

Empowering Dairy Farmers through Cooperatives: A Sustainable Development Perspective from Bilaspur, Chhattisgarh

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Abstract

The dairy sector helps improve the lives of people living in villages and makes sure that people in India get enough nutritious food. Dairy cooperatives, in particular, have become important groups that help small and poor farmers get better access to buying and selling their goods, getting the supplies they need, getting loans, and learning new farming skills. This study looks at how dairy cooperatives help dairy farmers in Bilaspur district in Chhattisgarh to grow and make a better living from their work. Through using both surveys and interviews with co-op members, the research looks at how co-ops work in terms of money, social impact, and how they affect the environment. Key areas like earning more money, getting work done better, making sure pets have access to good vets, doing things that help the planet, and giving pets and their owners opportunities to learn and grow are looked at. The findings show that when farmers get involved in dairy cooperatives, they can grow their businesses more steadily, earn more money, strengthen ties with their neighbors, and learn good ways to take care of the environment. However, problems like not enough good buildings, not enough practice, and issues with how the organization runs are still there. The study ends with some advice on how to make collaborative governance between different groups stronger, and how to help them play a bigger part in making rural development work better in the area.

Keywords: Dairy Cooperatives, Sustainable Development, Rural Empowerment, Dairy Farming, Farmer Livelihoods, Cooperative Governance, Bilaspur District, Agricultural Sustainability, Rural Economy

Introduction:

The dairy sector plays a key role in India, providing much-needed income and jobs, as well as food to many rural households. Due to the rich livestock population in Chhattisgarh and rising demand for milk and milk products, the state has great potential in dairy farming. By dividing the dairy farmers into groups, dairy cooperatives help farmers make a better income and promote equality among members. Thanks to the cooperative approach, rural farmers are empowered with the chance to join forces, bid high in the market, access fair prices, use veterinary services, obtain credit, learn new things, and count on a steady link to available markets. Thanks to these services, farmers are able to tackle problems they face alone, including weak bargaining position, cruel middlemen, and weak infrastructure.

The Bilaspur district in Chhattisgarh focuses mostly on agriculture and dairy, and as a result, there has been a growing interest in dairy cooperatives. Thanks to these cooperatives, farmers can increase their milk yield, earn more from selling their milk, and make better use of resources such as animal feed, health systems, and ecologically safe waste management. With more people worrying about climate change, harm to nature, and economic equality, attention is now being paid to a balanced form of sustainable development. Dairy cooperatives play a role in developing the rural economy and affecting changes in society.

While dairy cooperatives are useful, their results are determined by things like their structure, how members engage, available training and learning, resources they have, and government help. In places where infrastructure and the economy are still challenging, such as Bilaspur, it becomes important to review if dairy cooperatives are helping their members become more sustainable in the future. While others have mainly analyzed how dairy cooperatives help with sales and milk production, this study hopes to go further and check how they impact farmers' sustainable development through considerations like income, empowerment, caring for the

environment, and living standards.

With this in mind, this research aims to check how dairy cooperatives support local dairy farmers by taking into account the overall progress of the community. It studies the connection between people cooperating and improvements in how secure they are, how productive they are, and how sustainably they live. Research in this study is done using numbers and interviews to learn from cooperative members, leaders of the community, and those involved in the dairy value chain. The paper tries to show what strengths and weaknesses dairy cooperatives have, as well as their potential areas of growth, all to recommend actions and strategies that can help them enhance rural sustainability in Chhattisgarh and other areas.

Literature Review

Sustainable development has become top priority worldwide by promoting economic growth and protecting both the environment and society. In 1989, Pearce, Markandya, and Barbier's Blueprint for a Green Economy called attention to the importance of building ecological health into planning economic activities. Daly (1990) went on to outline a system for sustainable development by suggesting operational rules to keep growth and the environment in balance.

It is clear that cooperatives play a major role in reaching the sustainable development goals (SDGs). According to the International Cooperative Alliance in 1995, cooperatives are self-governing groups that aim to boost the economic lives of members and contribute to the overall progress of the local community. He explained that cooperatives in rural and agricultural areas help address several SDGs, for example, poverty eradication, gender equality, and sustainable consumption. Lafont, Saura, and Ribeiro-Soriano (2023) investigated how cooperatives play a role in overcoming the effects of the resource curse in developing economies that are rich in resources but have little development.

Specifically regarding agriculture, Gicheru (2016) pointed out the value of cooperatives in supporting the SDGs in LDCs by ensuring dairy and agricultural cooperatives work to even out the economy and promote working together, as they are highly valued in many LDCs. Cooperatives aid economic stability because they help local producers, encourage broad involvement in local affairs, and help build local supply chains, according to Schwettmann.

When looking from an environmental point of view, Chopra (2016) studied what causes and results from environmental decline in India and recommended that cooperatives could be used as a means of addressing these issues. Results from the Composite Water Management Index 2.0 (2019) and the Air Quality Life Index (2020) indicate that Indian states are under substantial environmental stress, highlighting the need for farmers, including those working for dairy cooperatives, to switch to sustainable farming practices.

Based on data, the Gender Inequality Index and the National Statistical Office of India point out persistent inequality in education and social roles for men and women in India. This issue is often resolved by cooperatives by giving equal roles to all members and providing required training for everyone. In their research, Deane and Mac Domhnaill (2021) proved that having community-owned service models like cooperatives encourages social unity and makes people in a community feel stronger.

In economics, cooperatives are used to combat poverty and help in creating employment. Both Lakner et al. (2022) and Chancel et al. (2022) claimed that inequality problems are increasing globally, but also noted that cooperatives could play a key part in reducing inequality. The Economic Survey (2023) pointed out that interactive cooperative models can increase how productive farms are and also create more jobs in rural areas. Cooperatives have been found by Iyer (2020) and Leviten (2009) to work well in sectors such as healthcare and agriculture, mainly where support is needed most in the community.

Both Murphy (2006) and Flyvbjerg (2011) argued that assessment of development interventions should be done in a case-by-case manner. Grauer (2012) states that case studies can teach us about cooperation and the influence of co-ops on the wider economy and society.

As in previous works, the current study looks at dairy cooperatives in Bilaspur, which shows widespread potential but still comes across plenty of challenges related to regulation and infrastructural development.

The research mentions numerous positives of cooperatives but also outlines issues such as problems with infrastructure, less training, and delays in establishing policies (Odey et al., 2021). As a result, detailed study of cooperatives in Bilaspur, Chhattisgarh, is crucial to link theory with practical results.

Objectives of the study

- To examine the role of dairy cooperatives in enhancing the socio-economic status of dairy farmers in Bilaspur district.
- To assess the contribution of dairy cooperatives to sustainable agricultural practices in the region.
- To analyze the impact of cooperative membership on income stability and livelihood security of dairy farmers.

Hypothesis (H₀): There is no significant relationship between the functioning of dairy cooperatives and the socio-economic status of dairy farmers in Bilaspur district.

Alternative Hypothesis (H₁): There is a significant relationship between the functioning of dairy cooperatives and the socio-economic status of dairy farmers in Bilaspur district.

Research Methodology

The role of dairy cooperatives in boosting the socio-economic status of farmers in Bilaspur district of Chhattisgarh is explored by taking a descriptive and analytic research approach. Secondary sources were used to find out how the community has dealt with the issue before, while primary sources helped with understanding the challenge itself. The primary research relied on structured questionnaires given to samples of dairy farmers who are members of various dairy cooperatives in the region. We used stratified random sampling to make certain that a wide range of income levels, land sizes, and cooperatives were all represented in our sample. Moreover, conversations with cooperative leaders and local officials were conducted to capture informative opinions. Reports from the government, cooperative sources, academic papers, and NDDB sub-agencies were studied for my data. To examine the research hypotheses, the quantitative data were analyzed with descriptive statistics and by performing a correlation and a regression analysis. The analysis of the qualitative data helped explain members' views, difficulties, and prospects within the cooperative. Using the methodological approach allows for an objective and research-based evaluation of how dairy cooperatives promote sustainable growth in rural areas of Bilaspur.

Table: Descriptive Statistics of Key Socio-Economic Indicators among Dairy Farmers (N = 120)

Variable	Mean	Standard Deviation (SD)	Minimum	Maximum
Monthly Income from Dairy (INR)	14,800	3,250	8,000	24,000
Landholding Size (in Acres)	2.75	1.10	1.00	5.50
Milk Production (Litres/Day)	17.6	4.3	8.0	28.0
Cooperative Membership Duration (Years)	6.2	2.5	1.0	12.0
Access to Veterinary Services (1=Yes, 0=No)	0.92	0.27	0	1
Training/Workshops Attended (Per Year)	3.1	1.4	0	6

Variable	Mean	Standard Deviation (SD)	Minimum	Maximum
Loan Support from Cooperative (INR)	22,500	5,800	10,000	35,000
Education Level (Years of Schooling)	8.4	3.2	0	15

Analysis of Descriptive Statistics

The study's use of descriptive statistics clearly explains the socio-economic situation of the farmers working with cooperatives in Bilaspur district. Dairy work brings in an average of ₹14,800 per month, showing that it helps moderately but greatly in supporting household incomes. The sample shows that most people in the group have an income around ₹3,250. The average size of land held by farmers in the region is 2.75 acres, which highlights the majority of small and marginal cultivators in the region. Since dairy cows produce an average of 17.6 litres of milk daily, it is easy to see that dairy forms a key area of employment. Importantly, on average, farmers are cooperative members for 6.2 years, suggesting a natural stability in the relationship. Moreover, 92% of the participants mentioned they can access veterinary services, demonstrating the important work of cooperatives in livestock health care. In general, farmers joined 3.1 training or workshop events every year, helping to strengthen the sharing of information among cooperatives. Most cooperative loans had an average amount of ₹22,500, which probably helps farmers become more productive. Overall, the average amount of schooling for respondents was 8.4 years, demonstrating a middle-range level of schooling that can help us understand cooperative behaviors. On the whole, the data reveal that dairy cooperatives improve their members' society and economy, supporting the belief that there is a true relationship between cooperative action and farmers' socio-economic condition in the Bilaspur district.

Table: Correlation Matrix of Dairy Cooperative Functioning and Socio-Economic Status Variables (N=120)

Variables	Monthly Income	Milk Production	Landholding Size	Membership Duration	Training Attended	Loan Support
Monthly Income	1	.742**	.634**	.523**	.475**	.501**
Milk Production	.742**	1	.612**	.457**	.410**	.449**
Landholding Size	.634**	.612**	1	.338**	.300**	.325**
Membership Duration	.523**	.457**	.338**	1	.561**	.598**
Training Attended	.475**	.410**	.300**	.561**	1	.512**
Loan Support	.501**	.449**	.325**	.598**	.512**	1

Correlation is significant at the 0.01 level (2-tailed).

Analysis of Hypothesis Testing:

The testing of hypotheses aimed to find out if there is any link between how the dairy cooperatives in Bilaspur function and the economic levels of their member farmers. By applying Pearson's correlation, we found that members of the cooperative who were active longer, attended training, and received more loan assistance had higher amounts of monthly pay, cows, and land. It was established that as cooperative membership length increases, people's monthly income increases too, with a correlation coefficient of 0.523 ($p < 0.01$). In the same way, when farmers took part in training and borrowed for their farms, this led to clear

improvements in their earnings and success. It is confirmed by the findings that those who take part in dairy co-ops experience better socio-economic prosperity. For this reason, the null hypothesis failed to hold up, while the alternative hypothesis was accepted, meaning dairy cooperatives do play a key role in shaping the socio-economic status of Bilaspur's dairy farmers. Based on this, it can be seen that dairy cooperatives are key to ensuring farmers can empower themselves economically, farm more successfully, and improve their livelihoods, aiding in the development of rural areas.

Discussion:

It proves that the presence of dairy cooperatives plays an important part in ensuring sustainable socio-economic development for dairy farmers here. It was clear from the positive correlations that cooperatives are useful for farmers in sharing resources, developing skills, and improving their finances. Previous studies have found the same to be true (Iyer, 2020). Lafont et al., 2023 note that cooperatives are an essential aspect of rural development and thus meeting sustainable development goals.

There is a clear link between being in a cooperative and higher monthly income and milk production, indicating that these institutions give small and marginal farmers advantages in the market and better help in farming. According to Schwettmann (2014), cooperatives' economic strengths are partly demonstrated by giving opportunities to rural people, and by uniting their resources to ease problems and risks.

Training programs by cooperatives better equip farmers by informing them about new dairy methods, keeping animals healthy, and making the most of resources. Sharing this knowledge helps people in Bilaspur increase their productivity and continue growing, since farming with traditional methods usually restricts their harvests.

Furthermore, farmers who take loans through cooperatives no longer rely on informal sources, which better secures their finances and helps them boost their dairy farms. Working towards financial inclusion improves resilience of the poor to shock and is closely aligned with Gicheru's 2016 argument that cooperatives contribute to reducing poverty.

Still, the research points out certain things that could be improved, including more cooperation among partners, raising awareness about cooperatives, and addressing issues in infrastructure and market links. They play a key role in making a project sustainable and widespread.

All in all, it was proven that Bilaspur's dairy cooperatives support dairy farmers by improving their income, assisting in training and knowledge, and making them part of financial resources. Expanding and strengthening cooperatives in the dairy industry should be the first step in rural development and ensuring better livelihoods for those involved.

Conclusion:

This research has shown that cooperatives help dairy farmers in Bilaspur district of Chhattisgarh to develop in terms of their livelihoods and society. Results from the study show that actively participating in cooperatives boosts farmers' earnings, the amount of milk they produce, their access to veterinary care, training, and obtaining loans. As a result of these benefits, dairy farmers, both big and small, see an improvement in their lives and well-being. The strong link between successful dairy co-ops and social-economic factors reveals why it is vital to increase dairy cooperative activities to help rural areas develop sustainably. By bringing farmers together and helping them with resources and financial support, cooperatives boost the economy and make the dairy sector stronger. As a result, partnerships supported by policies should be encouraged to make sure that all dairy farmers can benefit in a way that is sustainable for a long time in the region.

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