

## A STUDY OF GUJARAT DAIRY SECTOR TO SUGGEST STATE

### LEVEL POLICY IMPLICATIONS

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### ABSTRACT

Dairying has become an important secondary source of income for more than 15 million rural families and has assumed an important role in providing employment and income generating opportunity for the most vulnerable sections of our population. For millions of small and marginal farmers as well as landless labourers, milk production provides ready cash in hand for fulfilling their daily household requirements. According to 2012 livestock census data, Gujarat had 9984 thousand cattle and 10386 thousand buffalo population. The daily milk yield per animal in the state for Cow (Crossbreed), Cow (indigenous) and Buffalo is around 9.08 kg/day, 4.19 kg/day & 5.15 kg/day respectively. The present study was conducted to evaluate the status of Small Milk Producers in Gujarat state. The study covered all districts of the state and information was collected by using a questionnaire. The important policies suggested were –Providing technical and financial support to various stakeholders to improve physical, chemical, biological and organoleptic quality of Milk and Milk products, implementing differential pricing of raw milk, Increase awareness of all stakeholders especially about the nutritious quality of milk, importance of pasteurization, the important standards of FSSAI, entrepreneurship in dairy sector, Thrust “Record Keeping” at levels of stakeholders, Promote Gender empowerment.

**KEYWORDS:** Gujarat Dairy, Dairy Sector, Dairy Farming, Dairy Business & Dairy Policy

### INTRODUCTION

#### Indian Dairy Sector

The Indian Dairy cooperative structure has a huge contribution in raising the milk production in the country up to approximately 146 million tonnes in the year 2014-15 from a meager milk production 17 million tonnes in the year 1951. The per capita availability of milk in the country has increased to 340 g /day (GCMMF Annual Report 2015-16). Further, milk is the largest agricultural crop in India with market values exceeding Rs 4 lakh crore per annum and the milk group contributes the highest to the total output of our agricultural sector, surpassing the output value of wheat, rice and oilseeds.

India's livestock sector is one of the largest in the world. According to 2012 livestock census data, Gujarat had 9984 thousand cattle and 10386 thousand buffalo population, which comes to around 5.23% and 9.55% of cattle and buffalo population of the country. The daily milk yield per animal in the state for Cow (Crossbreed), Cow (indigenous) and Buffalo is around 9.08 kg/day, 4.19 kg/day & 5.15 kg/day, respectively; whereas that of India is 7.15 kgs, 2.54 kgs and 5.15 kgs for Cow (Crossbreed), Cow (indigenous) and Buffalo respectively. Gujarat is lucky to have good and high-yielding breeds of cattle and buffaloes. Gir and Kankrej breeds of cows and Mahesani, Jafarabadi, Banni and Surti breeds of buffaloes are well known for their high milk yielding capacity. Kankrej bullocks are famous for their "Sawai-chal" and the cows of this breed are good milk producers.

Dairying has become an important secondary source of income for more than 15 million rural families and has assumed an important role in providing employment and income generating opportunity for the most vulnerable sections of our population. For millions of small and marginal farmers as well as landless labourers, milk production provides ready cash in hand for fulfilling their daily household requirements.

In India, milk production is scattered in a large number of villages in small quantity of two to four liters by milch animals. The average milk production per animal per lactation is around 1400 liters which is much below the world average of 2300 liters. (Rajorhia, G.S.2013) The milk productivity of crossbred cows, Indigenous cows and of buffaloes in India is very low. It is 6.45, 1.97 and 4.3 Kg per day respectively. The unorganized sector is comprised of numerous small and /or seasonal milk producers/trader (popularly known as halwais).

## **METHODOLOGY**

The research study covered the entire dairy value chain of Gujarat state. The study was spread over the entire state and collected both primary and secondary data. The primary data was collected with the help of different sets of questionnaire meant for different categories of respondents viz. – *Milk Producers, VDCS & Private Milk procurers, Dairy Processing plants, marketing federations/ marketing entities, & consumers*. Secondary data were collected from annual reports of dairy plants and other relevant organizations, websites, government reports, published reports on - NDDDB, GCMMF, NCDFI, Indian dairy Association, APEDA, Food and Agriculture organization (FAO) etc, Ministry of Agriculture, Ministry of food processing, Ministry of commerce, Agricultural and allied journals, Gujarat Government Dairy Department et

## **RESULTS AND STATE LEVEL POLICY IMPLICATIONS FOR GUJARAT DAIRY SECTOR**

After analysis of data and also using some secondary data the following policies are suggested for the development of the Gujarat Dairy Sector.

### **Providing Support to Various Stakeholders to Improve Physical, Chemical, Biological and Organoleptic Quality of Milk and Milk Products**

Quality aspects relate to the quality of raw milk, quality of milk and milk products, human safety and preservation of nutritional benefits. The problem of quality has been raised at many levels of stakeholder. At Milk Producer level, there has been a recurring problem of lack of Clean Milk Production practice. At the VDCS level, there is a problem of lack of BMC and lack of trained manpower. At dairy processing plants there are quality issues in terms of product quality, worker hygiene, hygienic working conditions, and non-following of FSSAI standards at various levels of distribution channel. With respect to international SPS standards, there is a lack of many testing tools and instruments at VDCS, and dairy plant levels. The quality problem is also amplified due to lack of cold chain in the sector. Further, the increase in cases of Adulteration is also alarming.

### **Benefits**

- Pure and nutritious milk and milk products.
- The reputation of organized sector will increase among the consumers.
- Increased ability to handle market competition.

- Increased ability to capture overseas market.

### **Increase Awareness of All Stakeholders**

The study has revealed a huge lack of awareness of many stakeholders with respect to nutritional aspects, quality, and harmful effects of adulteration, advantages of management skills, scope and use of ICT in the dairy sector. At milk producer level, there is enormous scope of creating awareness in the area of scientific animal husbandry practices, quality of raw milk, animal feeding practices, improving milk production. Similarly stakeholders such as consumers, retailers and Village dairy cooperatives also need to be made aware of the harmful effects of unprocessed milk, adulterated milk products, FSSAI standards, nutritional benefits of milk products especially value added products. Even at the dairy plant level, especially at the worker's level, there is a need to propagate the awareness of FSSAI standards and the importance of hygiene in manufacturing. Consumers also need to be made aware of newly launched products and their benefits. There is an enormous lack of knowledge on behalf of Milk Producers regarding "Climate change problems" and its effect on vagaries of climate and subsequently on agriculture and animal husbandry.

There is also a lack of awareness of various credit and non-credit based support schemes offered by the government and other institutions. Also the lack of awareness of sources of knowledge and information (viz. Web sites, government departments, dairy science institutes and so on) among various stakeholders (especially milk producers, entrepreneurs and people at large).

### **Benefits**

- Improved quality of milk and milk products
- Optimum use of resources

### **Thrust "Record Keeping" at Levels of Stakeholders**

The project shows that there is a shocking absence of business sense/ professionalism on part of Milk producers (and even other stakeholders) in terms of

- No practice of keeping/ maintaining of data ( or database)

In the absence of any data, it becomes extremely difficult to evaluate the economic performance and "progress" of any entity. Progress of entities can be considered in terms of production efficiency, sales revenue, cost reduction, efficiency, Profit etc. It is high time to consider each and every milk producer (or even other stakeholders) as organizational (sub) unit of the entire "organized dairy sector". Until and unless each and every stakeholder of the dairy supply chain makes an economic progress, the overall performance of the entire dairy sector of Gujarat will remain sub-optimal.

In the line of the above discussion, it can be suggested that – each milk producer (VDCS member) must have a "Smartcard" which contains all the necessary details pertaining to his dairy business – number and breed of animal owned, lactation stages, animal husbandry practices followed by him, his transactions with VDCS, etc. This data can be evaluated by an expert and improvement tips can be given to the milk producer. Further, the data compiled from various villages, VDCS, Districts can prove to be extremely useful for the Milk union in terms of devising – district- wide policies, district-wide planning and monitoring, control.

There is also a need of developing District wise “Dairy Business Management” software (and all milk producers can register on it and obtain USER accounts). This account keeps record of variety of information such as – profit/loss of the milk producers, track of costs incurred, track of financial transactions with the VDCS or milk union, track of financial transaction of items like cattle feed, veterinary services, loans forms VDCS, repayment, and every aspect.. In addition to that, animal details, age, lactation, health, milk production (yield) fat %, diet, etc. should be included so that the actual potential of every animal and every resource can be realized. Only in that event the actual development of dairy sector can take place. In this regard, the development of ICT tools /mobiles will prove to be a boon.

**Benefits**

- Actual data based planning, implementation; monitoring and control can be done for the entire dairy sector of Gujarat.
- Milk producers also get the results of their business activity and identify improvement areas and also try to look for solution to important issues.

**Growth of Organized Dairy Sector by Using Market Penetration, Market Development, Product Development and Diversification**

The share of the organized dairy sector in Gujarat can be increased by using the Ansoff’ growth matrix. Ansoff, in his 1957 paper, provided four growth alternatives:

**Ansoff Matrix**



**Figure 1**

**Market Penetration**

In market penetration strategy, the organization tries to grow using its existing offerings (products and services) in existing markets. In other words, it tries to increase its market share in current market scenario. This involves increasing market share within existing market segments. This can be achieved by selling more products or services to established customers or by finding new customers within existing markets.

**The Organized Dairy Sector Can**

- Use more aggressive promotion and distribution.
- Acquisition of a rival in the same market.
- Focus on customer retention.

### Market Development

In market development strategy, a firm tries to expand into new markets (geographies, countries etc.) using its existing offerings.

#### The Organized Dairy Sector Can

- Identify and focus on different customer segments and increase market share in all segments. (e.g Schools, Colleges, Universities, Government Offices, Commercial hubs in the city, Bus depots, joggers, fitness centers, sports complexes, etc.)
- Look for new geographical areas (may be rural areas which are yet to be tapped).
- Look for foreign markets (especially TIDP).

### Product Development

In product development strategy, a company tries to create new products and services targeted at its existing markets to achieve growth.

#### The Organized Dairy Sector Can

- Develop new products, especially in the value added category – probiotics, health focused, culinary focused and convenience focused.
- Make investment in research and development, carry out collaborative studies with dairy education institutes related to Product development, mechanization of TIDP, Product testing, process development, nutritive values, storage & shelf life studies, and so on.
- Conduct consumer survey to identify changes in consumer preferences and emerging segments and so on.

### Diversification

In diversification an organization tries to grow its market share by introducing new offerings in new markets. It is the most risky strategy because both product and market development are required. Hence Organized Dairy sector should take such a decision cautiously.

**Benefit:** Tremendous Increase in Share of Organized Dairy Sector of Gujarat

### Strengthening of Internal Capabilities so as to Serve the Market with Efficiency and Effectiveness

The profitability and long term growth of dairy sector in the Gujarat state can be achieved only by focusing on Efficiency and effectiveness in each of the business operations carried out in the supply chain. Hence, efficiency and effectiveness need to be increased in milk procurement, operations of VDCS, cold chain, quality testing, production (and optimum use of available resources – Man, Machine and Materials), inventory and distribution channel.

This can be achieved by adopting efficient technology, adopting scientific management principles, employee motivation and promoting proven techniques such as – TQM, six sigma, Kaizen, Lean Inventory system, Just –in-Time technique, etc.

Under the liberalized era, there is a need to thrust professionalism and usage of management principles for the growth of the dairy sector. Dairy Business management departments of dairy science colleges can start specific short term training programs or MDP (Management Development programs) in this regard.

The increasing number of dairy science institutes can be very helpful in providing qualified dairy technologists. Further, the important aspects needed by industry should be conveyed to education institutes so that they can incorporate the changing demands of the industry into their academic programs.

### **Benefits**

- Increase in profit by respective stakeholders.

### **Keeping Domestic Prices of milk and Milk Products Steady and Unaffected by Price Fluctuations Due to Exports**

The import export policies of the dairy sector also affect the Indian dairy economy. Recently the prices of Milk were affected by the abrupt drop in the SMP prices in the international market. This has affected the milk prices paid to the milk producers in the country (especially by private dairies) and has also affected the economy of cooperative dairies.

In order to protect the dairy sector from fluctuations in international dairy prices, effective import export policy should be devised. The main aim of the Indian Dairy sector should be to remain self-sufficient in meeting the domestic demand.

Some international agency project that India will be a deficit in milk in coming years and seek permit imports. If the government does this, it will be extremely harmful to our farmers. Rather, government should take effective steps to promote local milk production.

Further, around 80 % of the consumer's rupee goes to the milk producers under the cooperative structure in Gujarat State. Hence, in order to preserve our self-sufficiency and keeping the farmer's interest on the topmost, it is required to keep check on the fluctuations due to the international scenario.

### **Benefit**

- Affordable price of milk and milk products for consumers

### **Ensuring Continuous Supply of Milk from Milk Producers by Offering them Remunerative Price and All other Animal Husbandry Support**

A unit under the government 's Animal Husbandry Department or a department in the Milk Union or an independent institution should be established which records the trends in the costs associated with dairy farming activity, and suggests a revision of milk purchase price so that farmers get the highest possible price for their milk. A policy to ensure farmers receives the highest possible returns. For e.g milk producer affiliated to co-operatives get more than 80 % share of the consumer's rupee.

### **Benefit**

- Increased motivation to the milk producers in continuing dairy business, which in turn ensures uninterrupted milk supply to the consumers.

### **Promoting Entrepreneurship in Dairy Sector**

There is a lack of knowledge about institutes supporting entrepreneurship in the dairy sector's concessional rate of interest on loans. The entrepreneurship scheme of NABARD titled "Dairy Entrepreneurship Development Scheme (DEDS) and entrepreneurship development program by Milk Unions of GCMMF" is promoted by DVKs, KVKs, and EDIs, along with banks. Further, the interest rates on loans to dairy farmers are higher as compared to loans to agriculture farmers. But since most of the dairy farmers in Gujarat follow the "Mixed Farming" method, it is suggested that the interest rate on dairy sector loans be reduced to promote Entrepreneurship.

Also, there is a requirement of establishing "Incubation centers", Entrepreneurship Development Institute for the dairy sector. For this purpose Dairy Business Management department of various Dairy sciences institutes should be selected as Incubation centers and center for providing all dairy entrepreneurship related support to potential dairy entrepreneurs.

Further, for providing capital to innovative dairy entrepreneurs there should be an aggressive promotion of Venture capital and Angel Funding by establishing/register Angel Investors in the dairy sector.

#### **Benefit**

- Establishment of new dairy enterprises by motivated entrepreneurs resulting in an increase in share of the organized dairy sector and also lead to new employment opportunity.

### **Differential Pricing of Raw Milk**

Under the cooperative dairy structure, milk is generally paid on the basis of FAT & SNF. By and large, it is the fact that all the milk produced by member milk producers (without grading the milk according to quality) is collected by the VDCS, is now proving to be a great hurdle in improving quality standards.

Hence, a policy to pay the price according to quality (physical, chemical, biological and organoleptic) must be devised. The following differential pricing is suggested: Apart from the existing standards of Milk Procurement laid down by VDCS, the milk purchased by VDCS must be divided into five categories: - Excellent, Good Average, Poor, Very poor

Highest price should be paid for excellent quality milk and so on. Further extra incentive (may be financial or non-financial) must be given to those farmer members or VDCS who provide consistently high quality milk during a certain period. (Rigorous quality monitoring activities should be done by trained manpower of VDCS and Milk Union).

#### **Benefit**

- Improvement in milk quality procured at village level.
- Possibility to meet international standards in finished product quality.
- Increase in possibility of exporting dairy products from the country due to better quality raw milk.

### **Provide "Smartcard" to Maximum Number of Consumers for giving them Convenience, Information, Tracking, Purchasing Behavior and Delivering Customer Loyalty Rewards**

With the proliferation of ICT across all strata of consumers, data related to consumer buying behavior, consumer loyalty, must be captured in a continuous basis by using ICT tools such as mobile app, smart cards. Loyalty rewards, etc.

(This will help in customer retention and give input for devising strategies for providing utmost customer satisfaction and delight, This is extremely important in today's dairy market because international players are entering the market and the cooperative sector has a tough competition ahead. If the Indian dairy market does not respond to this wake-up call, foreign players can (with the help of ICT tools, customer promotion schemes, customer loyalty rewards and other such marketing tactics) gain huge market share. SBI smart cards started by AMUL are a good step in this direction.

### **Benefit**

Retention of existing customers and the possibility of capturing a higher market share leading to higher profits by organised dairy cooperative setup in today's competitive world.

### **Training at All Levels of Stakeholders Especially in the Area of Quality, Record Keeping, Dairy Management Techniques and Health Benefits**

In order to achieve the goals of Gujarat dairy sector, it is extremely essential to develop the skills and capacity building of stakeholders in the supply chain. Training is needed in animal husbandry practices, increasing skill and capabilities of VDCS staff, increasing skills and capabilities of all levels of Dairy plants, all stakeholders engaged in Distribution channel. The training area includes all business aspects such as – quality, ability to use ICT tools, ability to adopt and work on new technologies, ability to motivate people and inculcate leadership and ethics among stakeholders.

Business management skills are extremely important in carrying out any economic activity. Majority of Dairy farmers is yet to recognize the importance of animal husbandry as an economic activity and consequently they are yet to recognize the importance of business management skills. Each Milk Producer is an important stakeholder in the dairy value chain. Hence, it should be ensured that periodically all the Milk Producers are given training under the program of "Entrepreneurship Development Program" undertaken by Milk Unions of GCMMF. This initiative will automatically take care of important business aspects like - planning, monitoring, control, Progress tracking, and even to the extent of environmental tracking and reacting to certain environmental changes.

In the dairy sector, even though several government and nongovernment agencies are providing support in terms of trainings but there is less prevalence of Follow –up of this training program (which ultimately results in futile attempts of imparting training). Hence there is a need to lay more focused approach on a continuous basis by all respective districts' unions, state level milk marketing federation on training.

### **Benefits**

- Improved skill of the worker.
- Reduction in wastage.
- Higher profit.

### **Promote Women Empowerment**

The representation of women in managing team of VDCS, different departments of dairy plants (e.g production, marketing, quality control, procurement, etc.) is lower. There is also a lack of women entrepreneurs in the dairy sector. Hence, under the propagation of gender empowerment throughout the country, the dairy sector should be an excellent and most suitable avenue for increasing gender empowerment in the entire dairy value chain.



**Benefit**

- Lead to the political and economic empowerment of woman and improving the financial position of woman in real terms.

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**CONCLUSIONS**

The important policies and guidelines of a general nature are described below.

- Providing technical and financial support to various stakeholders to improve physical, chemical, biological and organoleptic quality of Milk and Milk products.
- Wherever feasible, implementing differential pricing of raw milk after categorizing raw milk into five categories Very poor, Poor, Medium, Good and excellent with the use of modern milk testing instruments. This is the only way to motivate milk producers to emphasize on good milk quality.
- Increase awareness of all stakeholders, especially about the nutritious quality of milk, importance of pasteurization, the important standards of FSSAI, consumer rights, scientific animal husbandry practices, scope for entrepreneurship in the dairy sector, etc.
- Thrust “Record Keeping” at levels of stakeholders because there is a tremendous lack of systematically recorded data. If correct data is available, right from the milk producer level to the consumer level, then only effective Decision making based on factual information can take place, further it can aid in appropriate planning monitoring and controlling also.
- In order to increase the share of organized sector, growth strategies like - Market Penetration, Market Development, and Product development should be used effectively.
- Strengthening of internal capabilities of Human resource, especially at village Dairy Cooperative Society (VDCS) and at Milk Union level. This aspect should be emphasized so as to acquire latest skill set which can increase the ability of an organization to serve the market with efficiency and effectiveness.
- Keeping domestic prices of milk and milk products steady and unaffected by International price by regularly monitoring the export and import policy.
- Ensuring continuous supply of milk from milk producers by offering them remunerative price and all other animal husbandry support.
- Promoting entrepreneurship in Dairy Sector by creating awareness and providing entrepreneurial training and even setting up Business Incubators.

- Training at all levels of stakeholders, especially in the area of quality, record keeping, dairy management techniques and health benefits.
- Provide “smart card” to the maximum number of consumers for giving them convenience, information, tracking purchasing behaviour and delivering customer loyalty rewards because after all “consumer” is the king in the market and recently the competition in the Indian dairy sector has increased from foreign players.
- Promote Gender empowerment at all levels of the stakeholders, especially at management levels.

The suggested policies will be very helpful in achieving long term goal of the Gujarat Dairy sector in terms of providing nutrition and safe milk to consumers and at the same time providing remunerative prices to milk producers which can ensure their continued interest in the dairy business. Also, the policies will be helpful in increasing the quality of milk and milk products, curbing adulteration and boosting the dairy economy of the state and country.

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