

Dairy industry in india current perspective and status biology essay

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DAIRY INDUSTRY IN INDIA- Current perspective and status

ABSTRACT:

India contributes for more than 13 percent of world's total milk production and the largest producer of dairy products. Till the time of implementation of

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" Operation Flood Programme" also known as the white revolution, India was not involved in import or export of dairy products. Government of India and National Dairy Development Board have drafted a National dairy Plan that is expected to double the milk production in India by 2020. The objectives of this plan is to increase the milk productivity and provide improved farmer access to quality feeds and organised market. To maintain its place in milk production and for development of its industry, it has to increase the animal productivity, health care and breeding facilities which will lead to a reduction in cost of production. Indian dairy industry also ha to develop a better processing and marketing infrastructure to meet the standards of international quality (Team, 2007, Chakraborty).

INTRODUCTION:

The livestock population of India is the highest in the world constituting 50% of buffaloes and 20% of world's cattle population which are milch cows and milch buffaloes (IUF, 2006). Indian Dairy Industry has seen a steady progression after independence producing a volume of 17 million tonnes of milk in 1951 to 121 million tonnes in 2011. The successful development is majorly contributed to the dairy cooperatives, milk producing farmers, scientists, planners and the structural changes that has been attributed by them. In spite of the raise in dairy production there has been a impending demand supply gap in the dairy industry. These are mainly caused by a number of factors like change in consumption habits and urbanization of rural India(Mathur, 2000).

GENERAL INFORMATION:

India is a South Asian country which lies between 8° N and 35°N latitude with a tropical and sub-tropical climatic conditions along with varied weather conditions. The total area of the country is 32, 87, 728 km². Population of the country is over 1. 21 billion people (According to 2011 census) with 70% of population living in rural areas. The climate ranges from tropical heat in the south to temperate in the north with four seasons: winter (January and February), summer (March to May), monsoon (rainy) season (June to September), and a post-monsoon period (October to December). The monsoon season effect most parts of the country with over 80 of annual rainfall in this season and average annual rainfall of 125cm. The landscape includes towering mountains, extensive alluvial plains, wetlands, plateaus, deserts, coastal plains and deltas and the economy of country is agricultural based.

DAIRY ANIMALS:

There are around 231 cattle breeds in the world out of which 26 are in India. Some of the well-known dairy breeds of buffalo found in India and Pakistan are Murrah, Nili-Ravi, Kundi, Surti, Jaffarabadi, Bhadawari, Mehsana, Godawari and Pandharpuri(Singh, 2011). The native cattle breeds are used for production of milk and meat. Indian cattle breeds are of three types depending on their utility: Milch Breeds: These breeds of cows yield higher volume of milk. An average of more than 1600kg of milk is produced by these breeds per lactation. Below are few examples: BreedsYield under village condition (in kg)Yield under commercial farms (in kg)Red

Sindhi17003400Sahiwal13502100Gir9001600Dual Purpose Breeds: These breeds of cows yield milk on an average level and male animals are mainly used for work. The milk produced per yield is 500 kg to 150 kg. Examples- Ongole, Hariana, Kankrej, Tharparker, Krishna valley, Rathi and Goalo Mewathi(Singh, 2011). Draught Breeds: The cows of this breed yields very less amount of milk with an average of 500 kg per lactation. Examples are Kangayam, Umblacherry, Amritmahal, Hallikar. Exotic Breeds: The most important exotic breeds of dairy cattle are Holstein Friesian, Brown Swiss, Jersey, Guernsey and Ayrshire. They are cross bred with the indigenous cows to improve the milk yielding capacity. These European breeds belong to the Bos taurus species. These dairy cattle have very less heat tolerance and less disease resistance compared to the Indian cattle.

INDIGENOUS MILCH CATTLE BREEDS

http://images.engormix.com/E_articles/2420_725.jpgSOURCE:(Singh, 2011)

EXAMPLES OF CATTLE BREEDS OF INDIA

http://images.engormix.com/E_articles/2420_772.jpgSOURCE:(Singh, 2011)

STRUCTURE OF THE INDUSTRY:

India's annual milk production account to about 95 million tonnes and the expected milk production by the year 2015 is 135 million tonnes with a livestock population comprising 180. 5 million cattle, 82. 8 million buffaloes, 4 million sheep and 9. 2 million goats. Milk processing constitutes to 35 percent in India and 65 percent of milk in India produced by the farming household is consumed on farm or by the unorganised sector like retailers,

milk vendors or the producers themselves (Bhaskarkan, 2010). Parts of country where most dairy is located are Gujarat, Punjab, Karnataka, Tamil Nadu, Haryana, Uttar Pradesh, Rajasthan. The Gujarat Cooperative Milk Marketing Federation Ltd. (GCMMF), is India's largest dairy product manufacturer and marketing organization through their brand name AMUL (Anand Milk Union Limited). They have a daily average of 10.6 million litres of milk collection. Other brands created by the cooperatives are Vijaya (AP), Verka (Punjab), Saras (Rajasthan), Nandini (Karnataka), Aavin (Tamil Nadu) (Purohit, 2010).

INDIAN DAIRY INDUSTRY STATISTICS:

Key Statistics: Annual Milk Production (2008-9) 108.5 Million Tonnes
 Annual Export Volume (2008-9) 70,790 Tonnes
 Share of world dairy production (2010) 15%
 Share of world trade in dairy products (2003) 0.3%
 Milking herd size 115.5 million
 Number of milk producers' cooperative unions 170
 Number of local dairy cooperatives 96,000
 Number of state cooperatives 15
 Per capita consumption (Drinking milk) 250g/day
 Estimated percentage of dairy farmers in organised sector 40-50%
 % of dairy produce consumed by unorganised sector 65%
 Dairy industry workforce 75 million women / 15 million men

SOURCE: (IUF, 2006)

The processed liquid milk in India is marketed by Dairy Cooperatives and few private dairy industries from which the Dairy cooperatives hold the major share of processed liquid milk marketed in India. There are 15 State Cooperative Milk Marketing Federations which unite the 170 Milk Producer's Cooperative Union which process and market milk all over India. In

comparison to the raw amount of milk produced every year, the milk processing industry is small. This is because major amount of milk is consumed by the producer households and rest goes into to the informal and organised markets through which it reaches the urban households. Out of the total milk distributed by the organised and unorganised sector, 46 percent is consumed in fluid(2012).

PERCENTAGE OF PROCESSED MILK PRODUCTS PRODUCED:

Product

Percentage

Fluid Milk 46.0% Ghee (clarified butter) 27.5% Butter 6.5% Yogurt 7.0% Khoa (partially dehydrated condensed milk) 6.5% Milk Powder 3.5% Paneer (cottage cheese) 2.0% Others, including Cream, Ice Cream 1.0% SOURCE: (IUF, 2006) One of the noteworthy points of Indian dairy is that, it concentrates on milk production from cattle as well as buffaloes. The bovine population in India consist of 40 percent of native cows, 46 percent of buffaloes and 14 percent are the cross breed cattle or the European cattle breeds. Production of milk from buffaloes is about 55 percent and the remaining from dairy cows.

INDIA'S DAIRY PRODUCT MIX IN 2009:

Species

(In millions)

Cattle 185.2 Adult Female Cattle 64.5 Buffalo 97.9 Adult Female Buffalo 51

Total Bovines

283. 1

Goat124. 4SOURCE:(IUF, 2006)

PRODUCTION AND DISTRIBUTION:

Due to the rising population in India the demand for milk and other dairy products are escalating at approximately 6 to 8 percent that is double the growth rate of production. Majority of Indian population prefer for vegetarian and dairy based sources of protein thus leading to a raise in dairy prices and also a demand in dairy production as commercial activity. Indian dairy sector comprise of millions of farmers and they maintain a low production with an equivalent yield of any other country. Thus, the livestock feeding is majorly agricultural based products and crop residues although commercial feeding is available but not widely used. On the other hand there are some input intensive , high productivity dairy industries but they contribute to a minor segment of the total dairy produced. Indian dairy industry witness an annual growth of 4 percent, but this may alter slightly in future due to factors like fodder availability and monsoon conditions. Non Fat Dry Milk (NFDM) production depends primarily on the demand and flush season fluid milk availability. Considering the increase in fluid milk prices, the production of NFDM is set to increase (NDDB). The Cooperatives separately maintain pedigreed Jersey cattle in order to produce genetically superior bulls and cows. They also produce frozen semen straws from these jersey cows and supply throughout each state for artificial insemination of cattle. The National Dairy Research Institute of India develops various research and

processes and a continuous ghee making plant was developed in recent years which mechanically concentrates the fat and breaks down the fat in a water emulsion with the use of clarifixer and concentrator. This processing plant is adopted for larger volumes and a better recovery of fat whilst reducing thermal pollution (Chawla, 2009).

CONSTRAINTS TO EXPANDING DAIRY INDUSTRY:

Majority of the milk produced by the farmers are directly sold as fresh milk and due to the lack of hygienic handling of milk and the infrastructure in rural areas, the quality standards of the milk may vary with the international market standards. Even though the milk produced and sold directly into the markets may be reasonably clean, appropriate cold chain facilities should be improved in village collection centres which lead to the informal markets (Mathur, 2000). Another issue that India may face with regards to milk production is that live stock population is expected to increase by 2015. The live stock in India is majorly dependent on crop residues, agricultural by products and pasture based. The forest area, that was a key source for grazing is no longer available, leading to an increase in shortfall of the green fodder and dry fodder for the livestock. The prospects of improving the milk yield and quality of crop residues are restricted. This is because the increasing population in India demands more food grains and displaces the availability of fodder and grains for the live stock population. The most important cow management skills and expertise in India proves to be a challenge for many dairy farmers due to the low literacy rate in rural areas (Banerjee, 2006)

CONSUMER TRENDS:

Production of milk from buffaloes exceeds the milk produced from cows, but they do not exceed the milk production of cross bred cows, although unlike the cross bred cows, buffaloes are well adapted to heat and humidity of India. The Indian population consumes buffalo milk more than cow's milk due to the higher protein content. The informal market sector exists as few consumers regard raw milk and their products to be more dependable and of better quality than processed products. Another half are willing to pay the additional costs for packaging and pasteurization for clean milk. There appears to be a shift in the consumer trends towards value added dairy products and processed dairy products especially to the UHT milks and flavoured milk with longer shelf life. Western style cheeses, yogurts, dairy drinks and products with improved nutritional properties are emerging with popularity among the affluent Indian population. Although the affordability of these milk and dairy products differ widely across the Indian population(Manitra Rakotoarisoa, 2006).

LACTOSE INTOLERANCE:

The percentage of lactose intolerant population in northern India is 27. 4% and in southern India is 66. 6% of the total Indian population(Rakesh K. Tandon and Lal, 1981).

REGULATION OF MILK AND DAIRY PRODUCTS:

Food safety and Standards Authority of India is in charge of the food safety regulations in India. The FSSAI combined different food laws including the Milk and Milk products Regulation (MMPR) 2009 into one regulation called

the Food Safety and Standards Regulation, 2011. This food safety regulation controls the production, distribution and delivery of milk products. They set the sanitary requirements for the processing plants, machinery and location. They also set the quality control standards for milk and milk products. One of the recently set quality control for cheese is the prohibition on the use of animal derived Rennet. All these regulations and standards apply to food that are imported as well (Anand, 2009).

DAIRY EXPORTS AND LEAD PLAYERS IN DAIRY INDUSTRY:

The implementation of " Operation Flood" programme in 1971, imports of dairy products in India reduced to a major level and export of dairy products began. Most of the export products were casein, milk cream butter and other dairy food products. The large volume of export was observed in 2009. Due to the demand of processed milk by the urban consumers and increase in income levels left small amount of the surplus dairy for export. It is observed that the native milk products and desserts are gaining popularity with wide range of population across the world and could improve the future prospect for export of Indian dairy products (Team, 2007). The main players in processed milk products in the market are Amul, Britannia, and others include Vijaya, Verka and Vadilal and that of cheese are cheese Amul, Britannia, Dabur, Vadilal, Vijaya. The key producer of branded cheese in Indian market is the Gujarat Cooperative Milk Marketing Federation (GCMF) with its Amul brand. They are the pioneers in cheese market and developed cheese from buffalo milk while it was made from cow's milk all over the world. They were then joined by the Britannia industries. Amul marked the

beginning in dairy whiteners as well and became the leader in market with 45 percent share followed by 23 percent share of Nestle(Deepa, 2012).

INDIAN DAIRY EXPORTS BY PRODUCT TYPES (2008-2009)

SOURCE:(Chawla, 2009)

EXPORTS OF INDIAN DAIRY PRODUCTS BY COUNTRY

SOURCE:(Chawla, 2009)

INDIA'S DAIRY EXPORT DESTINATIONS BY VALUE

SOURCE:(Chawla, 2009)

CONCLUSIONS :

Indian Dairy Industry is exclusive considering the availability of buffalo milk and it should focus more on developing novel and speciality products from buffalo milk and meet the requirements of target consumers. Artificial insemination techniques are expected to grow further and commercial dairies continue to strengthening their existence. Support to farmers in regards with improved management, feeding the cattle and veterinary care should be extended(Purohit, 2010).