

WHITE REVOLUTION-II IN INDIA AN ANALYTICAL STUDY ON INDIAN DAIRY INDUSTRY

SRINIVASA RAO KASISOMAYAJULA

Associate Professor, KLUBS, Koneru Lakshmaiah University, Vaddeswaram, Andhra Pradesh, India

ABSTRACT

Dairy industry is of crucial importance to India. The country is the world's largest milk producer, accounting for more than 13% of world's total milk production. It is the world's largest consumer of dairy products, consuming almost 100 per cent of its own milk production. Dairy products are a major source of cheap and nutritious food to millions of people in India and the only acceptable source of animal protein for large vegetarian segment of Indian population, particularly among the landless, small and marginal farmers and women.

KEYWORDS: Dairy Industry, Milk Producer

INTRODUCTION

Dairying has been considered as one of the activities aimed at alleviating the poverty and unemployment especially in the rural areas in the rain-fed and drought-prone regions. In ancient and middle ages the place of cattle in the economic and social life of people gained importance. By the time the Britishers came to advent India; the little republics (villages) were flooded with milk animals, occupying a unique position among the world nations. India has emerged as the largest world producer of milk with an annual production of 100 million tonnes in 2007, surpassing the production of 88 million tonnes by USA in that year. The milk production in the country quadrupled from 23 million tonnes in 1973 to 100 million tonnes in 2007, with the remarkable annual growth rate of 4.5 per cent as against the world's average of about one per cent. Consequent to the New Economic Policy, 1991 and amendments to the Milk and Milk Products Order (MMPO) 1992, India offers a level playing field to Indian and foreign investors alike to invest in dairying both with a view to serve domestic and export markets. India got further boost with the signing of Uruguay Round Agreement on Agriculture (URAOA) in 1994, eventually culminating in the establishment of the World Trade Organization (WTO) in 1995. The dairy industry was de-licensed in 1991 and the private sector, including Multi National Companies (MNCs), was allowed to set up milk processing and product manufacturing plants. As efficiency is the key factor in privatization policy. Public Private Partnership in Indian dairy Industry initiated white revolution-II on May, 2010

Global Dairy Scenario

In the world about 2450 million people are involved in agriculture, out of which probably two-thirds or even three-fourths are completely or partially dependent on livestock farming. Until recently many countries have considered milk too bulky and perishable to make long-distance trade feasible. Therefore, they developed capabilities satisfying domestic liquid milk requirements through domestic dairy industries or depended on milk product imports, or a combination of both. For these various reasons, most dairying nations have a complex mechanism to regulate their dairy industries through interventions, financial supports and physical controls. Cooperatives dominate dairy industry. In the United Kingdom, all the milk produced by farmers is procured by cooperatives. There are no private sector dairy plants in

New Zealand. A total of 90 per cent of the dairies in former West Germany are cooperative, and in Denmark, Netherlands and Sweden the entire dairy industry is organized on cooperative lines. In the USA, 70 per cent of the dairy industry is in cooperative sector. Dairy programmes are subject to significant government participation and regulation than most other domestic agricultural industries in the USA. There are several laws to encourage dairy cooperatives and protect the interests of the farmers.

Table 1: Milk Production in India vis-à-vis Other Countries: From 1998 to 2004 (In '000 tonnes)

Country	Years						
	1998	1999	2000	2001	2002	2003	2004
India	71300 16.35%	71900 16.47%	76490 17.12%	79490 17.46%	81855 -17.72%	84380 -17.96%	88000 -18.54%
USA	71377 16.37%	73807 16.91%	76004 17.02%	75608 -16.6%	77139 -16.69%	77252 -16.44%	77220 -16.27%
Russia	33197 7.63%	33140 7.59%	31938 7.15%	33000 -7.25%	33467 -7.24%	33300 -7.09%	33000 -6.95%
Germany	28378 6.51%	24334 5.57%	28331 -6.34%	28191 -6.19%	27874 -6.03%	28533 -6.07%	28100 -5.92%
France	24763 5.70%	21461 4.91%	24975 5.59%	24909 -5.47%	25254 -5.46%	24590 -5.23%	24200 -5.1%
Brazil	21630 4.97%	21700 4.97%	22134 4.95%	22580 -4.96%	22635 -4.9%	23000 -4.9%	23500 -4.95%
China	6621 1.52%	8460 1.93%	8420 1.88%	10255 -2.25%	12998 -2.81%	17463 -3.71%	19000 -4.00%
United Kingdom	14632 3.35%	15015 3.44%	14489 3.24%	14707 -3.23%	14869 -3.21%	15017 -3.2%	14714 -3.1%
New Zealand	10500 2.40%	11900 2.73%	12700 2.84%	13300 -2.92%	13900 -3.00%	14450 -3.08%	14500 -3.06%
Ukraine	13738 3.15%	11172 2.56%	12658 2.83%	13444 -2.95%	14142 -3.06%	13658 -2.9%	13200 -2.78%
Other Countries	139726 32.05%	143404 32.86%	138391 30.99%	136320 29.94%	137795 29.84%	138081 29.40%	139200 29.33%
Total	435862	436293	446530	455218	461928	469724	474614

Source: <http://www.dairyinfo.gc.ca/pdf>; Figures in parenthesis are percentages to respective low totals

Table 1: present milk production in India as compared to other top nine producing countries of the world for 7-year period, 1998 to 2004. It is heartening to note that India's percentage share in total world milk production has kept upward trend, competing with USA for top position. The combined share of top ten countries in milk production covers around 70 per cent throughout the reference period. In the year 1998 India's milk production was on par with USA, which was ranked first by producing 71.4 mt of milk in that year. India held the second rank in the production of milk to the tune of 71.3 mt in the same year. India overtook the United States in milk production in the year 1999 by producing 74.6 mt of milk, as compared to the 73.84 mt production of milk in USA. With the volume of milk production of 83 mt in the year 2004, India became number one milk producer in the world.

Growth of Dairy Sector

The green revolution has now reached stagnation. In such a case, there is a need for diversification of crop production system by greater integration of livestock and inland fisheries. Fortunately, various government initiatives through the promotion of dairy cooperative movement under Operation Flood Programme and several other dairy production schemes have resulted in augmenting milk production at an average annual growth of 4.5 per cent. The implementation of Operation Flood brought a "White Revolution" in India with milk production increasing from

21.2 million tonnes per annum in 1968-69 to 66 million tonnes by 1995-96, at the end of project period. The Indian dairy sector owes its success to millions of small producers who have one or two milk animals yielding 3-4 liters of milk per day. Annual milk yield of dairy animal in India is about one-tenth of that achieved in the USA and about one-fifth of the yield of a grass-fed New Zealand dairy cow. Dairying has increasingly become a part of the state's anti-poverty programme. Organizations like the Small Farmers Development Agency (SFDA) and the Integrated Rural Development Programme (IRDP) give priority to dairy development projects as an instrument for uplifting the economic conditions of the weaker sections of the rural population. Dairying in India is considered as a sub-system of the farming system, for the milk animals are generally fed with crop residues, agricultural wastes, compound cattle feed and oilseed cakes. The cost of milk production in India is one among the lowest in the world. Dairying in India, through the small herd dairy systems with feeding practices that do not place pressure on land, has significant competitive advantages. The low capital investment and steady returns make dairying a coveted activity among the marginal and small farmers and even the landless, which depend for fodder on common grazing and forest lands. India has 2 per cent of the geographical area of the world and supports about 18 per cent of the world's cattle population, but it contributing only around 14 per cent of the world's milk output. Dairy farming contributes to prosperity of rural folk in more than one way. The Royal Commission on Agriculture observed that the cow and the working bullock carry on their pertinent back the whole structure of the Indian agriculture.

Table 2: Share of Livestock Sector in GDP (Rs. In Billions)

Sl. No.	Year	GDP	Value of Live Stock Products	
			Live Stock Production	Live Stock to GDP %
1	1986	2338	139	5.95%
2	1987	2600	156	6.00%
3	1988	2949	183	6.21%
4	1989	3527	217	6.15%
5	1990	4087	275	6.73%
6	1991	4778	308	6.45%
7	1992	5528	375	6.78%
8	1993	6307	432	6.85%
9	1994	7813	507	6.49%
10	1995	9170	577	6.29%
11	1996	10733	650	6.06%
12	1997	12435	747	6.01%
13	1998	13901	819	5.89%
14	1999	15981	911	5.70%
15	2000	17618	992	5.63%
16	2001	19030	1093	5.74%
17	2002	20910	1187	5.68%
18	2003	22495	1209	5.37%

Source: <http://www.nddb.org/statistics.livestock-sectors9.html>.

The growth pattern of the livestock production vis-à-vis GDP during 1986 and 2003 is furnished in table: 2. It can be observed livestock production was Rs.139 billion in the initial year 1986 which increased to Rs.1209 billions in the terminal year 2003, recording 770 per cent increased over 17 year period. Live stock production as percentage GDP has been fluctuations between the lowest of 5.37 per cent in 2003 and the highest of 6.85 per cent in 1993.

Growth of Crossbreed Cows vis-à-vis Indigenous Cows

Successive rounds of livestock census have clearly established the speed with which crossbreeding has spread in different parts of the country since its beginning in 1960s portrays growth pattern of livestock population in India in the reference period, 1986 to 2003. Adult female cattle percentage of cattle was highest 35 per cent in 1951 and lowest at 29.40 per cent in 1961. Adult female buffalos percentage of buffalos was highest at 52.05 per cent in 2003 and lowest at 47.46 per cent in 1961. Total bovines as percentage of total livestock was highest at 67.86 in 1951 and lowest at 58.17 percent in 2003. From the preceding analysis it can be concluded that the proportion adult female buffaloes in total buffaloes population has been higher has compared to the proportion of adult female cattle to total cattle population. Further proportion bovine population in total livestock has shown consistent down trend. (Table 3)

Table 3: Growth Pattern of Livestock Population in India (Rs. In Millions)

Year	Cattle	Adult Female Cattle		Buffa-Loes	Adult Female Buffaloes		Total Bovines		Total Live Stock
1	2	3	4=3/2	5	6	7=6/5	8=2+5	9=8/10	10
1951	155.3	54.40	-35.02%	43.4	21.00	48.38%	198.70	67.86%	292.8
1956	158.7 0.43%	47.30 -2.76%	29.80%	44.9% 0.68%	21.70 0.66%	48.33%	203.60 0.49%	66.41%	306.6 0.93%
1961	175.6 2.04%	51.00 1.52%	29.04%	51.2 2.66%	24.30	47.46%	226.80	67.62%	335.4
1966	176.2 0.07%	51.80 0.31%	29.40%	53.0 0.69%	25.40	47.92%	229.20	66.61%	344.1
1972	178.3 0.24%	53.40 0.61%	29.95%	57.4 1.61%	28.60	49.83%	235.70	66.69%	353.4
1977	180.0 0.19%	54.60 0.45%	30.33%	62.00 1.55%	31.30	50.48%	242.00	65.58%	369.0
1982	192.5 1.35%	59.21 1.63%	30.76%	69.78 2.39%	32.50	46.57%	262.40	62.51%	419.6
1987	199.7 0.74%	62.07 0.95%	31.08%	75.97 1.71%	39.13	51.51%	257.80	61.91%	445.3
1992	204.6 0.48%	64.36 0.73%	31.46%	84.21 2.08%	43.81	52.02%	289.00	61.33%	470.9
1997	198.88 -0.56%	64.42 0.02%	32.39%	89.92 1.32%	46.77	52.01%	288.80	59.50%	485.4
2003	185.18 -1.18%	64.51 0.02%	34.84%	97.92 1.43%	50.97	52.05%	283.10	58.37%	484.9
2007	199.08	72.95	38.64%	105.34	58.16	54.02%	295.64	62.8%	491.8

Source: GOI, Basic Animal Husbandry Statistics,

Note: Figures in parenthesis expressed Annual Growth Rates of Livestock population

Table 4: Milk Production in India (In Millions)

Year	Production (Tonnes)	Human Population (Mln. Nos.)	Yearly Wise Change	Per Capita Availability Grams / Day
1950-51	17.0	359	---	124
1960-61	20.0	434	5.26	124
1970-71	22.0	530	3.77	112
1980-81	31.6	679	8.54	128
1990-91	53.9	839	3.33	176
2000-01	80.6	1019	2.94	220
2001-02	84.8	1040	5.21	235
2002-03	86.2	1056	1.65	230
2003-04	88.1	1072	2.2	231
2004-05	92.5	1089	4.75	233

Table 4: Contd.,

2005-06	97.1	1106	5.00	241
2006-07	102.6	1122	3.00	245
2007-08	107.9	1138	3.00	249
2008-09	112.2	1154	3.00	252
2009-10	116.4	1170	4.54	255
2010-11	121.8	1186	4.94	281

Source: www.nddb.org/statistics/milkproduction.html.

Table: 4 show the milk production and per capita availability of milk during 1951-2010. It can be observed that there is a steady growth of milk production over the years. Despite India being the largest milk producer in the world, its per capita milk availability is one of the least in the world. It can be also noted that the per capita availability of milk, which declined during the 1950s and 1970s from 124 grams per day, increased substantially in 1990s and reached about 235 grams per day in 2002. In the year 2010, the per capita availability of milk was 255gms per day which was higher more against the requirement of 220 grams per day as recommended by Indian Council of Market and Research (ICMR) 2008. Milk production is anticipated to reach 127.3 million tonnes at the end of 11th Plan (2011-12) as compared to 121.8 million tonnes in 2010-11 and 107.9 million tonnes at the beginning of the 11th Plan (2007-08). The per capita availability of milk has increased from 260 gram per day in 2007-08 to 281 gram per day in 2010-11. The shares of milk production in 2010-11 by exotic/crossbred cows, indigenous/non descript cows, buffaloes and goats was 24.3 %, 20.8 %, 51.2 % and 3.8 % of total milk production respectively.

CONCLUSIONS

Milk production in India has come a long way over the years from a low volume of 17million tonnes in 1951 to 110 million tonnes in 2009 which is projected to reach 115 million tonnes in 2010. Today India is the world leader in milk production and the Indian dairy industry stands at mammoth size of US \$70 billion. The Indian dairy industry presently contributes 15 per cent to the total milk production of the world. Share of livestock sector hovers round 5 per cent of GDP of India. Bovine population constitutes 58 per cent of livestock population in India in 2002. India with 19 per cent share in world milk production closely followed by USA with 16 per cent share. Yearly percentage changes in milk production have been constitutently positive. Per capita availability of milk in India was 245 grams per day in 2007. Anand model of cooperative milk cooperative structure integrates rural producers and urban consumers. Replication of model led to phenomenal growth of societies and membership.

REFERENCES

1. BPM Reddy, 2010. "Development of Dairy Industry with special reference to Nandi Dairy", ASIA PACIFIC JOURNAL OF SOCIAL SCIENCES, Vol.2, PP.193-208.
2. Economics Review 2004, State Planning Board, Thiruvantapuram, 2005, p. 78.
3. Pradeep S Mehta "Indian Dairy Sector: the Challenges Ahead," Indian Dairyman, Vol .56 No. 10, 2004, p.153.
4. Ravishankar "Policy and Regulation-Influencing of Milk Producers", Indian Dairyman, Vol.55, No.3, 2003, p.100.

5. P.S. George and K. N. Nair, "Livestock Economy of Kerala", Trivendrum, Centre for Development Studies, 1990, p.5.
6. K. P. Reddy, "Initiatives for Achieving Excellence: Indian Dairy Industry Scenario," Indian Dairyman , Vol,56 no.10, 2004, p..46.
7. Kulandaisamy, 1986. Co-operative Dairying in India, Rainbow Publications, Coimbatore,
8. S. K.Bhanj and Hema Tripathi, 2004. "Strategic Interventions through Dairying for Rural Development", Journal of Rural Development, Vol. 23(1), p83.
9. C. Gnana. 2004. Production and Marketing of Milk and Milk Products: A study, Tamilnadu Journal of Co-operation, p.10.
10. C. Pichai & R.Selva Raj (1999), India's Production of Milk and Milk Products, Vis-à-Vis the World Dairy Scenario. Tamilnadu Journal of Cooperation, Vol. 91, No.5, P.26.