



GROWTH AND PROSPECTS OF DAIRY INDUSTRY IN INDIA: A DESCRIPTIVE STUDY

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Article DOI: <https://doi.org/10.36713/epra13929>

DOI No: 10.36713/epra13929

ABSTRACT

Milk provides good nutrition and helps the income of people in rural areas of the country. This study examines the growth and development of the Indian dairy industry. This study examine about milk production and consumption in the country. This study tries to estimate the milk production in the country given the current production model. It explores the relationship between the country's milk production and its international exports and imports.

These findings will assist policy makers and the agricultural industry in making production decisions. Statistical data, estimation and correlation analysis were used during the research process to show the relationship between the production, consumption and distribution of dairy products. The study found that under the current production pattern in the country, India could produce around 217 million tons of milk by 2025. In 2016-17, the country's milk consumption was 351 grams, 229 grams more than international milk. per person per day. Correlation analysis is used to determine whether there is a relationship between imports and exports of dairy products and milk. The findings show that milk has a positive ($r = 0.220$, $p = 0.601$) effect on exports of dairy products and a negative ($r = 0.228$, $p = 0.588$) effect on exports. The study found that there are many ways to promote, produce and distribute milk and its products that policymakers and the dairy industry can use to their advantage.

KEYWORDS: Dairy Industry, Production, Consumption, Development, per capita milk availability and correlation analysis

1. INTRODUCTION

Milk production and farming, additional work to agriculture, is very beneficial because agriculture not only provides a way of working, but also the responsibility to improve the quality of food for families and provide a stable income for the masses. With the Flood Study in the country, the importance of the dairy industry has increased income and employment opportunities in rural areas. Thus, the dairy industry plays an important role in the production of dairy products and helps to make milk one of the most profitable products of the economy.

Avhad, Kadian, Verma, and Kale (2015) praised entrepreneurs for their important role in promoting business and technology. They believe that the creation of entrepreneurs through business development is directly related to the development of the country's economy. They draw attention to the fact that entrepreneurship can contribute to the development of the country in many ways. Businesses in developing countries include: integration, implementation, risk, innovation, science and technology, business expansion, networking, coordinating and managing the factory at all levels, creating processes and tools to reduce production costs and improve quality. They are aware of the important role that dairy producers play in the economic

development of the country, and at the same time, they respond to our country's largest dairy producers on the international map of the world.

In 1970, India was still a country with a milk deficit, with a production of only 20 million tons. Today, India has become the world's largest milk producer with a production of over 160 million tons with a share of 18.5%. Global milk production, which was 137.7 million tons in 2013-2014, increased to 164 million tons in 2017-2018. While the annual growth of milk production was 4% from 2011 to 2014, it increased to 6% from 2014 to 2017, while world milk production grew by only 2% in the same period. In addition, it is estimated that India's dairy industry will surpass the world's dairy industry with a CAGR of 4.2%, with an annual production of around 185 million tons, and the EU will be the largest producer by 2020.

India, In spite of its massive production milk and its products, the consumption of milk is increasing at a very fast pace. This massive consumption of milk is due to the increase in the purchasing power of people, growing urbanisation, changing food practice, lifestyles, and demographic growth. The per capita availability of milk is 351 grams in 2016-2017, which was



enhanced from 307 2013-2014 Grams. With its wide array of benefits, milk is the only source of animal protein and nutrients needed by the world's largest vegetarians. Demand for dairy products is driven by increased consumer interest in protein-rich foods and increased awareness of dairy products and accessibility from markets. Therefore, due to large and rapidly growing domestic demand combined with population growth and increasing purchasing power, most household goods are not enough money for the export market. India ranks 52nd in the world milk exporter ranking. In 2017, it accounted for 01% of the world's total milk exports.

Milk producing families drink about 55% of the milk they produce. Two-thirds of the milk produced in the country is sold in informal markets, with only 15-16% going to market management through cooperatives and private copy businesses. My country's production capacity, consumption capacity, international milk exports and the country's right to double the income of farmers are necessary to promote milk production and trade through agriculture. This study attempts to analyze the Indian dairy industry in terms of milk production and focuses on key issues and strategies to promote milk production through the dairy industry. Against this background, this article aims to answer the research question "How do dairy farms increase milk production through economic development".

2. REVIEW OF LITERATURES

I. **Kumar and Parappurathu (2014)**: In his study analyzed the data collected from National Sample Survey Organization (NSSO) of the 38th, 50th, 61st, and 66th rounds covering the years 1983, 1993-94, 2004-05 and 2009-10 including both the rural and urban households. The average per capita consumption of over 30 days of all foods and non-foods commodities in a household are included in their analysis. The rising significance of dairy products in the food basket of the people of India are revealed in their study. The increasing demand for dairy products is found to be due to the higher income elasticity of demand, which is more significant in rural than urban areas. They found that the demand for value-added milk products like ice cream is increasing rapidly, whereas the demand for traditional milk products like butter and ghee is found to be in a negative trend. They commented that the rising demands for milk and milk products would put India under pressure to maintain at least the existing growth trend in milk production in the country. A slight deceleration in the growth of milk production would risk India's ability to maintain self-sufficiency and also have implications for the evolving international milk market. If India falls short of meeting its domestic need, it will have a substantial impact on the prices of dairy products in domestic as well as global markets. They suggested that the government of India, as well as the international community, arrange alternative supply sources to avoid milk deficiency in the future.

II. **Birthal and Negi (2012)** have opined that the demand for animal products is projected to rise rapidly, offering significant opportunities for enhancing agricultural growth and reducing rural poverty through the livestock route. The productivity of Indian livestock, however, is low and constrained by a low level of adoption of technologies, scarcity of feed and fodder, and poor animal health. Institutional and policy support to the livestock in terms of investment, credit, insurance, extension, and the market is not commensurate with its economic contribution. On the note of the financial contribution of livestock and dairy farming share in agricultural Gross Domestic Product (GDP) and employment generation (Patel, 2017) gave his opinion to recognise dairy farming as an important sector like agriculture rather than its subsidiary status.

III. **Sethumadhavan (2017)** concluded that the productivity of Indian cows and buffaloes are very low. The average milk yield from local cows, buffaloes and crossbreed cow 3 to 3.5 liters, 3.96 to 5.39 liters 5.82 to 7.80 liters per day, respectively. The milch yield is found to be significantly lower than cattle in the developed countries. The feed conversion efficiency is high in developed countries. The best-run farms in the world produce 1.6 kilograms of milk for every kilogram feeds, which is less than a kilogram in India. Scientific dairy practices like proper breeding, feedings, and hygienic management, along with quality inputs and extension support services, is required to achieve better productivity.

IV. **Chakravarty (2017)**: In this study it has been preferred indigenous dairy cattle despite their low productivity because indigenous cattle are more sustainable in comparison to crossbreed cattle. He further said that indigenous cattle are more tolerant of heat, comparatively resistant to many diseases, low maintenance costs, and higher feed conversion efficiency. He also added that indigenous cattle milk contains a substance called A2 allele, which is good for human health. He also claims that an intense selection of dairy animals for higher milk production and milk quality has shown the decline in reproductive performance, including the fertility of dairy animals.

V. **Khamkar (2014)**: In this Study it has been opines that the method of operation of the current dairy industry has developed into more consumers oriented. The producers have employed various innovative practices of organised retailing, supply chain management, balanced product portfolio, and product development. He also supplements how to milk producers have used mass media and advertisement for their competitive advantage. Consumers' awareness of product quality and variants coupled with consciousness have led the producer for new product development. He also adds that western culture also influences eating habits related to dairy products. Lastly, he concluded by stating that the immense growth of milk production was due to demand-side development and supply-side promotions. It is known from his observation that with



extensive dairy development programs and promoting entrepreneurs by increasing the value of milk products can go a long way in the milk market of the country.

- VI. **Nargunde (2013):** In this study on the role of the dairy industry in rural development, concludes that milk production has supplemented as a year-round source of income for small seasonal crops farmers and occasional labour. He estimated that up to 60-65 per cent of the marginal and small scale farmers' incomes derive from dairying.
- VII. **Jha (2005)** concluded that the efficient yet cost-effective procurement network, hygienic and economical processing facilities and innovativeness in the market place are the key to the success of dairy-enterprise. He emphasised the need for training to be imparted to the entrepreneurs to achieve this. He also highlighted the importance of commercial facilities, micro-level planning, and intervention by central and state governments on unexplored areas and, lastly, promoting awareness among educated and uneducated unemployed youth are important for the development of dairy industry in India.

3. OBJECTIVES OF THE STUDY

1. To study the production and consumption pattern of milk in line with the imports and export trends of milk in the country.
2. To forecast the future production of milk in the country and suggest ways and means promote milk production through entrepreneurship development.

4. HYPOTHESIS IN THE STUDY

H₀: The production of milk does not have any significant impact on the export and import of dairy products.

H₁: The productions of milk have significant impact on the export and import of dairy products.

5. RESEARCH METHODOLOGY AND DATA COLLECTION

Secondary data were used for the study. They were collected from various publications, journals, magazines, articles from the newspaper, publications from state and central government departments, research articles available on various websites and other internet sources. The data gathered were codified and then administered using MS excel 2000 and SPSS English version 21.0 for analyses. Statistical tools like descriptive statistics, forecasting analysis, and correlation analysis were used for the analyses of research data.

Figure 1: Distribution of Milk Production in Urban and Rural Areas in India

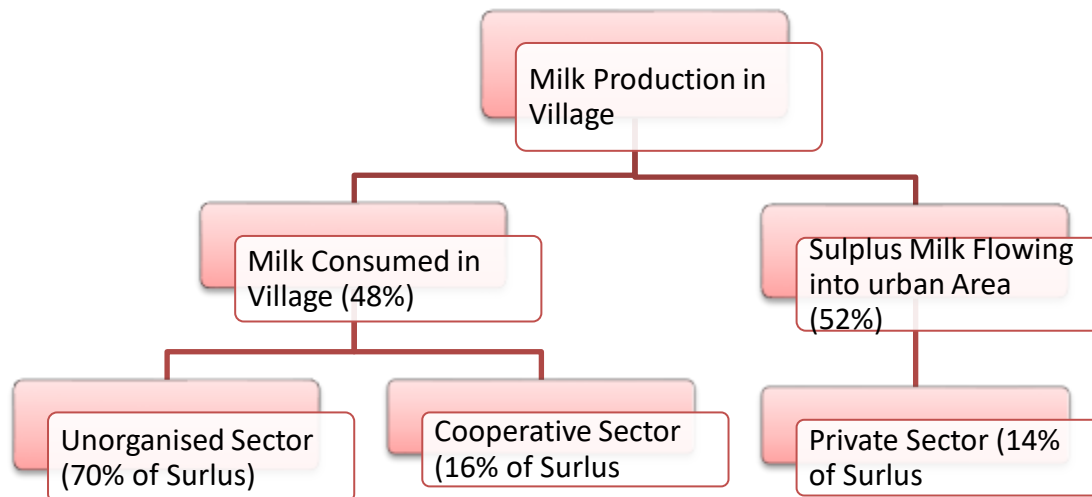
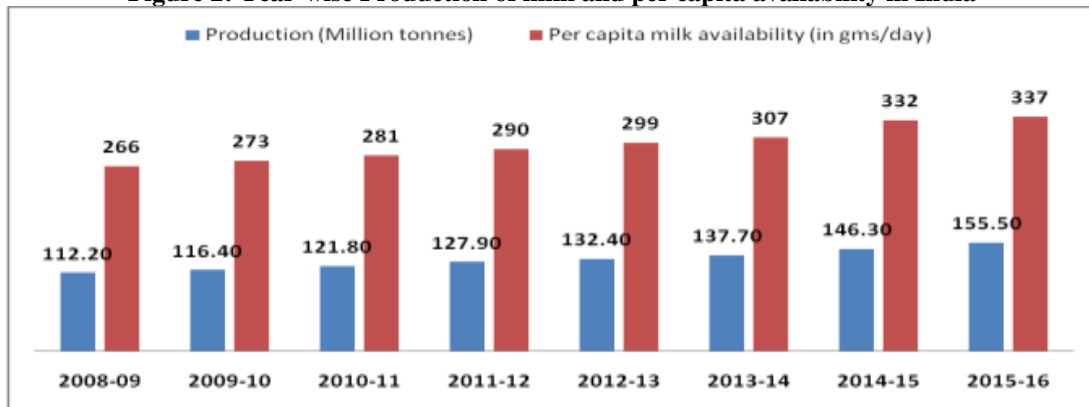




Figure 2: Year-wise Production of milk and per capita availability in India



Source: Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, GoI.

Figure 2 shows the average milk production for the last eight years at the national level. From the table, it is understood that the average production of milk at the national level is 131.28 million tonnes (min=112.20 and max=155.50). The average per capita availability of milk for the last eight years was 298.13 gms/day (min=266 and max=337).

Despite being the largest milk producer in the world in terms of absolute quantity, India's average milk yield per cattle remains

comparatively very low compared with the developed nations and other developing countries. The small size milk production of rural India finds it difficult to adopt a modern dairy technology due to its economic invariability, which hampers quality management of milk at the farm levels. Milk consumption in India is substantial due to its largest vegetarian population in the world whose only source of an animal-based protein and essential nutrient is milk. Unlike other major dairy exporting countries, only a few surpluses remain for exports.

Table 1: Year-wise dairy India's export and imports in quantity and value

| Year | Export | | Import | |
|--------------|-------------------------------|---------------------|-------------------------------|---------------------|
| | Quantity (in Metrictonnes) | Value (in lakhs) | Quantity (in Metrictonnes) | Value (in lakhs) |
| 2008-2009 | 48045.75 | 66107.09 | 1516.9 | 2435.48 |
| 2009-2010 | 26135.26 | 29817.14 | 31374.76 | 32224.6 |
| 2010-2011 | 27475.35 | 39646.7 | 54334.61 | 82240.52 |
| 2011-2012 | 23194.13 | 24726.47 | 70699.92 | 120393.14 |
| 2012-2013 | 69366.42 | 110351.04 | 7417.44 | 16653.65 |
| 2013-2014 | 113972.5 | 240545.2 | 9916.42 | 21283.6 |
| 2014-2015 | 55909.55 | 93722.18 | 11901.61 | 28278.12 |
| 2015-2016 | 28967.43 | 63333.54 | 16986.74 | 32230.14 |
| Total | 393066.99 | 668249.36 | 204148.48 | 335739.25 |

Source: Calculated by researcher

Source: Authors' calculation based on Agricultural and Processed Food Products Export Development Authority (APEDA) latest Report.

Table 1 shows India's dairy export and import for the last eight years. From the table it is understood that the average export of dairy products was 49,133.30 metric tonnes (min=23,194.13 and max=1,13,972.50) with an average value of Rs 83,531.17 lakhs (min=24,726.47 and max=240545.20). During the year under study and the average import was 25,518.55 metric tonnes

(min=1516.90 and max=70,699.92). Quantifying the value of imports in Rupees for the last eight years, we had Rs 33,5739.25 lakhs with an average of Rs 41967.41 lakhs, of which the minimum was 2435.48 lakhs and the maximum of Rs 1,20,393.14 Lakhs.

**Table 2: Correlation analysis of Export and Import of the country with production**

| Variables | Export | Import |
|--------------------------------|--------|--------|
| Pearson correlation | 0.220 | -0.228 |
| Milk Production sig.(2-tailed) | 0.601 | 0.588 |

Source: Computed from Table 1 and Figure 2

Correlation analyses were used to examine the relationship between import and export of milk products with that of the amount of milk produced. The result indicated that the production

of milk has a positive impact on the export of milk products ($r = 0.220$, $p = 0.601$), whereas it has a negative impact on the imports ($r = 0.228$, $p = 0.588$).

Table 3: Milk output forecasting based on the last eight years of production

| Year | Milk production in (million tonnes) | Projected Year | Projected milk output |
|------|-------------------------------------|----------------|-----------------------|
| 2008 | 112.20 | 2017 | 165.03 |
| 2009 | 116.40 | 2018 | 171.65 |
| 2010 | 121.80 | 2019 | 178.30 |
| 2011 | 127.90 | 2020 | 185.12 |
| 2012 | 132.40 | 2021 | 191.55 |
| 2013 | 137.70 | 2022 | 197.44 |
| 2014 | 146.30 | 2023 | 203.57 |
| 2015 | 155.50 | 2024 | 210.59 |
| 2016 | 158.32 | 2025 | 216.96 |

Source: Calculated by researcher

Table 3 showed the year wise estimated milk output until 2025 based on the production trend for the last eight years using forecasting analysis in MS Excel. As per the estimated data, it was found that the total output forecasted for the year 2025 is 216.96 million tonnes, which is not incongruent with the projection for the demand of milk made by the National Dairy Development Board by 2021-2022 which stands at 200 million tonnes. To meet the domestic consumption needs, livelihood to more than 90 million farm families and also generate revenue through export to the milk deficient countries, and we have a long way to go in producing milk through innovative farming models by promoting and motivating large numbers of small milk entrepreneurs in the country.

CONCLUSIONS AND SUGGESTIONS

This study investigated the entrepreneurship development through milk production. India's position in the global market as the supplier is shallow despite its massive production. It was also found that the productivity of cattle is comparatively very low with that of developed and also developing countries in the world. Maximum of the milk products are consumed domestically, which are also handled by the unorganised sector. The present study is incongruent with the study by where they pointed out that India consumed 100% of its production. Analyzing the current economic conditions, the technical knowledge that our farmers possess, the climatic condition, and the lifestyle of rural India, it is observed that promoting indigenous cattle with the available resources and inputs from the government can boost production of milk in the country. After extensive research on the study area, few suggestions can be made on entrepreneurship development on milk production of the country. Firstly, Electricity charges

should be given at a subsidized rate to the small farmer. Secondly, credit facilities at a concessional rate with a more extended moratorium period and the longer repayment schedule should be arranged for the rural entrepreneur. Thirdly high-quality local breed cattle with high lactation yield must be made available to the farmers by the government, which will also include insurance cover to their cattle. Fourthly, a Milking machine should be provided to the small entrepreneur at an affordable price. Lastly, training on feed management, value addition on milk products, marketing, and also providing suitable marketing for their processed items will be a boon for the small producer, which will, in turn, help us in realizing our dreams of not only milk sufficient countries but also milk surplus country. Some limitations were found in the collection and interpretation of the data. Although the period and amount of data were deemed acceptable, a more extended period and more extensive data would have allowed us to run more analyses. The current study was limited to the overall milk production and consumption scenario of the country. An in-depth study can be undertaken on a specific area like management of feeds, breeds, marketing by the future researcher.

REFERENCES

1. Anil Chawla, Nidhi Chawla, Y. P. & P. K. (2009). *Milk and Dairy Products in India-Production, Consumption and Exports. Hindustan Studies and Services (Second Edi). Hindustan Studies & Services Ltd and Infolitics.*
2. APEDA. (2016). *Agricultural & Processed Food Products Export Development Authority, Ministry of Commerce & Industry, GOI. Retrieved August 29, 2018.*
3. Avhad, S. R., Kadian, K. S., Verma, A. K., & Kale, R. B. (2015). *Entrepreneurial behaviour of dairy farmers in Ahmednagar district*



- of Maharashtra, India. *Agricultural Science Digest - A Research Journal*, 35(1), 56.
4. BIRTHAL, P. S., & NEGI, D. S. (2012). *Livestock for Higher, Sustainable, and Inclusive Agricultural Growth. Economic and Political Weekly*, XLVII(26), 89–99.
 5. CHAKRAVARTY, D. A. K. (2017). *Sustainable development of indigenous dairy cattle in India. In Kurukshetra (Vol. 65 (3), pp. 9–12).*
 6. *Dairy sector: Dairy sector to grow at 15% CAGR till 2020 to Rs 9.4 trillion: Report - The Economic Times. (2017). Retrieved August 29, 2018.*
 7. DHAWAN, S. (2016). *A study of consumer behaviour towards various branded and non-branded milk with special reference to Jabalpur District in Madhya Pradesh. Imperial Journal of Interdisciplinary Research (IJIR)*, 2(12), 1582–1586.
 8. IMAM, A., ZADEH, M. N., & DUBEY, L. R. (2011). *Dairy Marketing Strategies in the Context of Globalization : Issues and Challenges. International Journal of Trade, Economics and Finance*, 2(2), 138–144.
 9. K. JHA, A. R. & S. (2005). *Entrepreneurship Development in Dairy sector. In M. A. P. and M. P. K. S. Dr Alok Jha (Ed.), Souvenir: National workshop on Entrepreneurship Development in Dairy and Food Industry (pp. 95–96). Karnal: Dr S. Singh.*
 10. KHAMKAR, S. K. (2014). *The Consumption Pattern of Dairy Products by Indian Consumers Since 2000. Asian Journal of Management Sciences*, 02(March), 170–172.
 11. KUMAR, A., & PARAPPURATHU, S. (2014). *Trends in the consumption of milk and milk products in India: implications for self-sufficiency in milk production. Food Security: The Science, Sociology and Economics of Food Production and Access to Food*, 6(August).
 12. NARGUNDE, A. S. (2013). *Role of Dairy Industry in Rural Development. International Journal of Advanced Research in Engineering and Technology*, 4(2), 8–16.