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PERFORMANCE OF THANJAVUR DISTRICT COOPERATIVE MILK PRODUCERS' UNION LIMITED, THANJAVUR (TDCMPU)

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Abstract

Dairy Sector generates massive employment opportunities, both directly and indirectly, to millions of rural population at the lowest investment. About 2450 million people in the world are involved in agriculture, out of which probably two third or even three fourth are completely or partially dependent on live-stock farming. An impressive development has taken place as far as cooperatives are concerned. Indian dairy development has its roots in Anand pattern of cooperative dairying. The Government of India launched a massive dairy development programme, popularly known as Operation Flood (OF). This programme was started in 1970 and concluded its third phase in 1996. It was implemented in three phases: OF I (1970-81), OF II (1981-85) and OF III (1987-96). The operation flood programme was launched by NDDB which follows the Anand pattern of under three tier system consisting of 1) Milk Producers' Society at village level, 2) Milk Producers' Union at district level and Apex Federation at state level. In Tamil Nadu, Tamil Nadu Cooperative Milk Producers' Federation is an apex body of 17 district cooperative milk producers' unions. One such union is Thanjavur District Cooperative Milk Producers' Union Limited, Thanjavur. In this paper, the performance of Thanjavur District Cooperative Milk Producers' Union Limited in terms of certain parameters is analysed.

Introduction

Agriculture and animal husbandry are the two props on which the entire rural structure of India rests. Despite many technological innovations in the farm sector, agriculture still continues to be a gambling with monsoons. Hence frequent crop failures often cripple the rural economy. Majority of agriculturists are either small or marginal farmers or landless agricultural labourers. Because of the uneconomic land holdings and non-availability of infrastructural facilities, the small and marginal farmers can hardly subsist on agriculture. This situation compels them to seek other sources of income through subsidiary occupations which are allied to agriculture like dairy, fishery, poultry and sheep – rearing.

The All India Rural Credit Review Committee has also emphasised the need for providing subsidiary occupations like dairy farming to the peasants. Further, about 35 per cent of the nation's food still comes from 67 per cent of total arable area. The food production, which depends on erratic monsoon, has become extremely unstable, leading to low price and weak marketing value of food grains. Thus, agriculture enterprise creates problems of unemployment and underemployment, seasonal employment and disguised unemployment to rural people who constitute 70 per cent of the total population. Young people from rural areas migrate to towns or cities for work as rural economy is in shambles due to the vagaries of climate in India. Dairy enterprise is a solution to overcome such problems, besides being an effective tool to improve socio- economic conditions of farmers in India.

Statement of the Problem

Milk is a perishable commodity and the surplus cannot be stored for a long time. Unlike

agricultural produce, milk has a short shelf life and its life in most cases is not more than three hours. Therefore, the farmer has to market his produce within 3 hours of production twice a day and all the days of the year. The farmers, who produce milk, are at the mercy of milk vendors and milk producers are often exploited. Another problem is the inadequacy of proper transport facilities. Long distance to the nearest consumer centre, lack of proper roads, lack of transport and inability of farmers to pool their milk and to organize collective methods of transport, make it extremely difficult for the farmer to take his produce twice daily to the market. While the farmers convert their milk into products, the methods of manufacture are outmoded and wasteful, the products are non-standard and unhygienic and marketing arrangements are haphazard and unscientific. All these factors have resulted, on the one hand, in high price of milk and milk products to the consumers and on the other hand, financial returns to the producers well below the cost of production of milk.

It will be possible to pay the farmers a higher price for their milk than what they obtain at present, if processing and marketing is done in a systematic manner by reducing the overhead costs and improving the quality of service. This will encourage the farmers to pay more attention to milk production. A beginning has been made in organised dairying in Kaira district with the establishment of milk producers' co-operative societies at the village level. Later, this scheme was extended to the whole of the country under the Operation Flood Programme by the NDDB. Under this programme, the district level co-operative milk producers' union limited is expected to perform the functions of procuring the excess milk from the societies and sell them in urban areas, producing milk products such as ghee and gova (a milk sweet) from the excess of milk available, purchasing, manufacturing and distribution of cattle feed and dairy machinery to the member societies, making prompt payment of money to the societies for the milk procured and supervising the working of societies. Hence this paper makes an attempt to assess the operational performance of TDCMPU Limited at Thanjavur.

Objectives of the Study

This study has been undertaken to study the following objectives:

1. To study the development of dairying activities in India in general and Tamil Nadu in particular
2. To analyse the operational performance of TDCMPU Limited;
3. To summarise the findings of the study with suggestions.

Methodology

The study includes only secondary data. The secondary data from the union include records from different sections such as marketing, procurement and input. Apart from these, necessary secondary data have been collected from journals, reports, dissertations and other publications from various institutions and other sources in order to have a theoretical background of dairying. Data from different websites have also been collected.

Scope of the Study

Thanjavur District Cooperative Milk Producers' Union Limited (No.872) at Thanjavur, Tamil Nadu has been purposively selected for this study. The area of operation of this union is the composite Thanjavur District i.e., Thanjavur, Thiruvarur and Nagapattinam districts. In this study, only the operational performance of the union has been studied.

Period of the Study

The study covers 12 years of data from the union during the period1992-93 to 2003-04.

Statistical Tools Used

The following statistical tools were used for the analysis of operational performance of the above union .

Tri Annum Average (TRA)

In order to find out the growth of variables, the TRA method was used. The data for every three years were added and the averages were calculated. These averages are called Tri Annum Average. For the purpose of comparison, TRA was used.

Index Number

Index numbers are described as barometers of economic activity. An index number is a device which shows the variations of changes in magnitude. It means the effect of changes over a period of time. In order to measure the fluctuations in the variables over a period of 12 years selected for the study (1992-93 to 2003-04), the index number was calculated. The index number was calculated taking 1992-93 as the base year.

Annual Growth Rate (Yearly Percentage Trend)

The percentage trend was calculated to analyse the variations in a variable. This gives the percentage increase or decrease over the previous year in the variable. The annual growth rate was calculated as follows:

$$\text{Annual growth rate} = \frac{X_{t+1} - X_t}{X_t} \times 100$$

Co-efficient of Variation

In order to compare the variations of two variables, the co-efficient of variation (CV) was used as follows.

$$CV = \frac{\sigma}{\overline{X}} \times 100$$

where σ- Standard Deviation and $\overline{X}$ - Mean

Compound Growth Rate (CGR)

For measuring compound growth rates of operational indicators for the union, the log linear model, $\text{Ln } Y = a + bt$ was used. After estimating the regression model, the compound growth rate was computed by the formula.

$$CGR = [\exp(b) - 1] \times 100$$

Besides the above mentioned analytical tools, Mean, Standard Deviation and simple statistical tools like Averages, Percentages and Range were used.

Analysis and Discussion

* In India, the main objectives of dairying are production and distribution of milk through an integrated policy of cattle-cum-dairy development.
* The contribution of livestock sector to GDP was Rs. 1209 billion in 2002-03 as against Rs.139 billion in 1985-86. There was a gradual and steady increase in milk production also. The USA stood first in total milk production upto the year 1997 and thereafter India has replaced USA for the first position in milk production. This achievement could be due to the implementation of Operation Flood Programme (White Revolution) by NDDB. This board was created to replicate the Anand pattern societies throughout the country. In Tamil Nadu, the cooperative dairying activities are controlled by the Federation at the state level and the Union at the district level. TDCMPU Limited is one such union which regulates the activities of cooperative dairying in Thanjavur district.

Operational Performance of the Union

The operational performance in terms of procurement and sales of milk, range of milk procurement and sales, capacity utilization and extension activities are analysed in this study.

Milk Procurement

In this study, route-wise transport cost per kilometre and per litre, procurement per society, local sales of milk, descriptive measures of milk procurement and local sales by the union, differences between quantity of milk procured and sold, capacity utilisation and artificial insemination are analysed.

Milk is produced by individual milk producers in small quantities in the rural areas. After meeting their requirements, the surplus milk is being sold to the village societies twice a day i.e., in the morning and the evening. After meeting the local sales, the societies send the surplus milk to the union. The union collects the milk through vans operated at different routes. There are seven routes through which milk is collected by the union. The total kilometres, cost per kilometre and transport cost per litre in the respective routes are given in **Table- 1.**

Milk is a perishable commodity and therefore special care should be taken regarding its collection. The quantity of milk production changes from season to season. The seasonal changes affect the procurement process considerably. The volume of milk procurement significantly affects the flow of milk to dairy plant and the utilization of its installed capacity. Therefore, adequate care should be taken to ensure the optimum utilization of plant capacity and to satisfy the needs of urban consumers. The milk procurement by the union per day is shown in **Table -2.**

It is clear from the table that the TRA values for the study period shows a fluctuating trend. The TRA value was high during the III period i.e. during 1998-99 to 2000-01 and during the last period, it was slightly less than the III period.

The highest AGR value is noticed during 2003-04 (59.45 percent) and the highest negative growth trend value is noticed during 2000-01 (-30.22 percent). The calculated CGR value for the study period is 2.092 percent per annum.

From the above analysis of data, it is observed that the milk procurement by the union shows fluctuating trend during the study period. This is due to the distance of the societies from the union, absence of transport facilities, high transport cost and the delay in payment by the union to the societies. Further, the competition from the branded milk and private traders has also affected the union's rate of milk procurement.

Milk Procurement Per Society

Usually the procurement of milk by the societies from the members was more during the study period. But the milk collected by the union from all the societies was less than the desired level. **Table- 3** shows the number of societies from which milk was procured and the average milk procured per society.

It is further noticed that the average milk procurement per society per day was high in the year 2003-04 because of the lesser number of societies and more amount of procurement. The main reasons for the lesser number of societies were delay in payment, more dues to the societies by the union and lack of efforts taken by the union in procurement and local sales by the society.

Local Sales of Milk

The trend in local sales by the union is shown in **Table- 4.** It is observed from the table that TRA values of local sales of milk show a fluctuating trend during the study period. It is also clear from the table that TRA of local sales of milk was found to be high in the third TRA period and low in the last TRA period. This was mainly due to the existence of competition from branded milk vendors. The AGR value was found to be high during the year 1993-94 (18.39 percent) and the negative growth trend value was found to be high in the year 1996-97 (-19.29 percent). The calculated compound growth rate value during the study period was -0.82 percent per annum.The descriptive measures of milk

procurement and the sales trend of the union are shown in **Table- 5.**

Capacity Utilization

The installed plant capacity of union is 26000 LPD. Even though the Pattukottai chilling centre has the capacity to store 10,000 LPD, for calculating the capacity utilization, the chilling capacity of the Union at 26,000 LPD has been taken into account. The capacity utilization trend for the study period is shown in **Table- 6.**

Artificial Insemination (AI)

In building up the productive efficiency of an animal, improved breeding is of vital significance because the production level of an animal has a direct relationship with the production level of its parents. It is the genetic trait that passes from parents to its progeny. Unless the breed is improved, good feeding alone will not show desired results. **(Table-7)**

Findings

The major findings of the study are given below

Operational Performance of the Union

Procurement of Milk

***** The operational performance of the union has been studied by analysing milk procurement, sales, capacity utilization and artificial insemination. As far as milk procurement is concerned, a highly fluctuating trend is recorded. The milk procurement ranges from 10,100 LPD to 17,616 LPD during the study period. Eventhough the functional societies are more in number, the union procured milk from less number of societies. In addition to this, the number of societies from which the union procured milk has also declined.

Capacity Utilisation

* The Thanjavur union has plant capacity of 26000 LPD and the union has not utilised this capacity to the fullest extent. Except for the five years (1996-97, 1998-99, 1999-2000, 2001-02, 2003-04) during the study period, the union's capacity utilisation was below 50 per cent. After meeting the local sales, the excess milk is sent to the federation. But the union is not prepared to procure the excess milk from all the societies and thereby increase the utilisation of plant capacity.

Local Sales of Milk

* Like milk procurement, the local milk sale of the union was also fluctuating. It means that much effort was not taken to improve sales.

Artificial Insemination

* Regarding Artificial Insemination, the number of cows inseminated during the study period records an increasing trend. The union provides the facility of Artificial Insemination to the members through societies. The union has 26 artificial insemination centers and it is found that among all the unions in Tamil Nadu, the TDCMPU Limited stands first in total Artificial Insemination performed at the end of the study period.

Suggestions

The following suggestions, based on the findings of the study, have been made:

- The societies in Thanjavur, Thiruvarur and Nagapattinam districts procured more quantity of milk. After meeting the local demand, the societies have had surplus milk but the union was not prepared to procure such surplus milk from all the societies in these three districts. Hence the union should take efforts to procure all the surplus milk from all the societies. In this connection, it may be suggested that the Chilling Centre at Mayiladuthurai, which existed previously with a capacity of 10,000 LPD, may be

revived. Such a step will go a long way in solving the problem of surplus milk

- The union now procures surplus milk only from less number of societies in Thanjavur and Thiruvarur districts. The union did not procure milk from societies in Nagapattinam district. To meet the local demand, the societies in this district procure milk from their members. This has resulted in the loss of confidence in the functioning of these societies. If the union is prepared to procure all the available milk, the quantity of procurement will be more. To overcome the situation, a new union at a convenient place with adequate number of employees may be formed for procuring all surplus milk in Thiruvarur and Nagapattinam districts. Then the union at Thanjavur may concentrate exclusively on the societies functioning in Thanjavur district.
- The societies from which milk is not procured by the union, have no scope for local sales. Certainly, they may become dormant. If a new union is formed, then the chances of societies becoming dormant will be less, Moreover, even the dormant societies may be revived.
- Whereas the Deputy Registrars (Dairying) at Thanjavur and Thiruvarur control the activities of societies in these three districts, these societies should be motivated to procure all the milk produced by their members with an assurance of procurement by the union. At the same time, all the input facilities like supply of feed and fodder, provision of AI and arranging veterinary facilities should be made available at the door step of the members through these societies. In fact, societies must be directed by the union to undertake these steps.
- To enhance milk production, the provision of Artificial Insemination is necessary. TDCMPU Limited stands first in this respect. But the number of centres through which this service is performed is not sufficient. This service should be made available to all the members of all the societies. The union, with the help of the societies, should make arrangement for extending such services.

Conclusion

Thus, the Thanjavur District Co-operative Milk Producers' Union Limited and the co-operative milk producers' societies in this district have changed the socio-economic conditions of the farmers in the district. They have multiple linkages in the development of agriculture, employment, income, health and sanitation conditions, nutrition and education level in the rural areas. Both dairy co-operatives and government are very essential for rapid development of rural people and their participation in the developmental process. Hence dairy co-operatives are more suitable for rural development in developing countries like India.

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Table- 1
Route-wise Transport Cost per kilometer and per litre as on 2004

S.No.	Route Name	Distance in km	Cost per km Rs.	Transport Cost / litre Rs.
1	Pattukottai	288	4.35	0.24
2	Ammpettai	234	4.94	0.18
3	Kumbakonam	326	4.63	0.35
4	Velankanni	332	4.40	0.09
5	Town	-	3.25	0.51
6	Muthupettai	178	4.50	0.24
7	Peravoorani	222	4.97	0.27

Source : Report submitted to the BCM (Cooperation) by TDCMPU Limited.,

Table – 2
Average Milk Procurement Per Day

YEAR	Milk Procurement by the Union (LPD)	Percentage Change (Annual growth)	Tri Annum Average (in litres)
1992-93	10,138	-	
1993-94	11,643	14.85	11,382.33
1994-95	12,366	6.21	
1995-96	11,864	-4.06	
1996-97	11,864	0.00	11,380.33
1997-98	10,413	-12.23	
1998-99	13,559	30.21	
1999-00	17,616	29.92	14,489.00
2000-01	12,292	-30.22	
2001-02	13,243	7.74	
2002-03	10,100	-23.73	13,149.00
2003-04	16,104	59.45	
Compound Growth Rate	2.092		

Source: Records of Procurement Section of TDCMPU Limited, Thanjavur

Table – 3
Average Milk Procurement Per Society

S.No.	Year	Average Milk Procurement by the Union (LPD)	No of Societies	Average Milk Procurement per Society (LPD)
1	1992-93	10,138	99	102
2	1993-94	11,643	98	119
3	1994-95	12,366	96	129
4	1995-96	11,864	97	122
5	1996-97	11,864	98	121
6	1997-98	10,413	108	96
7	1998-99	13,559	104	130
8	1999-00	17,616	105	168
9	2000-01	12,292	94	138
10	2001-02	13,243	85	156
11	2002-03	10,100	60	168
12	2003-04	16,104	55	293

Source : Records of Procurement Section of TDCMPU Limited

Table – 4
Average Local Sales of Milk Per Day

Year	Local Sales of Milk by the Union (LPD)	Percentage Change (Anual growth)	Tri Annum Average
1992-93	10,138	-	
1993-94	12,002	18.39	11,582
1994-95	12,607	5.04	
1995-96	12,714	0.85	
1996-97	10,261	-19.29	11,089
1997-98	10,292	0.30	
1998-99	10,906	5.97	
1999-00	12,286	12.65	11,797
2000-01	12,201	-0.69	
2001-02	11,626	-4.71	
2002-03	9,862	-15.17	10,414
2003-04	9,756	-1.07	
Compound Growth Rate	-0.826		

Source : Records of Marketing Section of TDCMPU Limited

Table – 5
Descriptive Measures of Milk Procurement and Sales by the Union During 1992-93 to 2003-04

Category	Milk Procurement by the Union (LPD)	Local Milk sales by the Union (LPD)
Mean	12,600	11,220
Std. Deviation	2,296	1,130
Range	7,516	2,958
Minimum	10,100	9,756
Maximum	17,616	12,714
CV	18.22	10.08

Source : Records of procurement and marketing sections of TDCMPU Limited.

Table – 6
Capacity Utilisation of Plant

(Maximum Capacity – 26000 LPD)

S. No.	Year	Average Milk Procurement (LPD)	Capacity Utilisation (in percentage)
1	1992-93	10,138	38.99
2	1993-94	11,643	44.78
3	1994-95	12,366	47.56
4	1995-96	11,864	45.63
5	1996-97	12,924	49.71
6	1997-98	10,413	40.05
7	1998-99	13,559	52.15
8	1999-00	17,616	67.75
9	2000-01	12,292	47.27
10	2001-02	13,243	50.93
11	2002-03	10,100	38.85
12	2003-04	16,104	61.94

Source : Records of Procurement and Input Section of TDCMPU Limited

Table – 7
Artificial Insemination Done By TDCMPU Limited

S.No.	Year	Total AI Done	Total Calves Born	Percentage of Calves born on number of cows inseminated	Annual Average Cost per milch Animal
1	1992-93	12,989	2,161	16.63	14.61
2	1993-94	13,386	2,382	17.79	14.89
3	1994-95	12,059	2,215	18.36	15.42
4	1995-96	10,966	2,086	19.02	16.13
5	1996-97	12,976	2,361	18.19	15.61
6	1997-98	12,994	2,228	17.15	14.22
7	1998-99	14,812	5,921	39.97	12.82
8	1999-00	18,019	4,793	26.60	12.45
9	2000-01	18,995	3,470	18.26	15.76
10	2001-02	20,176	4,798	23.78	11.28
11	2002-03	23,997	7,568	31.54	11.41
12	2003-04	27,804	8,721	31.36	11.33

Source : Records of P&I section of TDCMPU Limited