

# COMPREHENSIVE REVIEW OF DAIRY COOPERATIVES IN INDIA

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## Abstract

*This literature review examines the various effects of dairy cooperatives on smallholder dairy production systems with emphasis on cases from India. 25 research articles were randomly chosen from different states in India, and their data were analysed. Most of the papers were based on primary data collected directly from dairy cooperatives and also from the dairy farmers who were members of dairy cooperative societies across the states. The analysis encompasses several key aspects, including farm income, employment, and overall socio-economic development facilitated by cooperative membership. Thus, the results show that dairy cooperatives have a positive impact on income and employment in states like Assam and Kerala; however, there are some issues regarding technology adoption, the price differential between the market and that received by the cooperatives, and high production costs. Also, the study establishes the importance of job satisfaction of employees in Kerala's dairy cooperatives as a factor that influences job performance and organizational commitment. In addition, the review also focuses on the aspect of women empowerment and rural development in the context of cooperatives in Gujarat to show how the well-being of the community and entrepreneurial activities have been enhanced. Also, the article compiles findings from different case studies done in other states such as Haryana, Uttar Pradesh, Nagaland, and so on. In conclusion, the review calls for policy measures that will enhance the performance and profitability of dairy cooperatives and will help in addressing the challenges that have been identified during the study, creating awareness on the need to educate the smallholder dairy farmers on the need to embrace education and access to resources for the sustainable development of dairy farming.*

**Keywords:** Dairy Cooperatives, Dairy farming, Dairy farmers.

## INTRODUCTION

Dairy cooperatives are very important for the development of the rural population and agricultural growth in India, which is the largest producer of milk in the world. These are capitalist enterprises that are owned and controlled by members who are smallholder farmers, and through them, they can access markets, technical resources, and support systems that they cannot easily get on their own. The cooperatives have enhanced the living standard of the rural farmers through proper pricing of agricultural products, employment creation and socio-economic growth. However, they also experience some challenges that include slow adoption of technology, high production costs, and volatile market prices, among others, that can hamper the effectiveness of the cooperatives. The effectiveness of these cooperatives is, however, not uniform across the regions, with some states able to transform their rural economies while others are not due to differences in systemic factors and policy interventions. This paper aims to review the current literature on the economic, social, and developmental effects of dairy cooperatives in India with the help of case studies from various states of India encompassing Kerala, Assam, Gujarat, Haryana, and Uttar Pradesh. Based on the analysis of existing research, the review is designed to identify the areas of improvement and suggest ways to increase the efficiency and profitability of dairy cooperatives for small farmers.

## OBJECTIVES

The basic intent of the study is to have an overview of dairy cooperatives in India. The review particularly examines the role of dairy cooperatives in the socio-economic status of member dairy farmers, the challenges and constraints faced by the dairy cooperatives across the states, employ dynamics, and gender empowerment in the cooperatives, and the study also aims to provide policy recommendations. The study was carried out to understand the magnitude of the research work carried out in the field and understand the unresolved issues, if any, that can pave the path for further research in the field.

## RESEARCH METHODOLOGY

The study is based on available literature extracted from different databases. This is a qualitative study intended to understand

the multifaceted impacts of dairy cooperatives on smallholder farmers in India. By synthesizing existing studies and case analyses, the methodology involves a systematic examination of data from diverse sources, focusing on the socio-economic, cultural, and operational dimensions of dairy cooperatives. The articles are gathered from different databases like Google Scholar, JSTOR, and Shodhganga. The study is based on a total of 25 research articles, which were selected randomly for the purpose.

## LITERATURE REVIEW

1. Dairy cooperative societies are essential in the agricultural and dairy sectors, providing a platform for local farmers in the Kalpetta block, Kerala, to collaborate. Considering this aspect, a study carried out by Kujur. N.et. al. (2024) focuses on 14 dairy cooperative societies and their impact on the dairy sector in the area. The societies were classified from Class 1 to Class 10 based on their daily milk procurement capacity, each making unique contributions to the resilience and inclusivity of the cooperatives. The study used structured interviews and data analysis to provide a comprehensive overview of the cooperative landscape, highlighting these entities' societal, economic, and agricultural impact. The research examined data on milk procurement, member demographics, feed supply, animal possession, and workforce dynamics, revealing the diverse and vital contributions of each class. This study contributes to understanding dairy cooperatives as catalysts for community engagement, knowledge exchange, and socio-economic development.[1]

2. Dairy co-operatives provide a stable source of income for thousands of dairy farmers in the Palakkad district of Kerala. The rural people are primarily involved in farming activities such as animal husbandry and dairying. The research was carried out by Veerakumaran. G.et.al.(2024) with the objective of studying the empowerment of dairy farmers who were members of dairy co-operatives in the Palakkad district. The primary data were collected from 200 active members of the four dairy co-operatives, namely Moolathara Milk Producer's co-operative Society Ltd. No. P 65 (D), Kunnamkattupathy milk producer's co-operative society Ltd. No. P 126 (D), Menonpara milk producer's co-operative Society Ltd. No. P 281 (D), and Attappadi milk producer's co-operative society Ltd. No. P 558(D). The structured interview schedule was used for data collection. The data were analyzed by using the index method. The selected dairy co-operatives in the Palakkad district play an important role in the economic, social, psychological, and political empowerment of its member dairy farmers. The dairy farmer members make significant contributions to dairy development in Palakkad. Their involvement in dairy farming is regarded as an important tool for alleviating poverty and improving the rural community's quality of life.[2]

3. Mahida, D.P. et.al. (2022) investigated the coverage of dairy cooperatives in different parts of India over the last two decades (1999-19). Various aspects, like variation in the coverage of dairy cooperatives across zones and states and its relation with certain internal and external factors, were analyzed in the study. The result revealed an increase in the number of dairy cooperatives over all parts of India, mainly in the eastern states. However, the study observed a decreasing trend in terms of milk procurement and membership over time, which in turn points out that the milk procurement by the cooperatives was not proportionate to the milk production, especially in the eastern zone. On the contrary, the western and southern states of the country exhibited a slow growth in membership and high growth in milk procurement per member, which clearly points towards the increasing commercialization of the dairy industry. The study also put forward certain measures for increasing membership and milk procurement in the country, which includes diversification of the services provided by the village-level cooperatives and agricultural promotion.[3]

4. Another research work has been conducted in this research area under the title 'A study on the role of dairy cooperatives in the socio-economic development of dairy farmers in Kerala' with special reference to the Malabar region. In this study, the researcher, Rejitha, P.R(2020), has focussed on areas like the socio-economic development of dairy farmers and the impact of dairy cooperatives on them, dairying activities of dairy farmers, their knowledge regarding cattle rearing, awareness of dairy farmers about the government schemes and the problems faced by them. The study reveals that the member dairy farmers were earning more income from dairying, but at the same time, it was observed that their expenses were also increasing. Membership in the dairy cooperatives was found to have a positive impact on the socio-economic status of the dairy farmers. However, the cost-benefit analysis shows that dairying is not a highly profitable occupation, as its variable and fixed costs were found to be high. The participation and awareness of the dairy farmers about the government policies and schemes were also observed to be low. Problems like lack of education, lack of good facilities, lack of technical knowledge etc were observed in the research. The researcher recommends that efforts should be made by the part of government to reduce the cost of production, ensure the active participation of the members, and implement more innovative programs. [4]

5. Thankachan. G.T.et. al. (2019) have made an attempt to study the impact of incentives and assistance received by dairy farmers from various institutional agencies like MILMA, the Dairy Development Department, and the Animal Husbandry Department. The study has been conducted by comparing the data collected from the members and non-members of the dairy societies using the Independent sample t-test. Comparisons have been made on the variables like gross income, net income, marketable surplus, and production. The impact of dairying on the employment generation and asset creation of the respondents was also analyzed in the study. The findings of the study state that even though the incentives and assistance have paved the way for cost reduction, their impact on the net income of dairy farmers is not appreciable. In terms of net income, there was no significant difference between the members and non-members as the non-members were compensated with the increased rate of milk price. The study

suggests that to increase the net income of dairy farmers, the rise in cattle feed should be followed by a proportional increase in the milk price as well as the subsidy amounts together. The study also recommends supportive measures for feed cost reduction and additional incentive supply during drought season. Unawareness among the member dairy farmers regarding the schemes available for them was also noted in the study. Hence, the researchers conclude the study by stating the importance of this assistance and incentives in ensuring the feasibility of the dairy sector and also in attracting new farmers to this sector, thereby enhancing milk production in the state.[5]

6. Priscilla.L.et al. (2019) studied the impact of dairy cooperatives on technical efficiency, yield, and price of milk, along with their influence on the income and employment level of the member farmers under the title “Economic Impact of Cooperative Membership on Dairy Farmers in Manipur.” The propensity score matching (PSM) technique was adopted for data analysis in the study. The study revealed that the role of dairy cooperatives in improvement in milk price, yield, technical efficiency, and income level was not significant. However, the contribution of dairy cooperatives in terms of employment generation among the dairy households in Manipur was appreciable. Hence, in the above study, the researcher points out the fragility in the functioning of the dairy cooperatives in the state and recommends measures like forward and backward linkage strengthening to overcome the present situation.[6]

7. Swathirekha, D.S.et.al.(2019) have investigated the role of milk cooperative society in improving the life of the dairy farmers in Chelakkara Gramapanchayath, Thrissur. The Pulakode Milk Co-operative was chosen for the study as this society was found to collect more quantity of milk from the dairy farmers in the area. The primary data were collected from 50 registered dairy farmers with the help of a structured questionnaire. The researchers observe that the milk society has been providing their member farmers with various facilities like subsidized cattle feed, bonuses for their milk contribution, fair milk prices, and all. Apart from all these provisions, the milk society was found to ensure a regular market and income for the member farmers. The majority of the respondents were satisfied with the services provided by the Milk Co-operative Society. Hence the study reveals that the Milk Co-operative societies play a significant role in the enhancement of the life of the dairy farmers. [7]

8. Bayan, B. (2018) investigated the impact of membership in the Dairy Cooperative Societies (DCS) in Assam on the performance of smallholder dairy production systems. The results derived from the study show that membership in the DCS has made certain positive impacts in various areas like farm income, employment, yields of dairy animals, and also in milk consumption by the households. However, no relevant impact was noticed in the case of technology adoption. It was also observed that the milk prices provided by the dairy cooperatives were less than that of the market price. Further, the researcher suggests improving the relationship between dairy farmers and institutions like milk cooperatives.[8]

9. A study on the job satisfaction of the employees working in the dairy cooperative enterprises of Kerala and its impact on the dairy industry, with special reference to the Kerala Cooperative Milk Marketing Federation and its three regional units, was conducted by Kavitha, A. (2015). The study aims to develop advanced and participatory people-oriented institutions and enhance the business efficiency of board members and office staff. The results of the study show that the overall job satisfaction of the employees in the Kerala dairy industry was at a high level. The level of extrinsic factors like recognition by the employer, current job, professional achievement, etc., and intrinsic factors like salary, job security, promotion, etc., among the employees of dairy cooperatives, were found to be at the medium level. Demographic factors like age, gender, external income status, experience, political affiliation, number of dependents, and duty nature were found to have no significant difference in the overall job satisfaction of the employees. Hence, the study observes a positive and strong relationship between job satisfaction, job performance, and loyalty.[9]

10. Kumar, et.al. (2015) worked on the cooperative dairy industry in Haryana. The study aims to analyze and examine the organizational and managerial structure of dairy cooperatives in Haryana. The input supply services and milk collection facilitated by the dairy cooperatives were found to be not satisfactory. Compared to the percentage of registered dairy cooperatives, the number of functional cooperatives was low. Seasonal variation in milk production was found to affect the transport routes, which in turn affects milk procurement. Incomplete coverage of animal health cover programme, shortage of dry and green fodder and forage for the animals, red tapism and administrative aloofness, unrealistic fixation of prices, failure of regular payments to milk producers, non-uniform policy in recruiting employees were all pointed as the major problems faced by the dairy cooperatives. The analysis concludes by suggesting certain measures like provision of incentives, regular vaccination for cattle, the establishment of more chilling centers, adoption of modern methods in dairy farming, restriction of middlemen in dairy activities, arrangement of training programs for managerial and supervisory staff, and all for the better functioning of the cooperative societies.[10]

11. A study was conducted by Deshmukh, M.S.(2014) on the growth and performance of the Indian dairy sector. The paper also focuses on the areas like constraints and opportunities of the dairy sector and the role of the dairy cooperatives in dairy development. The findings of the study reveal that about 80 percent of the milk produced by rural dairy farmers is managed by an unorganized sector, and the remaining 20 percent is managed by an organized sector. The study also identifies the crucial role of dairy cooperatives in rural poverty alleviation. The paper also mentions that even though India had been the largest milk producer, their per capita availability of milk was lowest. However, there had been an improvement over the years where the per

capita availability of milk had increased from 112 gm in 1970-71 to 297 gm in 2011-12. The compound growth rate of milk in India was found to be 4.16 percent during the period of 1990-91 to 2013-14. Also, a rising trend was observed in terms of the contribution of the livestock sector towards the agricultural GDP, i.e., 13.88 percent in 1980-81 increased to 25.85 percent in 2011-12. Some of the constraints faced by the dairy cooperatives identified in the study include low productivity of milk animals, inappropriate animal feeding and health care, lack of professional management, inadequate basic infrastructure facilities, etc. The researcher also points out some future challenges of the Indian dairy sector like product development, milk quality, infrastructure support and global competition.[11]

12.A study on the situational analysis of the village milk cooperatives in Kerala with special reference to the Anand Pattern Cooperative Societies (APCOS) was conducted by Joseph, M.K (2012) with the specific objectives of assessing the socio-economic profile of member dairy farmers, problems faced by the dairy farmers, their knowledge level regarding the government policies, role and effectiveness in the functioning of the cooperatives by the president, perception of members about the concept of cooperation and community assets created by dairy cooperatives. The study revealed that the dairy cooperatives were successful in organizing the small and marginal farmers and also generated the necessary infrastructure facilities and marketing networks for enhanced dairy farming. An increased demand for milk and milk products, with a considerable increase in the number of local milk consumers from the village dairy cooperatives, was evident in the research. The dairy farmers had a consistent perception of the capability of APCOS to organize farmers and generate common assets for dairy-dependent families in villages. They believed in APCOS' ability to overcome hurdles in the dairy sector by restructuring its strength. The study observes that by adopting cost-effective and scientific strategies in dairy farming, the farmers could yield more profit. Under the study, trained farmers were found to have earned rational income from this sector, and it was also identified that dairy farming practices have helped to reduce the input cost of agriculture and family expenditure to a large extent. It is suggested that training in dairy management can be facilitated through better utilization of available support services and linkages in the dairy sector.[12]

13.A study was conducted in one of the villages in Moradabad district, Uttar Pradesh, to examine the significance of the dairy cooperatives towards the socio-economic development of the dairy farmers in the selected village. The researchers Khan, N.et.al (2014) identify that around 60 percent of the total milk production in the sampled village has been managed by the dairy cooperatives. The study also reveals that the various positive factors, like necessary medical support, increasing demand for milk, and regular income, have led to the socio-economic development of dairy farmers in the village. Hence, the researchers observe that the dairy cooperatives have been playing quite a significant role in terms of marketing, employment generation, and support for dairy farmers, which ultimately paved the way for the enhancement of the farmers engaged in dairying.[13]

14.A study was conducted covering the aspects of rural development and women empowerment through dairy cooperatives. The research area selected for the analysis was Dangs, the smallest and most backward district of Gujarat. Under the study, the researchers Singh, S.B.et.al (2014) have attempted to examine the efficiency and management of village dairy cooperatives, their potential for employment creation, services provided by the dairy cooperatives to its dairy farmers with the help of Vasundhara dairy (Valsad District Milk Producers Union), women empowerment status and tribal milk producers migration status for a labour job. All the village dairy cooperatives under the study were found to make a profit at the end of the financial year. The analysis observed that 100% of Vasudhara Dairy Cooperatives (VDCs) paid price differences to the milk producers at the end of the year. About 98.41 percent of the respondents belonged to the category of Hindu tribals. In the study, 98.41 percent of respondents were members of VDC, and among them, 67.06 percent have adopted dairy farming as their main source of income. The establishment and provision of veterinary hospitals were observed to be poor. All respondents were found to have obtained formal training in dairying, and they were well-informed about the programs and schemes implemented by the cooperatives. Milk payment and supply of cattle feed from VDCs were regular. VDC's employees were found to be punctual, qualified, and trained. The administration and functioning of the dairy cooperatives were revealed to be transparent and democratic. The socio-economic conditions of the respondents were improved through the involvement of dairy cooperatives. The study reports a reduction of 63.16 percent in migration among the tribal milk producers in Dangs. Almost all the women respondents believe that women's empowerment takes place through the functioning of dairy cooperatives. They were provided with more platforms by the dairy cooperatives for interacting with the government agencies which in turn increased their awareness regarding various government welfare programmes. The majority of the women are taking part in several village development programs, and they were able to develop various skills that helped to improve their social and financial position. The study winds up by presenting certain suggestions like creating infrastructure like check dams, water tanks, etc., arrangements for veterinary emergency visits, implementation of fodder development programs, and increase in the use of information technology for providing timely information and knowledge for dairy farmers.[14]

15.In the article entitled "Gains from Coordination in Milk-fed Dairy in Punjab," the authors Gupta K.et.al. (2012) have made an attempt to examine the benefits received by the farmers through vertical coordination in dairy. For this, they assessed the functioning of the dairy cooperatives in the two districts of Punjab. The paper also deals with the areas concerning the selection/participation of farmers. The research had been conducted under descriptive and regression analysis. The findings of the paper show that the competition from the private sector has brought appreciable changes in the functioning of public sector enterprises. The majority of the farmers under the study are considered to be profitable as members of the dairy cooperatives.

There is also evidence of negative selection of farmers, implying that those who join dairy cooperatives would have significantly inferior outcomes outside vis-à-vis the ones who actually are independent. No bias against farmers by their herd size and significant gains upon participation can explain the scaling up from the demand side. [15]

16. Chakraborty. et al. (2011) have carried out their PhD work on the dairy cooperatives in Nagaland with special reference to the Dimapur district. The study was conducted with the objectives of studying the evolution of dairy cooperatives, examining the financial performance of the Dimapur District Milk Producers' Union Ltd (DIMUL) and Primary Dairy Cooperatives (DCS) under the control of DIMUL, to analyze the socio-economic profile of the dairy farmers and also the role of dairy cooperatives towards the development of dairy farmers and finally to make suggestions. The findings of the study show that even though there was an increase in the number of dairy cooperatives over the years, the number of functioning cooperatives was less. The per capita availability of milk in Nagaland was found to be 66 gm/day in the year 2008-09, which was less compared to the country's average. There was a decreasing trend in the number of DCS and total members of DCS in Nagaland. The researchers observed a fall of 24.18 percent in milk procurement over five years, whereas there was an increase in the total sale of DIMUL products. Also the share-holders were not receiving any dividends from DIMUL during the study period. The cost of production of milk was observed to be increasing. The majority of the producer members were found to be illiterate. For about 23.45 percent of respondents, the financial position has seemed to be improved. Certain constraints like lack of market information, irregular supply of fodder, low procurement price and all have led to the low level of satisfaction among the members. The researcher's opinion is that through proper planning and motivation, better dairy development can be witnessed in the state. [16]

17. A research study was conducted by Nishil. et. al (2011) to assess the satisfaction of dairy farmers with dairy cooperative societies (DCSs) in selected areas of Pradeshik Cooperative Dairy Federation (PCDF), Uttar Pradesh. The study covered eight DCSs and found that most member farmers were moderately involved in the activities of the DCSs. On average, the respondents had seven dairy animals per household. The quantity of milk produced and sold to the societies indicated the commercial viability of dairy farming in the area. Approximately one-third of the respondents expressed satisfaction with the functioning of the societies. The study identified that organizational participation, market potential, and economic motivation strongly influenced farmers' satisfaction levels. However, prevailing constraints had a negative impact on farmers' satisfaction with the functioning of DCSs. [17]

18. In the article entitled 'Dairy Cooperatives and Dairy Development in India', Sundararaj, P (2011) explains the importance and contributions of dairy cooperatives in the Indian economy. Dairy cooperatives are considered to be the backbone of the Indian dairy sector. Development of the dairy sector under the shades of cooperative movement was adopted as a strategic move to help the rural poor upgrade their status by providing them with a regular market for milk at fixed prices; cattle feed supply at a convenient cost, efficient veterinary services, and other extension services. The article mentions that the dairy cooperatives have succeeded in providing employment for about 10 million farmers in over 1.30 lakh villages covering 326 districts. Uttar Pradesh was identified as having the highest number of dairy cooperative societies (18104). The Annual milk production in India witnessed a triple increase over the last three decades. This was the result of the organized performance of the dairy cooperatives under the Operation Flood (OF) project. However, these cooperatives are also facing certain obstacles like political and bureaucratic interference, quality improvement of products for global competition, lack of upgraded infrastructural facilities, excess manpower and low-skilled employees, etc. The author suggests that the government should generate new policies and funds that would help the dairy cooperatives to tackle their constraints and thereby maximize the welfare of millions of farmers depending on this sector. [18]

19. A study was conducted by Rani, B.N. et. al (2009) to compare the functioning of Anand Pattern Cooperative Societies (APCOs) and Non-Anand Pattern Cooperative Societies (Non-APCOs) in Kerala. The researchers also intended to analyze the financial performance of APCOs, the social and economic characteristics of these cooperatives, and the constraints in their functioning. The study reveals an appreciating performance on the part of APCOs, along with increased paid-up capital and membership. Factors like capital employed, working capital, purchase, and sales were all found to be increased, which indicated an increased demand for milk sold by APCOs and increased profit. On the other hand, these factors showed a diminishing trend in the case of Non-APCOs, which in turn led to decreasing membership and profit. The analysis also shows that the expenses of APCOs were decreasing whereas that of Non-APCOs were increasing. The majority of the sample dairy farmers considered dairy farming as their primary source of income. It was also pointed in the study that the trained dairy farmers under APCOs have better knowledge regarding modern machines and equipment and dairying methods and practices used for advanced dairy farming. It was also observed that members of the APCOs received a good and fair price for their milk sold in the societies. Some of the constraints pointed out in the functioning of APCOs were lack of communication between the members and society staff, high cost of the chilling machine, scarcity of raw materials, over politicization, marketing problems like contrariety in the testing of fat, etc. Some recommendations like subsidization of equipment, computerization of the cooperatives, low-interest credit supply, provision for better health cover for cattle, promotion of APCOs through mass media, and all were proposed in the study for the advanced functioning of the APCOs. [19]

20. An investigation into the problems faced by the dairy cooperatives and their member farmers in Kerala and the future prospects of the dairy industry in the state has been done by Veerakumaran, G. (2009). The study analyzed variables like procurement

enhancement activities, which include animal breeding, veterinary health care, availability of fodder and grazing land, supply of cattle feed, operational and structural problems of primary cooperatives, and so on. The major problems faced by the dairy cooperatives were identified as increasing cost of production, which were influenced by factors like the absence of grazing land, hike in cattle feed price, scarcity of dry grass/paddy straw, expense of animal health care, etc. Other constraints were found to be occupational mobility and structural and operational setbacks. However, the researcher observes that in spite of these constraints, the state dairy sector has high prospects in the future. Some suggestions made in the study include subsidized cattle feed prices, the standard formula for income distribution at all levels of the federal structure, policies to strengthen animal health care needs, and so on.[20]

21. As a part of the global effort to fight against poverty, many international development agencies have been promoting livestock-based livelihood. Organized village dairy cooperatives formed under India's dairy development program have been identified as a perfect model for such an effort. In the article Land, Labor, and Rural Development: Analyzing Participation in India's Village Dairy Cooperatives, Basu.P.et.al (2008) compares two villages with different levels of success to examine the household attributes that affect membership in India's rural dairy cooperatives. A comprehensive survey was undertaken to collect data from all the households of the two sample villages, and the collected data was used to analyze various areas like the relationship between the variables influencing agricultural attributes, animal ownership, and availability of household labour with the membership in dairy cooperatives and also observed whether the factors influencing membership differs across the two villages. These data were analyzed with the help of the logistic regression method. The result of the study highlights that agricultural property ownership is the main influential factor of cooperative membership in both villages. Other important factors contributing towards household participation were found to be the type of dairy animal used and labour utilised for dairy farming.[21]

22. Traditional milk societies and Anand Pattern Cooperative Milk Societies (APCOS) were compared in a study conducted by Jha.K.et.al((2006)in the Thiruvananthapuram district of Kerala. The study focused on six milk societies, with three from each category, and a total of 90 respondents were randomly selected for the research. Data was collected through well-structured personal interviews using an interview schedule. The traditional milk societies, with their commercial nature, managed the entire process from procurement to marketing, while the APCOS-model milk societies solely handled procurement and then transferred the milk to the milk unions. Despite being less organized, the traditional milk societies were found to be more feasible and profitable compared to the APCOS. Therefore, conducting an in-depth study of traditional milk societies and finding ways to organize them for enhanced efficiency is crucial.[22]

23. Dairy cooperatives and Operation Flood in India have played a significant role in rural employment generation and also in the modernization of the dairy sector, which involves the upliftment of the Indian dairy sector from the level of meeting the country's demand for milk and milk products to the level of utilization of the international market opportunities. Considering the significance of dairy cooperatives in the Indian economy, a study was conducted by Rajendran.K.et al. (2004) to analyse the existing position of milk marketing and dairy cooperatives in India and also to make suggestions to meet their future threats. The result of the study shows that about 80 percent of the milk produced by rural dairy farmers is controlled and managed by an unorganized sector, whereas the remaining 20 percent is managed by the organized sector. By supplementing rural milk production and marketing, dairy cooperatives play a crucial role in rural poverty reduction. Some of the constraints faced by the producers in receiving milk prices were found to be a lack of bargaining power, a lack of infrastructure facilities for collection, storage, transportation, and processing, the involvement of intermediaries, and all. Also, the study identifies various aspects like infrastructure support development, product development, milk quality, and global marketing as the future threats to milk marketing in India. [23]

24. A study was conducted in Etawah district, Uttar Pradesh, to analyse the role played by dairy cooperatives in increasing the income and employment opportunities of rural households. Various aspects like the structure and functioning of dairy cooperatives, available resources, and their allocation, the input-output relationship of milk production, the marginal productivity of input variables in milch animals, future possibilities of dairy cooperatives, impact of dairy cooperatives on the income and employment of the dairy farmers, their problems were all discussed in the study. The researchers Singh. et al. (2002) observed that the dairy cooperatives in Etawah district were providing facilities like veterinary aid, artificial insemination, technical inputs, collection and marketing of milk, and so on. It was pointed out that the cooperatives were undergoing through severe financial crisis where they were not even able to provide their members with adequate incentives. However it was found that the dairy cooperatives have managed to bring a considerable impact on all the categories of the households in the area of Operation Flood Programme.[24]

25. Anil,S.et.al. (2001) investigated the involvement of men and women in the decision-making of various dairy-related fields. The study was conducted among a hundred dairy farmers who were members of dairy cooperatives in a village in central Kerala. The findings of the study revealed that the men had notably higher involvement in decision-making regarding the dairy areas of housing, breeding, selection, and treatment, whereas women's involvement was observed to be higher in the areas like feeding and milking. Hence, the study concludes that the inability of the women to take part in the important aspects of dairying, even though they had to perform more physical work in dairying compared to men, can be considered one of the crucial factors responsible for the low productivity of the dairy sector in the state.[25]

## CONCLUSION

Based on the literature review, it is evident that dairy cooperatives play an important role in improving the standard of living of smallholder dairy farmers in different regions of India. Out of 25 articles that were reviewed for the study, the majority of the articles were based on primary data collected directly from dairy cooperatives as well as from dairy farmers who were members of dairy cooperative societies in various states. The positive impact on farm income and employment possibilities shows that cooperative membership can be a powerful tool for developing the rural economy. However, some challenges include high production costs, low technology adoption rates, variability of market prices, and lack of awareness of government interventions, which hampers their performance in some areas. In addition, the present study also focuses on the importance of job satisfaction of the employees working in dairy cooperatives and how it affects the performance and commitment of the employees towards the organization. This indicates that while the focus has been on the farmers, there is also a need to ensure that human capital within these cooperatives is well motivated so as to boost production. The review also shows that cooperatives have the capacity to empower women, enhance the bonds within society, and enhance economic development. To achieve their true potential, some interventions such as improvement in education, technology, reduction in costs, and policies are needed. Thus, dairy cooperatives have the potential to bring positive change in rural areas, but for them to have a greater effect, continuous interventions and improvement are needed. The major findings of the articles reviewed were as follows:

1. Positive Economic Impact: This paper shows that membership in the dairy cooperatives can improve the income of the farm household, create more jobs, and enhance the socio-economic status of the smallholder dairy farmers.

2. Socio-economic contributions:

- Improved standard of living, increased income, and reduced poverty within the rural community.

- Increased knowledge on dairy management and cooperative benefits among the members.

3. Awareness and Participation: This paper also found that there is a low level of awareness and participation of the dairy farmers in the government policies and schemes which shows that there is a lack of support and awareness among the farmers.

4. Challenges Identified: Some of the challenges that are being experienced by dairy farmers include the following;

- Shortage of education and technical skills.

- Shortage of infrastructure.

- High production costs, including both variable and fixed costs

5. Recommendations for Policy Interventions: It was also suggested that there is a need for government intervention to reduce the cost of production among dairy farmers, to enhance the involvement of cooperative members, and to raise awareness of the existing resources and schemes.

6. Women's Empowerment: The analysis of the case from Gujarat revealed that the empowerment of women engaged in dairy cooperatives has led to the improvement in the community's well-being as well as entrepreneurship.

7. Job Satisfaction's Role: The importance of job satisfaction of the employees in dairy cooperatives was also emphasized as it is linked with high performance and loyalty.

In conclusion, the review highlights the role of dairy cooperatives in improving the income of farmers while at the same identifying some of the challenges that need to be addressed to improve the performance of the sector and benefit the small-holder dairy farmers.

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