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# IMPACT OF DAIRY DEVELOPMENT THROUGH MILK CO-OPERATIVES—A CASE STUDY OF GUJARAT

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## INTRODUCTION

Milk co-operatives are an integral part of the milk marketing and dairy development programme in India popularly known as Operation Flood launched by the Government of India in collaboration with the World Food Programme of the United Nations. In all the specific milkshed areas throughout the country where viable milk co-operatives have been established, the farmers need not depend any more on the middlemen and the professional milk traders to market the milk. The milk producers sell their surplus milk twice a day directly through their milk co-operatives in their own villages and get paid for it every day or as decided by them.

Besides, the milk co-operatives provide to the milk producers in each village various technical inputs like balanced cattle feed concentrates, fodder seeds, artificial insemination facilities, veterinary services and medicines, etc., as a part of their milk production enhancement and milch animal improvement programmes as indicated in Appendix 1. As a result of these activities and the provision of an assured daily income from the sale of milk, the milk co-operatives are going a long way in ameliorating the economic and social conditions of the farmers in general and the weaker sections in particular in the rural areas.

### *Objectives*

This paper has two specific objectives. The first is to examine the progress of the selected milk co-operatives. The second objective is to analyse the impact of milk co-operatives on the economic conditions of the farmers in general and the weaker sections in particular in different villages.

## DESIGN OF STUDY

This study has been conducted in Gujarat which is the leading State so far as the development of milk co-operatives in India is concerned. The study covers four milk unions which are at the different stages of development (Table III). These are the Kaira District Co-operative Milk Producers' Union Ltd., Anand (Amul); Mehsana District Co-operative Milk Producers' Union Ltd., Mehsana (Dudhsagar), Banaskantha District Co-operative Milk

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Producers' Union Ltd., Palanpur (Banas Dairy) and Sabarkantha District Co-operative Milk Producers' Union Ltd., Himatnagar (Sabar Dairy).

In order to select the sample, Village Co-operative Milk Producers' Societies (milk societies), all the villages having milk societies in each of the four districts were divided into three different groups<sup>1</sup> according to the distance from the milk union or the chilling centre procuring the milk, because the milk unions generally cover the nearby villages first followed by other villages depending upon the distance and condition of the approach roads. This was followed by the random selection of 24 villages and their milk societies (experiment), two from each group in each of the four districts. Besides, as about one-third of the total villages in these districts are yet to be covered by the milk co-operatives, eight control villages, two in each district, were selected at random for the study.

In each experiment village, 16 to 17 milk producers were selected at random depending upon the relatively bigger and smaller size of the villages respectively. In the case of the control villages, 25 milk producers were selected at random in each village selected for the study. The total number of milk producers included in the study in this manner were 400 and 200 in the experiment and control villages respectively as shown in Table I.

TABLE I—DISTRIBUTION OF SAMPLE MILK PRODUCERS OVER THE DIFFERENT MILK UNIONS IN DIFFERENT LAND HOLDING GROUPS

Size-group*	Experiment				Control			
	Kaira	Mehsana	Banas-kantha	Sabar-kantha	Kaira	Mehsana	Banas-kantha	Sabar-kantha
Landless	.. 22	11	12	14	8	5	9	8
Small	.. 53	48	26	24	16	22	6	8
Medium	.. 13	30	24	26	18	16	7	12
Large	.. 12	11	38	36	8	7	28	22
Total	.. 100	100	100	100	50	50	50	50

\*Landless : owning no land, Small: owning 5 acres and less land, Medium: owning between 5 to 10 acres of land, Large : owning above 10 acres of land.

The data were collected through survey method during the year 1974-75. The primary data for studying the impact of the various activities of the milk co-operatives in the villages were collected from the sample milk producers. The secondary data required for the study were collected from the sample milk unions and societies.

1. (i) Below 20 km., (ii) 20 to 40 km., and (iii) above 40 km.

## RESULTS AND DISCUSSION

*Progress of Milk Co-operatives*

The milk co-operatives consist of a two-tier system of the District Co-operative Milk Producers' Union (milk union) at the district and the Village Co-operative Milk Producers' Societies (milk societies) at the village level. The surplus milk from the producers is first collected at the milk societies in the villages and then transported to the milk union. At the union, milk is pasteurised and then sold as liquid milk as much as possible. The remaining quantity of milk is converted into milk products at the product factories of the milk unions.

All the 24 milk societies included in the sample are found to be working profitably throughout right from their inception. In order to have a general idea of the year to year progress made by these milk societies, the pattern of their membership, share capital, reserve funds, milk collection and net profits during the period 1969-70 through 1972-73 are given in Table II. It will be noted that the milk societies have made a steady progress continuously in terms of all these aspects over the years.

TABLE II—PROGRESS MADE BY THE MILK SOCIETIES (AVERAGE FIGURES OF ALL THE SAMPLE SOCIETIES) 1969-70 THROUGH 1972-73

Particulars	1969-70	1970-71	1971-72	1972-73
Members .. .. .	286	295	298	304
Share capital (thousand Rs.) ..	5.2	4.5	5.9	7.7
Reserve fund (thousand Rs.) ..	18.6	22.4	24.7	26.1
Milk collection (lakh litres) ..	2.1	2.1	2.2	<b>2.3</b>
Milk collection (lakh Rs.) ..	2.3	2.3	<b>2.4</b>	2.5
Net profit (thousand Rs.) ..	12.3	12.4	<b>12.7</b>	16.0

The data available for the sample milk unions also showed that these have been working profitably throughout, right from the beginning of their work through 1972-73. The data regarding the number of milk societies, number of individual members, share capital, milk collection and the value of milk and milk products sold by the different unions during 1969-70 through 1972-73 are given in Table III. It is observed that the milk unions have made remarkable progress in all these aspects over the years which indicates the extent of great benefit going to a large number of villagers through the milk co-operatives year after year.

TABLE III—PROGRESS MADE BY THE SAMPLE MILK UNIONS : 1969-70 THROUGH 1972-73

Particulars	Year of start- ing work	1969-70	1970-71	1971-72	1972-73
<i>Amul</i>	1948-49				
Societies .. .. .		610	706	799	783
Members (lakh) .. .. .		1.7	1.8	2.1	2.2
Share capital (lakh Rs.) .. .. .		28.3	34.7	38.6	41.4
Milk collection (lakh litres) .. .. .		1238.8	1182.2	1332.2	1478.1
Value of milk and milk products sold (lakh Rs.) .. .. .		2719.3	3360.4	3922.4	3661.7
<i>Dudhsagar</i>	1961-62				
Societies .. .. .		291	340	369	407
Members (thousand) .. .. .		42.5	53.3	62.5	71.2
Share capital (lakh Rs.) .. .. .		35.9	39.2	40.6	40.8
Milk collection (lakh litres) .. .. .		414.0	464.4	554.8	659.6
Value of milk and milk products sold (lakh Rs.) .. .. .		510.0	631.2	840.5	1106.5
<i>Banas</i>	1969-70				
Societies .. .. .		75	108	288	350
Members (thousand) .. .. .		1.5	7.0	13.0	24.0
Share capital (lakh Rs.) .. .. .		1.8	3.8	3.9	4.8
Milk collection (lakh litres) .. .. .		17.6	61.5	113.7	201.9
Value of milk and milk products sold (lakh Rs.) .. .. .		17.6	65.5	116.1	207.4
<i>Sabar*</i>	1964-65				
Societies .. .. .		59	84	145	225
Share capital (lakh Rs.) .. .. .		1.5	2.6	5.2	13.5
Milk collection (lakh litres) .. .. .		38.6	55.0	107.4	146.1
Value of milk and milk products sold (lakh Rs.) .. .. .		42.2	62.7	122.8	151.8

\*Data pertaining to membership were not available in the case of this milk union.

### *Impact of Milk Co-operatives*

The milk co-operatives provide many facilities in the villages which directly and indirectly help the milk producers in improving their economic conditions. In addition to the provision of technical inputs for milk production enhancement (Appendix 1), the milk co-operatives also provide funds for the development of other facilities like roads, water supply, schools and other organizations, electrifications and telephone connections, etc., in the villages. Besides, they buy as much quantity of milk from the milk producers in the villages as they want to sell depending upon their cash requirements and marketable surplus of milk. In this way, it has been possible for the villagers to earn sufficient income from dairying every year.

### *Impact in General*

The cash income obtained continuously from the sale of milk can be used for better management of milch animals and for the purchase of improved agricultural inputs to some extent which can help the farmers in increasing their total farm incomes. This can be seen from Table IV which shows the milk

production per animal, marketed surplus, adoption of improved agricultural inputs and annual incomes of the sample milk producers in the experiment and control villages.

TABLE IV—PRODUCTION AND MARKETED SURPLUS OF MILK, ADOPTION OF IMPROVED AGRICULTURAL INPUTS AND FARM INCOMES OF THE SAMPLE MILK PRODUCERS

Particulars	Experiment	Control
Milk production per animal per day (litres)*		
Buffaloes .. .. .	4.64	4.10
Cows .. .. .	3.44	2.58
Total marketed surplus of milk (per cent of total milk production) ..	71.13	55.06
Number of farmers using improved agricultural inputs (per cent)		
Improved seeds .. .. .	79.76	77.00
Fertilizers .. .. .	72.37	50.78
Pesticides .. .. .	39.12	28.00
Value of improved agricultural inputs used per acre (Rs.) .. ..	61.87	46.59
Annual income per household (Rs.)		
Crops .. .. .	5,346.00	4,906.00
Dairy .. .. .	2,223.50	1,350.25
Off-farm .. .. .	656.25	858.00

\* Average milk production of the animals in milk during the year.

Table IV clearly shows that the milk production, marketed surplus of milk, adoption of improved agricultural inputs particularly the fertilizers, value of the improved agricultural inputs used and the annual income per household are very high in the experiment as compared to the control villages. It can be noted that the income especially from dairying in the experiment villages is almost double the income in the control villages. The villagers in the experiment villages depend to a lesser extent on off-farm income as compared to the control villages.

#### *Milk Co-operatives and the Weaker Sections*

In order to examine the impact of milk co-operatives on the economic conditions of the weaker sections, the milk production per animal, marketed surplus of milk and total income obtained by the different size-groups of milk producers in the experiment and control villages have been worked out separately and the same are shown in Tables V and VI.

TABLE V—MILK PRODUCTION PER ANIMAL AND TOTAL MARKETED SURPLUS OF MILK ACCORDING TO DIFFERENT SIZE-GROUPS OF MILK PRODUCERS

Size-group	Experiment			Control		
	Marketed surplus			Marketed surplus		
	Milk production per animal† (litres)	Per cent of total milk production in each group	Per cent of total marketed surplus	Milk production per animal (litres)	Per cent of total milk production in each group	Per cent of total marketed surplus
Landless	4.78	75.54	18.22	4.32	76.26	26.34
Small	4.64	72.32	34.86	4.10	57.75	31.57
Medium	4.54	68.62	22.24	4.19	55.82	24.28
Large	4.62	68.14	24.68	3.82	30.44	17.81

† Average milk production per buffalo. The buffaloes are the most important milk producers in this region, at present.

TABLE VI—ANNUAL INCOME PER HOUSEHOLD FROM DIFFERENT SOURCES ACCORDING TO DIFFERENT SIZE-GROUPS OF MILK PRODUCERS

Size-group	(Rupees)					
	Experiment			Control		
	Crops	Dairy	Off-farm	Crops	Dairy	Off-farm
Landless	—	2,042 (70.00)	875 (30.00)	—	2,416 (65.16)	1,156 (34.84)
Small	2,730 (56.45)	1,456 (30.10)	650 (13.45)	1,910 (47.90)	1,033 (25.90)	1,044 (26.20)
Medium	5,252 (66.81)	2,186 (27.81)	422 (5.38)	4,822 (74.99)	1,088 (16.92)	520 (8.09)
Large	8,056 (67.45)	3,210 (26.87)	678 (5.68)	7,986 (81.36)	1,118 (11.39)	712 (7.25)

Figures in parentheses indicate the percentage of total income in each size-group.

It can be seen from Table V that the milk production per animal and the total marketed surplus of milk are higher in the case of the landless and small farmers as compared to the medium and large farmers in general and more so in the experiment than in the control villages. The landless and small farmers are also found to market most of the milk produced by them. They account for a larger proportion of the total marketed surplus of milk as compared to the medium and large farmers also because of their large number.



Thus, the development of organized dairying is most important from the point of view of the weaker sections in the villages. Table VI indicates that the landless people earn as much as 65 to 70 per cent and small farmers earn more than 25 to 30 per cent of their total income from dairying. The proportion of income earned from dairying, of course, goes on declining with the increase in the size of land holdings. On the whole, the total as well as crop and dairy incomes are higher in the experiment villages covered by the milk co-operatives than in the control villages.

## APPENDIX 1

YEARWISE PROGRESS IN THE PROVISION OF TECHNICAL INPUTS FOR MILK PRODUCTION IN AMUL AREA, DISTRICT KAIRA, GUJARAT: 1964-65 THROUGH 1972-73

Year	Cattle feed sales (million tonnes)	Cultivation of lucerne fodder		Performance of artificial insemination programme (AI)			Performance of veterinary services		
		Quantity of seed distributed (kg.)	Area under the crop (acres)	Number of AI sub-centres	Number of AI performed	Infertility cases treated	Cases treated by first-aid workers in villages	Cases treated by veterinary doctors of mobile veterinary dispensaries	Number of special visits (emergency calls)
1964-65 ..	3,945	6,119	620	138	31,582	243	42,195	29,886	4,344
1965-66 ..	17,226	10,987	1,100	261	41,841	35	44,000	31,777	6,102
1966-67 ..	28,587	81,066	8,150	312	87,445	2,534	62,682	46,385	7,798
1967-68 ..	29,895	1,51,122	16,000	332	1,04,306	2,424	77,105	45,829	9,403
1968-69 ..	41,145	72,998	7,350	362	1,37,808	3,868	92,915	60,543	13,238
1969-70 ..	57,558	1,73,696	17,400	475	1,51,985	3,618	1,35,244	62,842	17,293
1970-71 ..	39,721	1,74,531	17,500	523	1,57,547	10,024	1,41,227	70,078	22,862
1971-72 ..	41,974	1,75,563	17,500	550	1,56,823	5,426	1,25,000	74,256	26,907
1972-73 ..	51,313	2,46,232	25,000	581	1,57,316	7,140	1,20,321	89,931	30,587