

Growth and Challenges of Dairy Industry in India

Suryakumar N. Khanai* and Vinayak S. Hosamani**

ABSTRACT

Dairy industry plays a significant role in the growth of Indian economy. India is the largest milk producer accounting for more than 13% of world's total milk production. Further, India is the world's largest consumer of dairy products, consuming almost 100% of its own milk production. The growth story of dairy industry in India is driven largely by small scale dairy farmers. Majority of the dairy farmers have the cattle size of 1 to 2 animals, producing on an average of 4 litres of milk per day. However, a number of factors are impacting the sustenance of these traditional small farms, such as subsidiary to dairy farming as an activity, low milk yields and rising overhead expenses. These small dairy farmers having small scale milk production system needs adequate support and strength to compete in such a competitive market as it is one of the primary livelihood sources for millions of dairy farmers. The current paper tried to explore the country-wide and state wise milk production since 2007 till date. Further, the study tried to assess the challenges before small farmers in milk production in India.

Keywords: Dairy industry; Milk; Milk production; Small farmers.

1.0 Introduction

Dairy farming is a major source of income for rural India and has been persistently contributing towards the Indian economy. The efforts from the cooperative and private sector, along with prudent government policies made India to get transformed from being a milk scarce nation to the largest producer of milk in the world. Further, dairy farming has assumed a very significant role in providing employment opportunities for rural India. Milk production and marketing system in India is also unique as production is largely undertaken by small farmers and landless labourers.

*Corresponding Author; Assistant Professor, Department of MBA, KLS, Gogte Institute of Technology, Belagavi, Karnataka, India (E-mail: snkhanai@git.edu)

**Assistant Professor, Department of MBA, KLS, Gogte Institute of Technology, Belagavi, Karnataka, India (E-mail: vshosamani@git.edu)

In India, major chunk of the population live in rural areas and more than 30% of them are below poverty line. These people consider dairy business as a secondary business with an objective to come out from poverty and unemployment particularly in the rural India.

Dairy farming is essentially safe business because it does not cause environmental pollution like other industries. Further, this business requires labours with relatively less skill sets. In addition, dairy business ever green, since milk and milk products are daily requirements for mankind. Dairy farming is zero inventory business as the output is perishable in nature. Risk in this business is relatively less as compared other businesses since the animals can be insured. Dairy farming demands less energy and required energy can be produced using biogas plant. Despite having these many advantages, there are few disadvantages also associated with this business. Reproduction of animals is a biological phenomenon, which depends upon various factors. In addition, achieving expected milk productivity is also challenging and this business is more labour intensive- meaning labours will have to plan the work and they need to be hard working. A person willing to take up dairy farming as a profession need to acquire specific skills sets and can be gained from various bodies like, agriculture/veterinary universities, Krishi Vigyan Kendras, State Department of Animal Husbandry, State Institute of rural Development etc.

Milk and milk products are a major source of nutritious food to majority of the population in India. Hence, the progress in this sector will certainly result into a more balanced development of the rural economy. Further, consumption of milk and milk products significantly contribute towards balanced diet of human beings. Nutritional components like protein, calcium and fat are inbuilt in milk and milk products. In addition, consumption of milk results into several advantages. Due to this the demand for milk and milk products is consistently increasing across the world.

2.0 Literature Review

Harold (1987) conducted a research study on the topic ‘Cooperative Dairy Development in Karnataka India: An Assessment’. This research paper tried to measure the effect of Karnataka Dairy Development Project on dairy development in Karnataka state by collecting primary data from twenty one villages with cooperatives and ten villages with non cooperative dairy units. The study found that, there was a positive effect of the project on milk production. The average production in villages with milk cooperatives was double the production in villages without cooperatives.

According to Patel (2005), there exists a direct relationship between transportation cost and procurement cost in dairy farming in India. Further the study also found that, the processing expenses and personnel expenses stands second and third in the total cost structure. The author had conducted a research study on the topic ‘A Performance Appraisal of Dairy Industry in Gujarat. The research study tried to analyse the performance of dairy industry of Gujarat and assessed financial health of nine district milk producer’s union based on the secondary data.

Sarker and Ghosh (2008) had conducted a research on the topic ‘Economics of Milk Production in West Bengal: Evidence from Cooperative and non-cooperative Farms’. The study was aimed to compare the cost, return and profitability of cooperative and non-cooperative dairying in West Bengal. The study was based on a survey of 320 household for the purpose of analysis of costs. According to the study there are different costs associated with the dairy farming such as feed cost, labour cost, interest cost etc. The study found that, feed cost and labour cost were the two major components of variable costs and interest cost was found to be the major component of fixed costs. It is obvious that labour cost will be higher in dairy farming as the business is labour intensive.

Ghule (2012) had conducted a research on the topic ‘an economic analysis of investment pattern cost of milk production and profitability of commercial dairy farms in Maharashtra. The study revealed that Agriculture and dairy are not yet commercialized in India. These are still considered as source of livelihood for millions of small farmers. Relevant data was collected from forty dairy farms from Ahmednagar District of Maharashtra to analyse the capital investment, cost, return on investment and profitability. The study found that the cattle productivity in terms of milk production was higher for small dairy farms compared to medium and large firms. Finally the author concluded that, dairy farming is highly capital intensive yet the investment pattern is different in terms of its size.

From the above literature survey it is concluded that, dairy farming is growing business in India. The dairy sector is not organised in the country. It is because of several reasons and one amongst them is advancement in science and technology.

3.0 Objectives

- To study the country-wide production of milk and annual growth rate of milk production in India
- To study and analyze the top ten milk producing states in India
- To study the challenges faced by small farmers in producing milk in India

4.0 Methodology

The study is based on secondary data. Relevant published data from the website of National Dairy Development Board (NDDB) was considered for a period from 2007 to 2017 and used. Personal interaction with the small farmers also helped to examine the challenges in milk production in India. Further analysis of top ten milk producing states were considered for the study.

5.0 Analysis and Interpretation of Data

5.1 Production of milk in India

Despite, India being the world's largest producer of milk, the country is still facing shortage of milk because of increase in demand from the growing population. Another reason for shortage of milk in India is low productivity from Indian cows. The country's milk supply comes from small farmers, scattered across rural India. These small farmers maintain on an average three animals, which include animals such as goats, cows and/or buffaloes. India is graded number one in the production of milk at a global level followed by United States, China and Germany. According to Union Agriculture Minister Radha Mohan Singh, the annual growth in milk production will increase to 9 per cent by 2022 from the current 6.3 per cent. This is because of the several initiatives taken by the government to boost the dairy sector in India. As a result, the overall production of milk has reached 165404 thousand tonnes of milk in 2016-17 from these animals with a per capita milk availability of 307 grams/day.

According to Economic Survey Report 2016-17, the production of milk has been increasing consistently in the last ten years. The total milk production for the year 2016-17 accounts for 165404 thousand tonnes as against 107934 thousand tonnes in the year 2007-08. Dairy Scenario in India is persistently taking dairy farming to a greater strides and trying to make dairy farming more remunerative and lucrative to the farmer. As a consequence, more number of farmers is primarily involving themselves into dairy farming. This growth in dairy farming result into an estimated total milk production of around 200 million tonnes by the year 2030. However, this production would not be sufficient to meet the demand. Table 1 presents the overall milk production and the per capita availability of milk in India.

5.2 Projections for dairy farming in India

As per Yes Bank report published in February 2015, Indian dairy industry is expected to manage 15% compounded annual growth rate (CAGR) till 2020 Indian

dairy industry is worth 5.4 trillion in terms of value and is expected to emerge as one of the largest dairy sector in the world by 2020. As a consequence, the per capita milk consumption of the country has been increased to 3% CAGR as compared to 1% CAGR at a global level. As the disposable income of consumer is rising and growing consumer preference for branded milk products, investments by organized players has been increased. Now, it is the time for small dairy farmers to convert themselves into organized business and focus on establishing brands. This will pave the way for small dairy farms to develop their business at a global level.

Table 1: Milk Production in India

Year	Milk Production '000 tonnes	Per Capita Availability of Milk (gms/day)
2007-08	107934	233
2008-09	112183	241
2009-10	116425	251
2010-11	121848	260
2011-12	127904	266
2012-13	132431	273
2013-14	137685	281
2014-15	146314	290
2015-16	155491	299
2016-17	165404	307

Source: National Dairy Development Board Statistical Survey Reports - 2007 to 2017

5.3 Top ten states producing highest milk in India

The rate of milk production across the globe has been greatly influenced by cattle, goats, buffalo, sheep and cows. The rate of milk production in India is not different from this. India is at the top in the list as far as production of cow and buffalo milk is concerned at a global level. Government of India is promoting dairy farming by offering several subsidies to the farmers. The objective is twofold. Firstly enhancing the income level of rural India their by improving their standard of living. Secondly promoting dairy farming in rural India their by increasing the milk production.

White revolution, popularly known as Operation Flood was initiated by National Dairy Development Board (NDDB) in India in the year 1970. This program transformed India from milk deficient nation to world's largest milk producer. This revolution also helped the Indian agriculture to grow at an exorbitant rate in terms of income and employment. The contribution from various states is also increased in recent years

towards milk production in India. Several states such as Uttar Pradesh, Rajasthan, Madhya Pradesh, Gujarat, and Andhra Pradesh are the major contributors to the total milk production in India. Whereas other states such as Punjab, Haryana, Maharashtra and Bihar also contribute to a greater extent in milk production. Table 2 presents the list of top 10 highest milk producing states in India.

Table 2: Top Ten States Producing Highest Milk in India

State	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
UP	18861	19537	20203	21031	22556	23330	24194	25198	26387	27770
Rajasthan	11377	11931	12330	13234	13212	13946	14573	16934	18500	20850
MP	6572	6855	7467	7514	8149	8838	9599	10779	12148	13445
Gujarat	7911	8386	8844	9321	9817	10315	11112	11691	12262	12784
AP	8925	9570	10429	11203	12088	12773	13007	9656	10817	12178
Punjab	9282	9387	9389	9423	9551	9714	10011	10351	10774	11282
Maharashtra	7210	7455	7679	8044	8469	8734	9089	9542	10153	10402
Haryana	5442	5745	6006	6267	6661	7040	7442	7901	8381	8975
Bihar	5783	5934	6124	6517	6643	6844	7197	7775	8288	8711
Tamil Nadu	6540	6651	6787	6831	6968	7005	7049	7132	7244	7556

Source: National Dairy Development Board Statistical Survey Reports - 2007 to 2017

Uttar Pradesh is the state with highest population and larger in terms of geography in India. This state stands at the top in terms of milk production in the country. Buffaloes are the primary source of milk in UP, which produce 27770 thousand tonnes of milk each year. The contribution of Uttar Pradesh in the total milk production is 16.78%.

Rajasthan is the second largest producer of milk in the country and stands second in the list. Majority of the farmers in this state are engaged in the business of dairy farming. Rajasthan, even though known as land of deserts, encompasses huge number of cattle and produces 20850 thousand tonnes of milk each year. Apart from meeting their own requirement, this state also caters to the requirements of milk in the capital city of India. This state has share of 12.60% in the total milk production of the country.

Next state occupies in the top ten list is Madhya Pradesh, which is the third largest milk producing state in India. It produces a total of 13445 thousand tons of milk each year. It has a share of more than 8% in the country's total milk production. Gujarat stands fourth in the list of largest milk production in India. It produces 12784 thousand tons of milk every year. The well-recognized dairy brand 'Amul' is based in Gujarat,

which was established in the year 1946. Gujarat has a share of 7.72% in the country's total milk production.

Andhra Pradesh occupies fifth place in milk production in the country and produces a total of 12178 thousand tonnes of milk per year. Even though, most of the part of Andhra Pradesh faces draught like situation during summer season, the impact on milk production is negligible. This state has livestock of 40 lakh animals, out of which 40% are cattle and remaining account for buffalos. This state has a share of 7.36% in the total milk production of the nation.

Punjab stands sixth in the top ten list with a total milk production of 11282 thousand tonnes of milk in a year. Government of Punjab has introduced special schemes to increase the production of milk in the state. The schemes like modernization of banks, expansion and develop of field for the cultivation of green fodder, introduction of special subsidies for dairy farmers and on milking machines. This helped Punjab state to contribute 6.82% in the country's total milk production.

Maharashtra is holding seventh position in the production of milk in India, which produces a total of 10402 thousand tonnes of milk every year. This state contributes 6.28% in the nation's total milk production. The major districts which produce highest milk include Pune, Ahmednagar, Solapur, Satara, Sngli and Kolhapur.

Haryana is ranked eighth in the list of dairy farming in India. Murrah breeds of cows are the origins in this state and have the highest potential for milk production. Haryana's milk production accounts for a total of 8975 thousand tons of milk every year. The state's contribution in country's total milk production stands 5.42%.

Bihar and Tamil Nadu stands in ninth and tenth place respectively in the production of milk in India. Until recently Bihar was dependent on milk supply from Punjab and Andhra to meet its own milk consumption. But recent initiatives with respect to dairy farming by the state government led the state to stand in the top ten list. This state produces 8711 thousand tonnes of milk each year and has a share of 5.26% of total milk production. Tamil Nadu is placed tenth in the top ten in the list and is ranked number tenth in the list of top ten milk producing states in the nation, which produces 7556 thousand tonnes of milk each year. Tamil Nadu contributes 4.56% in the total milk production of the nation.

5.4 Challenges faced by small farmers in milk production in India

5.4.1 Feed and fodder management

Cattle feed is an important ingredient in guaranteeing quality and high yield milk. Feed constitutes major operating expenses. But the present shortfall of green cattle

feed is approximately accounted for 34%. There has been a steep increase in prices of all cattle feed ingredients in the recent past as a result the small dairy farmers are finding it difficult to manage their recurring expenses. Hence, the government has to initiate long-term actions to develop a mechanism to enhance the productivity of growing green fodder rather than merely offering subsidy to the farmers

5.4.2 Veterinary care

Dairy farmers in India are ignorant about latest developments in scientific breeding practices in veterinary care which acts as an impediment for improving herd quality. Veterinary care plays a catalyst role in the growth and development of dairy farming. Therefore, small dairy farmers will have avail latest medical aid for livestock, so that dairy farms will yield better results in producing milk and milk products. This issue can be resolved by extension of services through Krishi Vigyan Kendra (KVKs) and encouraging private sector participation. Further, dairy farmers will have to make an effort to upgrade themselves in terms of science and technology.

5.4.3 Extension services and skill development

Dairy farming as well as agriculture is more demanding in terms of skill set requirements in these days. Interventions towards skill development can enhance family income and provide a sustainable source of livelihood. Knowledge and skill enhancement is quite essential in dairy farming. This will help them to improve productivity of dairy farming. Further, continuous innovation also plays a key role in the development of dairy farming. In addition, managing finance and improve decision making ability are crucial in this industry, which will enable sustainable dairy farming.

5.4.4 Access to finance

For small dairy farmers to grow, easy availability of credit and instant payments is critical. Since, finance is the lifeblood of any industry dairy farming is not an exception to this. To strengthen dairy farming in India, the role of financial institutions is supreme. These financial institutions are required to design innovative and friendly financial products such as including hassle free loan disbursement to the farmers, repayment of loans in small and easy instalments, systems to immediately credit the milk payment in farmer's accounts etc. Further, rural financial institutions need to focus on reaching small dairy farmers who are financially poor, and offer structured financial products and services to them.

5.4.5 Role of information technology (IT)

Information technology plays a significant role in the growth and development of small dairy farmers. Hence, IT has to be harnessed for efficient management of small dairy farms in India. Implementation of IT systems into the dairy farming enables the dairy farming to increase the productivity and improve the efficiency. IT finds many applications as an important enabler for information management of demand-supply aggregation of the milk and milk products across production and consumption clusters.

6.0 Conclusion

Though, India is the world's largest producer of Milk, still the country is facing shortage of milk due to increase in demand from the growing population. This is because; dairy industry in India is facing major challenges with respect to milk productivity, fodder availability, inadequate veterinary services and lack of access to institutional credit. Efforts in the areas of feed and nutrition management, improved breeding and health care systems, financial inclusion and dedicated extension services are required. Further, small dairy farmers need to focus on institutional innovations and adequate capacity building which is essential for inclusive growth, thus making the small dairy farming system globally competitive.

References

- Economic Survey Reports. (2016-17). Ministry of Finance, Department of Economic Affairs, Economic Division, Government of India, New Delhi.
- Ghule, A. K., Verma, N. K., Cahuhan, A. K. & Sawale, P. (2012). An economic analysis of investment pattern cost of milk production and profitability of commercial dairy farms in Maharashtra. *Indian Journal of Dairy Science*, 65(4), 2012.
- Harold, A. (1987). Cooperative dairy development in Karnataka India: An assessment. *International Food Policy Research Institute*, December 1987.
- Making Indian Dairy Farming Competitive, The Small Farmer Perspective. Yes Bank February 2015

National Dairy Development Board (NDDB) statistical survey Reports - 2007 to 2017, Milk Production in India, Milk Production by States and per capita monthly consumption of milk & milk products

Patel A M. (2005). A performance appraisal of dairy industry in Gujrat, department of commerce and business administration. Saurashtra University, Rajkot. December 2005

Sarker, D. & Ghosh, B. K. (2008). Economics of milk production in West Bengal: Evidence from cooperative and non-cooperative farms. *East-West Journal of Economics and Business*, XI(1&2).