



DAIRY, AN EVERGREEN PART OF FARM SECTOR: OVERVIEW ON PAN INDIA DAIRY CO-OPERATIVES IN INDIA AND SCOPE FOR FORMAL CREDIT

Mrs. Lalita Hanabar

Manager (Research Officer)
Union Learning Academy Rural & FI
Union Bank of India, Hyderabad, India

Abstract : The dairy sector plays a crucial role in the global food system, providing a significant source of nutrition, livelihoods, and economic growth. Dairy products, such as milk, cheese, butter, and yogurt, are staples in the diets of millions of people around the world. Dairy cooperatives in India have played a vital role in transforming the dairy sector and improving the livelihoods of millions of farmers. These cooperatives have emerged as successful models that promote collaborative and cooperative approach for milk production and marketing, and create a strong supply chain for dairy products. The present study is an attempt put lights on the network of Dairy co-operative operational in pan India and found that these are more than 30 Dairy Co-operatives are active in India as apex bodies at state level following Anand model in operation with well organized district level unions and more than 2 lakhs village level primary co-operative societies. The milk procurement capacity of the 24 dairy Co-operatives under the study depicts strong positive correlation with number of member farmers ($r = 0.81$) and results in moderately positive correlation with number of primary milk procurement societies. Hence it paves ways for formal credit for enhancing the cooperation and collaboration in farmers for better productivity, value addition and incorporation of technology to meet the consumers needs, product diversification, breeding and veterinary services, making dairy industry as an Ever green sector of Agriculture and resulting in sustainability in the lives of millions of small and marginal farmers of the country.

Key Words - Dairy, Production, Co-operatives, Milk

INTRODUCTION

India is the largest milk and milk products producing countries in the world. The country's livestock sector grew at a CAGR of 7.9 per cent during 2014-15 to 2020-21 (at constant prices), and its contribution to total agriculture GVA (at constant prices) has increased from 24.3 per cent in 2014-15 to 30.1 per cent in 2020-21. According to Nation Dairy Development Board the milk production in the country continues to increase as it is anticipated to be 223 million tonnes in 2021-22, with a per capita availability of milk at about 445 grams/day.

This rapid growth and modernization is largely credited to the contribution of dairy co-operatives under the Operation Flood (OF) Project, assisted by many multi-lateral agencies including the European Union, the World Bank, Food and Agriculture Organization (FAO), and World Food Program (WFP) (Kumar and Thamila, 2015). Top 5 milk producing states in the country are Uttar Pradesh, Rajasthan, Madhya Pradesh, Andhra Pradesh and Gujarat. In 2019-20 India exported 51421.85 MT of Dairy products worth \$186.71 Millon. It is anticipated that India needs around 600 million tonnes of milk per year to fulfil the demand for milk and milk products. This means that India's milk production needs to grow at around 3.2% CAGR for the next 40 years (FICCI, 2020). Hence enhancement of dairy production and productivity is the need of the hour and formal source of credit can make the remarkable changes in expansion of Dairy sector by bringing the dairy farmers into a single umbrella that is Dairy Co-operatives. With this background the present study has been conducted to put light on the existing structure of dairy cooperatives, their network and farmer strength to make them potential of source of business for financial institutions.

1.1 History of Dairy Co-operatives in India:

The cooperative milk revolution was started in 1946 in a small town of Anand in Gujarat. In 1965, National Dairy Development Board (NDDB) was set up with the object of meeting the increasing demand of milk especially in urban areas as well as developing

the rural economy through the enhancement of the milk production of the country. (Mahida, D. P., et al, 2022). In 1970, NDDB took up Operation Flood Programme in order to organize Milk Producers' Cooperative in several probable places of India taking the Kaira District (Anand) Cooperative Milk Producers' Union Limited (AMUL) of Anand, as a model with the above objective in view. As a part of Operation Flood programme, many Milk Producers' Cooperative have been formed in this country. Operation flood has changed the face of Indian Dairy sector from turning country from milk deficient country to milk surplus country and the journey is commendable. Along with making county self sufficient in milk production the Dairy Cooperative movement it has helped the country to increase the per capita increase in milk consumption and increase in the farmers income. With this the scope of Milk societies at village level had increased and today it can be witnessed that most of the villages are having a primary milk procurement societies and having hundreds of farmers as their members.

REVIEW OF LITERATURE:

Mahida, D. P., et al in 2022 in their research paper "Dairy cooperatives in India: Trends of its coverage and determinants" had made a mention that with the inception of the Operation Flood programme, the dairy development movement in India and also the dairy industry has made a remarkable progress.

Sarkar, A. and Dutta, A. in 2022 reported that the Milk Producers' Organization enhances capacities and capabilities at both the individual and organizational level. It leads to better earnings for members, which in turn makes the rural economy healthy through a market-oriented approach through their research paper "The Milk Producers' Organization and Indian dairy sector - a strategic alignment".

K. Rajendran and Samarendu Mohanty in 2004 stated that Operation Flood and dairy co-operatives emerged in India as the largest rural employment scheme, enabling the modernization of the dairy sector to a level from where it can take off to meet not only the country's demand for milk and milk products but can also exploit global market opportunities.

RESEARCH METHODOLOGY

The study is primarily backed by the secondary data collected from the different public domains of dairy cooperatives, Federations, Unions and Govt. public domains such as Ministry of Animal Husbandry and Dairying, National Dairy Development Board etc. In addition to that the published source of data such as annual reports, statistics, articles etc. are also used for the study by collecting data about all the registered Dairy cooperatives federations/unions at national level, list of subsidiaries, business level, operational area, member societies, associated farmers etc.

Simple statistical methods like averages and percentages are used, in addition to that statistical correlation is being done with the help of Microsoft Excel tool to find the Carl Pearson's Coefficient of Correlation (r) to come up with reliable conclusions.

RESULTS AND DISCUSSION:

4.1 Dairy co-operative structure in India: The Anand model

On the advice of Sardar Vallabhbhai Patel, a leader in India's independence movement, the milk producers registered the Kaira District Cooperative Milk Producers' Union, now popularly known as AMUL, in 1946. The Kaira union procured milk from affiliated village-level milk societies. This was the genesis of organized milk marketing in India, a pioneering effort that opened a new vista for dairy development in the country.

This structure mainly works in Three Tiers.

1. The basic unit in this model is the milk producers' cooperative society at the village level. These cooperatives are organizations of milk producers who wish to market their milk collectively. Membership is open to all who need the cooperative's services and who are willing to accept the responsibilities of being a member.
2. All the milk cooperatives in a district form a union that, ideally, has its own processing facilities.
3. All the unions in a state are normally members of a federation whose prime responsibility is the marketing of milk and milk products outside the state.

There is also a fourth tier, the National Cooperative Dairy Federation of India (NCDFI), which is a national-level body that formulates policies and programs designed to safeguard the interests of all milk producers.

4.2 Indian dairy co-operative strength:

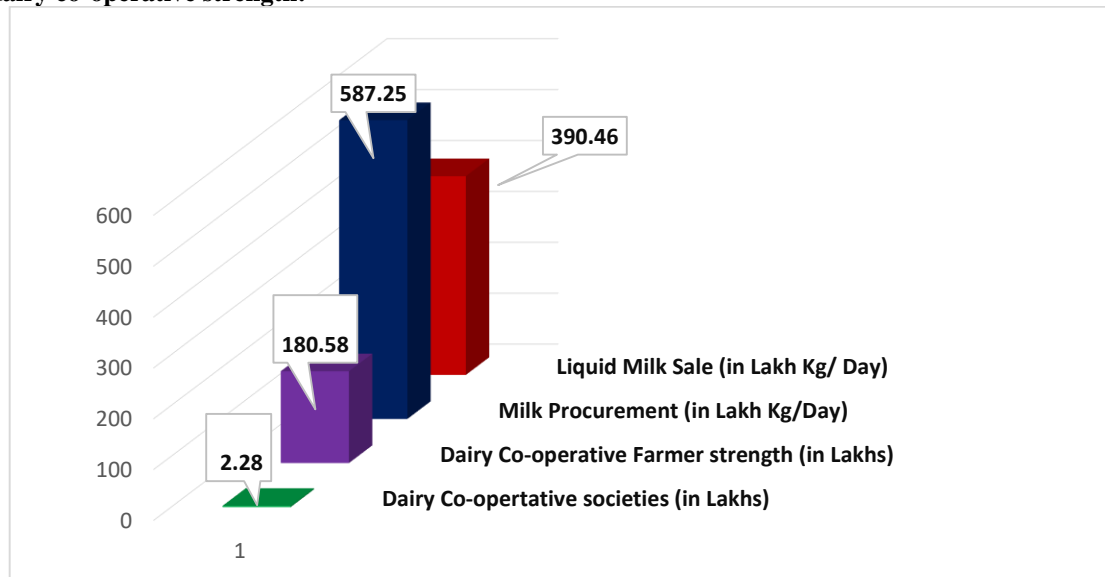


Fig.1. Indian Dairy Co-operative Strength (Source: NDDB Annual Report-2021-22)

According to Nation Dairy Development Board, as of 2021-22 there are 2.28 lakhs dairy co-operative societies spread across the different villages of the country covering 1.81 Crores of farmers as members and procuring 5.87 Crore Kgs of milk per day and out of it selling 3.90 Crore kgs of milk per day.

4.3 Potential dairy co-operatives in India:

Table 1: List of Dairy Co-operatives and their milk procurement, No. of member farmers and primary milk procurement societies.

Sl. No	Name of Cooperative	Milk Procurement in liters per day	No. of Member Farmers	No. of Co-op Dairy Societies (in numbers)
1	Karnataka Cooperative Milk Producers' Federation Ltd	8105000	2644000	17550
2	Andra Pradesh Dairy Development Co-operative Federation Ltd	78000	300000	3549
3	Bihar State Cooperative Milk Producers' Federation Ltd	2000000	900000	26504
4	Chhattisgarh State Cooperative Dairy Federation Ltd	82000	43000	999
5	Gujarat Cooperative Milk Marketing Federation Ltd	26300000	3640000	18600
6	Haryana Dairy Development Cooperative Federation Ltd	515000	323000	7580
7	Jharkhand State Cooperative Milk Producers' Federation Ltd	124000	24000	859
8	Kerala Cooperative Milk Marketing Federation Ltd	1520000	1042000	3071
9	Madhya Pradesh State Cooperative Dairy Federation Ltd	913000	338000	7205
10	Maharashtra Rajya Sahakari Dudh Mahasangh Maryadit	600000	2500000	24000
11	Pondicherry Cooperative Milk Producers' Union Ltd	79000	41000	106
12	Panjab State Cooperative Milk Producers' Federation Ltd	1916000	350000	6300
13	Rajasthan Cooperative Dairy Federation Ltd	3148000	883000	2415
14	Tamilnadu Cooperative Milk Producers' Federation Ltd	1492000	477000	9594
15	West Assam Milk Producers' Cooperative Union Ltd	42000	22000	485
16	West Bengal Cooperative Milk Producers' Federation Ltd	192000	62000	1627
17	The Nagaland State Dairy Cooperative Federation Ltd.(Dimapur District Cooperative Milk Producers' Union Ltd)	1000	2000	120
18	Goa State Milk Producers' Union Ltd	65000	20000	178
19	Gomati Cooperative Milk Producers' Union Ltd	9000	6000	125
20	Jammu & Kashmir Milk Producers' Cooperative Ltd	124000	50000	910

21	Orissa State Cooperative Milk Producers' Federation Ltd	361000	299000	6713
22	The HP State Cooperative Milk Producers' Federation Ltd	100000	43000	977
23	Uttarakhand Cooperative Dairy Federation Ltd.	185000	154000	4643
24	Kolhapur Zilla Sahakari Dudh Utpadak Sangh Ltd (Gokul)	1368000	396000	6564

(Source: Official websites of the respective milk federations in the table)

Table 2: Calculation of Correlation Co-efficient between Milk procurement, No. of Farmer members and No. of Societies

	Milk Procurement in liters per day	No. of member farmers	No. of Co-op Dairy Societies (in numbers)
Milk Procurement in liters per day	1		
No. of member farmers	0.81	1	
No. of Co-op Dairy Societies (in numbers)	0.47	0.76	1

Source: Primary calculation

From the above table (Table 2), it is very clear that Gujarat Cooperative Milk Marketing Federation Ltd. (Amul), is having highest milk procurement capacity of 263 lakhs liters per day along with highest number of farmers strength of 36.40 lakhs, followed by Karnataka Cooperative Milk Producers' Federation Ltd. (Nandini), with 81 lakhs liters per day with farmers members of 26.44 lakhs and Rajasthan Cooperative Dairy Federation Ltd. (Saras) with 31.48 lakhs liters per day. Bihar State Cooperative Milk Producers' Federation Ltd. (Sudha) and Panjab State Cooperative Milk Producers' Federation Ltd (Verka) federations have taken 4th and 5th place in milk procurement per day among the milk federations under consideration. It is interesting to note that Maharashtra Rajya Sahakari Dudh Mahasangh Maryadit is having 25 lakhs of member farmers as its milk producers however the federation's milk procurement is still very below as compared to other federations with same strength of farmer members. Kerala Cooperative Milk Marketing Federation Ltd. is also one of the emerging milk federation with farmer strength of 10.42 lakhs. Bihar State Cooperative Milk Producers' Federation Ltd. is having 9 lakhs farmers members as milk pourers and procuring 20 lakhs liters of milk every day.

In terms of number of associated primary milk societies at village level Bihar State Cooperative Milk Producers' Federation Ltd is having highest number of village societies accounting to 26504 followed by Maharashtra Rajya Sahakari Dudh Mahasangh Maryadit with 24000 associated societies. Gujarat Cooperative Milk Marketing Federation Ltd and by Karnataka Cooperative Milk Producers' Federation Ltd. are having 18600 and 17550 village level societies respectively. Tamilnadu Cooperative Milk Producers' Federation Ltd (Avin) is having 9594 societies with 4.77 lakhs famer members and procuring 14.92 lakh liters of milk per day. From Table No.2 it is very clear that milk procurement is directly correlated with number of farmer members in the associated primary milk procurement societies with Correlation Co-efficient (r) is being 0.81 which depicts strong correlation between the number of member farmers and milk procurement by the Co-operative dairies per day. And the same kind of relation can be seen between No. of primary Co-operative societies and number of member farmers with r value being 0.76 depicting strong correlation between them. However a moderate positive correlation can be seen between number of primary milk societies and milk procurement per day by the dairies with Correlation Co-efficient r as 0.47.

4.4 Scope for formal credit in Indian Dairy sector:

1. Enhanced milk production: India is the biggest producer of milk in the world, with 22% of the global milk production, however our productivity pulling the production downward. Formal credit facilities can enable the farm sector to have better breeding techniques, upgrading existing resources and invest mechanization leading to enhanced productivity and efficiency.
2. Dairy Infrastructure and technology: Formal finance can enable the dairy producers to adopt to investments in high end technology based milking machines, cooling systems, upgrading sheds and fodder storage facilities resulting in improved production and over all health of the unit.
3. Dairy procurement and processing: procurement and processing forms the base of robust dairy value chain, transforming raw milk into value added products and meeting the changing customer needs. This requires significant investment in procurement via primary collection centres, storage and cooling system and effective transport system and processing centre facilities. Which can result in reduction in wastage and improved product quality.
4. Farmer producers organization and dairy co-operatives: These two entities play vital role in strengthening the value chain in India. Formal credit can help these entities to strengthen by way of working capital, training and capacity building resulting in empowering them to expand their reach to more farmers across the country.
5. Marketing, Research and product diversification: Financial assistance can lead dairy units to invest in larger scale in the form of value addition, new products and researches in cattle breeding, nutrition and improved animal health care etc. catering to changing consumers preference, increasing the revenue potential and ultimately benefiting the dairy farmers and industry as a whole.

4.5 Avenues of credit:

1. Kisan Credit card for Animal Husbandry and Fisheries: The Kisan Credit Card scheme aims at providing adequate and timely credit support from the banking system under a single window with the flexible and simplified procedures to the

animal husbandry and fisheries farmers for their working capital requirements. Under a nationwide KCC campaign by the Department of Animal Husbandry and Dairy, 50,454 KCC were sanctioned from 15.9.2021 to 17.12.2021.

2. Term loans: All the scheduled commercial banks are having their own schemes to meet the farmer requirement of credit towards purchase of animals, utensils, machinery such as milking machines, chaff cutter, animal washers etc. and milking van, cans etc are also covered under the scheme.
3. Rashtriya Gokul Mission: The Rashtriya Gokul Mission has been extended till 2026 with a INR 2400 crore commitment to boost productivity and milk output, making dairying more profitable for farmers. It also strives to accomplish genetic improvement in the bovine population as well as the creation and preservation of indigenous bovine breeds. Scheme is having special features such as
 - 50% Capital subsidy up to INR 2 crores to eligible entrepreneurs, individuals, FPOs / FCOs, SHGs, JLGs and Section 8 companies for the establishment of breed multiplication farms.
 - 2. 50% subsidy to farmers for use of sex-sorted semen
 - 3. Accelerated breed improvement programme under the component subsidy of INR 5000 per IVF pregnancy
4. National Livestock Mission: The focus of the scheme is on entrepreneurship development and breed improvement in poultry, sheep, goat and piggery including feed and fodder development. Individuals, SHG, FPOs, FCOs and JLGs and Section 8 companies are eligible under the scheme. The scheme is implemented with the following three Sub-Missions:
 1. Sub-Mission on Breed Development of Livestock & Poultry
 2. Sub-Mission on Feed and Fodder development
 3. Sub-Mission on Extension and Innovation
5. National Program for Dairy Development: In July 2021, the scheme has been realigned. The revised NPDD Scheme would be implemented from 2021-22 to 2025-26, with a budget of INR 1790 crore. The scheme intends to improve the quality of milk and dairy products while boosting involvement in organised procurement, processing, value addition, and marketing.

This scheme consists of two components:

(i) Component 'A' focuses on the development and advancement of infrastructure for quality milk testing equipment as well as primary chilling facilities for State Cooperative Dairy Federations/District Cooperative Milk Producers' Union/SHGs/MPCs/FPOs.

(ii) As per the project agreement, component 'B' provides financial support from the Japan International Cooperation Agency (JICA). The central government's contribution to this project is proposed to be supported through NPDD (Component A).

CONCLUSION:

The dairy sector is an integral part of India's agriculture and food industry, contributing significantly to the country's economy and providing livelihoods to millions of farmers and rural communities. According to Food and Agriculture Organization, approximately 150 million households around the globe are engaged in milk production and it mainly comprises of small and marginal producers. It also states the recent increase in the milk production mostly in developing countries is mainly due to increase in the number of producing animals rather than a rise in productivity. India with better and broad network of dairy farms in the form co-operatives can enhance its productivity and can maintain its legacy in milk production through formal credit. Formal credit can elevate the hidden problems such as feed resources, combat diseases, provide better market and return to producers along with boosting value addition and infrastructure in the country.

Presently Indian is having a network of more than 30 Dairy co-operative, which are active in India as apex bodies at state level following Anand model in operation with well organized district level unions and more than 2 lakhs village level primary co-operative societies with strength of 1.80Cr farmers as members of these societies. Positive correlation between the milk procurement capacity and number of farmers and number of village level primary milk procurement societies remarks the scope of expansion of infrastructure in the form of primary co-operative societies and chilling units for enrolling more number of farmers into a well established structure of dairy farming along with elimination of middlemen by direct sale of milk to these societies. This eye catching facts pose a good number of opportunities for formal banking institutions for the credit growth and expansion of various Government sponsored schemes to handhold the farming community simultaneously improving Agribusiness in the form of finance to Dairy sector.

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