



## Evolving Dynamics of India's Dairy Sector: A Contemporary Overview

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### Abstract:

India's dairy industry has achieved remarkable growth, emerging as a cornerstone of the nation's economy. With a focus on cooperative models and strategic programs, India stands as the world's leading milk producer, with 221.06 million tonnes of milk in 2022, driven by a robust bovine population. This sector contributes significantly to GDP, rural livelihoods, and food security.

### Introduction:

The dairy industry in India has experienced a transformative journey, spurred by population growth, economic prosperity, and a rising demand for dairy products. Cooperative models, exemplified by Amul Dairy, have played a pivotal role. The Anand Pattern, with its three-tier structure, has organized dairy farming, and cooperatives have become integral to India's dairy landscape. Uttar Pradesh witnessed the inception of cooperative dairy activities in 1917, and the National Dairy Development Board (NDDB), established in 1965, has been a key driver of cooperative dairy development.

The Operation Flood Program, launched in phases, has further solidified India's position as the world's leading milk producer. India's commitment to livestock development includes cattle breeding programs, initiatives to improve feed quality, and balanced nutrition. As of 2023, the dairy industry remains a vital contributor to India's economy, poised for continued growth and development.

### Evolution of Cooperative Dairy Initiatives in India

#### Formation of Milk Cooperatives:

Amul Dairy, established on a cooperative pattern in 1946, marked the

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beginning of a revolution in India's dairy sector. The primary objective was to strengthen rural areas, and this model's success led to its replication throughout the country.

### ***Three-Tier Structure of Anand Pattern Cooperatives:***

The Anand Pattern of cooperatives, with a three-tier structure comprising village-level societies, district unions, and state federations, has been instrumental in organizing dairy farmers, procuring milk, and ensuring its processing and marketing.

### ***Cooperative Profile in India:***

Cooperatives have become an integral part of the dairy landscape in India, with thousands of societies and unions working together to enhance milk production and distribution.

### ***Cooperative Movement in U.P.:***

Uttar Pradesh witnessed the inception of cooperative dairy activities with the establishment of the 'Katra' Cooperative Milk Society in 1917. Subsequently, the State Cooperative Dairy Federation was established in 1962, with a focus on replicating the Anand Pattern.

### ***National Dairy Development Board (NDDB):***

The NDDB, established in 1965, played a pivotal role in monitoring and promoting cooperative dairy development programs. Its objectives included supporting Operation Flood Programs, increasing research

and extension work, and improving dairy infrastructure.

### **Dairy Development under Operation Flood Programme:**

The Operation Flood Programme, launched in multiple phases, aimed to organize dairy cooperatives, enhance milk procurement and processing, and establish marketing networks.

#### ***1. Operation Flood Phase-I (1970-81):***

This phase saw the establishment of thousands of dairy cooperative societies and significant achievements in milk procurement and marketing.

#### ***2. Operation Flood Phase-II (1981-85):***

The government and international organizations provided substantial financial support during this phase, resulting in further expansion and growth.

#### ***3. Operation Flood Phase-III (1985-94):***

Phase III focused on strengthening dairy cooperatives, expanding infrastructure, and establishing the National Milk Grid.

#### ***4. Operation Flood Phase-IV (1996-2006):***

This phase emphasized infrastructure development, cooperative strengthening, and increased extension services.

### **Dairy Development Programmes:**

India implemented various programs to enhance cattle breeding, improve nutrition, and promote livestock development. Key schemes included the Key Village Scheme, Intensive

Cattle Development Scheme, and All India Coordinated Research Project on Cattle.

**Breeding Programmes:**

India initiated several breeding programs, including the Herd Book Registration Scheme, Cross Breeding Programme, and projects in collaboration with foreign agencies to improve the genetic quality of cattle and buffaloes.

**Feed Industry:**

The role of balanced nutrition in livestock management cannot be understated. India has made significant strides in improving feed availability and quality to boost milk production.

**Current Status and Outlook:**

As of 2023, India remains a significant global player in milk production, with ambitious goals for further growth. The dairy industry contributes substantially to the national economy, and the government continues to support various initiatives to enhance productivity and quality. The dairy industry in India has witnessed significant growth and development over the years, making it a vital component of the country's economy. This development has been driven by various factors, including increasing population, rising economic status, and the demand for high-quality animal food products. Here's the current status of milk production and its contribution to India's economy:

**Current Status of Milk Production in India:**

India has solidified its status as the leading global milk producer, boasting a remarkable 221.06 million tonnes of milk production (Table 1). This represents a noteworthy 5.29% uptick compared to the previous year. In the multifaceted Indian dairy sector, indigenous cattle played a pivotal role, contributing 10.35% to the nation's overall milk output. Simultaneously, non-descript cattle and non-descript buffaloes made substantial contributions, accounting for 9.82% and 13.49%, respectively, of the total milk production (BAHS, 2022). This impressive level of milk production can be attributed to India's substantial bovine population, which includes 193.46 million cattle and 109.85 million buffaloes (NDDB, 2021).

Year	Production (Million Tonnes)	Per Capita Availability (gms/day)
2009-10	116.4	273
2010-11	121.8	281
2011-12	127.9	290
2012-13	132.4	299
2013-14	137.7	307
2014-15	146.3	322
2015-16	155.5	337
2016-17	165.4	355
2017-18	176.3	375
2018-19	187.7	394
2019-20	198.4	406
2020-21	210.0	427
2021-22	221.1	444

Source: Basic Animal Husbandry Statistics, MoFAHD, DAHD, GoI

**Table 1:** Milk production and per capita availability of milk in India (2010-2022)

These animals are the primary sources of milk production in the country. India has established a robust and widespread milk procurement system, led by the National Dairy Development Board (NDDB) through the Operation Flood program. This system comprises 15 state federations, 177 district unions, and 128,799 village cooperative societies, ensuring efficient milk collection and distribution.

### **Contribution to India's Economy:**

The livestock sector, which includes dairy farming, plays a crucial role in India's socio-economic landscape. It contributes significantly to the country's GDP, accounting for approximately 4.90% of the total GDP as of 2022. Within the agricultural sector, livestock contributes substantially, making up more than 28% of agricultural GDP, including poultry. The dairy sector is a key driver of socio-economic transformation in India. It has a symbiotic relationship with agriculture, as agricultural by-products provide feed and fodder for livestock, while livestock contribute to agriculture through manure and draught power for various farming operations. Dairying alone contributes approximately 15% of the Gross National Income (GNI), highlighting its economic importance.

In rural India, where a significant portion of the population resides, livestock farming, including dairy, provides livelihoods

for small farmers, landless individuals, and agricultural laborers. It plays a vital role in ensuring their daily sustenance, especially in drought-prone regions. Dairy industry in India is characterized by the participation of millions of small-scale farmers, each typically owning one or two cows or buffaloes. While the yield per animal is lower compared to global standards, their collective efforts have led to substantial growth in milk production. Despite the relatively low yield per animal, India's annual milk production increase has outpaced the rise in world annual milk production. The value of output from the livestock sector, with milk as the largest agricultural commodity, was approximately Rs 9,31,969 crores out of a total of Rs 14,14,590 crores. Dairying contributes significantly to the gross income of rural households, particularly those without land, where it accounts for nearly half of their income. The dairy industry in India has experienced remarkable growth and continues to be a linchpin of the country's economy. Its contribution to GDP, employment generation, and livelihood support in rural areas underscores its significance in the socio-economic fabric of India. With its position as the world's leading milk producer, India's dairy sector is poised for continued growth and development in the years to come.

**Challenges and Opportunities:**

While India has made remarkable progress in dairy development, it faces challenges such as improving animal genetics, feed availability, and healthcare services. However, with the right strategies and investments, the Indian dairy industry can continue to thrive and contribute to food security and economic growth.

**Conclusion:**

The developments and current status of the dairy industry in India reflect a remarkable journey of growth and transformation. Cooperative models, government interventions, and strategic programs have propelled the industry forward. With ongoing efforts to address challenges and harness opportunities, the Indian dairy sector is poised for a promising future, benefiting both farmers and consumers.

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