

## ENHANCING MILK PRODUCTIVITY & QUALITY IN INDIA

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To become globally competitive, India will need to create an efficient supply chain network through significant investment in infrastructure and human resources. R&D efforts need to be intensified for sustaining the cost of production, increasing milk yield per animal and its quality, fodder productivity and risk mitigation. This requires developing innovative farming models and motivating a large number of small milk producers to adopt them.

**M**ilk is a lacteal secretion obtained by complete milking of one or more healthy milch animals. For a healthy diet, milk is important as it provides all the beneficial health nutrients like carbohydrates, proteins, fats, minerals, enzymes and vitamins required for the human body. India observed 16<sup>th</sup> World Milk Day on June 1, 2016, third National Milk Day on November 26, 2016 and a decade of the integrated food law [Food Safety and Standards Act 2006]. The observance should be relevant to substantially improve milk yield per animal and its quality and wholesomeness. India as the leading global milk producer needs to ensure the availability of clean, pure and nutritious milk to all citizens, attractive returns to milk producers and an efficient and well-functioning dairy chain, be it in matters of production, processing or marketing.

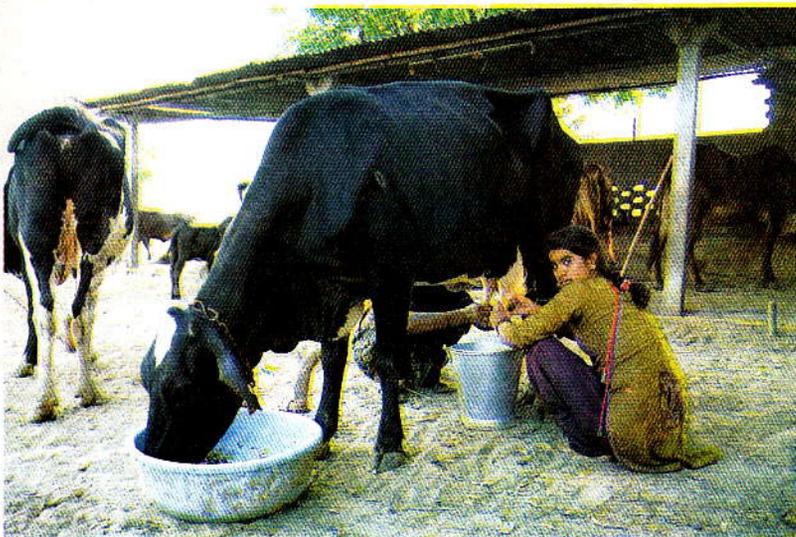
India needs to create significant awareness among all stakeholders to increase the production of milk & milk products to address country's nutritional security and livelihood of 80 to 90 million farm families. The need is to double the milk yield per animal and significantly improve the milk quality to conform to international standards. The dairy farming should become economically viable and financially bankable for small and marginal farmers [S&MFs] including agricultural labourers and internationally competitive.

### Milk Output:

India has the largest cattle population of 191 million in the world. Milk production was just 17 million ton [MT] in 1950 with annual growth rate

of only 1.2 per cent during 1950s and 1960s, which increased to 4.3 per cent, propelling India to be the largest milk producer in the world since 1998. A national milk grid is established where annually, over 13 million tons of milk is procured. In 2015-16, milk output is estimated to have increased to 160.35 MT and procurement of 42.162 million Kg per day.

India is also one of the largest consumers of milk and milk products in the world and the industry size is estimated at Rs.430 billion. During three decades (1982 to 2012), average milk yield of cattle and buffalo per day has grown from 1.9 kg to 3.9 kg and 3.7kg to 6.2 kg respectively. Although, the milk yield of cross bred cattle is 7.10 kg/day, it is also significantly lower than that in UK [25.6], USA [32.8] & Israel [36.6]. This can be attributed largely to factors, viz. (i) quite a large number of S&MFs, rural women and landless actively pursuing dairy farming have inadequate resources, technical know-how and low level of capability to manage cattle efficiently (ii) both



### Milk output [Million Ton] and Procurement [Million Kg/day] during 2008-09 to 2015-16

Year	Output	Procurement	Year	Output	Procurement
2008-09	112.18	25.156	2013-14	137.69	34.102
2009-10	116.43	25.864	2014-15	146.31	37.834
2010-11	121.85	26.202	2015-16	160.35	42.162
2011-12	127.90	28.706	% increase	42.94	67.60
2012-13	132.43	33.507	CAGR %	5.24	7.66

(Source: Express India dated 15-07-2016, harishdamodran@expressindia.com)

intrinsic (low genetic potential) and extrinsic (poor nutrition/feed management, inferior farm management practices, inadequate veterinary and extension services and inefficient implementation of breed improvement programs) (iii) inadequate investment & efforts in arresting the declining key natural grazing resources in particular.

Milk consumption is growing at around 6 per cent annually against 4 per cent rate of production. The per capita milk availability has increased from 120 gm/day in 1960 to 307 grams in 2013-14 and further to 359 grams in 2014-15. The National Dairy Development Board has projected the demand for milk at 200 MT by 2021-22. Government has invested Rs.22.42 billion to help meet a national demand of 150 million tons of milk by 2016-17.

#### National Dairy Plan:

On 19<sup>th</sup> April 2012, the NDDB launched a 15-year perspective National Dairy Plan [NDP] envisaging an outlay of Rs.173 billion which aims at increasing the productivity of milch animals by adopting focused scientific and systematic processes and help rural milk producers greater access to the organized milk processing sector. It will cover about 1.2 million milk producers in 23,800 villages and aims at increasing milk procurement by cooperatives from current level of 30 per cent to 65 per cent in next 15 years. The NDDB will implement through its end Implementing Agencies located in each of the 14 major milk producing States.

#### Strategic Action Plan:

To become globally competitive, India will need to create an efficient supply chain network through significant investment in infrastructure and human

resources. R&D efforts need to be intensified for sustaining the cost of production, increasing milk yield per animal and its quality, fodder productivity and risk mitigation. This requires developing innovative farming models and motivating a large number of small milk producers to adopt them. Linking the production system to the consumer demand and processing units requires a robust value chain, wide research and technology introduction. Strategic action plan should, therefore, focus on following aspects:

**Equal Status:** Dairy farming now deserves to be given equal status on par with agriculture, rather than its subsidiary status, in view of its share in agricultural GDP and employment. Village-level milk producing units should be brought in the organized sector and promoted in a systematic manner to convert existing individual sustenance dairy farms and traditional family farms into collective, community and commercial farms operating as business farms. This needs training and capacity building of dairy farmers [human resources] with focus on business-like operations, financial and marketing management.

**Data Base:** India should develop a system to compete with developed countries where every milch animal is tagged with a number and every drop of milk processed, value added, marketed and instantly recorded.

**Safety Standards:** The share of the supply or production should conform to the domestic, if not global food safety standards to check adulteration, lack of awareness and rigorous enforcement of Food Safety Standards and inadequate infrastructure comprising technology and trained manpower.

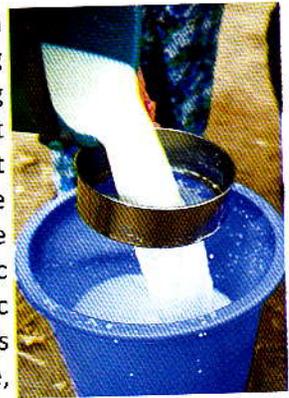
**Milk Production Environment:** The FSSAI has now launched a fresh nationwide Milk Surveillance in 2016 covering 29 States and eight Union Territories. This may be one of the key reasons for India's 0.4 per cent share in global export despite India accounts for 17 per cent of the global milk output. To tackle the situation, purchasing of electronic milk-testing machines, electronic weighing systems as well as chilling and transportation equipment is needed. If this is accomplished, the quality of milk collected directly from farmers will be better, unadulterated and relatively cheaper. The environment under which the milk is produced, collected, transported, processed and distributed should be fully conducive and that animal raising practices related to sanitation, quality of drinking water, feed and fodder, type the quality of pipelines etc. must ensure healthy milk. Farmers need to be trained/ guided to display high degree of hygiene and know-how of animal health care and nutrition.

**Organized Sector:** The organized dairy sector [comprising cooperatives and private sector] will have to progressively and systematically plan to expand their coverage of milk producers, penetrate into interior villages and improve their current share of marketable surplus from 30 per cent to 65 per cent by 2021-22. This would, in turn, make, available larger volumes of good quality milk at competitive prices to consumers.

**Strength of Cooperatives:** For 900 million people residing in 6,40,867 villages in India, dairying is not only just a large economic activity, but also an integral part of India's social and cultural heritage. Its uniqueness lies in its unifying power as no other industry touches lives of millions of farmers of which 70 per cent are landless. Dairy cooperatives as the peoples' institutions are the result of dairy farmers' entrepreneurship to exploit the potential of dairy markets in India. The need is to nurture dairy entrepreneurs through effective training of rural youths at the village level coupled with dedicated leadership and professional management of farmers' institutions/organizations.

**Cross-Breeding:** History records that a crossbred cow Jill (a combination of Irish bull and Haryana cow) gave 65 litres of milk per day in 1927 at National Dairy Research Institute, Bengaluru. This shows the extent of milk yield potential that

can be harnessed through scientific cross-breeding techniques. Cross breeding has been one of the most promising options, but not the only one. A more realistic approach can be to undertake systematic breeding and genetic upgradation of India's finest indigenous cattle, viz. Sahiwal, Red Sindhi, Gir, Kankrej and Rathi which are, in fact, good milk producers. An organised effort to conserve and propagate elite germplasm from nucleus breeding herds will facilitate poor farmers to rear *desi* cattle more economically.



**Artificial Insemination:** At present, there are 51 semen stations in India with a production capacity of 81 million doses /year against the current demand of 100 million doses for bovine semen and 150 million doses in the next few years. Most of the semen stations cater to the demand for buffalo semen and germplasm of exotic and cross bred cattle. The country needs to increase trained manpower including veterinary personnel to provide quick services, provide quality equipment and appropriate training .

**Feed Management:** Application of technology to produce large scale feed blocks, feed enzymes and other innovative feed resources, needs to be deployed. Effective implementation of the Ration Balancing Programme of NDDB and Accelerated Fodder Development Programme of the Government can ensure better feed availability and improved nutrition.

**Veterinary Services:** An authentic, updated database for diseases is required for identification, onward prevention and control. Infrastructure of vaccine and diagnostic production units, semen stations and breeding farms that are largely owned by the government can take help from private sector.

**Market Access:** Dairy industry's potential for inclusive/equitable growth and income distribution in villages can be harnessed by enhancing market access and offering stable and remunerative prices to farmers. Integrating dairying and crop farming

with value chain system can be a better source of sustainable livelihood of rural poor and most vulnerable families.

**Export:** India contributes about 17 per cent of the global milk output but its share in global export is insignificant at 0.4 per cent. A large quantity of milk still remains unprocessed. India is surrounded by countries and regions that are milk-deficient viz. Bangladesh, China, Singapore, Thailand, Malaysia, Philippines, Japan, the UAE, Oman and other gulf countries all of which, are located close to India. India, therefore, needs to have a systematic research and feasibility studies under Public-Private-Partnership mode to explore these hitherto unexploited international markets and initiate specific policy and programs on lines of Agricultural Products Export Development Authority in consultation with Union Commerce Ministry, Indian Institute of Foreign Trade and Indian embassies in these countries. Rich experience of the Gujarat Cooperative Milk Marketing Federation can be fruitfully utilized in the area of export of milk and milk products.

**Best Practices:** Resourceful farmers in India can be motivated and incentivized to learn best and successful practices being followed in other countries. For example, Super Cows in Israel produce 12,000 litres milk a year because of superior breeding techniques, balanced nutrition, and management practices including better health care.

**Surplus Milk Production in Developed Countries:** Liberal subsidies, accompanied by

application of science and technology, have been instrumental to make the few resourceful farmers in developed countries capable to produce surplus milk. For the first time, the ministerial conference of the WTO in December 2015 in Nairobi had legally bound the member countries to remove subsidies and promote free trade in farm produce. Withdrawal of subsidy obviously would limit the surplus milk production and arrest the fall in international prices.

Not only the surplus milk production in the EU the US, New Zealand and Australia have already caused decrease in milk prices but under the provision of Free Trade Agreement [FTA], these major nations producing surplus milk will exert sufficient pressure to allow them duty-free exports of their products to India. If this happens, it would be unfavorable to the interest of 80 to 90 million families to sustain their livelihoods, leave alone making a decent living. World Trade Organization, on one hand has opened up the opportunities in international trade by increased market access and worldwide reduction in import tariffs. However, in practice, these are being used as potent tools by developed countries to not only obstruct entry of dairy and other agricultural products from developing countries, but also distort the free and fair operation in the international markets.

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#### **National Milk Day celebrated on the birth anniversary of Dr. Verghese Kurien, the Father of White Revolution**

National Milk Day was celebrated in India on the birth anniversary of Dr. Verghese Kurien, the Father of White Revolution. Dr. Kurien's contribution in organizing the dairy farmers in the form of cooperatives is very well known. The Union Minister for Agriculture stated that, the milk production has recorded a growth rate of 6.28 per cent during last two years 2014-15 and 2015-16, which is much higher than the growth rate of around 4 per cent in the previous years. Also, the per capita availability of milk increased from 307 gram per day in 2013-14 to 340 grams per day in 2015-16, a growth of 5%. India is world leader in milk production since last 15 year and credit of making India as world leader in milk production goes to small producers. Still, a lot of work is to be done in the sector in order to make available sufficient nutrition and milk to every child in the country. To meet the ever growing demand of milk and to make milk production more remunerative to the farmers, Government has also initiated new scheme National Mission on Bovine Productivity with an allocation of Rs 825.00 crores.