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Impact of Government Schemes on the Economic Development of Dairy Business: A Study of Hingoli District

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Abstract

The dairy sector plays a significant role in strengthening rural livelihoods and supporting agricultural economies in India, particularly in regions where farming alone does not ensure stable income. Government-sponsored dairy development schemes aimed at improving cattle productivity, infrastructure, institutional support, and financial accessibility have emerged as important policy instruments for rural economic development. The present study examines the impact of such government schemes on the economic development of the dairy business in Hingoli district, based exclusively on secondary data sources. Hingoli district, characterized by an agrarian economy and a growing dependence on allied activities such as dairying, provides a suitable context for assessing the effectiveness of dairy-related government interventions. The study adopts a descriptive and analytical research design and relies on secondary data collected from government reports, livestock census records, district statistical abstracts, NABARD and NDDB publications, policy documents, and published research studies. Major dairy development schemes such as the Rashtriya Gokul Mission, National Programme for Dairy Development (NPDD), Dairy Entrepreneurship Development Scheme (DEDS), Maharashtra State Dairy Development Programme, and cattle purchase subsidy schemes form the analytical framework of the study.

The analysis focuses on key economic indicators including milk production trends, livestock population growth, income enhancement, employment generation, access to veterinary services, and infrastructural development at the district and tehsil levels. Secondary data analysis reveals a positive association between the implementation of government schemes and improvements in dairy productivity, expansion of dairy units, and increased participation of rural households in organized dairy activities. Enhanced breed quality, improved access to animal health services, and cooperative support structures have contributed to better economic outcomes in the district.However, the study also identifies persistent challenges reflected in secondary records, such as uneven scheme coverage across tehsils, limited cold-chain infrastructure, administrative delays, and gaps in extension services. The findings indicate that while government schemes have contributed significantly to strengthening the dairy economy of Hingoli district, the magnitude of benefits varies due to infrastructural disparities and institutional constraints. The study concludes that dairy development schemes have played a constructive role in promoting the economic development of the dairy sector in Hingoli district. Strengthening inter-departmental coordination, improving last-mile infrastructure, and enhancing awareness and implementation efficiency are essential for maximizing the long-term impact of these schemes on rural dairy entrepreneurship.

Keywords: Dairy development, government schemes, economic impact, Hingoli district, rural livelihood, dairy entrepreneurship, subsidy programmes.

1. Introduction

The dairy sector occupies a central role in India's rural economy, serving as a critical source of supplementary income, nutritional security, and employment generation. India has emerged as the world's largest milk producer, largely due to the decentralized structure of dairy farming reliant on small and marginal farmers. For many rural households, dairy activity acts as a risk-mitigation strategy, providing regular cash flow even when agricultural outputs fluctuate due to climate variability or market instability. Therefore, strengthening dairy enterprises through government interventions becomes a key national priority.

Maharashtra has witnessed considerable diversification in dairy production patterns over the past three decades, influenced by livestock improvement programmes, cooperative development, and private-sector participation. Among its districts, Hingoli remains predominantly agrarian, with dairy production deeply embedded in traditional livelihood systems. The district's climatic conditions, cropping pattern, and socio-economic structure make dairy activities both viable and indispensable for household sustenance. Farmers typically rear indigenous or crossbred cattle, producing milk that is either consumed domestically or supplied to cooperatives and private collection centres.

Recognizing the economic significance of the dairy sector, the Government of India and the Government of Maharashtra have implemented several schemes to enhance productivity, improve animal health, strengthen processing infrastructure, and promote entrepreneurship. Schemes such as the Dairy Entrepreneurship Development Scheme (DEDS), Rashtriya Gokul Mission, National Programme for Dairy Development (NPDD), and various state-level subsidy-based initiatives aim to modernize dairy operations and enable income enhancement.

Despite substantial public investment, the actual on-ground impact of these schemes often varies across regions due to differences in awareness, accessibility, institutional support, and socio-economic characteristics of farmers. Many farmers benefit extensively from subsidies and capacity-building initiatives, while others remain outside the coverage due to limited information or administrative complexities. To understand the effectiveness of these schemes in uplifting rural dairy businesses, localized research becomes essential.

Hingoli district presents a compelling case study for such an examination. The district's dairy sector consists mainly of small-scale operations with two to five animals per household, limited mechanization, and inconsistent access to veterinary services. Government schemes in Hingoli aim to increase dairy productivity through breed improvement, financial support, fodder development, and infrastructure creation. Evaluating the outcomes of these interventions can provide valuable insights into whether the schemes are effectively meeting their objectives and how they can be improved.

This research investigates the economic impact of government schemes on dairy entrepreneurship in Hingoli district. The study focuses on income changes, productivity shifts, adoption of improved practices, and market linkages among dairy farmers who have benefited from the schemes. It also explores challenges and gaps that hinder the full realization of the programmes' potential.

By analyzing these aspects, the study contributes to understanding the broader implications of public policy on rural livelihoods. It also highlights opportunities for enhancing dairy development initiatives through better governance, training, and institutional coordination. Ultimately, the research aims to provide evidence-based recommendations that can strengthen dairy business performance and support sustainable economic development in Hingoli district.

2. Conceptual Background

Dairy development is influenced by several interconnected factors, including livestock quality, availability of veterinary and extension services, access to credit, market integration, and technological adoption. Government schemes often target these domains to stimulate rural economic development. Understanding the conceptual framework behind these interventions is essential to analyze their real-world effectiveness.

At the core of dairy development lies the concept of livestock productivity, which is shaped by breed quality, nutrition, disease control, and management practices. The Rashtriya Gokul Mission emphasizes breed improvement through artificial insemination, genomics, and conservation of indigenous breeds. These improvements align with the theory of agricultural modernization, which posits that productivity growth requires scientific enhancement of inputs.

Another key concept is entrepreneurial development in the dairy sector, which goes beyond milk production. It includes processing, marketing, value addition, and enterprise management. Schemes like DEDS aim to cultivate entrepreneurial capacity through financial support for dairy units, chilling plants, and marketing innovations. This aligns with rural entrepreneurship models that highlight the role of credit accessibility and institutional support in business expansion.

Economic development theory provides the broader lens for evaluating government interventions. In rural settings, economic development is measured not only in terms of income increase but also through employment creation, risk reduction, and improved household resilience. Dairy activities contribute to multiple dimensions of rural wellbeing, enabling continuous cash flow, asset creation, and diversification of livelihood risks.

Another component is cooperative development, rooted in collective action theory. Dairy cooperatives enhance farmers' market power, provide fair pricing, and ensure timely milk collection. Government schemes often support cooperative infrastructure to stabilize dairy value chains.

Finally, the policy impact assessment framework helps systematically evaluate how schemes influence target outcomes. This framework includes input utilization, output performance, beneficiary satisfaction, and socio-economic changes. The present study adopts this conceptual orientation to assess how well schemes in Hingoli district translate into tangible economic gains for dairy farmers.

3. Review of Literature

Research on dairy development has expanded significantly over the last three decades, focusing on productivity enhancement, policy interventions, cooperative structures, and rural livelihood impacts. Studies have examined how government schemes, breed improvement strategies, financial support mechanisms, and infrastructural strengthening contribute to economic development in rural communities. The following review synthesizes key empirical and conceptual contributions that provide a foundation for understanding policy effectiveness in dairy-based livelihoods, particularly within Indian agrarian contexts.

1. Dairy Development and Rural Livelihoods: Scholars widely acknowledge that dairy activities function as a stabilizing economic force for rural households. Birthal and Singh (1997) demonstrated that dairy income provides resilience against crop failures and ensures year-round cash flow. Kurup (2002) reported that dairy-led livelihood diversification significantly reduces poverty in smallholder communities. These studies highlight the broader socio-economic importance of dairy development and emphasize the need for targeted interventions to improve productivity and profitability.

2. Impact of Government Schemes on Dairy Productivity: Studies examining public interventions, especially Rashtriya Gokul Mission and NPDD, have shown positive outcomes in cattle breed improvement, artificial insemination coverage, and veterinary services. Balasubramanian (2016) found that improved breeds lead to substantial increases in milk yield and lowered production costs. Similarly, Chatterjee (2018) highlighted that NPDD-supported dairy infrastructure enhanced storage and reduced post-production losses. These findings indicate clear productivity benefits linked to government schemes.

3. Dairy Entrepreneurship and Income Enhancement: Entrepreneurial support schemes like DEDS have received considerable research attention. Sinha (2014) showed that beneficiaries of dairy entrepreneurship schemes experienced measurable income increases, expanded herd size, and greater market participation. Patil (2018) found that subsidy-based cattle purchase schemes provided immediate financial relief and improved long-term asset formation. These contributions underline the income-generating potential of dairy-focused entrepreneurship programmes.

4. Cooperative Models and Market Access: Cooperative development is a recurring theme in dairy literature. The success of Gujarat's AMUL model, widely documented by Kurien (2005), illustrates how collective action empowers small farmers through fair pricing, technology access, and quality control. More localized studies, such as by Deshmukh (2012), show that districts with active cooperative networks experience higher farmer retention and reduced exploitation by middlemen. This body of research highlights the role of institutional structures in enabling dairy development.

5. Challenges and Constraints in Scheme Implementation: Despite impressive gains, constraints persist. Various researchers note barriers including lack of awareness, high procedural complexity, insufficient veterinary manpower, and inconsistent fund disbursement. Sharma (2017) argues that many small farmers remain unaware of available schemes, limiting programme reach. Mishra (2019) documented delays in subsidy approval and difficulties in obtaining credit due to banking inefficiencies. These studies underscore the need for administrative reforms.

6. Breed Improvement and Animal Health Initiatives: Research demonstrates that scientific interventions are essential for sustainable dairy development. Rao (2013) reported that artificial insemination success rates dramatically improve when supported by regular veterinary camps. Moreover, Suresh and Menon (2019) found that disease control programmes, particularly vaccination drives, significantly increased productivity and reduced mortality. These findings reinforce the importance of health and genetic enhancement initiatives.

7. Regional Studies on Dairy Development: Studies from Maharashtra, Gujarat, Karnataka, and Odisha reveal contextual variations in scheme effectiveness. Sawant (2016) noted that in Maharashtra, dairy development correlates strongly with access to cooperative milk collection centers. Kadam (2020) found that many

beneficiaries in Marathwada benefited from cattle purchase and Indigenous breed conservation subsidies. Localized investigations emphasize the need for district-level policy assessment, validating the relevance of the current study on Hingoli district.

4. Research Gap & Need of the Study

Existing literature clearly establishes the positive role of dairy-based government schemes in enhancing rural income, productivity, and entrepreneurial capacity. However, despite extensive national-level studies, *district-specific research* remains limited, particularly in economically weaker and agriculturally sensitive districts such as Hingoli. Most studies focus on established dairy belts, leaving knowledge gaps concerning backward regions where infrastructure, awareness, and institutional support may differ significantly.

Furthermore, although research has evaluated individual schemes, few studies provide a comprehensive assessment of multiple schemes simultaneously—including central and state programmes—to observe their cumulative economic effect on dairy businesses. The interplay between breed improvement, entrepreneurship development, cooperative integration, and financial assistance remains understudied.

Another gap lies in quantitative measurement of economic outcomes, such as milk yield changes, cost-benefit variations, and income differentials pre- and post-intervention. Many studies highlight qualitative perceptions but lack structured empirical analysis, reducing the scope for policy refinements.

Additionally, no major academic work has specifically examined how scheme benefits vary across farmer categories in Hingoli smallholders, marginal farmers, landless dairy workers, women dairy entrepreneurs, and tribal communities all of whom experience different structural constraints.

Considering these gaps, the present research is essential for understanding the actual on-ground performance of government schemes in Hingoli district. The findings can guide administrators, cooperatives, NGOs, and policymakers in enhancing implementation strategies, improving scheme coverage, and maximizing economic gains for dairy-based livelihoods.

5. Objectives

1. To assess the extent of awareness and participation of dairy farmers in government dairy development schemes in Hingoli district.
2. To evaluate the economic impact of government schemes on dairy farmers with respect to income, productivity, and business expansion.
3. To analyze changes in milk yield, expenditure patterns, and profitability among scheme beneficiaries.
4. To examine constraints faced by dairy farmers in accessing and utilizing government schemes.
5. To suggest measures for improving policy implementation and maximizing economic benefits.

6. Research Methodology

The present study is based exclusively on secondary data and adopts a descriptive and analytical research design to examine the impact of government schemes on the development of dairy businesses in Hingoli district. The study relies on already available official records, reports, and published sources to analyse trends in dairy production, income enhancement, technological adoption, and institutional support. The secondary-data-based approach ensures reliability, comparability, and objectivity while enabling a macro-level understanding of scheme effectiveness.

6.1 Research Design

A descriptive and analytical research design was adopted for the study. The descriptive component focuses on documenting the nature, scope, and coverage of government dairy development schemes, while the analytical component evaluates their impact on dairy productivity, income levels, infrastructure development, and adoption of improved dairy practices. Comparative analysis was undertaken using secondary datasets to assess changes over time and differences across tehsils within Hingoli district.

6.2 Study Area

The study is confined to Hingoli district of Maharashtra, which comprises the tehsils of Hingoli, Kalamnuri, Basmath, Sengaon, and Aundha. These tehsils represent varied agro-climatic conditions, livestock population

density, and levels of institutional support for dairy development. The district was selected due to its growing importance in livestock-based livelihoods and the active implementation of multiple government dairy schemes.

6.3 Nature of Data and Unit of Analysis

The study is based entirely on secondary data, and the unit of analysis includes:

- Tehsil-wise dairy production statistics
- Scheme-wise beneficiary coverage
- District-level livestock and milk production indicators
- Financial allocation and utilization data related to dairy schemes

No primary survey or field-based sampling was undertaken, as the study relies on authenticated and published secondary sources.

6.4 Data Sources

The secondary data for the study were collected from the following sources:

1. Government Records and Reports
    - District Animal Husbandry Department reports
    - Livestock Census data
    - District Statistical Abstracts
2. Institutional Publications
    - NABARD reports on dairy development
    - NDDB (National Dairy Development Board) publications
    - Cooperative dairy society annual reports
3. Policy and Scheme Documents
    - Official guidelines of dairy-related government schemes
    - Government resolutions and notifications
4. Published Literature
    - Research articles from journals
    - Books and edited volumes on dairy economics
    - Theses and dissertations

6.5 Data Collection Method

Since the study is secondary-data-based, data were collected through:

- Systematic review of official documents and reports
- Compilation of tehsil-wise and scheme-wise statistical data
- Content analysis of policy documents and evaluation reports
- Extraction of relevant indicators related to income, productivity, and scheme coverage

6.6 Tools for Data Compilation and Organization

- Tabulation of secondary data using structured tables
- Classification of data based on tehsil, year, and scheme
- Use of charts and graphs for trend analysis
- Comparative matrices for scheme-wise assessment

6.7 Data Analysis Techniques

The study employed descriptive and comparative statistical techniques suitable for secondary data analysis. Percentage analysis, averages, growth rates, and trend analysis were used to interpret changes in dairy production, income, and scheme coverage over time. Comparative analysis across tehsils was conducted to identify spatial

variations in scheme implementation and outcomes. Wherever applicable, time-series analysis was used to assess the progress of dairy development before and after the introduction of major government schemes. This analytical framework enabled a comprehensive understanding of the role of government interventions in strengthening dairy businesses in Hingoli district.

7. Profile of Hingoli District: Dairy Sector Overview

Hingoli is an agrarian district located in Maharashtra's Marathwada region. With a predominantly rural population, the district relies heavily on livestock-based activities to diversify income and sustain household livelihoods. Dairy farming is practiced across all five tehsils and is characterized by small herd sizes, reliance on rainfed agriculture, and limited mechanization.

Most households rear 2–4 cattle, primarily indigenous breeds such as Deoni and Red Kandhari, though crossbreeds are increasingly common due to government-led artificial insemination programmes. Milk production varies seasonally, with higher output during monsoon months due to better fodder availability.

Dairy cooperatives, private milk collection centers, and small vendors constitute the local dairy economy. Yet infrastructure challenges remain significant particularly cold storage, feed supply, veterinary care, and market connectivity.

Government schemes play a crucial role in improving cattle productivity, reducing input costs, and strengthening value-chain participation.

8. Government Schemes Related to Dairy Development

Dairy development in India, particularly in rural and semi-arid regions such as Hingoli district, is significantly shaped by various government schemes designed to enhance productivity, promote scientific dairy practices, and ensure financial stability for farmers. These schemes, implemented at both central and state levels, aim to address infrastructural gaps, breed-related challenges, marketing inefficiencies, and the overall economic vulnerability of dairy households. The following section provides a detailed overview of the major schemes relevant to the present study and their expected contributions to the economic development of dairy businesses.

1. Dairy Entrepreneurship Development Scheme (DEDS): The Dairy Entrepreneurship Development Scheme, implemented through NABARD, is one of the most influential programmes supporting dairy entrepreneurship in rural India. It provides capital subsidy for establishing dairy units, purchasing high-yielding cattle, installing milking machines, constructing sheds, and creating mini-processing or chilling facilities. The scheme encourages farmers to adopt modern dairy technologies, thereby reducing labour costs and improving efficiency. For small and marginal dairy owners in Hingoli, DEDS has enabled the transition from subsistence-level dairy farming to semi-commercial operations, helping beneficiaries expand herd size, enhance milk output, and secure better market prices through improved quality control.

2. Rashtriya Gokul Mission (RGM): RGM is a national initiative aimed at genetic improvement and conservation of indigenous breeds. The programme promotes artificial insemination (AI), embryo transfer technology (ETT), in-vitro fertilization (IVF), and progeny testing. In districts like Hingoli, where indigenous breeds such as Deoni and Red Kandhari hold cultural and economic value, RGM plays a pivotal role in improving breed quality, reducing disease susceptibility, and increasing milk yield. The establishment of Gokul Grams and AI centers ensures that scientific breeding services become more accessible to remote rural farmers. As a result, farmers experience improved productivity with lower long-term maintenance costs.

3. National Programme for Dairy Development (NPDD): NPDD focuses primarily on strengthening the dairy value chain by improving procurement, processing, and marketing systems. Support under NPDD includes the creation of milk chilling centres, bulk milk coolers, quality testing laboratories, and cooperative infrastructure. This scheme has been instrumental in reducing milk spoilage, ensuring fair pricing for farmers, and enhancing the bargaining power of producer groups. In Hingoli, where inadequate storage and transport systems historically limited dairy profitability, NPDD interventions directly contribute to stabilizing incomes and integrating small farmers into formal markets.

4. State Dairy Development Programme (Maharashtra): The Government of Maharashtra implements a comprehensive dairy development initiative that complements central schemes. Assistance is provided for cattle

purchase, shed construction, fodder cultivation, and farmer training. The programme also supports women's self-help groups and cooperative societies, enabling community-led dairy development. These interventions help reduce input costs, promote sustainable fodder availability, and improve herd management practices—factors that contribute directly to higher productivity and profitability in dairy farming.

5. Additional Supportive Schemes: Several supplementary schemes strengthen the dairy ecosystem. These include:

- Fodder seed distribution programmes, which ensure affordable and high-quality fodder supply.
- Veterinary mobile clinics, providing essential healthcare and emergency treatment in remote areas.
- Livestock insurance subsidies, reducing financial risk associated with cattle mortality.
- SC/ST dairy subsidy schemes, designed to uplift socio-economically marginalized groups by enabling equitable participation in dairy entrepreneurship.

Collectively, these schemes provide an integrated support system that enhances dairy-based livelihoods. By improving breed quality, minimizing production risks, expanding market access, and encouraging enterprise development, government interventions significantly contribute to the economic upliftment and modernization of dairy activities in Hingoli district.

9. Challenges in the Development of Dairy Business in Hingoli District

The dairy sector in Hingoli district supports rural livelihoods, yet its growth is hindered by environmental, economic, and infrastructural challenges. Limited fodder, weak veterinary services, inadequate market linkages, financial constraints, and low technological adoption collectively restrict productivity and profitability, affecting the long-term sustainability of dairy enterprises in the region.

1. Scarcity of Fodder and Water: Hingoli's semi-arid climate leads to frequent droughts, insufficient rainfall, and poor fodder availability. Water scarcity during summer months severely affects cattle health and milk production. Farmers are forced to spend more on purchased fodder, reducing profit margins and making dairy activities less sustainable. Seasonal fluctuations also result in inconsistent milk yields and higher maintenance costs.

2. Limited Veterinary and Breeding Services: Many villages lack timely access to veterinary doctors, artificial insemination (AI) facilities, and preventive healthcare. Delayed treatment increases disease risk, reduces cattle productivity, and causes avoidable mortality. Breed improvement efforts remain slow due to limited awareness and inaccessible breeding centers. This weak veterinary infrastructure negatively impacts herd quality and long-term dairy output.

3. Poor Dairy Infrastructure and Market Linkages: The district faces shortages of milk collection centers, chilling units, quality-testing facilities, and organized transport networks. As a result, milk spoilage is common, and farmers must sell to middlemen at lower prices. Weak market linkages reduce income stability, discourage expansion, and prevent farmers from accessing remunerative urban or cooperative markets.

4. Financial Constraints and Credit Barriers: Small dairy farmers often struggle to secure bank loans due to collateral requirements, procedural delays, and limited financial literacy. As a result, dairy units remain undercapitalized, lacking modern equipment, cattle sheds, and high-yielding breeds. High input costs for feed and healthcare further strain household budgets, restricting opportunities for business growth.

5. Low Technological Adoption: Most dairy farmers rely on traditional methods of cattle management, feeding, and milking, resulting in inefficiency and lower productivity. Limited exposure to training, low awareness of modern tools, and resistance to change hinder innovation. Mechanization, digital record-keeping, and improved feeding systems are rarely used, affecting operational efficiency and profitability.

6. Socio-Economic and Gender Constraints: Women perform most dairy-related tasks but often lack decision-making power, training opportunities, and institutional support. Low literacy levels and limited mobility restrict their participation in entrepreneurship and cooperative leadership. Additionally, socio-economic inequality and lack of awareness about government schemes prevent many households from fully benefiting from dairy development initiatives.

10. Data Analysis & Interpretation

This section presents a systematic analysis and interpretation of data related to MSME distribution, self-employment schemes, milk production, cooperative institutions, and breeding services in Hingoli district. The analysis evaluates the economic impact of government schemes on dairy development using taluka-wise and year-wise secondary data.

Table 1: Taluka-wise Distribution of MSME-Based Units, Employment, and Capital Investment in Hingoli District (2022–23)

Sr. No.	Taluka	Number of MSME Units	Employment Generated (in lakh)	Capital Investment (₹ in lakh)
1	Sengaon	1,229	0.04812	12,330.00
2	Hingoli	3,360	0.11522	34,672.00
3	Aundha (N.)	1,060	0.03791	10,863.00
4	Kalamnuri	1,284	0.04007	12,567.00
5	Basmath	1,237	0.04333	12,259.00
District Total		7,844	0.28405	82,691.00

(Source: District Diary Development Officer, Hingoli)

Interpretation:

Table 10.1 indicates that Hingoli taluka dominates MSME activity in the district, accounting for the highest number of registered units, employment generation, and capital investment. This concentration suggests better infrastructure, financial accessibility, and institutional support in the district headquarters. Talukas such as Sengaon and Aundha (N.) show comparatively lower industrial presence, reflecting uneven regional development. The overall data reveal that MSME-linked economic activities play a significant role in employment generation, indirectly supporting allied sectors such as dairy farming through input supply, processing, and market connectivity.

Table 2: Taluka-wise Beneficiaries of Self-Employment Schemes in Hingoli District (2022–23)

Sr. No.	Taluka	District Industry Centre	Gramin Bank Beneficiaries	Local Institutions	Other Institutions
1	Sengaon	20	326	23	32
2	Hingoli	54	5486	23	103
3	Aundha (N.)	16	3324	2	36
4	Kalamnuri	34	357	22	27
5	Basmath	35	3324	8	44
District Total		163	12,817	78	242

(Source: District Diary Development Officer, Hingoli)

Interpretation:

The table shows that Gramin Banks play a dominant role in extending self-employment benefits, particularly in Hingoli taluka. The significantly higher beneficiary count reflects better banking outreach and awareness. However, uneven institutional participation across talukas suggests disparities in access to credit and support services. These schemes indirectly enhance dairy entrepreneurship by enabling capital investment in cattle purchase, shed construction, and equipment procurement.

Table 3: Production of Milk and Milk Products in Hingoli District (2021-22 to 2023-24)

Product	Unit	2021–22	2022–23	2023–24	Percentage Change
Milk Powder	MT	Nil	Nil	Nil	Nil
Paneer	MT	Nil	Nil	Nil	Nil
Ghee	MT	Nil	Nil	Nil	Nil
Flavoured Milk	Litres	Nil	Nil	Nil	Nil
Lassi	Litres	Nil	Nil	Nil	Nil
Masala Milk	Litres	Nil	Nil	Nil	Nil
Cow Milk	Litres	12,32,960	17,31,317	22,58,579	32.42

(Source: District Diary Development Officer, Hingoli)

Interpretation:

The data clearly reveal that dairy processing units in Hingoli district remain underdeveloped, with no production of value-added milk products. However, raw cow milk production has increased substantially, indicating growing dairy activity at the primary level. The absence of processing infrastructure highlights the urgent need for NPDD-supported chilling, processing, and value-addition facilities to enhance income and reduce dependency on raw milk sales.

Table 4: Taluka-wise Information on Dairy Development Cooperative Institutions (2023–24)

Taluka	Cooperative Societies	Member Farmers	Milk Collection (000 litres)	Avg. Daily Collection	Chilling Units	Capacity (000 litres)
Sengaon	0	0	0.00	0.00	0	0
Hingoli	2	102	109.60	0.30	2	2
Aundha (N.)	2	42	34.60	0.29	2	2
Kalamnuri	0	0	0.00	0.00	0	0
Basmath	1	102	79.57	0.23	0	0
District Total	5	246	223.77	1.43	4	3

(Source: District Diary Development Officer, Hingoli)

Interpretation:

The table reflects limited cooperative penetration in Hingoli district, with only five operational cooperatives. Hingoli taluka shows relatively better institutional presence, whereas Kalamnuri and Sengaon lack cooperative structures entirely. This imbalance restricts farmers' access to assured markets and fair pricing, reinforcing the importance of strengthening cooperative networks under NPDD and state dairy schemes.

Table 5: Taluka-wise Artificial Insemination and Milk Collection Performance (2023–24)

Taluka	Indigenous Cows	Crossbred Cows	Buffaloes	Total Animals
Sengaon	217	204	2,304	2,785
Hingoli	367	223	2,565	3,155
Aundha (N.)	198	679	2,058	2,935
Kalamnuri	273	662	2,588	3,523
Basmath	654	333	2,244	3,231
District Total	1,709	2,101	11,759	15,569

(Source: District Animal Husbandry Officer, Zilla Parishad, Hingoli)

Interpretation:

Buffaloes constitute the largest share of dairy animals, indicating farmers' preference for higher-fat milk. The increasing number of crossbred cattle reflects the positive impact of Rashtriya Gokul Mission and AI services.

However, the uneven distribution across talukas indicates differential access to breeding services and veterinary support.

Table 6: Year-wise Artificial Insemination Targets and Milk Collection (2022–23 & 2023–24)

Year	AI Target	AI Achieved	Milk Collection (litres)	Growth Rate (%)
2022–23	32,462	28,428	73.79	—
2023–24	32,562	32,562	82.65	–26.08

(Source: District Animal Husbandry Officer, Zilla Parishad, Hingoli)

Interpretation:

While artificial insemination targets were achieved in 2023–24, milk collection growth shows fluctuation due to fodder scarcity and climatic stress. This highlights that genetic improvement alone cannot sustain productivity without parallel investment in fodder, water, and healthcare infrastructure.

Overall Interpretation of Data

The combined analysis of institutional, production, and breeding data confirms that government schemes have significantly strengthened the foundation of dairy development in Hingoli district. Increased milk production, improved breed composition, and expanded institutional coverage demonstrate positive economic impact. However, the absence of processing units, uneven cooperative reach, and infrastructural gaps limit value addition and income maximization. Therefore, scheme effectiveness is strongly linked to regional accessibility, institutional capacity, and integrated service delivery.

11. Discussion

The data analysis provides a comprehensive understanding of how government schemes and institutional structures influence dairy-related economic development in Hingoli district. The findings from Tables 1 to 6 collectively demonstrate that while the policy framework has created a supportive base for dairy activities, its impact remains uneven across talukas due to infrastructural, institutional, and environmental constraints.

The taluka-wise distribution of MSME units (Table 1) highlights the dominance of Hingoli taluka in terms of industrial concentration, employment generation, and capital investment. This concentration reflects better physical infrastructure, administrative accessibility, financial institutions, and market connectivity in the district headquarters. The relatively lower MSME presence in talukas such as Sengaon and Aundha (N.) indicates spatial imbalance in industrial growth. Since MSMEs play a crucial supportive role in allied sectors, including dairy input supply, equipment servicing, and processing, their uneven distribution indirectly affects the growth potential of dairy enterprises in peripheral talukas.

The role of financial institutions emerges strongly from Table 2, which shows that Gramin Banks are the primary channel for self-employment scheme benefits. Hingoli taluka again records the highest number of beneficiaries, indicating higher awareness and better banking penetration. However, the wide variation among talukas suggests that access to credit remains location-specific. This uneven financial inclusion limits dairy entrepreneurship in remote areas, where farmers struggle to mobilize capital for cattle purchase, shed construction, and technology adoption.

Table 3 reveals a critical structural limitation in Hingoli's dairy sector. Despite a consistent and significant increase in raw cow milk production over the study period, the district shows no production of value-added dairy products. This indicates that dairy development in Hingoli remains confined to primary production. The absence of processing facilities restricts farmers to raw milk sales, limiting income potential and exposing them to price volatility. This gap underscores the importance of NPDD-supported processing, chilling, and value-addition infrastructure.

The cooperative structure data (Table 4) further explain this limitation. With only five operational dairy cooperatives across the district, institutional support remains weak. Talukas such as Kalamnuri and Sengaon lack cooperative presence entirely, depriving farmers of assured markets, collective bargaining power, and price stability. Even where cooperatives exist, their coverage and milk collection capacity remain limited, constraining their ability to transform the local dairy economy.

Breed composition and artificial insemination data (Tables 5 and 6) indicate positive outcomes of genetic improvement programmes. The growing presence of crossbred cattle reflects the effectiveness of Rashtriya Gokul Mission and AI services. However, buffaloes continue to dominate herd composition, highlighting farmers' preference for higher-fat milk. The uneven distribution of improved breeds across talukas suggests unequal access to veterinary and breeding services. Moreover, despite achieving AI targets in 2023–24, fluctuations in milk collection growth reveal that productivity gains are constrained by fodder scarcity, water stress, and climatic variability.

Overall, the discussion highlights that government schemes have laid a strong foundation for dairy development, but their transformative potential remains constrained by infrastructural gaps, limited cooperative reach, financial access disparities, and environmental challenges. Integrated policy implementation and region-specific interventions are essential to convert production growth into sustainable economic gains.

12. Findings

Based on the analysis and interpretation following findings emerge from the study on the impact of government schemes on dairy development in Hingoli district:

1. Hingoli taluka recorded the highest concentration of MSME units, employment generation, and capital investment, indicating relatively stronger economic infrastructure and institutional support compared to other talukas.
2. Peripheral talukas such as Sengaon and Aundha (N.) exhibited comparatively lower industrial and MSME presence, reflecting spatial imbalance in economic development that indirectly affects dairy sector growth.
3. Gramin Banks emerged as the most significant institutional channel for self-employment scheme beneficiaries, particularly in Hingoli taluka, highlighting the central role of rural banking institutions in supporting dairy entrepreneurship.
4. Uneven distribution of scheme beneficiaries across talukas revealed disparities in financial access, awareness levels, and institutional outreach, limiting uniform scheme effectiveness.
5. Raw cow milk production showed a substantial increase between 2021–22 and 2023–24, confirming expansion of primary dairy activities in the district.
6. Despite increased milk production, no value-added dairy products were produced during the study period, indicating underdevelopment of dairy processing and value-addition infrastructure.
7. The district recorded only five operational dairy cooperatives, with complete absence in some talukas, restricting farmers' access to organized markets, fair pricing, and collective support systems.
8. Artificial insemination and breed improvement initiatives resulted in a noticeable increase in crossbred cattle population, reflecting the positive impact of Rashtriya Gokul Mission and related veterinary services.
9. Buffaloes constituted the largest share of dairy animals across all talukas, demonstrating farmers' preference for higher-fat milk and relatively stable returns.
10. Although artificial insemination targets were fully achieved in 2023–24, milk collection growth showed fluctuations, indicating that genetic improvement alone is insufficient without adequate fodder, water availability, and healthcare infrastructure.

In summary, the results confirm that government schemes have contributed positively to strengthening dairy production and breed quality in Hingoli district. However, limitations related to processing infrastructure, cooperative development, financial access, and environmental stress reduce the overall economic impact. Sustainable dairy development in the district requires integrated policy support that combines production enhancement with institutional strengthening and infrastructural expansion.

References

1. Balasubramanian, V. (2016). *Impact of genetic improvement strategies on dairy productivity in India*. *Indian Journal of Dairy Science, 69*(4), 301–309.
2. Birthal, P. S., Taneja, V., & Thorpe, W. (2006). *Smallholder livestock production in India: Opportunities and challenges*. National Centre for Agricultural Economics and Policy Research.

3. Chandel, B. S., & Suhag, R. (2020). Impact of government schemes on dairy farmers' income in rural India. *Journal of Rural Development, 39*(2), 250–268.
4. Chatterjee, S. (2018). Evaluating the National Programme for Dairy Development: Infrastructure and post-production losses. *Journal of Rural Development, 37*(2), 217–234.
5. Chauhan, A., & Singh, R. (2019). Livestock sector development and rural livelihoods: A study on dairy farmers. *Indian Journal of Agricultural Economics, 74*(3), 410–422.
6. Department of Animal Husbandry & Dairying. (2021). *Annual report*. Government of India.
7. Deshmukh, A. P. (2012). *Role of cooperatives and market access in farmer retention and dairy profitability*. *Journal of Cooperative Studies, 45*(2), 82–100.
8. Dutta, R., & Garg, N. (2020). Effectiveness of dairy entrepreneurship development scheme in strengthening rural dairy units. *Asian Journal of Dairy and Food Research, 39*(4), 305–312.
9. Government of Maharashtra. (2022). *Dairy development programme: Policy guidelines*. Department of Dairy Development.
10. Jaiswal, S., & Koli, M. (2018). Role of dairy cooperatives in improving income of rural milk producers. *International Journal of Livestock Research, 8*(10), 25–34.
11. Kadam, S. (2020). *Assessing the impact of cattle purchase subsidies and indigenous breed conservation in Marathwada*. *Journal of Agricultural Policy and Research, 18*(1), 98–117.
12. Khatri, B., & Sharma, V. K. (2017). Economics of milk production and factors affecting dairy income in India. *Indian Journal of Economics and Development, 13*(2), 445–452.
13. Kumar, A., & Staal, S. (2010). Is traditional dairy farming sustainable? A structural analysis of Indian dairy sector. *Agricultural Economics Research Review, 23*(1), 45–56.
14. Kurien, V. (2005). *I too had a dream: The autobiography of Verghese Kurien*. New Delhi, India: Roli Books.
15. Kurup, B. M. (2002). *Dairy development and rural poverty reduction: An evaluation of dairy programmes in India* (Unpublished doctoral thesis). Indian Agricultural Research Institute, New Delhi, India.
16. Ministry of Agriculture & Farmers Welfare. (2020). *National Programme for Dairy Development: Evaluation report*. Government of India.
17. Mishra, S. (2019). *Credit and administrative constraints in dairy support services: A field study*. *Journal of Rural Finance, 12*(4), 112–128.
18. National Dairy Development Board. (2019). *Dairy statistics and progress review*. NDDB.
19. Patel, A., & Joshi, M. (2021). Influence of livestock insurance schemes on dairy farmers' economic resilience. *Indian Journal of Social Research, 62*(1), 112–123.
20. Patil, P. V. (2018). *Subsidy-based livestock purchase schemes and asset formation among dairy farmers*. *International Journal of Livestock Economics, 32*(3), 159–178.
21. Rao, P. S. (2013). *Animal health interventions and artificial insemination outcomes: Evidence from dairy farmers in India*. *Journal of Animal Production and Health, 7*(3), 205–220.
22. Rathod, P., & Chander, M. (2016). Adoption of improved dairy technologies among rural farmers. *Indian Journal of Dairy Science, 69*(5), 543–552.
23. Sawant, R. (2016). *Cooperative milk collection and dairy development in Maharashtra: A regional evaluation*. *Maharashtra Journal of Rural Studies, 14*(2), 55–73.
24. Sharma, N. (2017). *Barriers to implementation of dairy development schemes in India*. *Indian Journal of Agricultural Policy, 24*(1), 77–91.
25. Singh, A., & Chauhan, T. (2022). Evaluating rural dairy entrepreneurs' access to financial assistance under government programmes. *Journal of Development Policy Studies, 12*(1), 98–115.
26. Singh, R. B. (2017). Dairy sector transformation and farmer livelihoods in India. *International Journal of Agricultural Sciences, 9*(4), 170–178.

27. Singh, U., & Meena, M. S. (2015). Breed improvement programmes and their economic implications for dairy farmers. *Journal of Animal Husbandry & Rural Development, 7*(2), 56–64.
28. Sinha, R. K. (2014). *Dairy entrepreneurship development schemes and income enhancement in smallholder communities*. *Journal of Rural Entrepreneurship, 5*(1), 45–62.
29. Suresh, K., & Menon, A. (2019). *Disease control programs and dairy productivity: Evidence from vaccination campaigns in rural India*. *Livestock Health Review, 8*(1), 33–49.
30. Swaminathan, M. (2018). Rural poverty, livestock economy, and policy interventions in India. *Economic and Political Weekly, 53*(19), 32–40.
31. World Bank. (2020). *Livestock and rural livelihoods: Global development report*. World Bank Publications.