the modern dairy farms. However, the difference between was not much significant in the study area. But modern approach gave an enhanced returns from the dairy farms. Therefore, it was concluded that by adopting various modern approach farmers can generate smart income and dairy will be a profitable business (Acharya *et al.,* 2020).

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